ARRL 10 Meter Contest 2019 Full Results

By: Scott Tuthill, K7ZO(k7zo@cableone.net)

Note- There were some log checking issues noticed after the initial publication of this Final Results article. We have since corrected the issue, and have corrected the scores in this article.

"Pining for the return of sunspots!!" – Geoff, W0CG

That was the general summary from most operators after the conclusion of the 47th running of the ARRL 10 Meter Contest. Held December 14 and 15, 2019, overall propagation worldwide returned to more typical bottom of the solar cycle conditions. While the 2018 contest had some better than expected conditions, notably in North America, they were just a tease. Wolfgang, NN7CW, summarized the weekend pretty well: "I was hoping for 2018 conditions, but we got 2017 propagation instead." Yes, we are still at the solar cycle bottom.

Compared to 2018, total logs submitted worldwide decreased 2% to 1,866. The operators who got on their radios for this contest weekend were the true stalwarts of the hobby. The same who would continue to play their favorite outside sport in a raging downpour. Total reported contacts fell 26% to 112,594 worldwide. On the bright side, both these counts were better than 2017 levels. Let's hope that things only get better from here.

The highest total of states worked was 45 by both NV9L and WØAIH. In 2018, N4BP managed to work 49 reflective of the better conditions that year. Looking back at 2017 the highest number of states worked was 42. So, again, 2019 was much more like 2017 that it was 2018. Even with the generally poor conditions there were quite a few new World Records set in 2019. At the W-VE-XE level there were 3 new Division records and 25 new Section records. At the DX Entity level 17 new records were set. Many of these records were first submissions for the category and many were at QRP power levels of 5 watts or less. If you commit to operate QRP in a year like 2019, you deserve to be recognized!

As is always the case, 10-meter conditions were not uniform around the world. While 2019 was overall poorer than 2018, conditions in Europe were actually much better. Total reported contacts in Europe increased 118%, logs submitted increased 45%, and contacts per log increased by 51%.

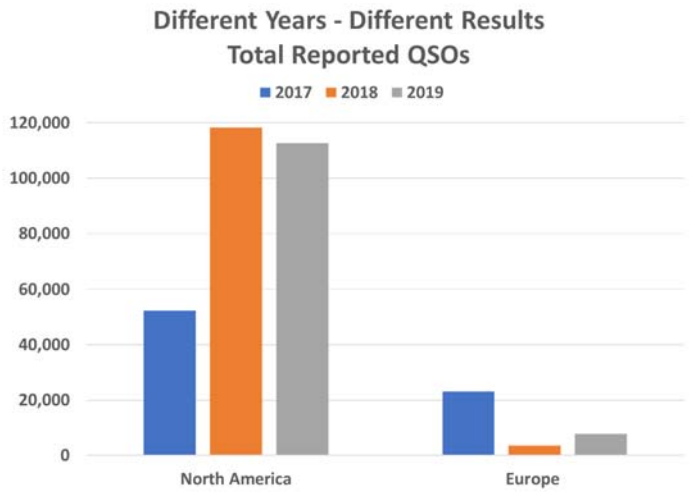

Figure 1 – North America and Europe QSO Comparison

Conversely, North America experienced poorer conditions than in 2018. Total contacts decreased 24% and contacts per log decreased 25%. Total logs submitted stayed about the same. You have to give credit to the operators who, faced with obviously poorer conditions than 2018, stuck it out and turned in a log. It may be that the fast start on Friday night gave them hope of an overall uptick in conditions. But those hopes were dashed as Saturday morning played out. We will take a look at the Friday night conditions later in this article.

The antenna farm at the PX2A contest station in Brazil, with the stacked beams pointed toward North America. The team scored a second place finish worldwide in the Mulitoperator, High Power category. (Fernando Cordoba, PY2LED, photo)

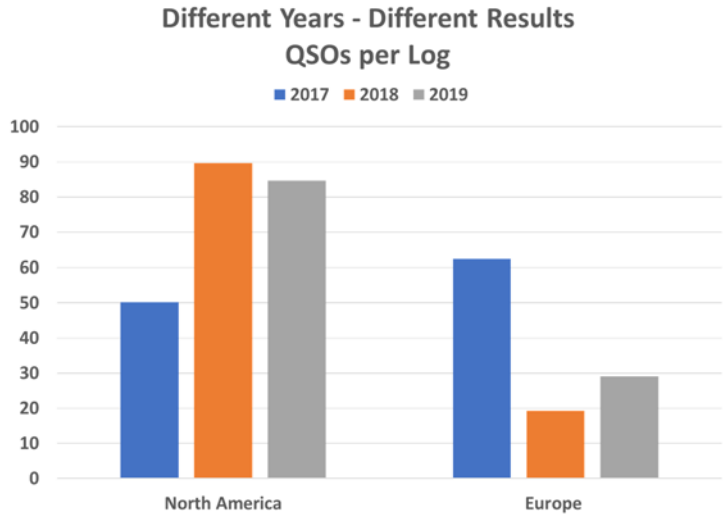

Figure 2 – North America and Europe contacts per log

Comparison

One overall trend that continued from 2018 was the preponderance of intra-continental contacts. [Meaning both stations in the contact were on the same continent.] As the solar cycle has worked its way toward the bottom, long distance inter-continental contacts have dwindled. [An inter-continental contact is where the two stations in the contact were on different continents.] After peaking at well over 50% during the solar maximum in 2013 and 2014, in 2019 the percentage of inter-continental contacts dipped to a new low of 15%. And, the total number of such contacts were 15% below the prior minimum in 2017.

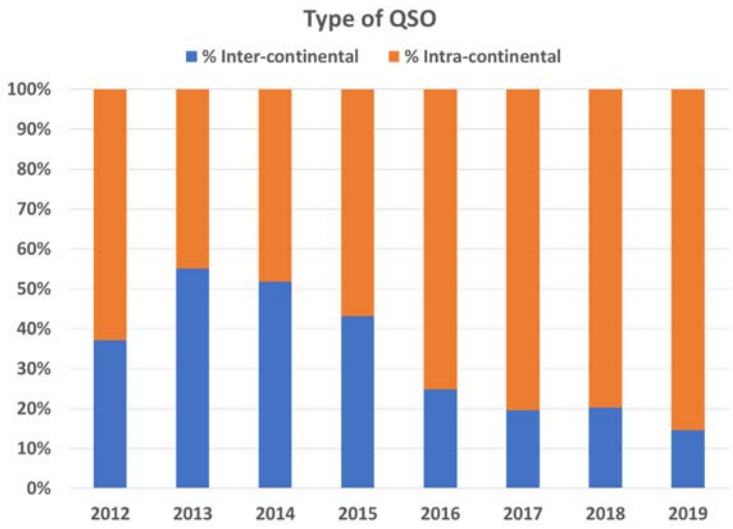

Figure 3 – Trends in Contact Types

The vast majority of inter-continental contacts are now on North-South paths. South America to North America and Oceania to Asia are pretty much due North-South. Over 80% of the reported inter-continental contacts were on these two paths. However, keeping to the theme of an overall poor 2019, the South America to North America path saw contacts shrink by about 50% from 2018. Oceania to Asia was even worse, seeing an over 75% reduction. Historically, with slightly better propagation, North-South propagation paths widened east and west on both ends. For example, South America to Europe and South America to Asia are such paths. While these paths performed poorly in 2018, they saw a 55% increase in contacts in 2019. This is a welcome improvement for sure for stations in those continents and somewhat counter to the overall propagation trends for the year.

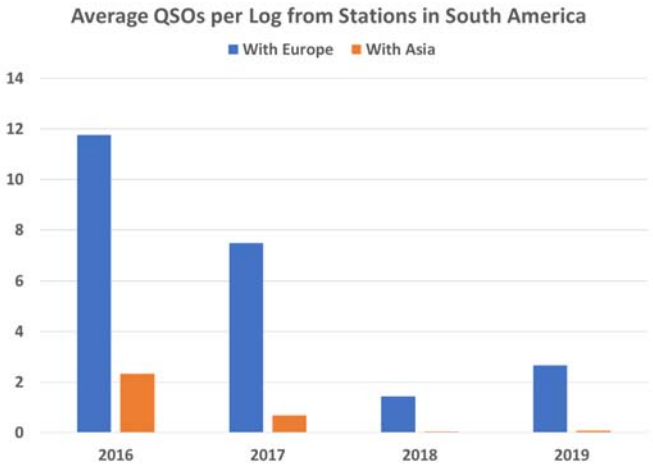

Figure 4 – Contact Trends for stations in South America

Inter-continental contacts on East-West paths like Europe to North America, North America to Asia, and Asia to Europe are largely shut down. In 2019 there were only 300 contacts reported on these paths in total. Which, while minimal, was five times the number in 2018. One station, CT1ILT, was involved in 40% of these contacts. And, of the 300 total contacts, 99% of them were CW (it's the mode that gets out in poor conditions).

Lack of inter-continental propagation also impacts DXCC country multiplier counts. Operators in South America missed many of their usual Europe and Asia multipliers, as well as in 2019 North America, meaning their scores suffered. South America managed just 8 worldwide category wins again in 2019, just like 2018. With better long-distance propagation in 2017 they captured 14 top spots. The benefactor of the propagation change was North America where operators managed 12 worldwide category wins again in 2019, the same as in in 2018. For comparison in 2017 they captured just 3.

Off to a Quick Start

One other similarity to the 2017 edition was the fast start to the contest. Just as in 2017 there was a wide ranging and long-lived E-skip opening in North America right at the start of the contest. *[For more information on E-skip openings, see the Expanded Results Article for the 2016 ARRL 10 Meter Contest. This can be found online at the ARRL Contests portal – contests.arrl.org. Look in the 10 Meter section.]* Operators who were in front of their radios at the opening bell had a fun filled few hours. As two operators commented afterwards:

- Tim, N6GP, "Caught the great Sporadic E opening for about 1.5 hours before going to a Christmas Concert. Never seen an opening like that where I worked all 7 area states (KL7 excepted). "

- Bob, NCØB, "Thank goodness for the Friday evening Sporadic E opening both to the west and later east of Colorado."

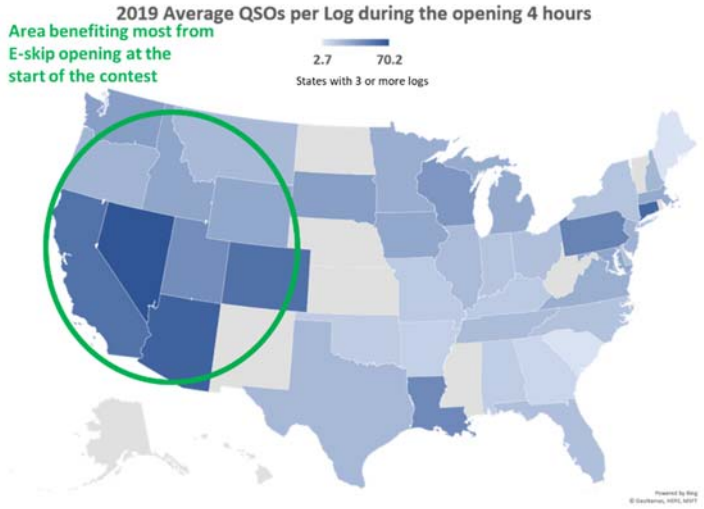

Figure 5 – E-skip opening in the western US

If contacts were spread evenly across the whole contest weekend you would expect about 8% or so of all the contest contacts during the first four hours. In high sunspot years, because of the distribution of operators around the world and where daylight is at the start of the contest, history shows that about 4-5% of all contacts are during the first four hours. So, in 2019 when 22.5% of all the contest contacts were in the first four hours, that was well beyond what was expected. It even exceeded the 19.9% level seen during 2017, which at the time, seemed to be as high as it could ever get. Little did we know.

