ARRL 10-Meter Contest 2020 Full Results

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

"Best Friday Night in History!" – John, K6AM

That was a very common Soapbox Comment from operators after the conclusion of the 48th running of the ARRL 10-Meter Contest. Held December 12 and 13, 2020, the band rewarded those who were on the air early with incredible QSO numbers. While the 2019 contest was typical of bottom of the solar cycle, 2020 showed, at least for a few hours in North America, how much fun the 10-meter band can be. Danny, K7SS, summarized things pretty well with his soapbox comment: "Great to have Ten back at it. It has been a long drought ".

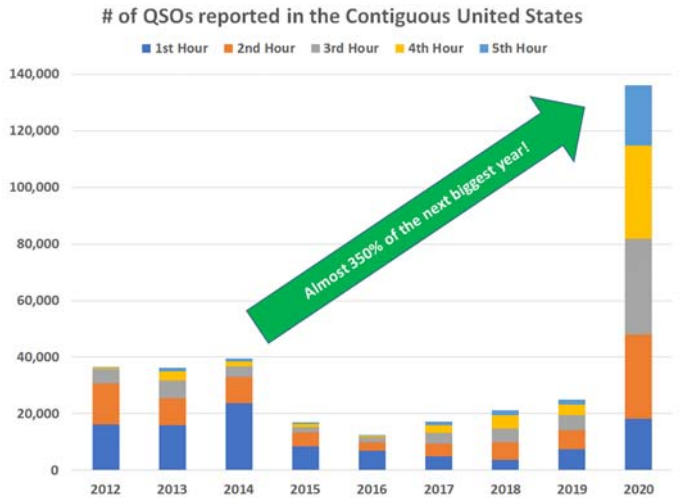


Figure 1 – QSOs during the first 5 hours

What Happened Friday Night?

Before looking at other aspects of the contest it is worth taking a focused look at just what did happen on Friday night. (The contest starts on Friday evening in North America. For most of Europe and Asia it is Saturday when the contest starts.) First, yes, the band was wide open across the Contiguous United States soon after the contest started. Many operators commented that the first hour did not seem too out of the ordinary. However, beginning in the second hour the band jumped to life. For the next 3 to 4 hours operators experienced QSO rates they had not seen in years, if ever. As Jeff, KU8E, put it: "I made 550 QSO's in the first five hours of the contest. In all my years of contesting I've never made this many QSO's on Friday night of a 10-meter contest." How big were the overall QSO numbers? Take a look at the Figure 1.

Across the last 9 years for which I have data, in 2020 the number of QSOs in the first 5 hours were almost 350% higher than the next highest year. The total number of QSOs in the first 5 hours were more than reported by Contiguous USA stations for the whole contest in each of the last three years! The top three hours for the whole contest were hours 2, 3, and 4. (This is not unprecedented. In 2017 the top 4 hours of the contest were hours 1, 2, 3, and 4.) If the opening was not amazing enough, many operators commented on how late the band stayed open. Well beyond local midnight in many locations. Ray, WQ5L, offered a summary similar to many operators: "(The band) didn't sound good at the starting bell, just a few light signals from LU and XE. But then the E-skip revved up into overdrive during the second hour, in pretty much every direction, and was still going at midnight. Icing on the cake was FK8IK calling in the middle of an east coast run. Went to sleep with a little under 500 Qs in the log. Wow." After this fast start the rest of the weekend was a relative disappointment. A more or less normal low sunspot year event similar to 2017 through 2019. Conditions were generally poor all-day Saturday and there were just a few hours of life during the day on Sunday. Overall, 31% of the QSOs made by Contiguous US station were made in the first 5 hours. For stations in some states along

the east coast they made well more than half of their QSOs for the whole weekend in the first 5 hours.

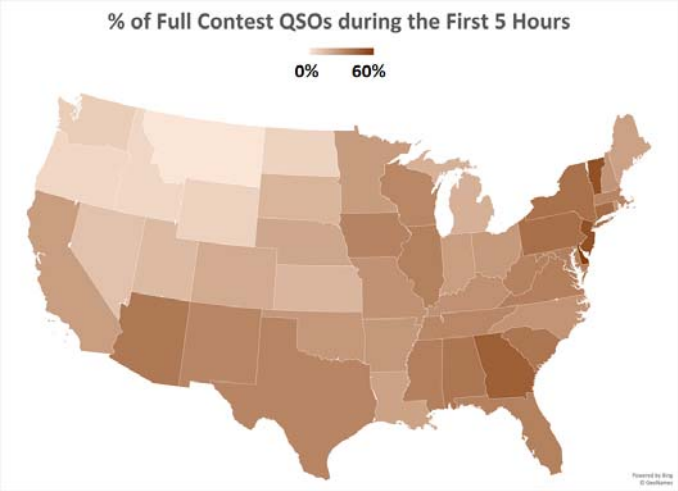


Figure 2 – Impact of the first 5 hours

Notable states, and the % of their total QSOs in the first 5 hours, were: Delaware (59%), New Jersey (52%), Vermont (51%) and Georgia (47%) Conversely, states in the upper Midwest and northwest seem to have missed out on this early flurry and logged their QSOs later in the contest. Notable states with a small percentage of their QSOs during the first 5 hours were: Montana (0.2%), Idaho (4.9%), Oregon (5.1%), North Dakota (6.4%), Wyoming (6.9%) and Washington (8.3%). Yes – 10-meter propagation can be both fickle and focused on smaller areas. Though by historic experiences the openings on Friday night, which were likely E-skip in nature, were as widespread and long lived as anyone could remember.

When we have conditions like we had in 2020, the word gets out. Good conditions not only reward those who were already planning on being on the air but also attracts idle operators to their radios. What's the old saying "Like bees to honey"? As more operators head to their radios QSO rates keep climbing, more total QSOs are made, and more logs are submitted. Compared to 2019, total logs submitted worldwide more than doubled to 3,883. Total reported QSOs jumped over five-fold to 584,130. The most since 2015. The size of the average log size increased by 150% from 60 to 152. Yes, compared to any of the years 2016 thru 2019, 2020 was absolutely outstanding.

Worldwide Perspectives

Yes, wide portions of the Contiguous United States had "The Best Friday Night in History". Even when followed by a fairly typical low sunspot year rest of the contest, it led to great participation and results. What about the rest of the world? Let's look at the 2020 increase in total reported QSOs from each continent.

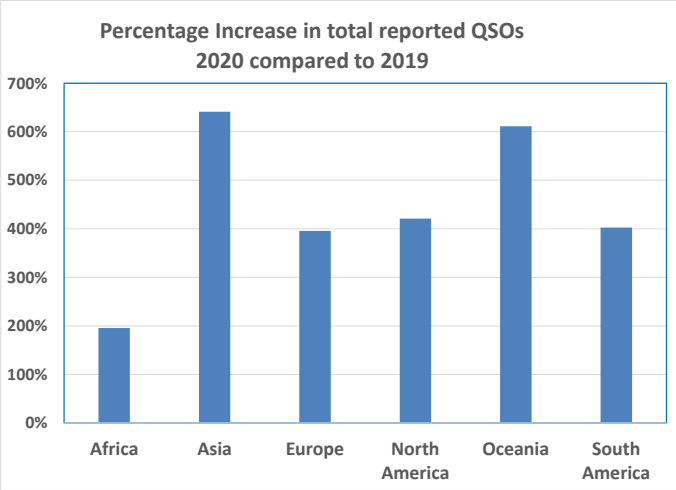


Figure 3 – QSO increases around the world

As impressive as North America QSO increases in 2020 were, Europe and South America were not far behind. Asia and Oceania had even better results with over 600% increases in reported QSOs in 2020 as compared to 2019. Only Africa seemed to miss out but with a still very respectable almost tripling of reported QSOs.

Taking another view of the data though shows that long range inter-continental QSOs were still relatively lacking. (Inter-continental meaning that the two stations in the contact were located on different continents. An Intra-continental contact would be when both stations are located on the same continent.)

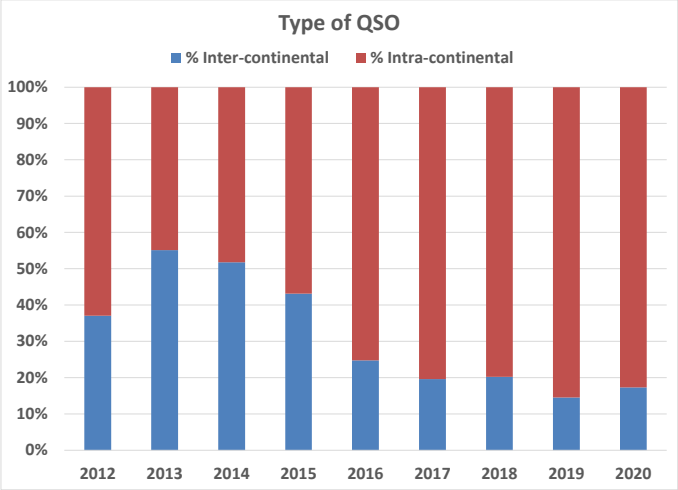


Figure 4 – Trends in Contact Type

Clearly there was a major worldwide improvement in total QSOs from 2019 to 2020. However, the overall QSO mix was still largely intra-continental QSOs. Long distance 10-meter propagation, generated by F2 layer signal refraction, is still missing in action. It is worthwhile to compare 2015, the last year with a similar number of intra-continental QSOs, to 2020.

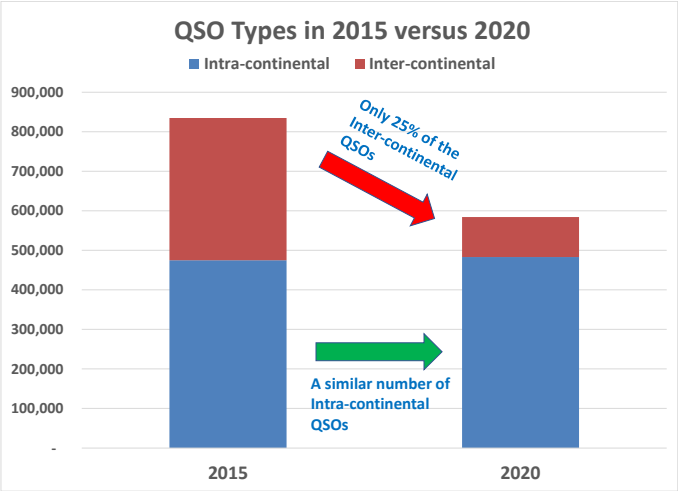


Figure 5 – 2020 similar but different than 2015

Both years reported about 480,000 total intra-continental QSOs. However, in 2015 there were 360,000 inter-continental QSOs as well. Over triple the number reported in 2020. And 2015 was not even a great propagation year. It was as transition year after the propagation peak in 2013 in 2014 and before the real bottom of solar cycle years beginning in 2016.

In summary, 2020 was a very interesting year. Not one I have seen in the years I have written about the contest. It was the best since 2014 as far as making contacts with your own continent. Operators all around the world really enjoyed that for what it was. Now all we must do is keep that going and wait for the return of long distance inter-continental propagation. Will it be in 2021? 2022? I will share some thoughts later in this article.

Station Stories

When conditions are good, even if for a short period of time, the 10-Meter Contest is ideal for small stations. It does not take big antennas nor high output power to have fun. Many stations just throw something together to get on the air – often homebrewed. Here are some photos and stories from 2020.

Photo 1 - Jon, NØJK, used an old Radio Shack CB magmount whip on top of his barbeque to get on the air. [Jon Jones, NØJK, photo]

Photo 2 – Tim, KAØOUV, operating as N0SS, used a dipole mounted above his deck. Note the high-tech weatherproof balun enclosure. [Tim Raymer, KAØOUV, photo]

A typical effort was summarized by Paul, N1SFE: "My first 10-meter contest, and my first 10-meter QSOs ever! I set up a temporary dipole between a tree and a basketball hoop at my new QTH. I moved over the summer and do not have any antennas up yet. I was able to make about 50 contacts. Operated using an Icom IC-7000 running on a Bioenno Power 20 ah battery."

Photo 3 – Charlie, TI2CDA, built this good looking 4 element Loop Fed Array antenna just in time for the contest. He made almost 500 contacts with it! [Charlie Azofeifa, TI2CDA, photo]

Category Winners, New Records, and Other Accomplishments

Here are the overall worldwide category winners for 2020.

Single Operator, Mixed Mode, High Power	
LU8DPM (LU5WW, op)	1,034,796
Single Operator, Mixed Mode, Low Power	
N8II	398,764
Single Operator, Mixed Mode, QRP	
NDØC	51,968
Single Operator, Phone Only, High Power	
NR5M	351,828
Single Operator, Phone Only, Low Power	
K5OF	62,370
Single Operator, Phone Only, QRP	
TG9ANF	41,148
Single Operator, CW Only, High Power	
ZF5T	540,484
Single Operator, CW Only, Low Power	
K7SV	166,320
Single Operator, CW Only, QRP	
WAØMHJ	70,200
Single Operator Unlimited, Mixed Mode, High Power	
N8OO	1,243,512
Single Operator Unlimited, Mixed Mode, Low Power	
K9OM	351,440
Single Operator Unlimited, Mixed Mode, QRP	
N2XP	11,232
Single Operator Unlimited, Phone Only, High Power	
K4WI	248,976
Single Operator Unlimited, Phone Only, Low Power	
K2DRH	127,680
Single Operator Unlimited, Phone Only, QRP	
KU4A	1,116
Single Operator Unlimited, CW Only, High Power	
K1MM	530,800
Single Operator Unlimited, CW Only, Low Power	
LU8MHL	244,800
Single Operator Unlimited, CW Only, QRP	
NØUR	57,552
Multioperator, Single Transmitter, High Power	

PY2YU	1,196,634
Multioperator, Single Transmitter, Low Power	
FY5KE	592,516

Photo 4 – Here is Seba, LU8MHL, Single Operator Unlimited, CW Only, Low Power category winner. What a nice-looking operating desk. [Sebastian Galeazzi, LU8MHL, photo]

Note the number of North American stations as category winners. The lack of South America to Europe and South America to Asia propagation found in high sunspot years greatly reduced their multiplier opportunities. This offered a chance for stations in North America to climb 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. And, in 2020, just five. I fully expect when long distance propagation returns in a couple of years for South America to once again be at the top of most categories.

