TALES FROM THE SWAMP

September 2021

Editor: Kevan Nason, N4XL

Thank you to our current group leadership.

        President – Ed, K3DNE
        Vice President - Dave, WN4AFP
        Treasurer – Phil, NI7R
   Secretary – Ed, WB4HRL

From the Reflector:

- Ed, K3DNE, posted this list of SFCG members who reached the 4th Call Area Top 10 list of the 2021 CQ WPX SSB contest

Call	Category	Points	US 4th Call Area	North America	World
K3DNE	SOHP(TB/W)	1,741,905	#2	#7	#26
KG4IGC	SOLP	226,317	#1	#37	#225
WJ4X (N4XL)	SOLP	194,400	#2	#51	#273
WN4AFP	SOLP(7MHz)	126,420	#1	#3	#35
N4IQ	SOHP(3.5MHz)	41,322	#1	#6	#45
KG9V	SOHP(Rookie)	23,358	#2	#8	#22
N2OG	SOLP(TB/W)	10,988	#5	#47	#272

- Other congratulations are due to
  - Bob, AC4MC, received plaques for placing #1 in the 2020 and 2021 SC QSO Parties. Bob won the SOHP Mixed category.
  - Dave, WN4AFP, won first place in the LP category of the Oklahoma QSO Party.
- Dave, NJ4F, has been going "Old School" RTTY and picked up a 28RO Teletype machine.
- Brian, N8WRL, shared a story about inventing his own contest category so he and his daughter could place #1 and get a plaque. You just have to admire his competitiveness.
- We were temporarily blown away by Dave, WN4AFP, having a 6/minute QSO rate in the WAE Contest. Then Matt, NU4E, posted he had a 7/minute rate. Wow! Then just as Dave

suspected, Matt confirmed it was due to QTC traffic. Boy, wouldn't those rates be nice to do in the CQWW?

- There's been a lot of push from people to join SFCG teams and chatter about recruitment was high. People are responding. The rest of you should jump on the band wagon. Do it even if you only have an hour or two to give or don't think you can contribute a high score for some reason or another. Points add up. We've a lot of people in the group. SFCG standing in team/group results would improve if more of us would chip in just a little bit. Here's some data Ed, K3DNE, put together showing how the SFCG is moving up:

ARRL International DX Combined (SSB + CW)
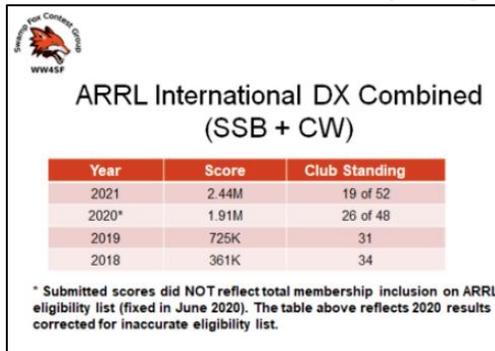
Year	Score	Club Standing
2021	2.44M	19 of 52
2020*	1.91M	26 of 48
2019	725K	31
2018	361K	34

* Submitted scores did NOT reflect total membership inclusion on ARRL eligibility list (fixed in June 2020). The table above reflects 2020 results corrected for inaccurate eligibility list.

- SFCG leadership announced the group will be sponsoring future plaques for the ARRL International DX Phone contest SOLP Unlimited category.
- Perhaps Dave, WN4AFP, is spending too much time on the air. His 40 meter antenna fell down in protest.
- Burton, KY4ID, wrote "That was the most fun I've had to date." About the NAQP SSB contest. He's been exploring the joys of running and has discovered it really helps the score. More importantly, it usually puts more q's in the log that S&P does meaning more activity and more fun.
- Tom, WA2BCK, also had a good time in the NAQP SSB. Tom, Ed (K3DNE), and Matt (NU4E) duked it out and were able to enjoy the battle by watching things on the Real Time Scoreboards. That was Tom's first exposure to online motivation to keep his BIC.
- Frank, KG4IGC, is keeping active. He spent ten hours in the SARTG WW RTTY contest.
- Burton, KY4ID, is working on his CW and asked for some advice on a paddle. Popular consensus was the old, reliable, and inexpensive Bencher BY1 works fine for most people.
- Dave, WN4AFP, needs to spend less time destroying antennas and more time training his new kitten to shack visitor etiquette. (Cute kitten, Dave.)
- A brief cluster of posts revealed most of us feel 32 radials is about right for ground mounted verticals. More is better of course, but 32 of them works pretty good.
- Bill, N4IQ, did very well in the CW Ops Open contest with 330 Q's in each of the two sessions he entered. Very respectable, Bill. He also had his best CWT session ever with 136 q's during the 1300UTC session of the CWT on 9/8
- Dave, WB5NHL, shared information about Anna Matson, KN4IVD, who is a student at Schofield Middle School. Anna appeared on the cover of the October issue of QST. Dave modestly left out he is with the North Augusta-Belvedere Radio Club which has worked extensively for years with the school's radio club. The club has placed #1, or near the top, in the nation in the ARRL School Roundup contest for several years.