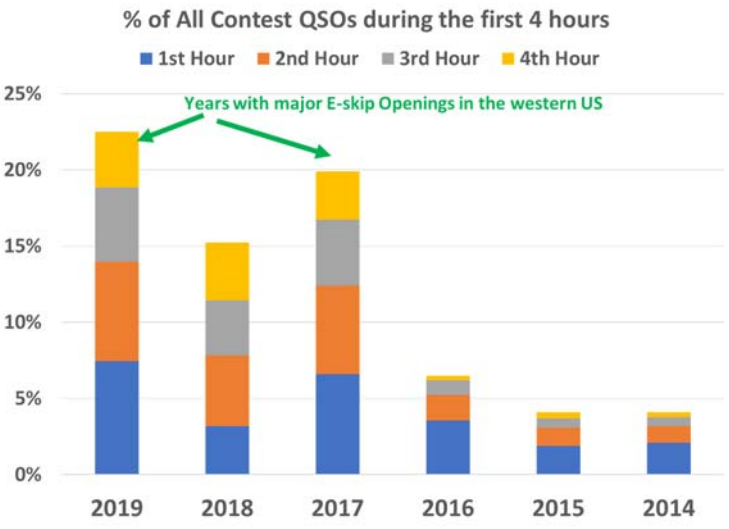

Figure 6 – Contacts during the first four hours of the contest

When a situation like this occurs, it affects the psyche of the whole contesting crowd. Early

enthusiasm and hope experienced Friday night becomes dashed come Saturday morning when the band returns to its low sunspot doldrums. Instead of enjoying the memory of a few good hours, operators bemoan the misery of the rest of the weekend. To the credit of many though, they did stick in there, kept trying to make contacts, and when it was over, sent in a log. But, at this point in the solar cycle it is just not reasonable to expect anything more than a few good hours, an opening here, and opening there, etc. Most operators, in general, will enjoy the weekend more by celebrating the high points, and forgetting the low points. And always – be on the lookout for band openings to make some contacts.

Category Winners and New Records

Here are the overall worldwide category winners for 2019. Congratulations to them all for persevering in a tough year.

Single Operator, Mixed Mode, High Power	
WØAIH (NE9U, op)	295,000
Single Operator, Mixed Mode, Low Power	
L55D (LU5DF, op)	133,084
Single Operator, Mixed Mode, QRP	
WA6FGV	4,704
Single Operator, Phone Only, High Power	
CV7S (CX7SS, op)	48,256
Single Operator, Phone Only, Low Power	
CA4PSH	21,090
Single Operator, Phone Only, QRP	
TG9ANF	1,650
Single Operator, CW Only, High Power	
K1TO	211,440
Single Operator, CW Only, Low Power	
LU6DOT	63,720
Single Operator, CW Only, QRP	
N5OE	2,856
Single Operator Unlimited, Mixed Mode, High Power	
N8OO	311,976
Single Operator Unlimited, Mixed Mode, Low Power	
K9OM	105,190
Single Operator Unlimited, Mixed Mode, QRP	
EB1RL	4,932
Single Operator Unlimited, Phone Only, High Power	
LU1DX	33,158
Single Operator Unlimited, Phone Only, Low Power	
K2DRH	10,582
Single Operator Unlimited, Phone Only, QRP	
K2GMY	518
Single Operator Unlimited, CW Only, High Power	
NN7CW	157,456
Single Operator Unlimited, CW Only, Low Power	
CX2BR	88,440
Single Operator Unlimited, CW Only, QRP	
NØUR	1,248
Multioperator, Single Transmitter, High Power	
LW8DQ	309,248
Multioperator, Single Transmitter, Low Power	
N4SVC	46,464

Note the number of North American stations as category winners. The lack of the usual South America to Europe and Asia paths greatly reduced their multiplier opportunities. This offered a chance for stations in North America to rise up in the standings. In 2017, 14 of the 20 category winners were from South America. In 2018 and 2019 just eight category winners were from South America.

Special mention goes out to four operators who were repeat winners in the same category they won in 2018. They were:

- CX7SS operating as CV7S in the Single Operator, Phone Only, High Power category,
- N5OE in the Single Operator, CW Only, QRP category,
- K9OM in the Single Operator Unlimited, Mixed Mode, Low Power category, and
- K2DRH in the Single Operator Unlimited, Phone Only, Low Power category

N8OO and NN7CW were back to back winners as well, but in different categories.

Looking at these top category scores as compared to last year's demonstrates one other measure of 2019's depressed conditions. The worldwide high score in 19 of the 20 categories decreased from 2018. On average these scores were just 50% their comparable 2018 scores. Additionally, there were decreases in the stateside multiplier counts of the top

stations. NV9L and WØAIH managed to work just 45. In 2018, N4BP worked 49 just missing Alaska for the WAS sweep. In 2017 the top state multiplier count was 42 by KTØK.

In a year like 2019 being able to set a new all-time record is a tough challenge. In fact, no new World, W-VE-XE, or DX records were set. No new DX Continent records were set but three W-VE-XE Division records were set by operators making the first ever category entries. N2KW is the record owner in Single Operator Unlimited, Mixed Mode, QRP category in the Hudson Division. This makes the third Division record owned by him. He also owns the records for Single Operator Unlimited, CW Only, QRP category in the Hudson Division and the Single Operator Unlimited, CW Only, Low Power category in the New England Division. WA7NWL is the record owner in the Single Operator Unlimited, Phone Only, QRP category in the Southwestern Division. And, finally, KI9A is the record owner for the Single Operator Unlimited, CW Only, QRP category in the Central Division. This is also a call area record. You must give all these operators credit for operating QRP in a year with minimal propagation!

More broadly, 42 W-VE-XE Section and DX Entity records were set in 2019. A slight reduction from 56 such examples in 2018 but still a large increase over the 6 in 2017. Here is another example of where operators were able to overcome the relatively poor conditions in 2019 and set some new all-time records. Well done all.

Club Competition

Club competition continues to be a popular and fun aspect of this contest. Operators get a chance to be part of a team while still operating from their home QTH. For many operators it is motivating to get on the air to make some points for their club or to compete for honors against rival club members. Many operators mention in their soapbox comments something similar to: "Wanted to get on the air to make some points for our club." Just a way to have some fun on a December weekend.

In 2019 a total of 719 operators submitted logs that were also credited towards ARRL Affiliated Club Competition. This means about 55% of the W/VE operators were part of one of the 50 different clubs that participated. Given the conditions this year club organizers were key in motivating folks to get on the air. Way to go club organizers!

In the Local Category, The Villages Amateur Radio Club (TVARC) took top honors among the six clubs in this category. Moving up from 7th place in 2018, with their win they dethroned the Central Virginia Contest Club who had won 6 out of the last 7 years! Well done TVARC. Their success formula was having high-scoring entrants, the second highest of any club in this category.

In the always popular and competitive Medium category, 41 clubs fought it out. Total entries were up nicely from the 36 that entered in 2018. When it was all over Florida Contest Club (FCG) leveraged their propagation advantage and, as in 2018, ended up in the top spot. Unlike in 2018 where they lapped the field several times, they had some real competition in 2019. The Yankee Clipper Contest Club had more entrants as did the Society of Midwest Contesters. FCG though had a category-high score per entrant and that is what powered them to victory. In fact, their score per entrant was 30% higher than second place Alabama Contest Group. And FCG's score was just 5% below the winner of the Unlimited Category. Florida's propagation and club organization has led them to solid wins the last couple of years.

In the Unlimited category only three clubs fought it out in 2019. Congratulations to the 91 members of the Potomac Valley Radio Club (PVRC) who came out on top by a comfortable margin over the Frankfort Radio Club (FRC). This win means the PVRC has now won the Unlimited category 7 of the last 8 years. PVRC's success formula for 2019 was, as it was in 2018 and 2017, member turnout. Their score per member was well less than FRC but they had 46% more entries. In fact, PVRC has had essentially the same number of entrants in 2016, 2017, 2018, and 2019 which is a testament to their organization and motivation. There are not many clubs that can pull that off.

Affiliated Club Competition

Club	*Score*	*Entries*
Unlimited		
Potomac Valley Radio Club	1,145,374	91
Frankford Radio Club	990,944	62
Minnesota Wireless Assn	749,598	86
Medium		
Florida Contest Group	1,055,452	43
Yankee Clipper Contest Club	768,736	45
Society of Midwest Contesters	455,668	46
Tennessee Contest Group	235,890	13
Alabama Contest Group	235,194	12
Southern California Contest Club	218,166	27
Contest Club Ontario	203,814	24
Northern California Contest Club	202,866	24
Central Texas DX and Contest Club	181,272	13
Arizona Outlaws Contest Club	153,020	21
Mad River Radio Club	103,554	9
South East Contest Club	95,562	7
Grand Mesa Contesters of Colorado	76,440	12
Kentucky Contest Group	75,280	9
Carolina DX Association	69,848	5
Hampden County Radio Association	67,188	15
DFW Contest Group	52,236	11
Kansas City Contest Club	43,782	5
Maritime Contest Club	43,334	3
North Texas Contest Club	43,248	3
Mother Lode DX/Contest Club	41,110	12
Northeast Maryland Amateur Radio Contest Society	40,148	6
Hudson Valley Contesters and DXers	38,474	12
Granite State ARA	36,786	7
Texas DX Society	30,136	6
Driftless Zone Contesters	29,866	4
Sussex County ARC	24,816	3
North Coast Contesters	23,224	7
Louisiana Contest Club	20,080	3
Great Places Contest Club	14,932	4
Pacific Northwest VHF Society	13,512	3
Port Lavaca Amateur Radio Club	13,216	3
Western Washington DX Club	13,080	5
Willamette Valley DX Club	11,924	6
Northern Arizona DX Assn	9,690	4
West Park Radiops	7,344	3
Order of Boiled Owls of New York	6,890	3
Meriden ARC	6,284	3
Big Sky Contesters	5,340	5
Swamp Fox Contest Group	3,576	3
Rochester (NY) DX Assn	1,518	4
Local		
The Villages Amateur Radio Club	64,970	5
CTRI Contest Group	54,460	6
Niagara Frontier Radiosport	50,804	4
Central Virginia Contest Club	40,382	6
Piedmont Contest Group	4,022	4
Redwood Empire DX Assn	3,928	3

Having Fun in 2020 (And Beyond)

The 48th annual ARRL 10 Meter Contest will be held on December 12th and 13th, 2020. What might we expect this year? Well, it's pretty much the same as we experienced the last three years. We are at the bottom of the solar cycle and solar flux index (SFI) is pretty much as low as it can get.

For the 10 Meter Contest, solar flux is everything. A lot of it generates good propagation. Not enough of it deprives us. During the 2019 contest Solar Radio flux was in the 71 range, which is really low — almost as low as it can get. Depending on who you talk to, the minimum SFI is in the 64 to 67 range. So, in 2019 we just about hit bottom. And, unfortunately, the forecast for the 2020 contest is for the flux to remain the same. Something in the range of 60 to 70 is forecasted. At this level what you will experience on the bands should be very similar to the last three years – 2017 through 2019. Looking way out into the future, a solar cycle forecast from the National Oceanic and Atmospheric Administration's Space Weather Prediction Center published in December 2019 suggests that the 2021 contest should finally see a noticeable upturn in conditions. That's just around the corner!