Special mention goes out to five operators who were repeat winners in the same category they won in 2019. They were:

- TG9ANF in the Single Operator, Phone Only, QRP category
- N8OO in the Single Operator Unlimited, Mixed Mode, High Power category
- K9OM in the Single Operator Unlimited, Mixed Mode, Low Power category
- K2DRH in the Single Operator Unlimited, Phone Only, Low Power category
- NØUR in the Single Operator Unlimited, CW Only, QRP category

Looking at these top category scores as compared to last year's demonstrates the impact of the higher QSO and multiplier counts. Outside of the QRP categories the average 2020 category winner had a score almost 5 times the winner in 2019. For the QRP categories it was closer to 18 times! When 10 meters is open it does not take much power to make QSOs. So, with the better propagation in 2020, even if for a few hours, QRP operators really benefited.

These same improved conditions led to many new All-Time Records being set in 2020. At the W-VE-XE level there were 5 new Division records and 89 new Section records. In 2019 the comparable numbers were 3 and 25. Congratulations to:

- N2XP for setting the Hudson Division record in the Single Operator Unlimited, Mixed Mode, QRP category
- KU4A for setting the Great Lakes Division record in the Single Operator Unlimited, Phone Only, QRP category
- K2DFC for setting the Hudson Division record for Single Operator Unlimited, CW Only, Low Power category
- NØNI for setting the Midwest Division record for Single Operator Unlimited, CW Only, Low Power category
- NM5M for setting the West Gulf Division record for Single Operator Unlimited, CW Only, Low Power category

At the DX Entity level there were 2 new Continent records set versus none in 2019. There were also 66 new DXCC Entity records set versus 17 in 2019. Congratulations to:

- V51WH for setting the Africa record for the Single Operator Unlimited, Phone Only, High Power category
- PY2XM/MM for setting the Maritime Mobile record in the Multioperator, Single Transmitter, Low Power category

Except for PY2XM/MM, these Division and Continent record scores broke existing records from prior years. PY2XM/MM was the first ever entry in the Multioperator, Single Transmitter, Low Power

Maritime Mobile category. Looking more broadly at W/VE/XE Sections and DXCC Entities, there is a mix of new records being set by "first score in the category" and "breaking existing records".

For a searchable database of ARRL 10-Meter Contest All-Time Records select "Records" on the 10-Meter Contest page at contests.arrl.org.

In the "Other Accomplishments" area, for the first time since 2015, a few hard-working operators managed to Work All States. A total of 12 stations worked all 50. They all were high power stations and in the Mixed Mode or CW Only categories. Looking at the callsigns I recognize many as experienced contesters operating from well-equipped stations. So, while possible to work WAS, it was not for everyone. We will still have to wait for conditions to improve some more. In 2014 a total of 183 stations achieved WAS including 3 QRP stations. Ahh, those were the days.

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 2020 a total of 1,151 operators submitted logs that were also credited towards ARRL Affiliated Club Competition. This means about 45% of the W/VE operators were part of one of the 71 different clubs that participated. As always, club organizers were key in organizing and motivating their members to get on the air. Way to go club organizers!

In the Local category, the Iowa DX and Contest Club (IDXCC) took top honors among the 15 clubs in this category. Total entries were up nicely from the six clubs in 2019. IDXCC dethroned 2019 winner The Villages Amateur Radio Club. IDXCC's winning club score was almost 750% of the winning score in 2019. Another example of how much better conditions were in 2020 compared to 2019. IDXCC's success formula was having high-scoring entrants, the highest of any club in this category and more than double that of their next closest competitor.

In the always popular and competitive Medium category, 50 clubs fought it out. In one of the closest contests in years the Northern California Contest Club (NCCC) ended on top when it was all over. They ended the two-year streak of 2019 and 2018 winner Florida Contest Club, who moved up into the Unlimited category for 2020. NCCC's success factor was member turnout. They had the second highest number of entrants in the Medium category. Even though their score per entrant was middle of the pack, their member turnout led them to victory. Special mention goes out to second place Central Texas DX and Contest Club. (CTDXCC) They came up just a bit short to NCCC even though they had a 27% higher average score per member. But NCCC's 11 more entrants than CTDXCC was the difference maker.

In the Unlimited category six clubs fought it out in 2020. As compared to 2019, Florida Contest Group (FCG), Yankee Clipper Contest Club (YCCC), and Society of Midwest Contesters (SMC) moved up to Unlimited from Medium. Even with this added competition the 120 members of the Potomac Valley Radio Club (PVRC) came out on top by a comfortable margin over Florida Contest Group. This win means the PVRC has now won the Unlimited category 8 of the last 9 years. PVRC's repeated their time-tested success formula of getting their members to get on the air, generate some "points for the club" and turning in logs. Their score per member was only about 60% of second place FCG and the lowest of the top four clubs. However, they had well over twice as many members submit logs as FCG and that is what made the difference. Year in and year out PVRC has won this category though the organization and motivation of their members.

Photo 5 – Dedicated YCCC member Dave, K1WHS, facing the half mile walk uphill through the snow to his station. The things operators do for their clubs! [Dave Olean, K1WHS, photo]

Affiliated Club Competition

Club	Score	Entries
Unlimited		
Potomac Valley Radio Club	7,954,388	120
Florida Contest Group	6,036,794	52
Yankee Clipper Contest Club	5,343,012	64
Frankford Radio Club	5,030,984	66
Minnesota Wireless Assn	5,005,366	94
Society of Midwest Contesters	3,830,940	90
Medium		
Northern California Contest Club	2,940,048	41
Central Texas DX and Contest Club	2,708,174	30
Southern California Contest Club	2,160,774	40
Alabama Contest Group	2,102,768	9
Tennessee Contest Group	1,946,036	33
Arizona Outlaws Contest Club	1,732,104	35
Grand Mesa Contesters of Colorado	1,675,546	19
South East Contest Club	1,360,442	18
Contest Club Ontario	1,207,418	48
Mother Lode DX/Contest Club	1,135,240	20
Kentucky Contest Group	1,112,240	18
Willamette Valley DX Club	1,089,378	24
Kansas City Contest Club	1,027,096	10
DFW Contest Group	982,372	22
Carolina DX Association	924,348	13
Western Washington DX Club	765,676	17
Texas DX Society	531,376	10
599 DX Association	462,564	6
Georgia Contest Group	459,446	5
Hampden County Radio Association	457,342	16
Hudson Valley Contesters and DXers	425,238	15
Louisiana Contest Club	397,856	6
Great Places Contest Club	386,376	6
North Coast Contesters	371,980	7
Swamp Fox Contest Group	363,150	12
Saskatchewan Contest Club	356,380	3
Rochester (NY) DX Assn	314,764	8
Mad River Radio Club	310,396	11
Northeast Maryland Amateur Radio Contest Society	309,072	11
Bay Area DXers	260,844	4
Order of Boiled Owls of New York	260,064	6
North Texas Contest Club	247,768	4
Driftless Zone Contesters	187,780	7
Big Sky Contesters	174,740	6
Pacific Northwest VHF Society	136,680	5
Orca DX and Contest Club	135,208	8
Maritime Contest Club	103,984	4
Candlewood ARA	80,808	4
Spokane DX Association	67,292	4
Valley Amateur Radio Association	64,032	5
Silver Comet Amateur Radio Society	58,176	5
Port Lavaca Amateur Radio Club	33,452	4
New Providence ARC	29,030	3
South Jersey Radio Assn	27,712	3
Downey ARC	22,890	3
Providence Radio Assn	21,178	3
Six Meter Club of Chicago	14,558	3
Great South Bay ARC	4,468	4
Sierra Nevada ARS	2,602	4
Rockwall ARC	684	3
Local		
Iowa DX and Contest Club	458,848	3
The Villages Amateur Radio Club	454,090	6
Central Virginia Contest Club	411,152	7
Niagara Frontier Radiosport	191,178	8
Hazel Park ARC	76,890	7

Bristol (TN) ARC	67,822	3
CTRI Contest Group	30,942	5
Meriden ARC	23,386	5
Athens County ARA	15,600	4
Preble ARA	14,070	4
North Fulton ARL	13,256	3
Hilltop Transmitting Assn	11,816	3
OH-KY-IN ARS	4,218	3
TX Emergency Amateur Communicators	1,566	3
Central Michigan Amateur Radio Club	1,316	4

Having Fun in 2021 (And Beyond)

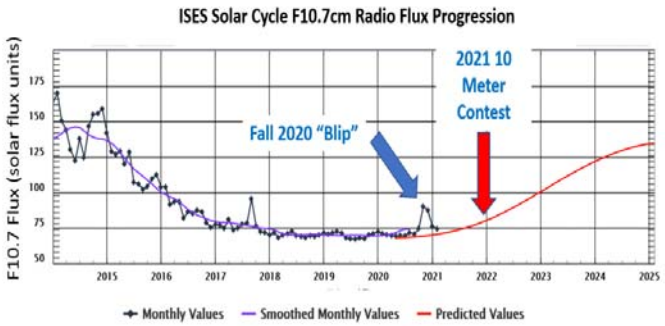
The 49th annual ARRL 10-Meter Contest will be held on December 11th and 12th, 2021. What might we expect this year? Well, who knows? We are now officially past the bottom of the solar cycle and conditions should be improving. But, by how much? Who knows? As they say: "Forecasting is difficult, especially when it is about the future"!

The big news is that since the last time this article was written in April 2020, the bottom to the last solar cycle was declared to have occurred in December 2019. Because of the calculations involved it takes several months after the event to know that it happened. Experts now agree the last solar cycle has ended and a new one has begun. So, contest conditions should only improve from here for the next several years.

The April 2021 issue of QST Magazine has complete coverage of this event under the cover story "Here Comes Solar Cycle 25". I encourage you to go read your issue or check out the coverage online at arrl.org

The ARRL 10-Meter Contest, more than just about any other ARRL contest, is influenced by the solar cycle. As sunspots and solar flux increase, 10-meter propagation improves, the opportunity to make long distance QSOs goes up, operators get on the air, total QSOs in the contest explode, etc. Propagation is everything. During the 2020 contest, Solar Radio flux was in the 80 range, which was an improvement over the rock bottom levels in 2019 of around 70. Historically though we need solar flux levels closer to 100 for the band to really open up. So, what happened in 2020 that lead to the amazing conditions discussed earlier? Probably two factors. First, the "Best Friday Night in History" was most likely due to wide ranging and long-lived E-Skip openings. These type of openings can, and do, happen in years of low solar activity. The second factor is that Solar Flux levels were much higher in the days leading up to the 2020 contest. In early December they were over that magic 100 level. So, though they had dropped back by the time of the contest, there was still likely some residual benefit to 10-meter propagation. It was not enough though to open up the long-distance East-to-West paths like North America to Europe, Europe to Asia, and Asia to North America. There was enough however to raise up the overall number of QSOs. And, to contribute to the amazing results.

At this time last year, the National Oceanic and Atmospheric Administration's Space Weather Prediction Center had not published a forecast for the new, now current, solar cycle. Their graphical forecast showed radio flux flatlined at 60 continuing out into 2023 and beyond. They had just started to release written reports that suggested improved conditions by the time of the 2021 contest. Now, a year later, they have published a graphical forecast and the current one is shown below.



Courtesy: Space Weather Prediction Center

Figure 6 – Solar Flux forecast, courtesy of NOAA/SWPC

There are a couple of things to note in this chart. First is that there is a nice red forecast line leading to higher levels of solar activity in the coming years. The predicted solar flex level for December 2021 is 79 and for December 2022 it is 99. So, based on this

forecast and historical observations the 2021 contest could, unfortunately, be like the other recent bottom of the cycle contests in 2017, 2018, and 2019. Just looking at the numbers, it will take until 2022 until the magical level of 100 on solar flux is reached. Again, this is what it usually takes for the 10-meter band to have wide ranging, long lived, long distance propagation. The second thing to note is the "upward blip" in solar flux that occurred in late 2020. This led to some amazing condition for some of the other late fall (Northern Hemisphere) contests and probably even helped a bit on the ARRL 10-Meter Contest. Actual solar conditions never follow a smooth forecast line. So, who knows, maybe we will see another "upward blip" during the 2021 contest as conditions continue along an overall improvement path.

Remember though, even without high solar flux 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 four 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. As Peter, N4ZR, reflected "I had forgotten how much fun 10 meters could be with a little sunspot activity"

Let me repeat my usual advice on how to make contacts and have fun in low sunspot years. If 2021 turns out to be more like 2019, 2018, or 2017 there will still be numerous opportunities to make contacts. Additionally, though 2020 will be remembered for the opening five hours, after that was over the rest of contest was very much another typical low sunspot year struggle. 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. In 2020, 71% of the reported contact were made on CW. This was a bit lower than in 2019 driven by the several hours of strong propagation in North America. But, year in and year out, you are always best off being prepared to make CW contacts.