- Burton, KY4ID, is working on raising his 6 year old boy as a radio enthusiast. Burton shared a video of his son working POTA station with K4DQP and W3SPC as operators.

Contest Tips:

K2YWE Contesting Best Practices	
Running Best Practice	**Rationale**
• When running, NEVER NEVER NEVER acknowledge a "jammer". NEVER. Just keep your pace, and don't change your tone of voice on phone or even synchronize your calls to his QRM.	• With no response, he can't be sure he is even bothering you, and it isn't any "fun" for him if he doesn't get a reaction.
• Move Multipliers if you have the time (slow run). • Pick frequencies in advance. Give up quickly if you don't connect very fast.	• A quick way to gain band-Mults. • Many Ops will go with you. • You probably won't Q if you don't connect quickly.
• Use only a quick "Thanks" or "TU" without your call sign or QRZ if you heard multiple callers. • Throw in your call every few Q's for new listeners. • Keep it up until there are no more responses, then build back to your "full" QRZ message and CQ. • If you get no response after working the first station this way, try sending just your call and TEST" before resuming to a full CQ.	• Most waiting stations will know your call. Don't waste time on it. • Minimizing the time stations have to wait for you will help to keep the impatient ones hanging around and will increase your QSO rate. • Less experienced contesters may not realize you are waiting for them. "TEST" will alert them you are ready for another station to call.

K9YC Operating tips & Tricks

3) When calling a station, send only your call, and only once on CW and SSB. Listen for a second or two, and if the other station doesn't come back, send your call once more. And listen. (Two or more stations may have called at the same time and the other station didn't copy either one.) On SSB, say your call with standard phonetics, with good articulation

7) NEVER use "QRZed" to finish a QSO -- the stations who want to work you are tuning the band looking for stations to work. They want to hear your call! When you're the CQing station, finish your QSO with "Thanks, Whiskey 8 Tango Alpha Hotel." When you only say "QRZed" that tuning station doesn't know your call, so it will waste time (yours and his) for him to find out. Or he may just keep on tuning for someone who DOES say his call. :)

8) When you're the CQing station, always give a station who may be waiting a chance to call you as soon as you've said "thanks." In other words, don't start another CQ after each QSO until you've listened a second or two for a station who has been waiting.

9) Have fun. Keep a smile in your voice.8/29/2019 Gmail - [CQ-Contest] Hints and tip - K9YC

10) Work on getting your station to SOUND good. This applications note tells how to adjust your radio so that the other station hears you better. http://k9yc.com/ContestAudio.pdf

- An "Amateur Radio Contesting FAQ" explaining common terms and concepts is available at https://www.qsl.net/zs1an/contesting_faq.html
- Many hams think owning an amplifier is the key to loud signals and high scores. Whether you own an amp or not, incremental station improvements are key. The chart below compares dB gain to power. Can you make any shack improvements to lower your dB loss and increase your radiated power? You may not need an amplifier to get those good scores.

Watts	dB and Power change from reference Power
100	Reference
200	3 dB = double
400	6 dB = 4 times (3 dB + 3 dB = double double)
800	9 dB = 8 times (3+3+3 = double double double)
1 Kw	10 dB = 10 times

Here's some ideas to consider
- Better coax or ladder line feeder
- Resonant antennas to remove tuner loss
- Fewer PL259 connections between the rig and antenna
- Reduce vertical radial system ground loss
- Measure voltage at back of radio while transmitting is at design specification (Surprisingly, factory supplied power cables aren't always optimal)
- Experiment with low band wire antennas that provide gain.

From the Contesting Wiki

(Editor's note: I think. Actually, it is from a file on my computer dated 2010)

Contest-specific Techniques

More good advice from K3ZO:

There are procedural differences between the CQWW and the ARRL DX Contest which are especially important on a band like 80 meters. In the CQWW, since the Europeans can earn points for working each other, they are harder for us to run because we are competing for the attentions of Europeans with loud local Europeans who are also running. In the ARRL DX Contest, we are the only game in town so our European runs are generally more productive.

On the other hand, in the CQWW there will be more European stations running than in the ARRL DX Contest, because they can. A DL with 100 watts and a dipole on 80 can likely generate a decent rate in the CQWW but won't even try running in the ARRL DX because the likelihood of getting called is slim. Therefore, for you S&P fans, the key in the CQWW is to tune between the loud runners and find those weaker Europeans. If you can hear their 100 watts, they can likely hear yours.