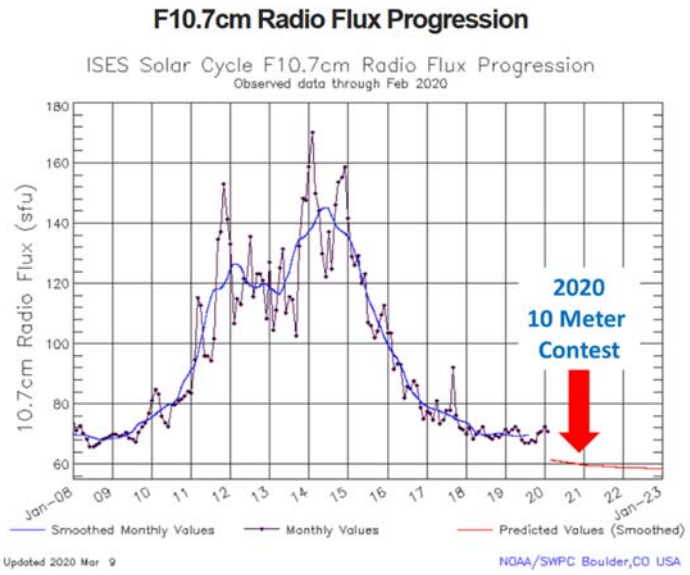

Figure 7 – Solar Flux forecast, courtesy of NOAA/SWPC

Remember though, even without high SFI there was fun to be had by being in the right place at the right time and using your creativity and knowledge of propagation and operating modes. In each of the last three years the contest started with a long period of sporadic-E ionization covering large parts of the United States. Obviously, there is nothing magical about the first few hours of the ARRL 10 Meter Contest – this was just a statistical coincidence. What is key is that experienced 10-meter operators caught those openings and had some real fun. You want to make sure to find and enjoy the good hours and just forget the bad hours.

Figure 8 shows how North American operators in 2019 caught the early opening. We can see this by comparing it to a higher sunspot year with no E-Skip opening at the start. In this case 2014. In 2019, at the end of the first hour, about 39% of all North America stations who submitted logs had made a contact. As the word got out that the band was open, operators got in front of their radios and put some radio frequency energy into the air. By the time the opening largely closed after 5 hours, fully 60% of operators had made a contact. Twenty percent of all operators made their first contact in hours 2 through 5 of the contest once they realized there were contacts to be made. These folks were aware and on top of things. In 2014 by contrast, only 8% of all operators made their first contacts in hours 2 through 5. In that year there was just not any reason to get on the air There was not a wide-ranging E-Skip opening.

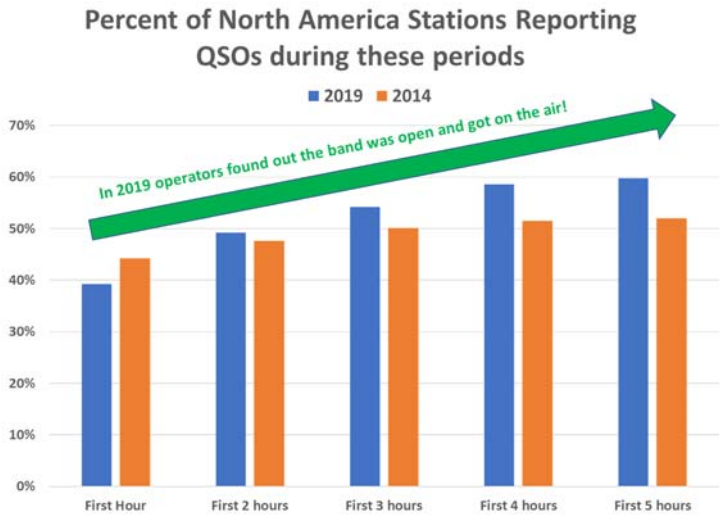

Figure 8 – Catching that early contact wave!

Let me repeat my usual advice on how to make contacts and have fun in these low sunspot years. There will be numerous opportunities to make contacts in 2020 just like there were in 2019, 2018 and 2017. The strategies are: First, an ability to operate CW is key for Mixed Mode entries or those Single Operators interested in maximum contact counts. CW is a much more effective emission mode in times of marginal propagation. For example, essentially all the reported Europe to North America contacts were CW. In 2019, 79% of the reported contact were made on CW. The highest in recent years and a big jump from the 63% on 2018 as propagation was poorer in 2019. You are always best off being prepared to make CW contacts.

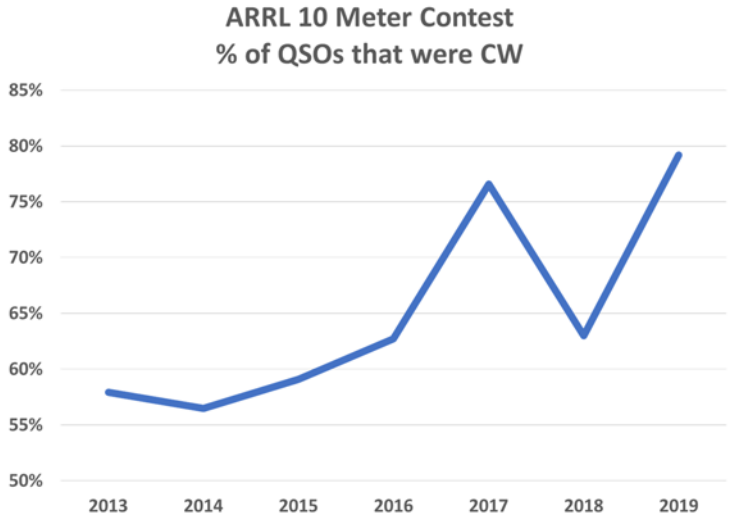

Figure 9 – in weak propagation years, CW is the mode that gets through

Second, seek out other propagation modes than traditional long distance F2-layer ionosphere refraction. This will be key for those seeking top scores, meeting your personal goals, or just having fun. As Millyn, K1IB, commented: "Lots of slow periods interspersed with periods of increased activity on near every propagation mode possible -- groundwave, backscatter, tropo, meteor scatter, sporadic E." These modes and more are will continue play an important role. If you are not familiar with them the ARRL Bookstore has several books which can help you out.

Third is to have patience and conviction to find path openings that may exist for only minutes over the whole weekend rather than hours on end. Meteor scatter is ethereal in nature with the path open for just a few seconds. It is best around your local dawn — though it could happen any time in the day. The east half of the United States seemed to have pretty good meteor scatter in 2019 because of fortunate timing with the Geminid meteor shower. As Ken, K4XL, observed: "Lots of Qs made at 30 WPM and faster in order to take advantage of the very brief openings generated by the Geminid meteor shower." Craig, KD9MS, adds another view "After all my years of contesting and ham radio, I have never experienced meteor scatter until Saturday morning. Stations were either in the ether and just about unreadable or they were 40 over for about 30 seconds."

Sporadic E often occurs in the early evening hours just when you think you might as well walk away from the radio and the 10-meter band. "It's shut down for good!" may be your thinking. Not always! David, AB7E, commented: "Made about two thirds of my contacts in the first three hours Friday evening. The rest of the weekend was scratch and claw looking for very brief openings."

Regular F2 openings will be short, sometimes really short. As Inaki, EB1RL, observed "From North America, WU1ITU broke down the s-meter for 1 minute and disappeared. And I didn't hear them anymore." Or as commented by Fred, N9VV at NP2X, "Highlight of contest was working FR4QT! Came out of noise for 30 seconds, QSO made, then poof, gone!"

It may also be tempting in these years to just say "I will just watch the spotting network or panadapter and let others tell me when the band is open." Based on soapbox comments it seems like more and more operators have a panadapter or bandscope. Typical 2019 comments were:

- Thank goodness for my panadapter that allowed me to see when a signal would pop up on the band. Jerry, VE6TL
- Turned the radio on a few times throughout the weekend, looked at the panadapter and it was flat. Barry, W2UP

Remember if everyone used this strategy you would never know when the band was open. Someone has to call CQ. Here is an observation by Bob, K3EST, "On Saturday and Sunday packet never proved useful except to see the east coast activity which never made it to CA. All mults were answers to CQs except LU, CE and CX." And, of course, if you call CQ, you never know what might happen. As told by Glenn, K3PP, "I had a few surprises! CT1ILT called me at 13:57 UTC! I didn't expect **any** EU at all and indeed that was the only peep I heard from across the pond."

My recommendation is to commit yourself to actual seat time using that big knob on the front of the radio to tune the band yourself to see what you can hear. If you don't hear anything then call CQ for 5-10 minutes. So, even if you encounter a seemingly dead band, try calling CQ for a while. If you get tired pushing the CQ Function Key, you can use beacon mode on your keyer or the "CQ Repeat" capability built into contest logging programs. The key to a successful operating strategy in 2020, as in the last three years, will be to catch the band openings.

Additional Analysis and Insights

In the eight prior years I have written about the ARRL 10 Meter Contest, I have provided additional in-depth analysis beyond the results and people. The intent being to provide insight into contest strategy and planning, how the 10-meter band behaves, or just something to satisfy my, and hopefully your,

curiosity. In past years I examined the following topics. *(These can be found online at the ARRL Contests portal – contests.arrl.org. Look in the 10 Meter section.)*

2011

- A Skimmer View of the Contest -- looking at Europe, Asia, and South America openings
- Skimmer Spots Counts as a way to Predict Scores?
- Phone versus CW Mix -- A magic formula?
- A Bit of Contest History

2012

- A Skimmer View of the Contest -- looking at the North America to Europe Opening as well as some perspectives on skimmer spot quality and usage.
- Contest Planning Insights -- characterizing the locations and activity levels in the US by state.

2013

- A look into the North America to Europe opening
- Contest logging program usage

2014

- Breakthrough animated movies of propagation from the US to major contest areas.
- A look at late evening activity in the US and its impact on three close races
- An updated look at contest logging program usage
- New world records established in 2014
- So how many stations really were on the air and how many QSOs were made?

2015

- An updated look at contest logging program usage
- New world records established in 2015
- Total contest activity – how many stations were on the air and how many QSOs did they make?
- Investigating propagation differences in the US between 2014 and 2015

2016

- A very deep dive into 10-meter propagation and how both E-skip and F2 propagation played roles during the contest with visual QSO "movies" to demonstrate.
- An update on entry category usage three years into the Unlimited Category era.
- Updated World, W/VE/XE, and DX records.
- My annual update on logging program usage.

2017

- My annual update on logging program usage.
- An in-depth study of Log Check Reports to develop recommendations on how to improve your logging accuracy.

2018

- My annual update on logging program usage.
- A look at how North America propagation and state-to-state QSOs changed from 2014 to 2018.

This year I will again provide my annual update on logging program usage and present some ideas for US operators on selecting your operating periods.

As I have done in past years, I looked at what logging programs operators were using for the ARRL 10 Meter Contest. With access to Cabrillo log files it is easy to investigate. One of the standard Cabrillo tags is "CREATED-BY:" which is followed by the name of the logging program. A simple Python program looks through all the logs tallying the programs everyone used.