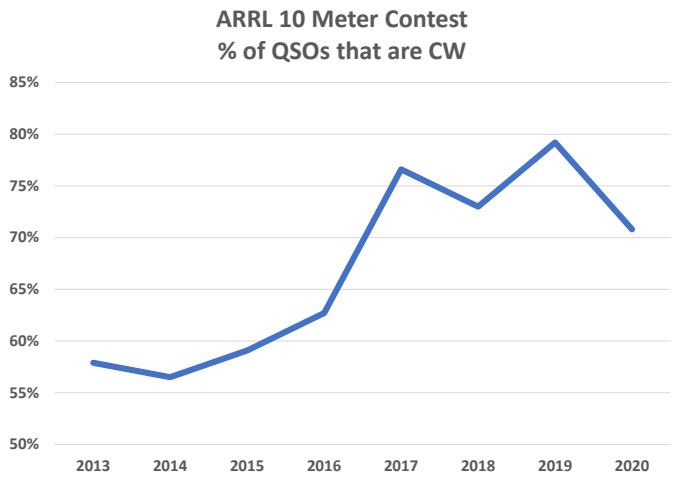


Figure 7 – CW QSOs made during the contest

Second, seek out other propagation modes than long distance F2-layer ionosphere refraction. This will be key for those seeking top scores, meeting your personal goals, or just having fun. As the summary from the K3CCR multioperator team said about how they achieved triple their score goal: "… we saw a yeasty mix of F layer, sporadic-E and a few meteors." These modes and more will continue to play an important role. Or as Danny, KBØEO said: "It was great to work many Minnesota stations – ground wave, aurora, meteor scatter, and back scatter all seemed to contribute to the close in stuff". If you are not familiar with all these propagation modes 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. As Cedrick, WT2P, commented "In the last 30 minutes of the contest there were no signals to be seen but then all of a sudden you'd get a meteor burn and signals would pop up out of the noise. I managed to snag 3 more CW q's on these burns". For Ed, VE4VT, meteor scatter played a big role in his weekend. "The contest started Friday with decent sporadic E to Florida and the SE US. This ended and

was replaced by meteor scatter. Saturday morning the band opened about 2 hours before sunrise with a combination of Sporadic E to the W1 call area and a bit of Meteor scatter. …. Saturday night was almost entirely meteor scatter."

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! Larry, K4AB, summarized many operators' experiences in 2020: "I had zero plans to operate this contest. I sat down to the radio 90 minutes into the contest to confirm to myself that the band was indeed dead. But, ten meters was loaded with signals from all over the U.S. By the time the band finally did close three and a half hours later, there were near 600 QSOs in the log."

Regular F2 openings will be short, sometimes really short. As Inaki, EB1RL, observed in 2019 "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 past soapbox comments it seems like more and more operators have a panadapter or bandscope. Typical comments are like:

- 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 2019 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 2021, as in the last four years, will be to catch the band openings.

Additional Analysis and Insights

In the nine 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 articles can be found on the ARRL web site in the 10-Meter Contest Expanded Results Articles at contests.arrl.org

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. (News flash for 2017! There were no changes in these.)
- 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.

2019

- Insight into choosing times to operate for maximum potential QSOs – if you have a choice of times to operate.
- My annual update on logging program usage.

This year I will again provide my annual update on logging program usage and present some analysis on the best states to operate from during the ARRL 10-Meter Contest.

I have been authoring this article since the 2011 contest. The better part of a whole solar cycle. During these years operators have experienced the full range of what 10 meters has to offer. Long periods of long distance, inter-continental F2 openings. Short periods of E-skip openings to relatively nearby locations. And, those ever brief QSOs offered by bouncing your signal off of meteor trails. With this multi-year view under these conditions and how operators adapted their operating to them it is possible to get some insight into the question: "Where is the Best State in the contiguous USA to operate from in the ARRL 10-Meter Contest?"

There are a several different ways to answer this question. Let's start out simply by looking at the average number of QSOs in a log. From a scoring standpoint this is one of the key things you need. If you are looking for, or wondering about, where the Best State is to be, QSOs in a log is a reasonable measure. For the years I have the data, which is 2012-2020, I calculated the average QSOs in the logs from each state and DC. Next, I ranked states from the state with the most QSOs per log to the state with the least. Then, I calculated an average

yearly ranking of each state across these 9 years. I then used these rankings to create a filled map of the contiguous USA. Green shading indicates states that have experienced above average QSOs/log over these years and red shading indicates states that have experienced below average QSOs/log over these years. States with yellow-ish shading are around average. The resulting map is shown below.

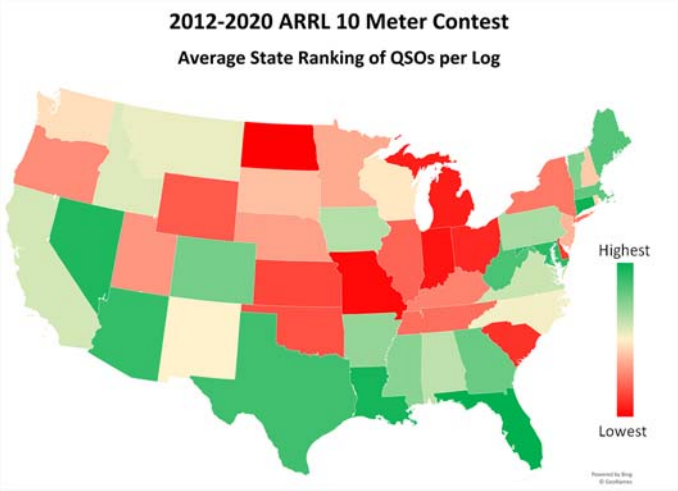


Figure 8 – Where to be based on QSOs per Log

What does this map show? Generally speaking, the Best States to be are on the coastal periphery of the country. Starting with Maine in the northeast down the east coast to Florida then west around the gulf coast to Texas and then around to California. The most challenging places to be are in the Midwest -- Michigan, Ohio, Indiana, Illinois, Missouri, Kentucky and Tennessee. The top state to be has been, on average, Florida. The most challenging state to be has been, on average, North Dakota. How much different are the logs across all the states? For these 9 years the average log contained 189 QSOs. Those in Florida averaged 37% more than average at 259. Those in North Dakota averaged 50% less than average at 95. There may be other factors impacting North Dakota's results – which I will discuss next. After North Dakota, the next most challenging state is Missouri at 37% less than average at 118 QSOs per log. I like that. There is a nice symmetric 37% above and below average between the best and most challenging states, in terms of QSOs per log, looked at over a 9-year period. I am not sure what I expected when I started this investigation, but it was probably for a bigger difference than this.

A few caveats about the QSOs per log metric. One thing it does not account for are differences in station capabilities. There are some states where a few, or even one, mega-station greatly influences the overall average QSOs per log in that state. These stations, via their capabilities, can make more QSOs and then they also tend to be on the air for longer periods of time, making more QSOs from the available conditions. This points out a second variable this methodology does not account for – differences in time stations are on the air. As with QSOs per log, there is a +/- 35% or so difference above and below average in the time stations spend on the air. Let's revisit the North Dakota situation mentioned above. There are very few operators in the state. The typical number of logs submitted from there each year is 5. And in one year there were none. They also spend 35% less time on the air. There is a second way to look at this data that somewhat accounts for differences in operator time. I will present in a little while.

First, in addition to this 2012-2020 average view, I looked at each individual year with the same metric. Doing this showed how "The Best State to Be" can shift year-to-year depending on overall conditions. Some years favor certain areas of the country that other years miss out. E-skip openings are well known for their geographically fickle characteristics. These yearly swings are well known to long time ARRL 10-Meter Contest participants. Here are quick summaries of each year to confirm their suspicions. The individual yearly maps are presented in aggregate at the end of the article.

- 2012 – A year of long distance F2 propagation. From a regional viewpoint it was very much average. Maybe a bit better conditions in the west but otherwise pretty average.
- 2013 – A year for the states out west. From the Rocky Mountains to the West Coast these states had a great year where many of the middle East Coast states were probably grumbling about what a crummy year they had. The Midwest had their usual challenging year.
- 2014 – Similar to 2013 though the good west coast conditions were restricted to the area

from Arizona and New Mexico up through Montana. The east coast was probably saying "I can't believe another yukky year".

- 2015 – A year not to be in the center part of the country where a large area from Indiana to Utah and Oklahoma to North Dakota missed out on band openings. The East, Gulf, and West coasts had their typical better than average years.
- 2016 – A year to be in the three corners of Northeast, Southeast, and Southwest. The Northwest and Midwest did not do as well. This pattern had not been seen up to this point.
- 2017 -- The most random and checkerboard of the years looked at. I did not go back and look at propagation records, but conditions may have been influenced by a small number of E-skip regions which randomly favored small areas.
- 2018 – The first of two similar years. You really wanted to be in the southern tier of states and up the east coast. States in the northern tier and particularly from the Dakotas to the west coast were challenged.
- 2019 – Similar to 2018. Stations in the middle east coast and southeast had the best conditions this year. And, for once, Michigan and Wisconsin had pretty good years. Northern states and in particular the northwest probably felt like they got left out.
- 2020 – The reverse of 2015. A very rare occurrence. This was a year to be in the central part of the country along with the usual southeast. States in the northeast, midwest, and west coast did not benefit as much from the improved conditions.

As I mentioned at the start of this section there are several different ways to look at this topic. One is using QSOs per log as a metric. This directly ties to scoring. (For those of you that are wondering, using station score as a metric might be best of all. But it turns out I don't have that data organized to use. So, I used what I had.) Another metric is QSOs per hour while on the air. This metric may be more linked with enjoyment than scoring – and yes I know that generating a high score is enjoyment for some people. But not all. If conditions are good, you stay on the air more. If they are poor, you make the QSOs you can and then go do something else when the rate dries up. If making QSOs during the time you are on the air is your measure of fun, then this is another metric to look at. This map is shown following.

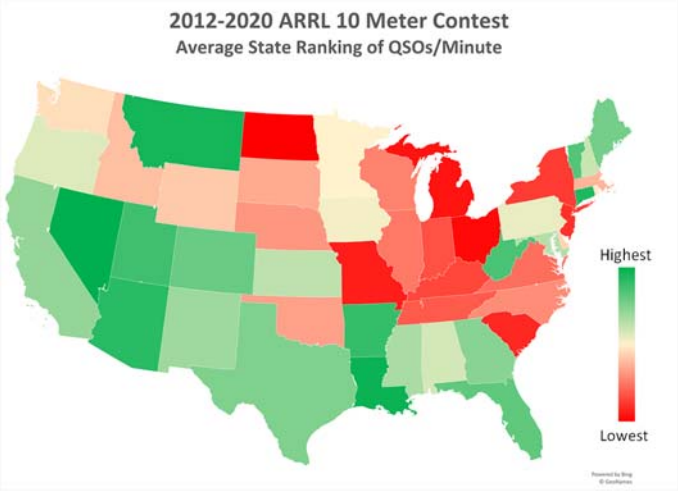


Figure 9 – Where to be based on QSOs per Minute

A few thoughts and conjectures about what this map indicates. Evaluating states on this metric would say you want to be in the southern tier of states or the northeast. The Midwest again shows the same challenges they did looking at the QSOs per log metric. Another interesting perspective are which states moved into more reddish territory in this view. One area was states from Massachusetts down to North Carolina. This metric suggests that they are spending relatively more time on the air at lower QSO rates. It is possible this is due to high participation in contest clubs in that region where operators are trying to maximize their score. To do so they will spend longer periods of time on the air to squeeze out every last QSO. Even at low QSO rates. That is what they are doing to have fun even though their QSOs for time on the air will decrease as a result. Conversely the states that moved into more greenish territory seem to be in the southwest and then up the west coast. I do not have any contest related conjectures about why this is. But the data suggest operators in these regions go do something else with their time when rates slow rather than squeeze ever last QSO from the band.

To wrap up this year's article I will take my annual look at logging program usage. 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 2020 ARRL 10-Meter Contest logging program usage looked like this:

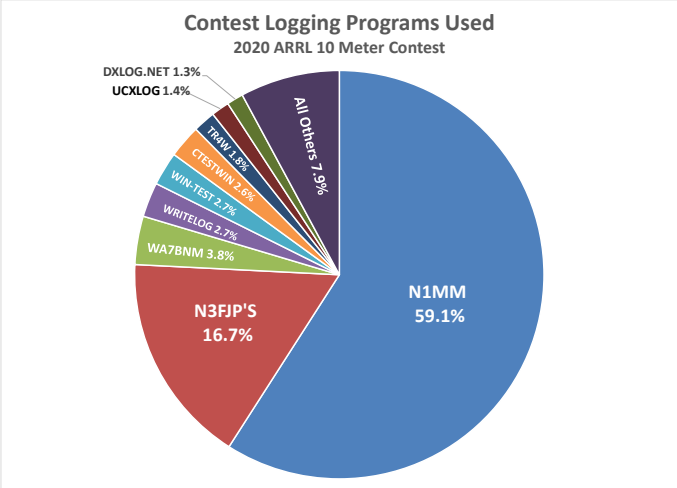


Figure 10 – Contest Loggers Used in 2020

There are a few programs on this list you may not be 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, 147 in 2020, who still log by hand and then use the WA7BNM Cabrillo Web Form to create their Cabrillo log file. In 2020 there were 66 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 three and a half times as many contesters as the second most popular logging program, *N3FJP*.

To observe longer term trends in program usage I compared the usage of the top logging programs used in 2020 to their usage in 2013. Among these 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 59.1% of logs in 2020. Both *Win-Test, TR4W, and WriteLog* usage have declined over the same period by 4.7%, 3.3%, and 3.0%, respectively. 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+*.