For the 2019 ARRL 10 Meter Contest logging program usage looked like this:

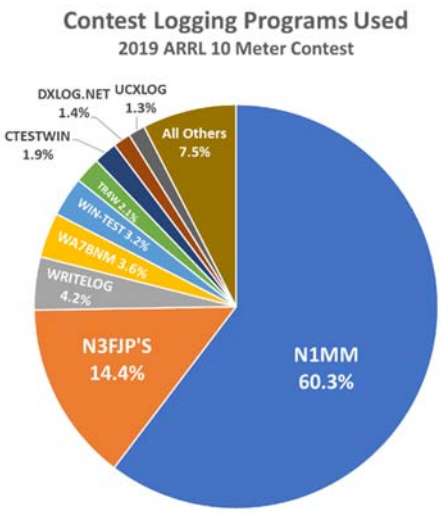

Figure 10 – 2019 Logging Program Usage

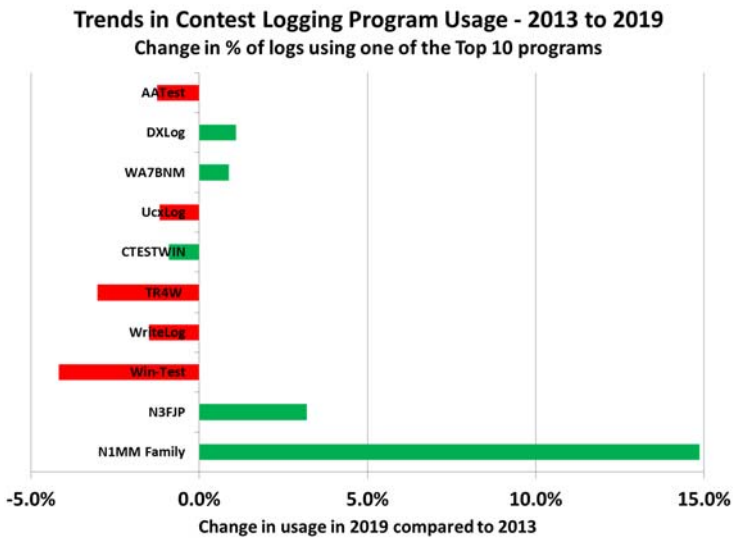

Figure 11 -- Only two logging programs have seen substantial growth since 2013

There are a few programs on this list I am not familiar with. The ARRL 10 Meter Contest is a worldwide event and there are several countries with a logging program that is popular just in their country or region. For example, *CTESTWIN* is popular in Japan and *UcxLog* is popular in central and eastern Europe. There are also a substantial number of operators who still log by hand and then use the WA7BNM Cabrillo Web Form to create their log file. In 2019 there were 50 different logging programs used by someone. Overall though, the *N1MM* family is used by far more contesters than any other logging program. It is used by about four times as many contesters as the second most popular logging program, *N3FJP*.

To observe longer term trends in program usage I compared the logging programs used in 2019 to those used in 2013. Among the Top 10 programs, the *N1MM* family and *N3FJP* are the only ones to show significant growth. *N1MM* family usage has increased from 45.4% of logs in 2013 to 60.3% of logs in 2019. Both *Win-Test* and *TR4W* usage have declined over the same period by 4.2% and 3.0%, respectively. *WriteLog* usage has also decreased by 1.5%. Though some of these changes are being driven by changes in the geographic mix of logs, the overall story is really one about continued consolidation around one major logging platform — *N1MM+*.

Another perspective about contest logging program that I have heard discussed is "What do serious contesters use?" Using a metric of "Average size of log submitted" seems at least plausible to provide this insight. Serious contesters usually make more contacts than the casual ones. Using this metric, the view looks as follows:

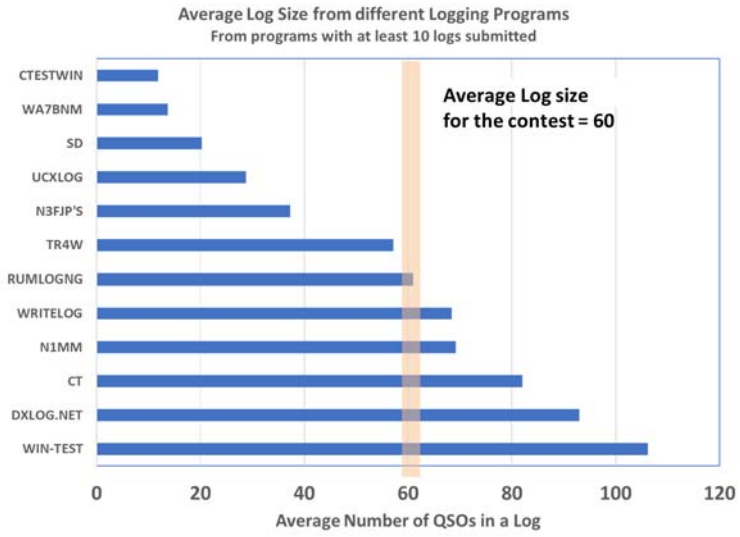

Figure 12 - What loggers are used by the big guns?

As has been the result for many years, *Win-Test* users have the largest average log size. Almost 50-100% larger than the average log. *CT* users also have logs larger than average. This “oldie but goodie” logger must have some die-hard users

among a few serious contesters. And for 2019 *DXLOG.NET* also was used stations with a higher than average number of contacts. *N1MM* logs are just a little above average. It's hard for it to be much different than average since it is used by almost 2/3rds of the contesters. Also interesting is that *N3FJP*, which is the second most popular program, has relatively small logs at around half the average log size. It would thus seem to appeal to more casual contesters.

For the final tidbit this year we will look at some insights into operating strategies for US stations. The question examined is: "How to choose the times to operate for maximum potential contact – if you have a choice". At the time of year the 10 Meter Contest is held, many folks have their schedules constrained by holiday preparations and events, shoveling snow, and other household and family priorities. But, if you have a choice, this data may help you a bit.

By looking at contacts made in each hour of the contest from the years 2012 through 2019 patterns show up. The US is a large country and best timing is going to be different, for example, if you are on the east coast or west coast. To account for this, I broke up the views into Eastern, Central, and Western States groups. These correspond to call area groups: Eastern = the 1, 2, 3, 4, and 8 call areas, Central = the 0, 5, and 9 call areas, and Western = the 6 and 7 call areas.

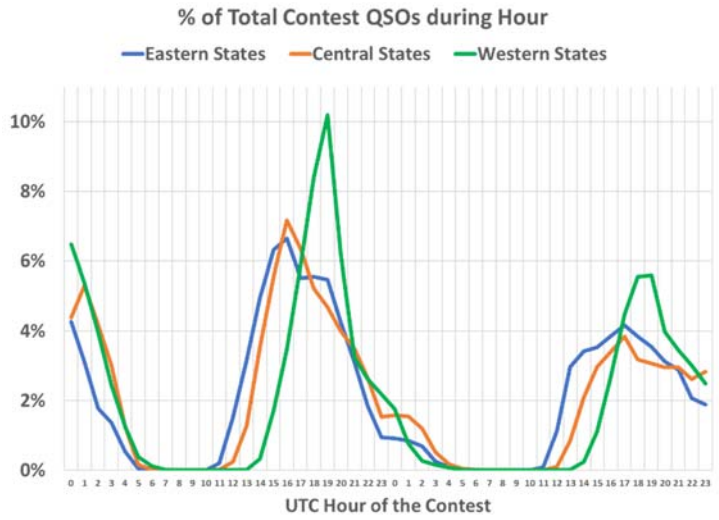

Figure 13 – Contact distribution over the contest

Looking at this chart my observations follow. You should look at it for your own personal viewpoint. You may or may not agree with my thoughts and/or have your own secret winning strategy appear from your view.

First, there really is a benefit for getting on the first few hours. To some extent this view is caused by several recent years of widespread E-skip at the start of the contest. Which, in theory, is a random event. It is also caused, to some extent, by many operators wanting to be on the air at the start of the contest. So, they tend to squeeze out any opening there might be. No matter how marginal. So, you don't want to risk sitting on the sidelines. As Bob, K3EST, said: "This year the contest was practically over after Friday night. 302 of 371 QSOs before 9:30pm on Friday." This was also echoed by John, K6YK, "Glad I got on Friday night or it would have been a complete bust!"

Second, the further east you are the earlier contacts begin. Eastern states begin to make substantial contacts in the UTC 1200 hour followed by the Midwest in the UTC 1300 hour. Western states don't really get going until the 1500 hour.

Conversely, the band closes and contacts rates subside around the same time for everyone. In fact, historically on the second night Eastern and Central states have seen higher relative contact rates than Western states in the UTC 0100, 0200, and 0300 hours. I am not sure what is driving this. It could be there were several years of E-skip openings favoring this part of the country that are in the data. I do know that in 2014 there was an evening E-skip opening in the Midwest during the second night that played a major role in deciding the winners in several US categories. You can read about it in the Expanded Results article for the 2014 ARRL 10 Meter Contest found online at the ARRL Contests portal – contests.arrl.org. Look in the 10 Meter section.) Also, for the years with widespread E-skip openings in the west the first night, this means during the second night those stations have already been worked. So, rates will have a natural decline from the "I have worked everyone" syndrome.

One impact of the band opening and closing this way is that Western states have a much more compressed period of peak operating than the Eastern states. If you are in the Western states, you don't want to miss the 1600-2200 UTC operating hours. Almost 70% of potential contacts are made during these periods. Plan your days accordingly. On the other hand, Eastern and Central states have a longer peak operating window – from 1300-2200 UTC.

Third, there are several hours where, historically, you will not make any contacts. These are great times for sleep, among other things. You can safely miss the period from 0600 until 1200 UTC and not feel like you are missing contacts.

Fourth, and last, typically the contest finishes strong with plenty of activity and thus potential contacts. The last two to three hours on Sunday are historically busier than the same period on Saturday. So, if you reserve some operating time for then, you will be rewarded.

How you use this data for your operating plan is up to you. But, whenever you decide to operate, and especially in these low sunspot years, make sure you spend some time CQ-ing to see if a seemingly dead band is open. Remember to make a contact at least one party has to be CQ-ing. It might as well be you.

Top Ten Scores

United States

Single Operator, Mixed Mode, High Power

WØAIH (NE9U, op)	295,000
KØTT	115,672
K1KI	112,840
N4OX	86,904
W1VEM	82,782
K3ZO	68,672
K6AM	63,600
AG4W	51,212
W2OIB	50,160
KA9FOX	47,752

Single Operator, Mixed Mode, Low Power

N8II	59,160
K2PS	43,700
WB8WKQ	21,600
WN6K	20,764
ACØW	19,440
ND9G	11,088
WA8ZBT	9,768
KD5J	9,372
KA8CNI	9,152
K3YDX	8,330

Single Operator, Mixed Mode, QRP

WA6FGV	4,704
WB2AMU	2,952
NDØC	1,740
N4ELM	1,728
K4PZC	1,008
AC6YY	880
K4NAX	648
K1PDY	464
N7VS	360
NT6H	270

Single Operator, Phone Only, High Power

W4DD	20,520
W5PR	19,184
AF1T	14,256
KE2DX	13,920
K5TR (WM5R, op)	13,080
KD7RF	7,562
K8DJR	5,512
N4MM	2,288
KZ4P	1,880
WB4YDY	1,862

Single Operator, Phone Only, Low Power

K4FCG (K1KNQ, op)	5,720
NO2EL	4,320
KB4OLM	3,504
AA2IA	2,436
NF7E	2,046
KM4ODS	1,860
KA1VMG	1,846
W6BS	1,408
K2SDS	984
KC3OBS	900

Single Operator, Phone Only, QRP

WE6EZ	532
W6QU (W8QZA, op)	256
W1CEK	42
KF6ZYD	20
AC2N	8
W7BAK	2
KØJWQ	2

Single Operator, CW Only, High Power

K1TO	211,440
K5NA	117,448
W6YX (N7MH, op)	64,416
NY3A	59,488
K1RM	54,880

K4BAI	51,240
NA8V	48,240
N8LJ	39,732
WØZA	36,704
W1WEF	35,640

Single Operator, CW Only, Low Power

W3BGN	42,336
N5/WP3C	29,260
AC4G	25,584
K1DC	24,500
K1VUT	19,552
K4ORD	18,576
K1TR	18,444
KN4Y	16,640
W1QK	15,264
KNØV	13,284

Single Operator, CW Only, QRP

N5OE	2,856
KH6KG/W5	2,660
N8AP	2,244
N4AU	1,736
KE2SX	1,012
K3TW	800
KZ3I	648
WB2CPU	612
W8IM	600
KU7Y	580

Single Operator Unlimited, Mixed Mode, High Power

N8OO	314,976
WO4O	189,216
N3RD	121,524
N4RV	110,700
K3WW	110,124
K2XR	104,976
W3IP	77,952
W1TJL	72,576
WV4P	63,510
KU2M	44,556

Single Operator Unlimited, Mixed Mode, Low Power

K9OM	105,190
K1ZE	20,276
KE2D	13,568
NU4E	12,888
N5DO	12,760
W4JUU	7,680
KE3K	7,290
W1DYJ	6,656
N1API	6,240
W4EE	5,814

Single Operator Unlimited, Mixed Mode, QRP

N2KW	120

Single Operator Unlimited, Phone Only, High Power

W2RD	5,886
KA1ZD	4,850
AJ4VE	1,296
K9MU	972
N2NKX	700
N3DUE	450
W9KXI	264
AB4KY	220
ADØTA	126
K7STO	102

Single Operator Unlimited, Phone Only, Low Power

K2DRH	10,582
K2ADA	7,222
N2MUN	924
N7MZW	774
W4POT	620
N2ESP	576
KK4ADQ	440
W6IFN	150
N6LB	110
K2ANZ	98

Single Operator Unlimited, Phone Only, QRP

K2GMY	518
WB6BET	28
WA7NWL	2

Single Operator Unlimited, CW Only, High Power

NN7CW	157,456
N4BP	91,336
W1KM	75,432
W3EP	72,864
WW5M	66,364
N2MM	64,768
K3EST	55,088
NR4M	48,020
K5LG	47,188
N6SS	46,872

Single Operator Unlimited, CW Only, Low Power

W9XT	31,096
WT9Q	29,172
N4UA	27,692
K8AJS	20,904
K2DFC	20,592
WA1FCN	18,480
N7YK	12,400
K1XM	10,296
K9IUQ	8,400
N3AC	6,624

Single Operator Unlimited, CW Only, QRP

NØUR	1,248
KN1GUN	928
KI9A	572
W2OL	480
KW2A	120
KØTLG	40
W1VT	12

Multioperator, Single Transmitter, High Power

NV9L	227,240
AA1JD	168,276
N1RR	135,792
NX5M	103,180
W3ZGD	89,628
W8PR	78,894
NX6T	39,856
W4RN	34,202
K3CCR	29,820
KØOO	25,872

Multioperator, Single Transmitter, Low Power

N4SVC	46,464
N1SOH	9,310
W7TVC	8,676
W7PU	3,278
W1NRG	2,212
KI6YYT	896
W4CDA	660
WA1F	336
KB5ZSK	168
AF5Q	128

Canada

Single Operator, Mixed Mode, High Power

VE3KZ	65,130
VA2RF	6,144
VE3BR	936

Single Operator, Mixed Mode, Low Power

VE3OIL	1,224
VE9ML	1,176
VE7ZR	448
VE2NCG	156
VA3UKR	80
VE7BGP	24
VA3EON	4

Single Operator, Mixed Mode, QRP

VE6EX	24

Single Operator, Phone Only, High Power

VA2BN	440
VA3MW	216
VA3PC	50

Single Operator, Phone Only, Low Power

VE3CNA	2

Single Operator, CW Only, High Power

VE3DZ	44,880
VE3PN	8,532
VA7MM	4,356
VE3YAA (VE3FJ, op)	4,352
VE4VT	4,048
VE9OA	3,312
VE3CX	112

Single Operator, CW Only, Low Power

VE3BW	6,656
VE3SST	2,112
VE3ZY	1,196
VA3EC	420
VE3TM	392
VE3AQ	312
VA3WB	160
VA3RKM	156
VE5GC	96
VE6/KØXF	20

Single Operator, CW Only, QRP

VE3CBK	8

Single Operator Unlimited, Mixed Mode, High Power

VE5MX	21,600
VE9CB	19,092
VE3KTB	48

Single Operator Unlimited, Mixed Mode, Low Power

VA3DF	38,076
VE3PJ	1,440
VE3MA	416
VE6SH	104

Single Operator Unlimited, CW Only, High Power

VE9AA	17,112
VE3EJ	13,440
VE2FK	7,040
VE3MM	2,752
VE3NNT	540
VE4GV	120

Single Operator Unlimited, CW Only, Low Power

VA2CZ	10,608
VE1OP	7,056

VE7XT	1,476
VE3FU	1,300
VE3MGY	484
VE6TL	480
VE6JF	192

Mexico

Single Operator, Mixed Mode, Low Power

XE1AY	440
XE1HG	32

Single Operator, Phone Only, Low Power

XE1AO	48
XE2ML	36
XE1H	24

Single Operator, CW Only, High Power

4A5E (XE1EE, op)	312

Single Operator, CW Only, Low Power

XE3A	1,760
XE1CT	1,716
XE2AU	1,508
XE2X	276

Single Operator Unlimited, Mixed Mode, Low Power

XE2B	6,318

Single Operator Unlimited, Phone Only, Low Power

XE2JS	560
XE2N	8

Single Operator Unlimited, CW Only, High Power

XE2S	2,240

DX

Single Operator, Mixed Mode, High Power

OA4SS	44,286
G4FKA	6,664
NP2P (N2TTA, op)	6,072
LZ6E	3,528
HP3SS	3,060
VK4SN	2,960
OK2EQ	2,550
YL2BJ	1,848
LY7Z	1,298
J79WTA	1,080

Single Operator, Mixed Mode, Low Power

L55D (LU5DF, op)	133,084
LW1D	31,680
LU6FLZ	12,080
HGØR (HAØNAR, op)	9,856
EA8AQV	6,384
LU7DW (VE3AP, op)	6,324
EA8OM	1,944
EA8DHV	1,728
IK4OMO	1,316
JR1MEG/1	1,168

Single Operator, Mixed Mode, QRP

PY2NY	3,080
PY2IAX	760
HZ1TT	432
JR1UJX/2	410
PE2K	128
JH7UJU	56
JH3DMQ	44

Single Operator, Phone Only, High Power

CV7S (CX7SS, op)	48,256
CE6CGX	20,696
FR4QT	12,444
LQ5A	9,040
M6T (GØAEV, op)	7,008
PY5DC	2,432
3G3N	1,720
M2L (MØBJL, op)	726
F5LIW	702
EA2DR	522

Single Operator, Phone Only, Low Power

CA4PSH	21,090
LW4EF	11,160
LU2UG	6,916
PY3EW	3,456
CB4A (CE4UFC, op)	2,600
LT7F (LU6FOV, op)	1,440
PU8YAB	1,430
LU4DPL	1,260
PU2UAF	1,200
PU2PZE	1,128

Single Operator, Phone Only, QRP

TG9ANF	1,650
PA2TMS	378
VK4FOMP	192
PU2RTO	180
I5KAP	168
PY2BN	72
SP7VTQ	70
PU2PNB	60
PU2NZO	60
JA2MWV	36

Single Operator, CW Only, High Power

CE2ML (CX1EK, op)	76,860
CX9AU	67,716
CT1ILT	45,696
PY4DX	38,220
LZ4TX	5,896
EA5FX	5,244
SP2FVN	5,192
UY5ZZ	4,104
OH2PM	2,752
F5VMN	2,496

Single Operator, CW Only, Low Power

LU6DOT	63,720
CB3R (XQ3SK, op)	38,612
PY3XX	19,684
LU7YWC	17,120
V51YJ	15,984
LU8QT	12,720
DL4WA	3,468
EA3NO	2,652
DL9ZP	2,592
EA1DAV	2,256

Single Operator, CW Only, QRP

CX7RL	2,016
JQ1NGT	1,392
EU1AA	1,344
US5VX	648
MØHMJ	612
PU2NBI	352
HA3HX	320
JR1NKN	264
JM1MTE	180
JS1BXH	144

Single Operator Unlimited, Mixed Mode, High Power

DL2ARD	116,000
CE2LR	99,600
CX4SS	28,224
F5NBX	25,662
EA8RM	25,368
S51DI	25,248
PY5ZHP	17,864
HG8W (HA8ZO, op)	17,630
TM5CQ (F4GXX, op)	15,444
ON6NL	11,026

Single Operator Unlimited, Mixed Mode, Low Power

LQ3D	49,178
PJ2T (WØCG, op)	25,530
PY3OZ	25,040
LU6DC	8,112
F8ATS	8,000
PY8WW	7,440
LU5DX	7,400
G4PVM	4,048
IT9CHU	3,520
PE4BAS	2,850

Single Operator Unlimited, Mixed Mode, QRP

EB1RL	4,932
SD6F (SM6JWR, op)	140

Single Operator Unlimited, Phone Only, High Power

LU1DX	33,158
V51WH	12,210
EA7JXZ	4,350
LW3EK	700
EA4TD	486
MMØTFU	400
PY5BH	340
PY2GTA	170
VK4QH	116
PY2GZ	108

Single Operator Unlimited, Phone Only, Low Power

ZV1T (PP1WW, op)	3,480
PY2CP	2,016
PY5FO	1,248
PT7ZT	720

EA4AA	620
PY4BK	444
EA8CNR	250
CE1BF	232
PT7BI	210
PY4GG	184

Single Operator Unlimited, CW Only, High Power

DH8BQA	38,136
HA8FK	12,208
DK9IP	10,560
PA5WT	9,672
S53M (S51FB, op)	9,088
LU5FF	8,848
DL1WA	7,800
VK4CT	7,296
GØORH	6,100
9H1XT	4,940

Single Operator Unlimited, CW Only, Low Power

CX2BR	88,440
LT7D	83,980
FY5KE (F6FVY, op)	23,780
PY3DX	19,040
L33M (LU3MAM, op)	18,240
EA7RM	7,072
LU3JVO	4,508
PY2XC	2,888
D4Z (IK2NCJ, op)	2,432
I2SVA	2,400

Single Operator Unlimited, CW Only, QRP

YT2RX	252
JH1VIX	104
MM3AWD	32
JK1TCV	24
JG1GOY	8
US5EFU	4

Multioperator, Single Transmitter, High Power

LW8DQ	309,248
PX2A	191,622
EA5DY	37,336
LZ5R	25,452
PP5NY	22,330
EE5T	19,926
HI3LT	10,900
PW1F	5,160
JK2VOC	546
DN5HR	66

Multioperator, Single Transmitter, Low Power

LS2D	36,972
PY2UD	30,208
PT5D	20,034
LU1DBQ	13,248
PV2B	2,730
JJ2YDV	144
F4KIY	120
PY2GMR	30
PR7PPS	14

Continental Winners

Africa

Single Operator, Mixed Mode, Low Power	EA8AQV	6384
Single Operator, Phone Only, High Power	FR4QT	12,444
Single Operator, Phone Only, Low Power	EB8AC	748
Single Operator, CW Only, Low Power	V51YJ	15,984
Single Operator Unlimited, Mixed Mode, High Power	EA8RM	25368
Single Operator Unlimited, Phone Only, High Power	V51WH	12,210
Single Operator Unlimited, Phone Only, Low Power	EA8CNR	250
Single Operator Unlimited, CW Only, Low Power	D4Z (IK2NCJ, op)	2,432