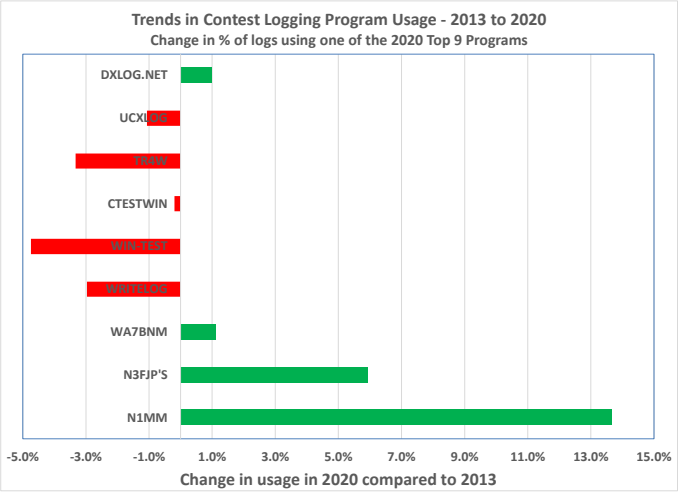


Figure 11 – Trends in Logging Program Usage

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 QSOs than the casual ones. Using this metric, the view looks as follows:

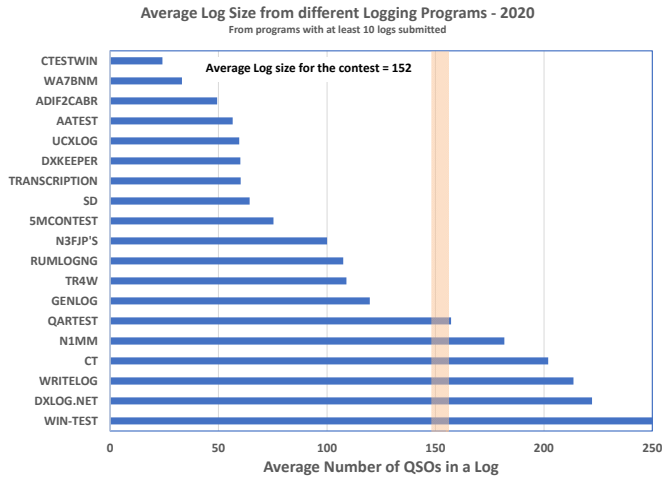


Figure 12 – Log size by logging program

As has been the result for many years, *Win-Test* users have the largest average log size. Almost 70% larger than the average log. *CT and Writelog* users also have logs larger than average. These "oldies but goodie" loggers must have some die-hard users among a few serious contesters. Again in 2020 *DXLOG.NET* held the place as the program with the second biggest average log size. By comparison *N1MM* logs are just a little above average. It is hard for it to be much different than average since it is used by almost 60% of the contesters. Also interesting is that *N3FJP*, which is the second most popular program, has relatively small logs at around 2/3rds the average log size. It would thus seem to appeal to more casual contesters. And looking at WA7BNM, the tool operators use to create Cabrillo logs from paper logs, the average log size for those users is just 33 QSOs. Just 1/5th of the average. I wonder if some of these operators would make more QSOs if they started with a computer logging program, knowing it would save them time in the paper to computer log conversion process.

Individual Year Maps – 2012-2020

As referenced earlier, here are maps showing the state rankings in QSOs per log for each year 2012-2020. For my comments and observations please refer to pages 12 and 13.

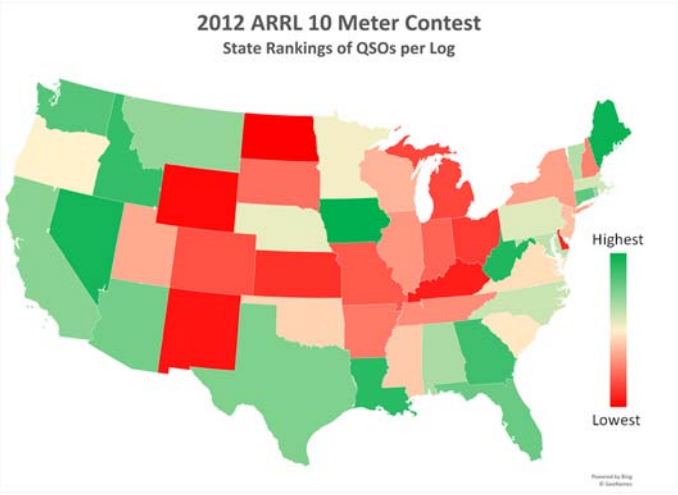


Figure 13 – 2012 State Rankings

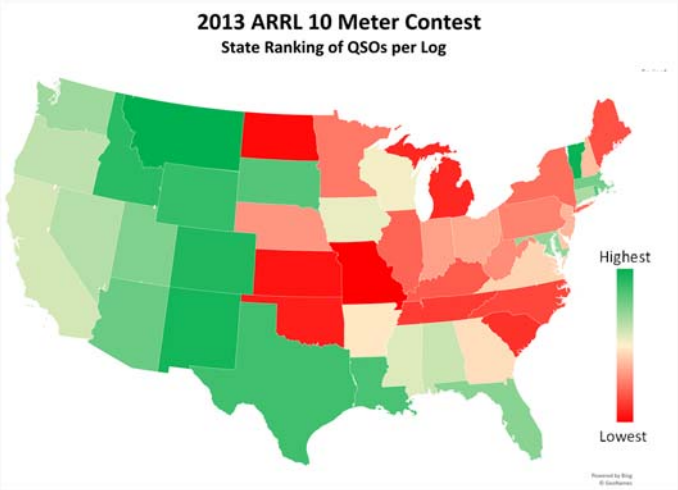


Figure 14 – 2013 State Rankings

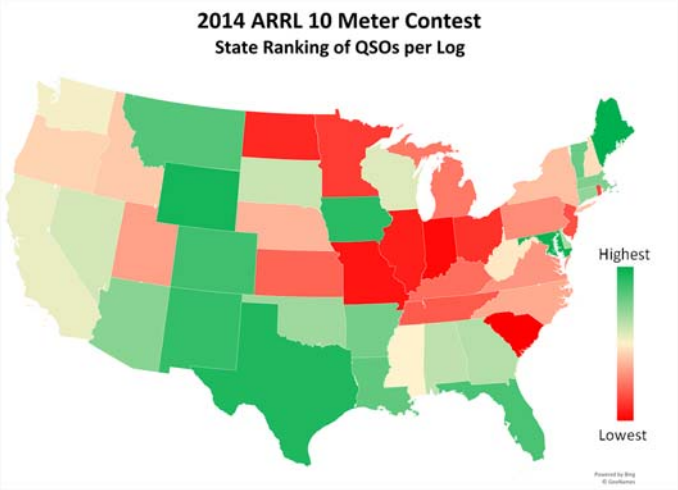


Figure 15 – 2014 State Rankings

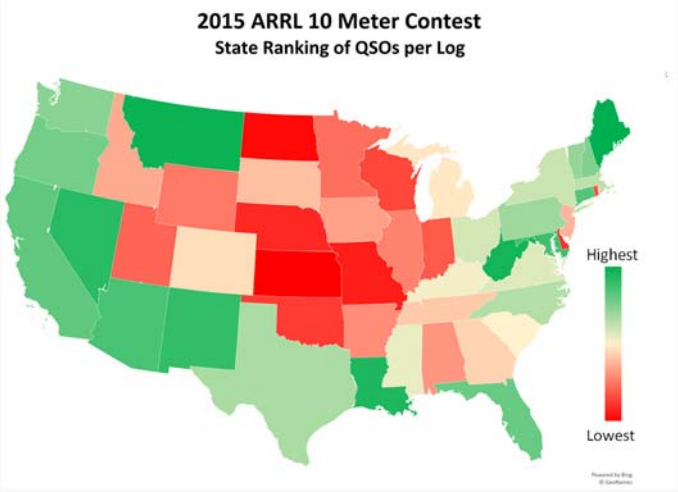


Figure 16 – 2015 State Rankings

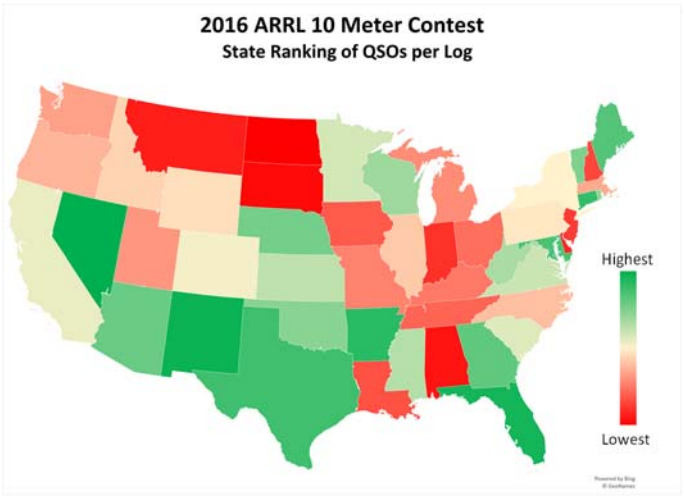


Figure 17 – 2016 State Rankings

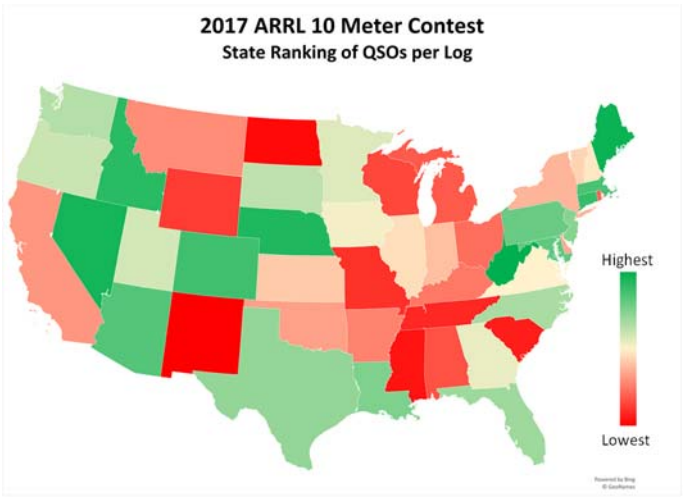


Figure 18 – 2017 State Rankings

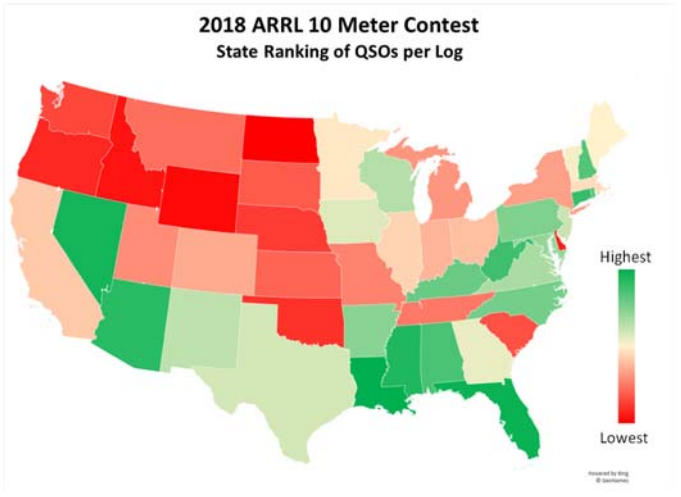


Figure 19 – 2018 State Rankings

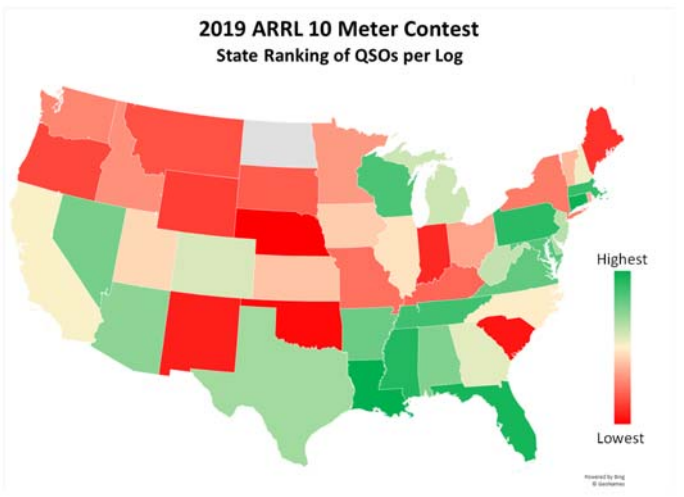


Figure 20 – 2019 State Rankings

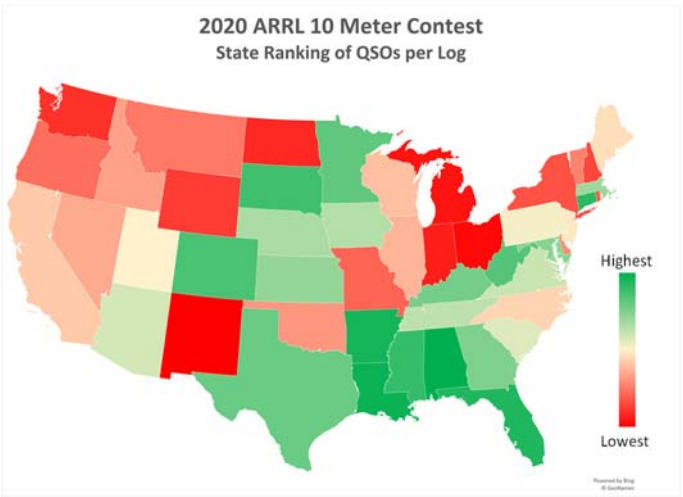


Figure 21 – 2020 State Rankings

Top Ten Scores

United States

Single Operator, Mixed Mode, High Power

KI6RRN (@WA6TQT)	794,240
W5ZN	778,070
N4OX	737,632
N4EEB	642,396
W6YX (N7MH, op)	501,984
KØTT	487,104
KØMD	419,120
K7RL	375,360
K7RAT (N6TR, op)	333,424
KU2M	308,374

Single Operator, Mixed Mode, Low Power

N8II	398,764
WQ5L	372,294
KTØK	365,014
K2PS	328,090
N5JJ	271,416
ACØW	247,164
WA7NB	229,500
NV4B	224,770
ND9G	178,724
WØPV	177,606

Single Operator, Mixed Mode, QRP

NDØC	51,968
N4ELM	30,622
K2GMY	26,696
K6EI	22,842
WB2AMU	22,724
WA6FGV	20,328
NA4CW	14,382
AA5KD	12,958
K4PZC	12,512
K4PQC	11,322

Single Operator, Phone Only, High Power

NR5M	351,828
K5TR	298,462
KD7RF	254,748
W4DD	195,016
KØJU	128,520
N8RA	126,060
K2XA	113,916
ND4Y	112,362
W5LO	111,612
KE2DX	75,582

Single Operator, Phone Only, Low Power

K5OF	62,370
KØDD	40,138
K4TMC	38,916
K4QQG	34,900
W4QNW	29,848
KB4OLM	28,520
KD5UVV	27,888
KØNEB	20,800
N4JKO	20,240
WA9BZW	17,252

Single Operator, Phone Only, QRP

KEØWPA	2,400
KD2UHF	1,296
WWØWB	1,152
W6QU (W8QZA, op)	840
WE6EZ	810
WBØTEV	768
KC9AMM	672
KS4GW	308
KC1MBQ	306
WX2N	228

Single Operator, CW Only, High Power

K5NA	509,440
K5PI	495,804
WW5M	393,736
KU8E	354,432
K1KI	303,392
K5LG	275,700
WØZA	262,372
K4BAI	238,392
K3UA	236,716
WØVTT	232,320

Single Operator, CW Only, Low Power

K7SV	166,320
K4FT	153,400
W4NZ	149,760
W3BGN	145,656
AE5GT	142,632
WB4TDH	139,712
K1XM	125,660
K5XU	120,596
N5EE	119,000
K1VUT	109,760

Single Operator, CW Only, QRP

WAØMHJ	70,200
K3TW	69,748
WØCW	36,432
NØJK	24,940
K2YG	22,632
N8AP	22,192
N5OE	20,020
N1IX	17,500
K2YAZ	15,836
AD7L	13,440

Single Operator Unlimited, Mixed Mode, High Power

N8OO	1,243,512
N4UU	704,728
K4AB	567,336
N4RV	519,232
K3MM	497,568
WO4O	483,120
W3EP	469,212
W3IP	462,352
N2TU	361,620
K3WW	360,864

Single Operator Unlimited, Mixed Mode, Low Power

K9OM	351,440
N2CEI	305,230
K1HTV	188,500
K6AM	169,476
NØHJZ	159,084
K1ZE	154,112
KØKX	142,024
W9AV	134,300
KT4Q	102,312
KØVBU	98,770

Single Operator Unlimited, Mixed Mode, QRP

N2XP	11,232
K2AL	6,380
KN2M	1,530
K8ZT	1,470
K3MAW	324
KJ5T	84

Single Operator Unlimited, Phone Only, High Power

K4WI	248,976
W5PR	194,076
NA4DA	96,868
NØIRM	77,220
KD5JRY	67,340
W3FOX	59,000
KAØRVL	38,514
WTØDX	27,132
W9KEY	27,048
W9NY	26,840

Single Operator Unlimited, Phone Only, Low Power

K2DRH	127,680
N3AAA	35,872
KA2K	31,944
W4VS	16,192
WA5WFE	8,484
N1FTP	6,758
W7BOB	6,440
KG5KRZ	5,460
KB1RVU	4,368
K7SYS	3,936

Single Operator Unlimited, Phone Only, QRP

KU4A	1,116

Single Operator Unlimited, CW Only, High Power

K1MM	530,800
NN7CW	492,800
KVØQ	446,720
W1KM	425,880
N4BP	420,792
K3EST	373,920
W2UP	362,792
N6SS	340,800
N2MM	333,984
N3RD	299,880

Single Operator Unlimited, CW Only, Low Power

K4OAQ	208,164
W9XT	175,104
WT9Q	156,000
K6WSC	116,424
K7XC	112,992
K2DFC	107,736
NM5M	105,624
K3AU (K2YWE, op)	98,208
N7YK	94,928
W3KB	78,848

Single Operator Unlimited, CW Only, QRP

NØUR	57,552
WC7S	13,572
K6MI	10,920
KR4AE	3,496

Multioperator, Single Transmitter, High Power

NX5M	906,752
NV9L	694,232
KA1ZD	542,794
KØRF	473,364
AA1JD	417,696
AD4ES	354,756
K3AJ	330,454
K9YY	250,880
K7ZS	242,556
NX6T	216,972

Multioperator, Single Transmitter, Low Power

NC1CC	340,120
K4MM	115,200
W1OMG	48,280
KA9VVQ	34,800
WB4WXE	21,150
W4TG	16,340
K5LRW	5,440
N1SOH	4,876
W4BSF	2,600
KB5ZSK	1,968

Canada

Single Operator, Mixed Mode, High Power

VE4VT	130,400
VE3PN	71,168
VE3UZ	41,890
VA3MW	5,040
VE5CPU	1,296
VE6TK	540

Single Operator, Mixed Mode, Low Power

VE2NCG	23,828
VE3LVW	22,680
VE3GFN	21,504
VA3YV	19,188
VE3OIL	16,644
VE7ZR	14,104
VA3RKM	14,060
VE3TG	11,780
VE6UM	6,608
VE3SST	6,156

Single Operator, Mixed Mode, QRP

VE3CBK	638

Single Operator, Phone Only, High Power

VA2BN	28,560
VO1KVT	1,080
VE3ETE	924
VE2JM	744

Single Operator, Phone Only, Low Power

VE3BFU	2,530
VE3CNA	1,440
VA2LGQ	1,332
VE3BK	1,120
VE3NQM	432
VE2HIT	418
VE9RLW	176
VE5DLC	160

Single Operator, CW Only, High Power

VA7MM	57,904
VE6BBP	56,368
VA7ST	23,940
VE3VN	15,836
VA1MM	7,200
VE7BV	3,444

Single Operator, CW Only, Low Power

VE3KP	31,096
VE1ZA	30,024
VY2OX	28,424
VE5GC	25,200
VE3ZY	17,544
VA3JK	14,880
VE3LC	12,460
VE3AQ	11,484
VE2OWL	7,900
VE9VIC	6,960

Single Operator, CW Only, QRP

VE3LBG	1,984
VE3KJQ	680
VE3LMS	448
VE3DQN	144

Single Operator Unlimited, Mixed Mode, High Power

VE5MX	350,760
VA3DF	180,708
VE3CX	124,488
VE3RZ	44,764
VE7KW	18,080
VE9CB	15,120
VE7CV	12,880
VE3MM	5,376
VA3ROC	4,930
VE3TW	4,002

Single Operator Unlimited, Mixed Mode, Low Power

VE3PJ	56,304
VE3VY	33,630
VE2HEW	12,760
VE3KTB	4,104
VE6SH	2,016
VE3RYI	1,440
VE7ZX	602

Single Operator Unlimited, Phone Only, High Power

VA3WW	15,540
VA3PC	462
VE2GT	72

Single Operator Unlimited, Phone Only, Low Power

VE3RKS	80
VA2FW	6

Single Operator Unlimited, CW Only, High Power

VE3UTT	170,000
VE3EJ	107,424
VE3NNT	92,136
VE9AA	74,360
VA7DX	52,416
VE3NE	50,160
VE2FK	26,448
VE7XF	15,696
VO1HP	14,400
VE3MIS (VA3CW, op)	7,120

Single Operator Unlimited, CW Only, Low Power

VA3WB	20,672
VA3EC	16,500
VE3VSM	15,264
VE3MV	14,980
VA3FF	10,752
VE3NZ	9,088
VE7XT	8,448
VA3TNM	7,316
VA7VJ	4,600
VE3MA	2,924

Single Operator Unlimited, CW Only, QRP

VE6EX	5,304
VA3AMX	2,622

Multioperator, Single Transmitter, High Power

VE3YAA	57,036

Multioperator, Single Transmitter, Low Power

VE9ML	7,304

Mexico

Single Operator, Mixed Mode, Low Power

XE2I	21,204
XE2NK	8,976
XE1SVT	460
XE2OK	100

Single Operator, Phone Only, High Power

XE1CKJ	11,692
XE1BRX	9,960

Single Operator, Phone Only, Low Power

XE1MYO	5,248
XE1ZTW	5,152
XE1SY	3,066
XE1SFE	480
XE2JTS	450
XE2ML	112
XE2PXN	32
XE1AHP	18
XE1RF	16
XE2SB	2

Single Operator, CW Only, High Power

XE2X	22,800

Single Operator, CW Only, Low Power

XE1CT	91,584
XE2S	75,260
XE2HQI	47,168
XE2AD	17,220
XE2YWH	6,156
XE3A	4,400
XE2RT	3,196
XE1RE	2,160
XE1AY	232
XE2MWY	100

Single Operator Unlimited, Mixed Mode, Low Power

XE2B	23,848

Single Operator Unlimited, Phone Only, High Power

XE1CWJ	45,076

Single Operator Unlimited, Phone Only, Low Power

XE2JS	33,156
XE2N	1,386

Single Operator Unlimited, CW Only, High Power

XE2CQ	62,916

Single Operator Unlimited, CW Only, Low Power

XE1EE	13,764

DX

Single Operator, Mixed Mode, High Power

LU8DPM (LU5WW, op)	1,034,796
LU5FC	970,522
LW1D	295,240
WP3R	246,024
OA4SS	217,512
LZ4TX	107,700
ZD7BG	105,930
HG8W (HA8ZO, op)	76,032
VR2XAN	65,076
PI4DX (PD1DX, op)	60,060

Single Operator, Mixed Mode, Low Power

PY3YD	361,440
LU4HK	130,494
4U1A (OE1ZZZ, op)	34,170
YV4ABR	33,280
PY2AXH	31,270
CO2RQ	24,776
UXØFF	22,878
UR5FIL	17,600
PV8DX	16,564
DK5DQ	15,360

Single Operator, Mixed Mode, QRP

PY2NY	43,792
PU2MST	10,716
HG6C (HA6IAM, op)	4,560
JJ1XAS	3,052
CT1FPQ	2,958
JH7UJU	2,516
SN5R (SP5XMU, op)	2,318
UT5EOX	1,904
UT2HM	1,428
EA8AA	780

Single Operator, Phone Only, High Power

CX7SS	242,248
PY5ZD	111,690
CE7VPQ	97,200
TI1T (TI2CC, op)	53,676
PP5RT	46,498
PY5DC	46,376
TI2CDA	45,668
LU8VLE	35,568
J79WTA	35,088
PY5WW	25,080

Single Operator, Phone Only, Low Power

PY2UD	59,520
PU5JDA	47,742
PY2CX	40,430
LW4EF	39,186
LU8ADX	36,120
YY5RAB	27,896
CX8DS	25,296
LU1HHT	19,482
TI2VVV	18,696
KH2RU/KP4	15,570

Single Operator, Phone Only, QRP

TG9ANF	41,148
PY2BN	8,436
PQ8RS	5,240
LU7VCH	1,530
HI8JSG	1,404
PF7ØDARC (PA2TMS, op)	600
LW2DHD	572
PU2OIE	324
NP3T	252
E2ØWXA	160

Single Operator, CW Only, High Power

ZF5T	540,484
PS2T (PY2ZEA, op)	325,220
KP2M (KT3Y, op)	288,864
CE2ML	242,172
LU6D (LU6DOT, op)	206,712
OM2VL	188,832
PY4DX	151,776
CX9AU	139,536
LU7HN	111,568
KP4/NM2O	87,324

Single Operator, CW Only, Low Power

LU8QT	123,872
PY2EX	113,032
LQ3D	60,264
HC2AO	50,752
4D3X (DU3LA, op)	48,816
KH6CJJ	34,572
RA3Y	29,680
LU6UO	28,420
J35X	26,268
VR2EH (VR2ZQZ, op)	25,704

Single Operator, CW Only, QRP

LW9EKA	20,340
RW3AI	5,712
RA1AL	4,020
CO2JD	2,592
LZ2RS	2,560
LY5G	2,240
JQ1NGT	2,240
HA3HX	1,960
JR1NKN	1,692
F5ROX	1,260

Single Operator Unlimited, Mixed Mode, High Power

ZF2WF (W9KKN, op)	526,120
LW5HR	379,572
LU3WC	367,080
DL2ARD	314,960
PY2KJ	236,062
YL7X (YL2LY, op)	119,200
LY7Z	114,552
VK4QH	108,072
LY4A	95,760
PY5AMF	88,182

Single Operator Unlimited, Mixed Mode, Low Power

9Z4Y	109,440
PY2QT	90,804
XQ3WD	83,752
PY1VOY	60,010
NP2KW	19,800
DL2LDE	13,860
PY2MIA	13,148
LY2DX	12,992
4F3BZ	12,600
RA3RA	12,464