Asia

Single Operator, Mixed Mode, High Power	TA4CS	360
Single Operator, Mixed Mode, Low Power	JR1MEG/1	1,168
Single Operator, Mixed Mode, QRP	HZ1TT	432
Single Operator, Phone Only, High Power	JG2REJ	8
Single Operator, Phone Only, Low Power	JR1AKD/1	36
Single Operator, Phone Only, QRP	JA2MWV	36
Single Operator, CW Only, High Power	4X1VF	1,584
Single Operator, CW Only, Low Power	JJ1LBJ	980
Single Operator, CW Only, QRP	JQ1NGT	1,392

Single Operator Unlimited, Mixed Mode, High Power	JH4UTP	4,860
Single Operator Unlimited, Mixed Mode, Low Power	JH6WHN	1,170
Single Operator Unlimited, CW Only, High Power	7K4VPV	780
Single Operator Unlimited, CW Only, Low Power	JG1XIO	288
Single Operator Unlimited, CW Only, QRP	JH1VIX	104
Multioperator, Single Transmitter, High Power	JK2VOC	546
Multioperator, Single Transmitter, Low Power	JJ2YDV	144

Europe

Single Operator, Mixed Mode, High Power	G4FKA	6,664
Single Operator, Mixed Mode, Low Power	HGØR (HAØNAR, op)	9,856
Single Operator, Mixed Mode, QRP	PE2K	128
Single Operator, Phone Only, High Power	M6T (GØAEV, op)	7,008
Single Operator, Phone Only, Low Power	EA1TI	580
Single Operator, Phone Only, QRP	PA2TMS	378
Single Operator, CW Only, High Power	CT1ILT	45,696
Single Operator, CW Only, Low Power	DL4WA	3,468
Single Operator, CW Only, QRP	EU1AA	1,344
Single Operator Unlimited, Mixed Mode, High Power	DL2ARD	116,000
Single Operator Unlimited, Mixed Mode, Low Power	F8ATS	8,000
Single Operator Unlimited, Mixed Mode, QRP	EB1RL	4,932
Single Operator Unlimited, Phone Only, High Power	EA7JXZ	4,350
Single Operator Unlimited, Phone Only, Low Power	EA4AA	620
Single Operator Unlimited, CW Only, High Power	DH8BQA	83,136
Single Operator Unlimited, CW Only, Low Power	EA7RM	7,072
Single Operator Unlimited, CW Only, QRP	YT2RX	252
Multioperator, Single Transmitter, High Power	EA5DY	37,336
Multioperator, Single Transmitter, Low Power	F4KIY	120

North America

Single Operator, Mixed Mode, High Power	NP2P (N2TTA, op)	6,072
Single Operator, Mixed Mode, Low Power	KP4VP	24
Single Operator, Phone Only, QRP	TG9ANF	1,650
Single Operator, CW Only, Low Power	HP1AC	544
Single Operator, CW Only, QRP	V31MA	16
Single Operator Unlimited, Mixed Mode, High Power	NP2X (K9VV, op)	9,384
Single Operator Unlimited, Mixed Mode, Low Power	ZF2LA	680
Multioperator, Single Transmitter, High Power	HI3LT	10,900

Oceania

Single Operator, Mixed Mode, High Power	VK4SN	2,960
Single Operator, Mixed Mode, Low Power	VK3JA	640
Single Operator, Phone Only, High Power	FK4QX	328
Single Operator, Phone Only, Low Power	VK2NSS	264
Single Operator, Phone Only, QRP	VK4FOMP	192
Single Operator, CW Only, High Power	VK2GR	1,692
Single Operator, CW Only, Low Power	VK2IG	440
Single Operator Unlimited, Mixed Mode, High Power	VK3KTT	320
Single Operator Unlimited, Mixed Mode, Low Power	YC2VOC	90
Single Operator Unlimited, Phone Only, High Power	VK4QH	116
Single Operator Unlimited, Phone Only, Low Power	ZL2MM	24
Single Operator Unlimited, CW Only, High Power	VK4CT	7,296

South America

Single Operator, Mixed Mode, High Power	OA4SS	44,286
Single Operator, Mixed Mode, Low Power	L55D (LU5DF, op)	133,084
Single Operator, Mixed Mode, QRP	PY2NY	3,080
Single Operator, Phone Only, High Power	CV7S (CX7SS, op)	48,256
Single Operator, Phone Only, Low Power	CA4PSH	21,090
Single Operator, Phone Only, QRP	PU2RTO	180

Single Operator, CW Only, High Power	CE2ML (CX1EK, op)	76,860
Single Operator, CW Only, Low Power	LU6DOT	63,720
Single Operator, CW Only, QRP	CX7RL	2,016
Single Operator Unlimited, Mixed Mode, High Power	CE2LR	99,600
Single Operator Unlimited, Mixed Mode, Low Power	LQ3D	49,178
Single Operator Unlimited, Phone Only, High Power	LU1DX	33,158
Single Operator Unlimited, Phone Only, Low Power	ZV1T (PP1WW, op)	3,480
Single Operator Unlimited, CW Only, High Power	LU5FF	8,848
Single Operator Unlimited, CW Only, Low Power	CX2BR	88,440
Multioperator, Single Transmitter, High Power	LW8DQ	309,248
Multioperator, Single Transmitter, Low Power	LS2D	32,972

Division Winners

Single Operator, Mixed Mode, High Power

Atlantic	K3ZO	68,672
Central	WØAIH (NE9U, op)	295,000
Dakota	KØTT	115,672
Delta	K5FUV	15,170
Great Lakes	KE8EAS	6,812
Hudson	W2OIB	50,160
Midwest	N7WY	26,628
New England	K1KI	112,840
Northwestern	WC7Q	10,116
Pacific	N3RC	14,464
Roanoke	WN7S	9,568
Rocky Mountain	WØETT	25,530
Southeastern	N4OX	86,904
Southwestern	K6AM	63,600
West Gulf	W5TN	27,066
Canada	VE3KZ	70,992

Single Operator, Mixed Mode, Low Power

Atlantic	KØDI	6,594
Central	ND9G	11,088
Dakota	ACØW	19,440
Delta	KD5J	9,372
Great Lakes	WB8WKQ	21,600
Hudson	K2NY	1,938
Midwest	KØSRL	1,728
New England	AC1J	5,940
Northwestern	KA7T	2,756
Pacific	N6QZS	1,118
Roanoke	N8II	59,160
Rocky Mountain	KØKR	2,492
Southeastern	K2PS	43,700
Southwestern	WN6K	20,764
West Gulf	WA8ZBT	9,768
Canada	VE3OIL	1,224
México	XE1AY	440

Single Operator, Mixed Mode, QRP

Central	K4NAX	648
Dakota	NDØC	1,740
Delta	N4ELM	1,728
Hudson	WB2AMU	2,952
New England	K1PDY	464
Northwestern	N7VS	360
Pacific	AC6YY	880
Roanoke	K4PZC	1,008
Southeastern	K4PQC	16
Southwestern	WA6FGV	4,704
West Gulf	WD5ABC	84
Canada	VE6EX	24

Single Operator, Phone Only, High Power

Atlantic	4U1WB (AJ3M, op)	936
Central	N9RJM	1,584
Dakota	KØSIX	180
Delta	WB4YDY	1,862
Great Lakes	K8DJR	5,512
Hudson	KE2DX	13,920
New England	AF1T	14,256
Northwestern	KR7LD	608
Pacific	AI6LY	990
Roanoke	N4MM	2,288
Rocky Mountain	K9MWM	660
Southeastern	W4DD	20,520
Southwestern	KD7RF	7,562
West Gulf	W5PR	19,184
Canada	VA2BN	440

Single Operator, Phone Only, Low Power

Atlantic	K2SDS	984
Central	N9ISN	84
Dakota	KØVH	80
Delta	KJ4KKD	1
Great Lakes	K4TG	868

Hudson	NO2EL	4,320
Midwest	AGØM	270
New England	KA1VMG	1,846
Northwestern	WZ8T	490
Pacific	W6BS	1,408
Roanoke	KB4OLM	3,504
Rocky Mountain	W6OAL	266
Southeastern	K4FCG (K1KNQ, op)	5,720
Southwestern	NF7E	2,046
West Gulf	W5TJL	280
Canada	VE3CNA	2
México	XE1AO	48

Single Operator, Phone Only, QRP

Hudson	W7BAK	2
New England	W1CEK	42
Pacific	KF6ZYD	20
Rocky Mountain	KØJWQ	2
Southeastern	AC2N	8
Southwestern	W6QU (W8QZA, op)	256
West Gulf	WE6EZ	532

Single Operator, CW Only, High Power

Atlantic	NY3A	59,488
Central	KG9N	31,512
Dakota	WØVTT	21,600
Delta	NA5NN (W5UE, op)	34,780
Great Lakes	NA8V	48,240
Hudson	KR2AA	30,328
Midwest	NØNI	30,832
New England	K1RM	54,880
Northwestern	N7EPD	11,136
Pacific	W6YX (N7MH, op)	64,416
Roanoke	KØZR	31,220
Rocky Mountain	WØZA	36,704
Southeastern	K1TO	211,440
Southwestern	AB7E	17,792
West Gulf	K5NA	117,448
Canada	VE3DZ	44,880
México	4A5E (XE1EE, op)	312

Single Operator, CW Only, Low Power

Atlantic	W3BGN	42,336
Central	W9RE	5,832
Dakota	KNØV	13,284
Delta	N5/WP3C	29,260
Great Lakes	W8MET	6,944
Hudson	W2AAB	6,300
Midwest	KØFLY	9,720
New England	K1VUT	19,552
Northwestern	WB7FJG	2,368
Pacific	KH6CJJ	2,160
Roanoke	K4ORD	18,576
Rocky Mountain	AFØE	1,612
Southeastern	K1DC	24,500
Southwestern	N6RM	5,688
West Gulf	AE5GT	10,080
Canada	VE3BW	6,656
México	XE3A	1,760

Single Operator, CW Only, QRP

Atlantic	KZ3I	648
Central	AF9J	96
Delta	KH6KG/W5	2,660
Great Lakes	N8AP	2,380
Hudson	WO2N	544
Midwest	KSØMO	224
New England	WB2CPU	612
Northwestern	KU7Y	580
Pacific	K9JM	80
Roanoke	KE2SX	1,012
Rocky Mountain	WC7S	160
Southeastern	N4AU	1,736
Southwestern	W1UO	4
West Gulf	N5OE	2,856
Canada	VE3CBK	8

Single Operator Unlimited, Mixed Mode, High Power

Atlantic	N3RD	121,524
Central	AC9S	43,460
Dakota	KØKX	29,744
Delta	N8OO	314,976
Great Lakes	WA8MCD	8,136
Hudson	KU2M	44,556
Midwest	NØIRM	35,624
New England	W1TJL	72,576
Northwestern	N7NM	11,196
Pacific	N6US	24,336
Roanoke	N4RV	110,700
Rocky Mountain	NG7M	11,454
Southeastern	WO4O	189,216
Southwestern	NT6X	37,884
West Gulf	K5KJ	38,456
Canada	VE5MX	22,952

Single Operator Unlimited, Mixed Mode, Low Power

Atlantic	KE2D	13,568
Central	N5RP	1,960
Dakota	WBØN	5,502
Delta	W4JUU	7,680
Great Lakes	KE3K	7,290
Hudson	WA2JQK	4,284
New England	K1ZE	20,276
Northwestern	WA7AXT	1,760
Pacific	W7TR (KH2TJ, op)	5,460
Roanoke	NU4E	12,888
Rocky Mountain	K7TD	504
Southeastern	K9OM	105,190
Southwestern	K6ICS	3,210
West Gulf	N5DO	12,760
Canada	VA3DF	41,640
México	XE2B	6,318

Single Operator Unlimited, Mixed Mode, QRP

Hudson	N2KW	120

Single Operator Unlimited, Phone Only, High Power

Atlantic	N2NKX	700
Central	K9MU	972
Great Lakes	AB4KY	220
Hudson	W2RD	5,886
New England	KA1ZD	4,850
Northwestern	K7STO	102
Rocky Mountain	ADØTA	126
Southeastern	AJ4VE	1,296

Single Operator Unlimited, Phone Only, Low Power

Atlantic	K2ANZ	98
Central	K2DRH	10,582
Dakota	NØRMJ	4
Hudson	N2MUN	924
New England	KC1MEV	72
Northwestern	N6LB	110
Pacific	W6IFN	150
Roanoke	KK4ADQ	440
Rocky Mountain	N7MZW	774
Southeastern	K2ADA	7,222
West Gulf	WA5WFE	2
México	XE2JS	560

Single Operator Unlimited, Phone Only, QRP

Pacific	K2GMY	518
Southwestern	WA7NWL	2

Single Operator Unlimited, CW Only, High Power

Atlantic	N2MM	64,768
Central	AI9T	3,864
Dakota	K1KD	4,752
Delta	WW5M	66,364
Great Lakes	W5MX	42,416
Hudson	W2NO	13,340
Midwest	NØAV	17,712
New England	W1KM	75,432
Northwestern	N4SL	4,512
Pacific	K3EST	55,088
Roanoke	NR4M	48,020
Rocky Mountain	KØUK	6,688
Southeastern	NN7CW	157,456
Southwestern	N6SS	46,872
West Gulf	N5CQ	21,140
Canada	VE9AA	17,112
México	XE2S	2,240

Single Operator Unlimited, CW Only, Low Power

Atlantic	W3KB	4,928
Central	W9XT	31,096
Dakota	WØZQ	5,304
Delta	N4DW	360
Great Lakes	K8AJS	20,904
Hudson	K2DFC	20,592
New England	K1XM	10,296
Northwestern	K7QA	
Pacific	N7YK	12,400
Roanoke	N4UA	27,692
Rocky Mountain	N7MQ	420
Southeastern	WA1FCN	18,480
Southwestern	KX6A	3,168
West Gulf	ADØK	1,176
Canada	VA2CZ	10,608

Single Operator Unlimited, CW Only, QRP

Atlantic	KW2A	120
Central	KI9A	572
Dakota	NØUR	1,248
New England	KN1GUN	928
Roanoke	W2OL	480

Multioperator, Single Transmitter, High Power

Atlantic	W3ZGD	89,628
Central	NV9L	227,240
Great Lakes	W8PR	78,894
Hudson	WW2G	900
Midwest	WØCXX	72
New England	AA1JD	168,276
Roanoke	W4RN	34,202
Southeastern	WB4WXE	380
Southwestern	NX6T	39,856
West Gulf	NX5M	103,180

Multioperator, Single Transmitter, Low Power

Central	W9ET	32
Delta	W4BSF	72
Great Lakes	W4CDA	660
New England	N1SOH	9,310
Northwestern	W7TVC	8,676
Pacific	KI6YYT	896
Rocky Mountain	KB5ZSK	168
Southeastern	N4SVC	46,464
West Gulf	AF5Q	128

Regional Leaders

Boxes list call sign, score, and class:
MSHP = Multioperator, Single Transmitter, High Power
MSLP = Multioperator, Single Transmitter, Low Power
SO-CW-HP = Single Operator, CW Only, High Power
SO-CW-LP = Single Operator, CW Only, Low Power
SO-CW-QRP = Single Operator, CW Only, QRP
SO-MIX-HP = Single Operator, Mixed Mode, High Power
SO-MIX-LP = Single Operator, Mixed Mode, Low Power
SO-MIX-QRP = Single Operator, Mixed Mode, QRP
SO-PH-HP = Single Operator, Phone Only, High Power
SO-PH-LP = Single Operator, Phone Only, Low Power
SO-PH-QRP = Single Operator, Phone Only, QRP
SOU-CW-HP = Single Operator Unlimited, CW Only, High Power
SOU-CW-LP = Single Operator Unlimited, CW Only, Low Power
SOU-CW-QRP = Single Operator Unlimited, CW Only, QRP
SOU-MIX-HP = Single Operator Unlimited, Mixed Mode, High Power
SOU-MIX-LP = Single Operator Unlimited, Mixed Mode, Low Power
SOU-MIX-QRP = Single Operator Unlimited, Mixed Mode, QRP
SOU-PH-HP = Single Operator Unlimited, Phone Only, High Power
SOU-PH-LP = Single Operator Unlimited, Phone Only, Low Power
SOU-PH-QRP = Single Operator Unlimited, Phone Only, QRP

West Coast Region

(Pacific, Northwestern and Southwestern Divisions; Alberta, British Columbia and NT Sections)

K6AM	63,600	SO-MIX-HP
N6KN	30,324	SO-MIX-HP
K7JQ	16,802	SO-MIX-HP
N3RC	14,464	SO-MIX-HP
WC7Q	10,116	SO-MIX-HP
WN6K	20,764	SO-MIX-LP
WA7BNM	4,096	SO-MIX-LP
KA7T	2,756	SO-MIX-LP
K7MY	2,352	SO-MIX-LP
N7JP	1,846	SO-MIX-LP
WA6FGV	4,704	SO-MIX-QRP
AC6YY	880	SO-MIX-QRP
N7VS	360	SO-MIX-QRP
NT6H	270	SO-MIX-QRP
VE6EX	24	SO-MIX-QRP
KD7RF	7,562	SO-PH-HP
AI6LY	990	SO-PH-HP
KR7LD	608	SO-PH-HP
KN6CSB	448	SO-PH-HP
K7STU	360	SO-PH-HP
NF7E	2,046	SO-PH-LP
W6BS	1,408	SO-PH-LP
WZ8T	490	SO-PH-LP
N6OKU	288	SO-PH-LP
K7VIT	248	SO-PH-LP
W6QU (W8QZA, op)	256	SO-PH-QRP
KF6ZYD	20	SO-PH-QRP
W6YX (N7MH, op)	64,416	SO-CW-HP
AB7E	17,792	SO-CW-HP
W6AYC	14,880	SO-CW-HP
AA7V	14,040	SO-CW-HP
K6NR	11,424	SO-CW-HP
N6RM	5,688	SO-CW-LP
KM6Z	4,860	SO-CW-LP
NC6Q	2,552	SO-CW-LP
NU7Y	2,508	SO-CW-LP
WB7FJG	2,368	SO-CW-LP

KU7Y	580	SO-CW-QRP
K9JM	80	SO-CW-QRP
WD6DX	40	SO-CW-QRP
WT8P	32	SO-CW-QRP
W1UO	4	SO-CW-QRP
NT6X	37,884	SOU-MIX-HP
N6US	24,336	SOU-MIX-HP
KY7M (@NA7TB)	18,496	SOU-MIX-HP
K7XC	16,388	SOU-MIX-HP
NC6K	12,122	SOU-MIX-HP
W7TR (KH2TJ, op)	5,460	SOU-MIX-LP
K6ICS	3,210	SOU-MIX-LP
NE6I	2,240	SOU-MIX-LP
WA7AXT	1,760	SOU-MIX-LP
N6YEU	340	SOU-MIX-LP
K7STO	102	SOU-PH-HP
KJ7HZZ	26	SOU-PH-HP
W7MTH	26	SOU-PH-HP
W7CO	8	SOU-PH-HP
W6IFN	150	SOU-PH-LP
N6LB	110	SOU-PH-LP
K2GMY	518	SOU-PH-QRP
WB6BET	28	SOU-PH-QRP
WA7NWL	2	SOU-PH-QRP
K3EST	55,088	SOU-CW-HP
N6SS	46,872	SOU-CW-HP
W7RN (K5RC, op)	23,364	SOU-CW-HP
W6TK	8,148	SOU-CW-HP
WA7AN (K9DR, op)	7,980	SOU-CW-HP
N7YK	12,400	SOU-CW-LP
KX6A	3,168	SOU-CW-LP
KØXP	1,836	SOU-CW-LP
VE7XT	1,476	SOU-CW-LP
VE6TL	364	SOU-CW-LP
NX6T	39,856	MSHP
N7AT	6,954	MSHP
N7LR	4,114	MSHP
W7TVC	8,676	MSLP
W7PU	3,278	MSLP
KI6YYT	896	MSLP

Midwest Region

(Dakota, Midwest, Rocky Mountain and West Gulf Divisions; Manitoba and Saskatchewan Sections)

KØTT	115,672	SO-MIX-HP
KØLD (WAØMHJ, op)	40,144	SO-MIX-HP
W5TN	27,066	SO-MIX-HP
N7WY	26,628	SO-MIX-HP
WØETT	25,530	SO-MIX-HP
ACØW	19,440	SO-MIX-LP
WA8ZBT	9,768	SO-MIX-LP
NØHJZ	7,600	SO-MIX-LP
KAØPQW	4,368	SO-MIX-LP
WBØU	3,914	SO-MIX-LP
NDØC	1,740	SO-MIX-QRP
WD5ABC	84	SO-MIX-QRP
W5PR	19,184	SO-PH-HP
K5TR (WM5R, op)	13,080	SO-PH-HP
K9MWM	660	SO-PH-HP
KØSIX	180	SO-PH-HP
K9TWW	30	SO-PH-HP
W5TJL	280	SO-PH-LP
AGØM	270	SO-PH-LP
W6OAL	266	SO-PH-LP
WB5R	108	SO-PH-LP
WØZMU	96	SO-PH-LP
WE6EZ	532	SO-PH-QRP
KØJWQ	2	SO-PH-QRP
K5NA	117,448	SO-CW-HP
WØZA	36,704	SO-CW-HP
NØNI	30,832	SO-CW-HP
WØVTT	21,600	SO-CW-HP
NYØV	14,652	SO-CW-HP
KNØV	13,284	SO-CW-LP
AE5GT	10,080	SO-CW-LP
KØFLY	9,720	SO-CW-LP
KØTI	8,528	SO-CW-LP
W5WTX	4,680	SO-CW-LP
N5OE	2,856	SO-CW-QRP