Single Operator Unlimited, Mixed Mode, QRP

ZV2F (PY2SFA, op)	2,176
UT3EK	1,590
PY2XC	1,188
PE2K	1,064
JK1TCV	546
EA1AER	192
EF1M (EB1RL, op)	12
F8CPA	4

Single Operator Unlimited, Phone Only, High Power

ZW5B (PY5EG, op)	145,266
LT7F (LU6FOV, op)	132,720
PT4A (PY4AZ, op)	131,100
LU1DX	110,716
V51WH	76,272
PY5QW	64,372
PY2KNK	59,436
LW3EK	32,880
LW9DYP	21,300
PY4JW	14,946

Single Operator Unlimited, Phone Only, Low Power

PU5FJR	121,644
HI3CC	60,320
PP1WW	44,712
PY2CP	25,380
LU6DC	18,810
PY2HT	18,616
PY2ZR	15,200
PU4MMZ	14,362
PP5DZ	14,208
PY1NS	8,938

Single Operator Unlimited, Phone Only, QRP

HK4GOO	900
PU2VJI	648
NP4TX	552
EA3O	30

Single Operator Unlimited, CW Only, High Power

VK2IA	223,776
CX5UA	202,536
V51YJ	182,880
9A5Y (9A7DX, op)	148,960
L33M (LU3MAM, op)	81,872
ZL1IF	81,420
S57Q	78,416
OM8CW	73,200
F8DGY	57,820
DK2OY	45,344

Single Operator Unlimited, CW Only, Low Power

LU8MHL	244,800
LT7D	224,632
PP1CZ	152,768
PY4XX	134,680
KP2B (WP3A, op)	88,192
HK1N	58,860
R7AB (R7DA, op)	48,780
TM6M (F1AKK, op)	35,088
9A6A	33,440
ON6NL	27,692

Single Operator Unlimited, CW Only, QRP

YT2RX	3,612
DDØVS	2,160
LZ5QZ	1,560
SP5EWX	1,404
OK1FKD	432
SM3OMO	280
BG3UFC	180
DL8MF	120
9A5YY	16
YC2VOC	12

Multioperator, Single Transmitter, High Power

PY2YU	1,196,634
LU2DX	1,090,188
LR1E	883,976
PX2A	825,044
CX5A	601,174
PR4T	392,460
PT3T	330,960
LU2EE	302,804
LZ5R	213,358
YV5AM	172,992

Multioperator, Single Transmitter, Low Power

FY5KE	592,516
PR2E	312,634
WP3C	301,484
LS2D	256,128
PP5EI	28,680
ZP6RAI	26,432
PU2XMY	7,872
CE4WT	4,144
PY2ERA	2,162
OL725PLZ	2,080

Continental Winners

Africa

Single Operator, Mixed Mode, High Power	ZD7BG	105,930
Single Operator, Mixed Mode, Low Power	EA8AQV	7,722
Single Operator, Mixed Mode, QRP	EA8AA	780
Single Operator, Phone Only, High Power	FR4QT	11,780
Single Operator, Phone Only, Low Power	D44PM	14,670
Single Operator, CW Only, High Power	EA8DHV	4,332

Single Operator Unlimited, Mixed Mode, High Power	EA8RM	17,424
Single Operator Unlimited, Mixed Mode, Low Power	EA8OM (DJ1OJ, op)	11,900
Single Operator Unlimited, Phone Only, High Power	V51WH	76,272
Single Operator Unlimited, CW Only, High Power	V51YJ	182,880
Single Operator Unlimited, CW Only, Low Power	6W1TA	540
Multioperator, Single Transmitter, High Power	D4Z	50,808

Asia

Single Operator, Mixed Mode, High Power	VR2XAN	65,076
Single Operator, Mixed Mode, Low Power	JR1MEG/1	5,472
Single Operator, Mixed Mode, QRP	JJ1XAS	3,052
Single Operator, Phone Only, High Power	JA8IJI	96
Single Operator, Phone Only, High Power	JG2REJ	96
Single Operator, Phone Only, Low Power	JR1AKD	1,116
Single Operator, Phone Only, QRP	E2ØWXA	160
Single Operator, CW Only, High Power	4X1MM	6,424
Single Operator, CW Only, Low Power	VR2EH (VR2ZQZ, op)	25,704
Single Operator, CW Only, QRP	JQ1NGT	2,240
Single Operator Unlimited, Mixed Mode, High Power	JH4UTP	24,888
Single Operator Unlimited, Mixed Mode, Low Power	JH6WHN	10,556
Single Operator Unlimited, Mixed Mode, QRP	JK1TCV	546
Single Operator Unlimited, Phone Only, High Power	JH1CML	1,482
Single Operator Unlimited, Phone Only, Low Power	BU2EV	396
Single Operator Unlimited, CW Only, High Power	E25KAE	26,492
Single Operator Unlimited, CW Only, Low Power	E29TGW	8,064
Single Operator Unlimited, CW Only, QRP	BG3UFC	180
Multioperator, Single Transmitter, High Power	JF2QNM	20,526
Multioperator, Single Transmitter, Low Power	JK2VOC	1,800

Europe

Single Operator, Mixed Mode, High Power	LZ4TX	107,700
Single Operator, Mixed Mode, Low Power	4U1A (OE1ZZZ, op)	34,170
Single Operator, Mixed Mode, QRP	HG6C (HA6IAM, op)	4,560
Single Operator, Phone Only, High Power	IZ4DPV	10,530
Single Operator, Phone Only, Low Power	GØAEV	4,644
Single Operator, Phone Only, QRP	PF7ØDARC (PA2TMS, op)	600
Single Operator, CW Only, High Power	OM2VL	188,832
Single Operator, CW Only, Low Power	RA3Y	29,680
Single Operator, CW Only, QRP	RW3AI	5,712
Single Operator Unlimited, Mixed Mode, High Power	DL2ARD	314,960
Single Operator Unlimited, Mixed Mode, Low Power	DL2LDE	13,860
Single Operator Unlimited, Mixed Mode, QRP	UT3EK	1,590
Single Operator Unlimited, Phone Only, High Power	LY1R	12,580
Single Operator Unlimited, Phone Only, Low Power	EC7WR	2,756
Single Operator Unlimited, Phone Only, QRP	EA3O	30
Single Operator Unlimited, CW Only, High Power	9A5Y (9A7DX, op)	148,960
Single Operator Unlimited, CW Only, Low Power	R7AB (R7DA, op)	48,780
Single Operator Unlimited, CW Only, QRP	YT2RX	3,612
Multioperator, Single Transmitter, High Power	LZ5R	213,358
Multioperator, Single Transmitter, Low Power	OL725PLZ	2,080

North America

Single Operator, Mixed Mode, High Power	WP3R	246,024
Single Operator, Mixed Mode, Low Power	CO2RQ	24,776
Single Operator, Mixed Mode, QRP	NP3V	462
Single Operator, Phone Only, High Power	TI1T (TI2CC, op)	53,676
Single Operator, Phone Only, Low Power	TI2VVV	18,696
Single Operator, Phone Only, QRP	TG9ANF	41,148
Single Operator, CW Only, High Power	ZF5T	540,484
Single Operator, CW Only, Low Power	J35X	26,268
Single Operator, CW Only, QRP	CO2JD	2,592
Single Operator Unlimited, Mixed Mode, High Power	ZF2WF (W9KKN, op)	526,120
Single Operator Unlimited, Mixed Mode, Low Power	NP2KW	19,800
Single Operator Unlimited, Phone Only, High Power	KP4/KØBBC	12,528
Single Operator Unlimited, Phone Only, Low Power	HI3CC	60,320
Single Operator Unlimited, Phone Only, QRP	NP4TX	552
Single Operator Unlimited, CW Only, Low Power	KP2B (WP3A, op)	88,192
Multioperator, Single Transmitter, Low Power	WP3C	301,484

Oceania

Single Operator, Mixed Mode, High Power	FK8IK	47,216
Single Operator, Mixed Mode, Low Power	YB2MM	294
Single Operator, Phone Only, High Power	FK4QX	4,452
Single Operator, Phone Only, Low Power	VK4NH	2,210
Single Operator, Phone Only, QRP	4I1EBD	70
Single Operator, CW Only, High Power	KH6LC	65,688
Single Operator, CW Only, Low Power	4D3X (DU3LA, op)	48,816
Single Operator, CW Only, QRP	VK4BAP	192
Single Operator Unlimited, Mixed Mode, High Power	VK4QH	108,072
Single Operator Unlimited, Mixed Mode, Low Power	4F3BZ	12,600
Single Operator Unlimited, Phone Only, Low Power	VK2NSS	7,592
Single Operator Unlimited, CW Only, High Power	VK2IA	223,776
Single Operator Unlimited, CW Only, Low Power	YB8RW	1,280
Single Operator Unlimited, CW Only, QRP	YC2VOC	12

South America

Single Operator, Mixed Mode, High Power	LU8DPM (LU5WW, op)	1,034,796
Single Operator, Mixed Mode, Low Power	PY3YD	361,440
Single Operator, Mixed Mode, QRP	PY2NY	43,792
Single Operator, Phone Only, High Power	CX7SS	242,248
Single Operator, Phone Only, Low Power	PY2UD	59,520
Single Operator, Phone Only, QRP	PY2BN	8,436
Single Operator, CW Only, High Power	PS2T (PY2ZEA, op)	325,220
Single Operator, CW Only, Low Power	LU8QT	123,872
Single Operator, CW Only, QRP	LW9EKA	20,340
Single Operator Unlimited, Mixed Mode, High Power	LW5HR	379,572
Single Operator Unlimited, Mixed Mode, Low Power	9Z4Y	109,440
Single Operator Unlimited, Mixed Mode, QRP	ZV2F (PY2SFA, op)	2,176
Single Operator Unlimited, Phone Only, High Power	ZW5B (PY5EG, op)	145,266
Single Operator Unlimited, Phone Only, Low Power	PU5FJR	121,644
Single Operator Unlimited, Phone Only, QRP	HK4GOO	900

Single Operator Unlimited, CW Only, High Power	CX5UA	202,536
Single Operator Unlimited, CW Only, Low Power	LU8MHL	244,800
Multioperator, Single Transmitter, High Power	PY2YU	1,196,634
Multioperator, Single Transmitter, Low Power	FY5KE	592,516

Maritime Mobile

Multioperator, Single Transmitter, Low Power	PY2XM/MM	1,806

Division Winners

Single Operator, Mixed Mode, High Power

Atlantic	K3ZO	198,352
Central	N9GH	39,996
Dakota	KØTT	487,104
Delta	W5ZN	778,070
Great Lakes	W8TWA	177,684
Hudson	KU2M	308,374
Midwest	WØBH	216,480
New England	K1WHS	100,326
Northwestern	K7RL	375,360
Pacific	W6YX (N7MH, op)	501,984
Roanoke	N4YDU	258,004
Rocky Mountain	NCØB	81,072
Southeastern	N4OX	737,632
Southwestern	KI6RRN (@WA6TQT)	794,240
West Gulf	N5AW	226,780
Canada	VE4VT	130,400

Single Operator, Mixed Mode, Low Power

Atlantic	K2ACX	60,060
Central	ND9G	178,724
Dakota	ACØW	247,164
Delta	WQ5L	372,294
Great Lakes	W8MET	78,720
Hudson	NG2D	9,240
Midwest	KTØK	365,014
New England	KX1G	59,644
Northwestern	AA7UN	22,512
Pacific	N6YEU	24,748
Roanoke	N8II	398,764
Rocky Mountain	KFØUR	91,512
Southeastern	K2PS	328,090
Southwestern	WA7NB	229,500
West Gulf	N5JJ	271,416
Canada	VE2NCG	23,828
México	XE2I	21,204

Single Operator, Mixed Mode, QRP

Atlantic	KI5TD	1,344
Central	AF9J	9,984
Dakota	NDØC	51,968
Delta	N4ELM	30,622
Great Lakes	W8UA	3,852
Hudson	WB2AMU	22,724
New England	W1CEK	700
Pacific	K2GMY	26,696
Roanoke	K4PZC	12,512
Rocky Mountain	KØRJK	1,274
Southeastern	NA4CW	14,382
Southwestern	WA6FGV	20,328
West Gulf	AA5KD	12,958
Canada	VE3CBK	638

Single Operator, Phone Only, High Power

Atlantic	KB3UVG	13,612
Central	K9UC	39,292
Dakota	WAØCSL	18,414
Delta	WA5CAM	1,664
Great Lakes	ND4Y	112,362
Hudson	K2XA	113,916
Midwest	KDØNEO	980
New England	N8RA	126,060
Northwestern	W7BJN	14,976
Pacific	K6TQ	4,480
Roanoke	N4MM	31,008
Rocky Mountain	KØJU	128,520
Southeastern	KD7RF	254,748
Southwestern	KC1BB	35,750
West Gulf	NR5M	351,828
Canada	VA2BN	28,560
México	XE1CKJ	11,692

Single Operator, Phone Only, Low Power

Atlantic	K3EEI	13,640
Central	WA9BZW	17,252
Dakota	KØVH	12,850
Delta	KD5UVV	27,888
Great Lakes	N4JKO	20,240
Hudson	NO2EL	17,202

Midwest	KØDD	40,138
New England	N1WRK	12,460
Northwestern	WZ8T	8,400
Pacific	N6PGQ	11,154
Roanoke	K5OF	62,370
Rocky Mountain	NØMMA	4,368
Southeastern	KO4BVB	16,892
Southwestern	NF7E	8,580
West Gulf	KI5GNH	5,580
Canada	VE3BFU	2,530
México	XE1MYO	5,248