KSØMO	224	SO-CW-QRP
WC7S	160	SO-CW-QRP
NØJK	100	SO-CW-QRP
KIØG	96	SO-CW-QRP
K5KJ	38,456	SOU-MIX-HP
NØIRM	35,624	SOU-MIX-HP
K3PA	35,046	SOU-MIX-HP
KØKX	29,744	SOU-MIX-HP
NG5E	24,220	SOU-MIX-HP
N5DO	12,760	SOU-MIX-LP
KC9FFV	5,588	SOU-MIX-LP
WBØN	5,502	SOU-MIX-LP
KØRC	3,648	SOU-MIX-LP
KØMPH	2,772	SOU-MIX-LP
ADØTA	126	SOU-PH-HP
N7MZW	774	SOU-PH-LP
NØRMJ	4	SOU-PH-LP
WA5WFE	2	SOU-PH-LP
N5CQ	21,140	SOU-CW-HP
NØAV	17,712	SOU-CW-HP
N5RZ	16,688	SOU-CW-HP
WØVX	9,044	SOU-CW-HP
KØUK	6,688	SOU-CW-HP
WØZQ	5,304	SOU-CW-LP
WØPI	4,092	SOU-CW-LP
ADØK	1,176	SOU-CW-LP
K5HEM	528	SOU-CW-LP
WØBM	504	SOU-CW-LP
NØUR	1,248	SOU-CW-QRP
KØTLG	40	SOU-CW-QRP
NX5M	103,180	MSHP
WØCXX	72	MSHP
KB5ZSK	168	MSLP
AF5Q	128	MSLP

Central Region

(Central and Great Lakes Divisions; Ontario East, Ontario North, Ontario South, and Greater Toronto Area Sections)

WØAIH (NE9U, op)	295,000	SO-MIX-HP
VE3KZ	70,992	SO-MIX-HP
KA9FOX	47,752	SO-MIX-HP
KE8EAS	6,812	SO-MIX-HP
KD8TNF	6,262	SO-MIX-HP
WB8WKQ	21,600	SO-MIX-LP
ND9G	11,088	SO-MIX-LP
KA8CNI	9,152	SO-MIX-LP
N9TF	5,544	SO-MIX-LP
N4TZ	3,708	SO-MIX-LP
K4NAX	648	SO-MIX-QRP
K8DJR	5,512	SO-PH-HP
N9RJM	1,584	SO-PH-HP
KF9US	896	SO-PH-HP
VA3MW	216	SO-PH-HP
N4ZY	126	SO-PH-HP
K4TG	868	SO-PH-LP
N9ISN	84	SO-PH-LP
K8TRB	30	SO-PH-LP
KG2E	16	SO-PH-LP
AB3DC	12	SO-PH-LP
KM4HVE	12	SO-PH-LP
N9TNT	12	SO-PH-LP
NA8V	48,240	SO-CW-HP
VE3DZ	44,880	SO-CW-HP
N8LJ	39,732	SO-CW-HP
KG9N	31,512	SO-CW-HP
K8MP	23,088	SO-CW-HP
W8MET	6,944	SO-CW-LP
VE3BW	6,656	SO-CW-LP
W9RE	5,832	SO-CW-LP
K4YJ	5,376	SO-CW-LP
K8BKM	4,900	SO-CW-LP
N8AP	2,380	SO-CW-QRP
WD8RIF	240	SO-CW-QRP
AF9J	96	SO-CW-QRP
WB8RFB	24	SO-CW-QRP
VE3CBK	8	SO-CW-QRP
AC9S	43,460	SOU-MIX-HP
N2BJ	13,764	SOU-MIX-HP

WA8MCD	8,136	SOU-MIX-HP
W9PA	6,804	SOU-MIX-HP
K9CT	5,824	SOU-MIX-HP
VA3DF	41,640	SOU-MIX-LP
KE3K	7,290	SOU-MIX-LP
N8VV	5,650	SOU-MIX-LP
K8LY	2,280	SOU-MIX-LP
N5RP	1,960	SOU-MIX-LP
K9MU	972	SOU-PH-HP
AB4KY	220	SOU-PH-HP
KJ4YLR	12	SOU-PH-HP
K2DRH	10,582	SOU-PH-LP
W5MX	42,416	SOU-CW-HP
KE4KY	18,496	SOU-CW-HP
KE8M	18,252	SOU-CW-HP
VE3EJ	13,440	SOU-CW-HP
K8PK	12,028	SOU-CW-HP
W9XT	31,096	SOU-CW-LP
WT9Q	29,172	SOU-CW-LP
K8AJS	20,904	SOU-CW-LP
K9IUQ	8,400	SOU-CW-LP
W9AV	2,448	SOU-CW-LP
KI9A	572	SOU-CW-QRP
NV9L	227,240	MSHP
W8PR	78,894	MSHP
WC8VOA	1,394	MSHP
W4CDA	660	MSLP
W9ET	32	MSLP

Southeast Region
(Delta, Roanoke and Southeastern Divisions)

N4OX	86,904	SO-MIX-HP
AG4W	51,212	SO-MIX-HP
K5FUV	15,170	SO-MIX-HP
N4FP	11,356	SO-MIX-HP
N4EEB	11,088	SO-MIX-HP
N8II	59,160	SO-MIX-LP
K2PS	43,700	SO-MIX-LP
KD5J	9,372	SO-MIX-LP
K3YDX	8,330	SO-MIX-LP
W6SFG	5,940	SO-MIX-LP
N4ELM	1,728	SO-MIX-QRP
K4PZC	1,008	SO-MIX-QRP
K4PQC	16	SO-MIX-QRP
W4DD	20,520	SO-PH-HP
N4MM	2,288	SO-PH-HP
KZ4P	1,880	SO-PH-HP
WB4YDY	1,862	SO-PH-HP
KD5JRY	484	SO-PH-HP
K4FCG (K1KNQ, op)	5,720	SO-PH-LP
KB4OLM	3,504	SO-PH-LP
AA2IA	2,436	SO-PH-LP
KM4ODS	1,860	SO-PH-LP
KR4NO	896	SO-PH-LP
AC2N	8	SO-PH-QRP
K1TO	211,440	SO-CW-HP
K4BAI	51,240	SO-CW-HP
NA5NN (W5UE, op)	34,780	SO-CW-HP
KØZR	31,220	SO-CW-HP
K4XL	27,208	SO-CW-HP
N5/WP3C	29,260	SO-CW-LP
AC4G	25,584	SO-CW-LP
K1DC	24,500	SO-CW-LP
K4ORD	18,576	SO-CW-LP
KN4Y	16,640	SO-CW-LP
KH6KG/W5	2,660	SO-CW-QRP
N4AU	1,736	SO-CW-QRP
KE2SX	1,012	SO-CW-QRP
K3TW	800	SO-CW-QRP
W8IM	600	SO-CW-QRP
N8OO	314,976	SOU-MIX-HP
WO4O	189,216	SOU-MIX-HP
N4RV	110,700	SOU-MIX-HP
W3IP	77,952	SOU-MIX-HP
WV4P	63,510	SOU-MIX-HP
K9OM	105,190	SOU-MIX-LP
NU4E	12,888	SOU-MIX-LP

W4JUU	7,680	SOU-MIX-LP
W4EE	5,814	SOU-MIX-LP
W2YE	3,600	SOU-MIX-LP
AJ4VE	1,296	SOU-PH-HP
K2ADA	7,222	SOU-PH-LP
W4POT	620	SOU-PH-LP
N2ESP	576	SOU-PH-LP
KK4ADQ	440	SOU-PH-LP
KJ4VTH	80	SOU-PH-LP
NN7CW	157,456	SOU-CW-HP
N4BP	91,336	SOU-CW-HP
WW5M	66,364	SOU-CW-HP
NR4M	48,020	SOU-CW-HP
K5LG	47,188	SOU-CW-HP
N4UA	27,692	SOU-CW-LP
WA1FCN	18,480	SOU-CW-LP
N3AC	6,624	SOU-CW-LP
K3ORC	2,632	SOU-CW-LP
N3CW	1,680	SOU-CW-LP
W2OL	480	SOU-CW-QRP
W4RN	34,202	MSHP
W4HZ	6,384	MSHP
WB4WXE	380	MSHP
N4SVC	46,464	MSLP
WA1F	336	MSLP
W4BSF	72	MSLP
K4GIG	30	MSLP

Northeast Region
(New England, Hudson and Atlantic Divisions; Maritime and Quebec Sections)

K1KI	112,840	SO-MIX-HP
W1VEM	82,782	SO-MIX-HP
K3ZO	68,672	SO-MIX-HP
W2OIB	50,160	SO-MIX-HP
K3ZA	22,704	SO-MIX-HP
KØDI	6,594	SO-MIX-LP
AC1J	5,940	SO-MIX-LP
NS3T	5,808	SO-MIX-LP
N1NK	5,104	SO-MIX-LP
W1VIV	4,104	SO-MIX-LP
WB2AMU	2,952	SO-MIX-QRP
K1PDY	464	SO-MIX-QRP
AF1T	14,256	SO-PH-HP
KE2DX	13,920	SO-PH-HP
K1VO	1,080	SO-PH-HP
4U1WB (AJ3M, op)	936	SO-PH-HP
N1JHJ	648	SO-PH-HP
NO2EL	4,320	SO-PH-LP
KA1VMG	1,846	SO-PH-LP
K2SDS	984	SO-PH-LP
KC3OBS	900	SO-PH-LP
N1FTP	638	SO-PH-LP
W1CEK	42	SO-PH-QRP
W7BAK	2	SO-PH-QRP
NY3A	59,488	SO-CW-HP
K1RM	54,880	SO-CW-HP
W1WEF	35,640	SO-CW-HP
KR2AA	30,328	SO-CW-HP
KW2J	28,080	SO-CW-HP
W3BGN	42,336	SO-CW-LP
K1VUT	19,552	SO-CW-LP
K1TR	18,444	SO-CW-LP
W1QK	15,264	SO-CW-LP
W2AAB	6,300	SO-CW-LP
KZ3I	648	SO-CW-QRP
WB2CPU	612	SO-CW-QRP
WO2N	544	SO-CW-QRP
N1AIA	208	SO-CW-QRP
KB8NUF	96	SO-CW-QRP
N3RD	121,524	SOU-MIX-HP
K3WW	110,124	SOU-MIX-HP
K2XR	104,976	SOU-MIX-HP
W1TJL	72,576	SOU-MIX-HP
KU2M	44,556	SOU-MIX-HP
K1ZE	20,276	SOU-MIX-LP
KE2D	13,568	SOU-MIX-LP
W1DYJ	6,656	SOU-MIX-LP
N1API	6,240	SOU-MIX-LP

W2FDJ	4,788	SOU-MIX-LP
N2KW	120	SOU-MIX-QRP
W2RD	5,886	SOU-PH-HP
KA1ZD	4,850	SOU-PH-HP
N2NKX	700	SOU-PH-HP
N3DUE	450	SOU-PH-HP
W9KXI	264	SOU-PH-HP
N2MUN	924	SOU-PH-LP
K2ANZ	98	SOU-PH-LP
KC1MEV	84	SOU-PH-LP
K2RSB	6	SOU-PH-LP
W1KM	75,432	SOU-CW-HP
W3EP	72,864	SOU-CW-HP
N2MM	64,768	SOU-CW-HP
K3LU	45,360	SOU-CW-HP
N2CU	26,880	SOU-CW-HP
K2DFC	20,592	SOU-CW-LP
VA2CZ	10,608	SOU-CW-LP
K1XM	10,296	SOU-CW-LP
VE1OP	7,056	SOU-CW-LP
W3KB	4,928	SOU-CW-LP
KN1GUN	928	SOU-CW-QRP
KW2A	120	SOU-CW-QRP
W1VT	12	SOU-CW-QRP
AA1JD	168,276	MSHP
N1RR	135,792	MSHP
W3ZGD	89,628	MSHP
K3CCR	29,820	MSHP
KØOO	25,872	MSHP
N1SOH	9,310	MSLP
W1NRG	2,212	MSLP