Single Operator, Phone Only, QRP

Central	KC9AMM	672
Dakota	KEØWPA	2,400
Delta	K4CGW	84
Hudson	KD2UHF	1,296
New England	KC1MBQ	306
Pacific	W6US	140
Rocky Mountain	WWØWB	1,152
Southeastern	KS4GW	308
Southwestern	W6QU (W8QZA, op)	840
West Gulf	WE6EZ	810

Single Operator, CW Only, High Power

Atlantic	K3UA	236,716
Central	K9BGL	124,584
Dakota	WØVTT	232,320
Delta	WW5M	393,736
Great Lakes	W5MX	169,912
Hudson	KR2AA	89,540
Midwest	WØEWD	156,000
New England	K1KI	303,392
Northwestern	WJ9B	215,016
Pacific	WØYK	188,500
Roanoke	NN4SS	72,800
Rocky Mountain	WØZA	262,372
Southeastern	KU8E	354,432
Southwestern	W6PH	150,688
West Gulf	K5NA	509,440
Canada	VA7MM	57,904
México	XE2X	22,800

Single Operator, CW Only, Low Power

Atlantic	W3BGN	145,656
Central	W9RE	69,740
Dakota	K7BG	81,804
Delta	W4NZ	149,760
Great Lakes	K4FT	153,400
Hudson	W2AAB	38,540
Midwest	NZØT	51,816
New England	K1XM	125,660
Northwestern	W7QDM	28,728
Pacific	K7EAU	12,180
Roanoke	K7SV	166,320
Rocky Mountain	KØFX	57,904
Southeastern	WB4TDH	139,712
Southwestern	N7IR	36,848
West Gulf	AE5GT	142,632
Canada	VE3KP	31,096
México	XE1CT	91,584

Single Operator, CW Only, QRP

Atlantic	KC3NDU	4,888
Central	WS9V	4,704
Dakota	WAØMHJ	70,200
Great Lakes	N8AP	22,192
Hudson	K2YG	22,632
Midwest	WØCW	36,432
New England	N1IX	17,500
Northwestern	AD7L	13,440
Pacific	WD6DX	528
Roanoke	W4IOP	4,428
Rocky Mountain	KIØG	144
Southeastern	K3TW	69,748
Southwestern	K6VHF	7,168
West Gulf	N5OE	20,020
Canada	VE3LBG	1,984

Single Operator Unlimited, Mixed Mode, High Power

Atlantic	K3MM	497,568
Central	NE9U	178,712
Dakota	KØAD	241,224
Delta	N8OO	1,243,512
Great Lakes	K8CX	104,974
Hudson	W2KV	79,856
Midwest	K3PA	299,484
New England	W3EP	469,212
Northwestern	N7NM	162,874
Pacific	K2RD	332,816
Roanoke	N4RV	519,232
Rocky Mountain	NG7M	148,808
Southeastern	N4UU	704,728
Southwestern	KY7M	252,298
West Gulf	AC4CA	76,032
Canada	VE5MX	350,760

Single Operator Unlimited, Mixed Mode, Low Power

Atlantic	W2FDJ	23,712
Central	W9AV	134,300
Dakota	NØHJZ	159,084
Delta	K4DZR	56,704
Great Lakes	KE3K	86,802
Hudson	KA2D	55,800
Midwest	KØVBU	98,770
New England	K1ZE	154,112
Northwestern	W7ZRC	27,664
Pacific	K6GHA	25,700
Roanoke	K1HTV	188,500
Rocky Mountain	KØUK	19,270
Southeastern	K9OM	351,440
Southwestern	K6AM	169,476
West Gulf	WDØGTY	19,712
Canada	VE3PJ	56,304
México	XE2B	23,848

Single Operator Unlimited, Mixed Mode, QRP

Atlantic	KN2M	1,530
Great Lakes	K8ZT	1,470
Hudson	N2XP	11,232
West Gulf	KJ5T	84

Single Operator Unlimited, Phone Only, High Power

Atlantic	W3FOX	59,000
Central	W9KEY	27,048
Dakota	NIØK	18,012
Delta	KD5JRY	67,340
Great Lakes	KG9Z	13,440
Hudson	W2RD	12,168
Midwest	NØIRM	77,220
New England	W1RPG	2,226
Northwestern	WA7DUH	6,216
Rocky Mountain	WTØDX	27,132
Southeastern	K4WI	248,976
Southwestern	W6PNG	7,750
West Gulf	W5PR	194,076
Canada	VA3WW	15,540
México	XE1CWJ	45,076

Single Operator Unlimited, Phone Only, Low Power

Atlantic	N3AAA	35,872
Central	K2DRH	127,680
Dakota	N2RSC	80
Delta	KG5KRZ	5,460
Great Lakes	KE8HBV	208
Hudson	KD2SGM	126
Midwest	KEØITC	870
New England	N1FTP	6,758
Northwestern	W7BOB	6,440
Pacific	W6IFN	208
Roanoke	WS4WW	576
Rocky Mountain	KC6R	1,296
Southeastern	W4VS	16,192
West Gulf	WA5WFE	8,484
Canada	VE3RKS	80
México	XE2JS	33,156

Single Operator Unlimited, Phone Only, QRP

Great Lakes	KU4A	1,116

Single Operator Unlimited, CW Only, High Power

Atlantic	N2MM	333,984
Central	KG9X	235,620
Dakota	KØTG	22,920
Delta	NA5NN (W5UE, op)	235,352
Great Lakes	KE4KY	174,200
Hudson	N2NT	107,328
Midwest	NØAV	93,060
New England	W1KM	425,880
Northwestern	W2VJN	82,536
Pacific	K3EST	373,920
Roanoke	W2UP	362,792
Rocky Mountain	KVØQ	446,720
Southeastern	K1MM	530,800
Southwestern	N6SS	340,800
West Gulf	K5CM	185,856
Canada	VE3UTT	170,000
México	XE2CQ	62,916

Single Operator Unlimited, CW Only, Low Power

Atlantic	K3AU (K2YWE, op)	98,208
Central	W9XT	175,104
Dakota	WØSEI	15,352
Delta	KO4Z	15,872
Great Lakes	K8AJS	51,168
Hudson	K2DFC	107,736
Midwest	NØNI	62,208
New England	K1VMT	61,344
Northwestern	WS7L	58,800
Pacific	K7XC	112,992
Roanoke	K4OAQ	208,164

Rocky Mountain	N5SJ	39,560
Southeastern	K2MK	46,640
Southwestern	K6WSC	116,424
West Gulf	NM5M	105,624
Canada	VA3WB	20,672
México	XE1EE	13,764

Single Operator Unlimited, CW Only, QRP

Dakota	NØUR	57,552
Pacific	K6MI	10,920
Rocky Mountain	WC7S	13,572
Southeastern	KR4AE	3,496
Canada	VE6EX	5,304

Multioperator, Single Transmitter, High Power

Atlantic	K3AJ	330,454
Central	NV9L	694,232
New England	KA1ZD	542,794
Northwestern	K7ZS	242,556
Roanoke	AC8Y	1,376
Rocky Mountain	KØRF	473,364
Southeastern	AD4ES	354,756
Southwestern	NX6T	216,972
West Gulf	NX5M	906,752
Canada	VE3YAA	57,036

Multioperator, Single Transmitter, Low Power

Dakota	KA9VVQ	34,800
Delta	W4BSF	2,600
Great Lakes	KV8Q	912
New England	NC1CC	340,120
Roanoke	W4TG	16,340
Rocky Mountain	K5LRW	5,440
Southeastern	K4MM	115,200
West Gulf	KF6NMA	140
Canada	VE9ML	7,304

Regional Leaders

West Coast Region

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

KI6RRN (@WA6TQT)	794,240	SO-MIX-HP
W6YX (N7MH, op)	501,984	SO-MIX-HP
K7RL	375,360	SO-MIX-HP
K7RAT (N6TR, op)	333,424	SO-MIX-HP
N6ZFO	283,338	SO-MIX-HP
WA7NB	229,500	SO-MIX-LP
K6RO	45,486	SO-MIX-LP
WN6K	44,538	SO-MIX-LP
N6YEU	24,748	SO-MIX-LP
AA7UN	22,512	SO-MIX-LP
K2GMY	26,696	SO-MIX-QRP
K6EI	22,842	SO-MIX-QRP
WA6FGV	20,328	SO-MIX-QRP
N6HI	4,800	SO-MIX-QRP
K6GPB	720	SO-MIX-QRP
KC1BB	35,750	SO-PH-HP
W7BJN	14,976	SO-PH-HP
K6TQ	4,480	SO-PH-HP
KR7LD	2,562	SO-PH-HP
AI6LY	2,552	SO-PH-HP
N6PGQ	11,154	SO-PH-LP
NF7E	8,580	SO-PH-LP
WZ8T	8,400	SO-PH-LP
W6BS	6,060	SO-PH-LP
NT7MM	3,596	SO-PH-LP
W6QU (W8QZA, op)	840	SO-PH-QRP
W6US	140	SO-PH-QRP
AI6YR	54	SO-PH-QRP
WJ9B	215,016	SO-CW-HP
WØYK	188,500	SO-CW-HP
K6IJ	164,284	SO-CW-HP
W7YAQ	159,216	SO-CW-HP
N6TV	153,264	SO-CW-HP
N7IR	36,848	SO-CW-LP
N6GP	36,064	SO-CW-LP
W7QDM	28,728	SO-CW-LP
KN7K	27,456	SO-CW-LP
W7RV	24,252	SO-CW-LP
AD7L	13,440	SO-CW-QRP
K6VHF	7,168	SO-CW-QRP
W6MZ	4,704	SO-CW-QRP
WN6W	3,080	SO-CW-QRP
KK7A	1,120	SO-CW-QRP

K2RD	332,816	SOU-MIX-HP	KØMD	419,120	SO-MIX-HP
KY7M	252,298	SOU-MIX-HP	N5AW	226,780	SO-MIX-HP
K6RC	194,208	SOU-MIX-HP	WØBH	216,480	SO-MIX-HP
N6IE	189,312	SOU-MIX-HP	NØAT	195,212	SO-MIX-HP
NT6X	175,824	SOU-MIX-HP			
			KTØK	365,014	SO-MIX-LP
K6AM	169,476	SOU-MIX-LP	N5JJ	271,416	SO-MIX-LP
W7ZRC	27,664	SOU-MIX-LP	ACØW	247,164	SO-MIX-LP
KA7T	27,560	SOU-MIX-LP	WA8ZBT	115,200	SO-MIX-LP
AK6A	26,746	SOU-MIX-LP	NWØM	105,028	SO-MIX-LP
K6GHA	25,700	SOU-MIX-LP			
			NDØC	51,968	SO-MIX-QRP
W6PNG	7,750	SOU-PH-HP	AA5KD	12,958	SO-MIX-QRP
WA7DUH	6,216	SOU-PH-HP	KØRJK	1,274	SO-MIX-QRP
K7PAC	5,290	SOU-PH-HP			
KD7VIK	4,200	SOU-PH-HP	NR5M	351,828	SO-PH-HP
N6ZT	3,528	SOU-PH-HP	K5TR	298,462	SO-PH-HP
			KØJU	128,520	SO-PH-HP
W7BOB	6,440	SOU-PH-LP	W5LO	111,612	SO-PH-HP
WA7YXY	468	SOU-PH-LP	K5RZA	58,912	SO-PH-HP
W6IFN	208	SOU-PH-LP			
KG7QXE	50	SOU-PH-LP	KØDD	40,138	SO-PH-LP
			KØNEB	20,800	SO-PH-LP
K3EST	373,920	SOU-CW-HP	KØVH	12,850	SO-PH-LP
N6SS	340,800	SOU-CW-HP	NØVRM	9,360	SO-PH-LP
K6SRZ	191,416	SOU-CW-HP	NØYO	8,640	SO-PH-LP
K9YC	156,552	SOU-CW-HP			
AA7A	151,256	SOU-CW-HP	KEØWPA	2,400	SO-PH-QRP
			WWØWB	1,152	SO-PH-QRP
K6WSC	116,424	SOU-CW-LP	WE6EZ	810	SO-PH-QRP
K7XC	112,992	SOU-CW-LP	WBØTEV	768	SO-PH-QRP
N7YK	94,928	SOU-CW-LP			
WS7L	58,800	SOU-CW-LP	K5NA	509,440	SO-CW-HP
W7WSV	23,944	SOU-CW-LP	K5PI	495,804	SO-CW-HP
			WØZA	262,372	SO-CW-HP
K6MI	10,920	SOU-CW-QRP	WØVTT	232,320	SO-CW-HP
VE6EX	5,304	SOU-CW-QRP	NN7ZZ (N5LZ, op)	209,040	SO-CW-HP
K7ZS	242,556	MSHP	AE5GT	142,632	SO-CW-LP
NX6T	216,972	MSHP	K7BG	81,804	SO-CW-LP
W7TVC	109,482	MSHP	KØFX	57,904	SO-CW-LP
W7VJ	99,000	MSHP	K5LH	52,208	SO-CW-LP
N7LR	18,340	MSHP	KT5X	52,056	SO-CW-LP

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

			WAØMHJ	70,200	SO-CW-QRP
			WØCW	36,432	SO-CW-QRP
			NØJK	24,940	SO-CW-QRP
KØTT	487,104	SO-MIX-HP	N5OE	20,020	SO-CW-QRP

KKØU	11,200	SO-CW-QRP
VE5MX	350,760	SOU-MIX-HP
K3PA	299,484	SOU-MIX-HP
KØAD	241,224	SOU-MIX-HP
NØXR	240,640	SOU-MIX-HP
KØBJ	219,420	SOU-MIX-HP
NØHJZ	159,084	SOU-MIX-LP
KØKX	142,024	SOU-MIX-LP
KØVBU	98,770	SOU-MIX-LP
AAØAW	89,496	SOU-MIX-LP
KØIL	38,700	SOU-MIX-LP
KJ5T	84	SOU-MIX-QRP
W5PR	194,076	SOU-PH-HP
NØIRM	77,220	SOU-PH-HP
KAØRVL	38,514	SOU-PH-HP
WTØDX	27,132	SOU-PH-HP
K2KR	18,360	SOU-PH-HP
WA5WFE	8,484	SOU-PH-LP
N5LFE	2,496	SOU-PH-LP
KF5KWO	2,430	SOU-PH-LP
KC6R	1,296	SOU-PH-LP
KEØITC	870	SOU-PH-LP
KVØQ	446,720	SOU-CW-HP
K5CM	185,856	SOU-CW-HP
N5XZ	138,368	SOU-CW-HP
N5RZ	131,040	SOU-CW-HP
W5FMH (KJØD, op)	123,816	SOU-CW-HP
NM5M	105,624	SOU-CW-LP
NØNI	62,208	SOU-CW-LP
K5QR	57,216	SOU-CW-LP
KØAP	47,288	SOU-CW-LP
N5SJ	39,560	SOU-CW-LP
NØUR	57,552	SOU-CW-QRP
WC7S	13,572	SOU-CW-QRP
NX5M	906,752	MSHP
KØRF	473,364	MSHP
WA5PFJ	16,280	MSHP
KA9VVQ	34,800	MSLP
K5LRW	5,440	MSLP
KB5ZSK	1,968	MSLP
KF6NMA	140	MSLP

Central Region

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

W8TWA	177,684	SO-MIX-HP
K8FF	154,440	SO-MIX-HP
KW8N	84,840	SO-MIX-HP
VE3PN	71,168	SO-MIX-HP
VE3UZ	41,890	SO-MIX-HP
ND9G	178,724	SO-MIX-LP
W8MET	78,720	SO-MIX-LP
N7ZZ	78,540	SO-MIX-LP
WB8WKQ	75,844	SO-MIX-LP
KK9H	68,120	SO-MIX-LP
AF9J	9,984	SO-MIX-QRP
W8UA	3,852	SO-MIX-QRP
WD9GYM	1,504	SO-MIX-QRP
KT8O	1,288	SO-MIX-QRP
VE3CBK	638	SO-MIX-QRP
ND4Y	112,362	SO-PH-HP
K9UC	39,292	SO-PH-HP
KC8GAE	31,164	SO-PH-HP
K8DJR	27,360	SO-PH-HP
KØPJ	6,050	SO-PH-HP
N4JKO	20,240	SO-PH-LP
WA9BZW	17,252	SO-PH-LP
N8XCC	11,352	SO-PH-LP
AC9TO	7,200	SO-PH-LP
KG2E	7,004	SO-PH-LP
KC9AMM	672	SO-PH-QRP
KD9QKL	128	SO-PH-QRP
W5MX	169,912	SO-CW-HP
K9BGL	124,584	SO-CW-HP
N8LJ	118,784	SO-CW-HP
K8MP	117,760	SO-CW-HP
K4WW	110,856	SO-CW-HP
K4FT	153,400	SO-CW-LP
K4YJ	91,012	SO-CW-LP

KC4WQ	87,000	SO-CW-LP	K8AJS	51,168	SOU-CW-LP
W9RE	69,740	SO-CW-LP			
W4KD	62,928	SO-CW-LP	VA3AMX	2,622	SOU-CW-QRP
N8AP	22,192	SO-CW-QRP	NV9L	694,232	MSHP
K2YAZ	15,836	SO-CW-QRP	K9YY	250,880	MSHP
WD8RIF	11,160	SO-CW-QRP	VE3YAA	57,036	MSHP
WS9V	4,704	SO-CW-QRP			
WB9AYW	3,060	SO-CW-QRP	KV8Q	912	MSLP
VA3DF	180,708	SOU-MIX-HP	**Southeast Region**		
NE9U	178,712	SOU-MIX-HP	(Delta, Roanoke and Southeastern Divisions)		
KI9A	168,804	SOU-MIX-HP	W5ZN	778,070	SO-MIX-HP
AC9KW	124,936	SOU-MIX-HP	N4OX	737,632	SO-MIX-HP
VE3CX	124,488	SOU-MIX-HP	N4EEB	642,396	SO-MIX-HP
			AC4G	303,474	SO-MIX-HP
W9AV	134,300	SOU-MIX-LP	WX4G	298,980	SO-MIX-HP
KE3K	86,802	SOU-MIX-LP			
K9PW	60,000	SOU-MIX-LP	N8II	398,764	SO-MIX-LP
VE3PJ	56,304	SOU-MIX-LP	WQ5L	372,294	SO-MIX-LP
KBØV	55,580	SOU-MIX-LP	K2PS	328,090	SO-MIX-LP
			NV4B	224,770	SO-MIX-LP
K8ZT	1,470	SOU-MIX-QRP	WØPV	177,606	SO-MIX-LP
W9KEY	27,048	SOU-PH-HP	N4ELM	30,622	SO-MIX-QRP
W9NY	26,840	SOU-PH-HP	NA4CW	14,382	SO-MIX-QRP
K9MU	21,060	SOU-PH-HP	K4PZC	12,512	SO-MIX-QRP
VA3WW	15,540	SOU-PH-HP	K4PQC	11,322	SO-MIX-QRP
KG9Z	13,440	SOU-PH-HP	N4PIR	11,266	SO-MIX-QRP
K2DRH	127,680	SOU-PH-LP	KD7RF	254,748	SO-PH-HP
N9CDX	3,036	SOU-PH-LP	W4DD	195,016	SO-PH-HP
KB9YOJ	1,764	SOU-PH-LP	WS7X	53,790	SO-PH-HP
KE8HBV	208	SOU-PH-LP	N4MM	31,008	SO-PH-HP
W8LRJ	108	SOU-PH-LP	N5GF	29,682	SO-PH-HP
KU4A	1,116	SOU-PH-QRP	K5OF	62,370	SO-PH-LP
			K4TMC	38,916	SO-PH-LP
KG9X	235,620	SOU-CW-HP	K4QQG	34,900	SO-PH-LP
KE4KY	174,200	SOU-CW-HP	W4QNW	29,848	SO-PH-LP
N7US	172,176	SOU-CW-HP	KB4OLM	28,520	SO-PH-LP
VE3UTT	170,000	SOU-CW-HP			
WT9U	121,136	SOU-CW-HP	KS4GW	308	SO-PH-QRP
			K4CGW	84	SO-PH-QRP
W9XT	175,104	SOU-CW-LP	N3AWS	32	SO-PH-QRP
WT9Q	156,000	SOU-CW-LP			
N9TF	72,800	SOU-CW-LP	WW5M	393,736	SO-CW-HP
WB9HFK	53,176	SOU-CW-LP	KU8E	354,432	SO-CW-HP

K5LG	275,700	SO-CW-HP
K4BAI	238,392	SO-CW-HP
K4PI	148,674	SO-CW-HP
K7SV	166,320	SO-CW-LP
W4NZ	149,760	SO-CW-LP
WB4TDH	139,712	SO-CW-LP
K5XU	120,596	SO-CW-LP
N5EE	119,000	SO-CW-LP
K3TW	69,748	SO-CW-QRP
W4QO	10,088	SO-CW-QRP
N7RCS	8,840	SO-CW-QRP
W4ER	6,432	SO-CW-QRP
W4IOP	4,428	SO-CW-QRP
N8OO	1,243,512	SOU-MIX-HP
N4UU	704,728	SOU-MIX-HP
K4AB	567,336	SOU-MIX-HP
N4RV	519,232	SOU-MIX-HP
WO4O	483,120	SOU-MIX-HP
K9OM	351,440	SOU-MIX-LP
N2CEI	305,230	SOU-MIX-LP
K1HTV	188,500	SOU-MIX-LP
KT4Q	102,312	SOU-MIX-LP
N3CKI	81,152	SOU-MIX-LP
K4WI	248,976	SOU-PH-HP
NA4DA	96,868	SOU-PH-HP
KD5JRY	67,340	SOU-PH-HP
N4BCD	23,000	SOU-PH-HP
K4SHW	16,456	SOU-PH-HP
W4VS	16,192	SOU-PH-LP
KG5KRZ	5,460	SOU-PH-LP
K7SYS	3,936	SOU-PH-LP
K4LDC	3,250	SOU-PH-LP
KO4BAH	2,548	SOU-PH-LP
K1MM	530,800	SOU-CW-HP
NN7CW	492,800	SOU-CW-HP
N4BP	420,792	SOU-CW-HP
W2UP	362,792	SOU-CW-HP
K2SX	285,792	SOU-CW-HP
K4OAQ	208,164	SOU-CW-LP
K2MK	46,640	SOU-CW-LP
WA4PGM	26,820	SOU-CW-LP
AA4NP	20,592	SOU-CW-LP
KO4Z	15,872	SOU-CW-LP
KR4AE	3,496	SOU-CW-QRP
AD4ES	354,756	MSHP
AC8Y	1,376	MSHP
K4MM	115,200	MSLP
WB4WXE	21,150	MSLP
W4TG	16,340	MSLP
W4BSF	2,600	MSLP

Northeast Region

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

KU2M	308,374	SO-MIX-HP
K3ZO	198,352	SO-MIX-HP
W2XL	168,784	SO-MIX-HP
AH2O	147,204	SO-MIX-HP
W2OIB	139,986	SO-MIX-HP
K2ACX	60,060	SO-MIX-LP
KX1G	59,644	SO-MIX-LP
WA3FAE	50,944	SO-MIX-LP
N2EM	38,864	SO-MIX-LP
WA2QAU	29,172	SO-MIX-LP
WB2AMU	22,724	SO-MIX-QRP
KI5TD	1,344	SO-MIX-QRP
KD2KUB	986	SO-MIX-QRP
W1CEK	700	SO-MIX-QRP
K1PDY	420	SO-MIX-QRP
N8RA	126,060	SO-PH-HP
K2XA	113,916	SO-PH-HP
KE2DX	75,582	SO-PH-HP
WU2X	64,766	SO-PH-HP
VA2BN	28,560	SO-PH-HP
NO2EL	17,202	SO-PH-LP
K3EEI	13,640	SO-PH-LP
N1WRK	12,460	SO-PH-LP
N1DFD	11,470	SO-PH-LP
KA1AMR	6,930	SO-PH-LP
KD2UHF	1,296	SO-PH-QRP

KC1MBQ	306	SO-PH-QRP
WX2N	228	SO-PH-QRP
KC2JRQ	24	SO-PH-QRP
K1KI	303,392	SO-CW-HP
K3UA	236,716	SO-CW-HP
W1WEF	195,520	SO-CW-HP
K3TC	169,652	SO-CW-HP
K1RM	152,160	SO-CW-HP
W3BGN	145,656	SO-CW-LP
K1XM	125,660	SO-CW-LP
K1VUT	109,760	SO-CW-LP
K1TR	87,552	SO-CW-LP
W1QK	79,488	SO-CW-LP
K2YG	22,632	SO-CW-QRP
N1IX	17,500	SO-CW-QRP
WB2CPU	12,120	SO-CW-QRP
N1AIA	10,912	SO-CW-QRP
KN1H	10,044	SO-CW-QRP
K3MM	497,568	SOU-MIX-HP
W3EP	469,212	SOU-MIX-HP
K3WW	360,864	SOU-MIX-HP
W1TJL	276,768	SOU-MIX-HP
N3OC	256,360	SOU-MIX-HP
K1ZE	154,112	SOU-MIX-LP
KA2D	55,800	SOU-MIX-LP
WA2JQK	51,168	SOU-MIX-LP
WR2G	47,880	SOU-MIX-LP
W2FDJ	23,712	SOU-MIX-LP
N2XP	11,232	SOU-MIX-QRP
K2AL	6,380	SOU-MIX-QRP
KN2M	1,530	SOU-MIX-QRP
K3MAW	324	SOU-MIX-QRP
W3FOX	59,000	SOU-PH-HP
AC3LZ	17,632	SOU-PH-HP
NE3F	17,028	SOU-PH-HP
W2RD	12,168	SOU-PH-HP
N3DUE	7,776	SOU-PH-HP
N3AAA	35,872	SOU-PH-LP
KA2K	31,944	SOU-PH-LP
N1FTP	6,758	SOU-PH-LP
KB1RVU	4,368	SOU-PH-LP
KD2JOE	2,950	SOU-PH-LP
W1KM	425,880	SOU-CW-HP
N2MM	333,984	SOU-CW-HP
N3RD	299,880	SOU-CW-HP
AA3B	298,480	SOU-CW-HP
N2KW	244,352	SOU-CW-HP
K2DFC	107,736	SOU-CW-LP
K3AU (K2YWE, op)	98,208	SOU-CW-LP
W3KB	78,848	SOU-CW-LP
K1VMT	61,344	SOU-CW-LP
W2CG	45,760	SOU-CW-LP
KA1ZD	542,794	MSHP
AA1JD	417,696	MSHP
K3AJ	330,454	MSHP
K3CCR	168,720	MSHP
K2LE	142,024	MSHP
NC1CC	340,120	MSLP
W1OMG	48,280	MSLP
VE9ML	7,304	MSLP
N1SOH	4,876	MSLP