During CQ WW CW I found Europeans running as high as 3575, and in general it was easier to get through when I called stations above 3550 than it was below there. And since a G is just as good a multiplier as 9K2HN, I didn't spend long trying to bust his pile-up, given the fact that some callers weren't even letting up long enough to see who he came back to. My S&P procedure, which I almost always follow, is to call a station twice. If he hasn't come back by then, I move on.

Member Input:

Ed, K3DNE, forwarded this tip he received from the PVRC concerning Microsoft Windows' penchant for reassigning COM port numbers during updates. The tip came from Jack, KD4IZ. *(Editors note: I don't think it will solve every problem since some programs are limited to COM ports using numbers too low to take advantage of this, but I intend to renumber things in my shack as much as possible.)*

> A quick tip for those who have not figured it out; Reassignment of COM ports during updates only appears to occur for devices in the "Plug-n-Pray" ports – those up to COM15 I think. On the workstation, I have reassigned all of my "permanent" devices to COM ports 16 and above since I "discovered" this and I have yet to have any auto update play havoc with those port assignments. Currently have several radios, two Elecraft amplifiers, and an Elecraft KAT500 autotransmatch assigned into COM 16

through 29. This has been stable for several years through minor and major updates and upgrades. I have also used this approach on my laptop and I have observed the same. Give it a try before Windoze 11 bloatware hits us. After it does, I would be really interested to see if the method eases the transition.

After the transition, scarf a copy of "Debloater" when the Win11 version happens and you will appreciate what it does for you.
Here is the Win10 version on GitHub: https://github.com/Sycnex/Windows10Debloater
It is a PowerShell script.

Article

Tips from the PVRC NC East Feb 2006 Presentation by Jack, W0UCE, on Tips For Working Weak Ones

These are excerpts from Jack's talk. The entire presentation is available at:
https://studylib.net/doc/9267643/tips-for-working-weak-ones

- Remember the 3 P's
    - Propagation, Patience and Persistence
    - Propagation – Know when the DX signal may peak and watch azimuth changes.
    - Patience – Propagation may move toward you. Don't call if you can't hear him.
    - Persistence – Keep trying, in a contest go back for them.
- Since you can't increase a weak signal without increasing noise… Reduce the noise!"
    - Noise reduction (S/N issues) Reduce the Noise!
    - Signal strength (propagation issues) Learn about it!
    - Understand your receiver. Get the most it has to offer from filters, noise blanker, RF & AF Gain Controls and DSP
    - Practice, practice, practice to gain experience before the next contest or DXpedition. Listen, Listen, Listen
    - Expand station capability by adding low noise RX antennas
    - Separate Low Noise RX Antennas, Beverages, BOGS, Snakes, Ewes, Pennants, Flags, Coaxial and K9AY Loops will be covered in a future program presentation.

- 1.The most important thing to remember about working weak ones no matter what power or antennas you are using is to LISTEN before you do anything else. Before you can work the weak one, you have to be able to hear it. At times a high angle antenna is better than low angle. Experiment with what you have.

- 3.   If the pileup is huge, you will be better off transmitting slightly higher or lower than the pileup. DX stations will often explore upper or lower edges of a pileup if they can't pick out

calls from the main mass. This is where the clever operator can often steal a QSO from QRO stations. It's a chess game and whole sections of DXing technique books have been devoted to breaking a pileup. Operate "smarter than the average bear!"

4. Listen to determine the pattern of a DX station's exchange. Sometimes after an exchange the DX station will say or send TU then listen for more replies. Other times they may send QRZ or do nothing but listen; some may send dit dit. Whatever their reply is, understand when the DX station is finished with a QSO and is ready for the next before you call. When that "I am ready indication" comes from a DX station, send your call once. If you are loud enough, and quick enough, likely you may work him while others are repeating their calls two or three times. Send at or slightly above or below the speed the Multiplier or DX station is employing.

5. Another thing that of helps is to delay sending your call for a second so the last letter or two of your call extends past the main fracas of a pileup. In such cases a DX station may well hear the last one or two letters of your call and send them followed by? If a DX station does this often enough, they can control a pileup and make it manageable.

6. If you keep calling him without an answer, it is certainly time figure out why. It may simply be propagation favoring another area. If DX is working one mid-west or west coast station after another, and you are calling your heart out from Raleigh, propagation is likely not in your favor at the time. If a pileup gets too large and obliterates clear responders, the DX operator may switch to split frequency operation. Know where to listen and where to reply. Remember the previous tips still apply.

7.   At times even in contests a DX station may operate split but not bother saying so. This is where the importance of careful listening applies. If you hear a DX work one station after another, but you don't hear any of the stations he is working, it's certainly time to tune UP and at times DOWN to see if he is indeed working split.

8. Be sure your signal and sending or voice is as clean and crisp as possible. DX stations often mention that it is not always the strongest signal that is easiest to copy in a pileup, often a weaker clean signal with perfect keying or well enunciated voice is much easier to copy. If you have been on the other end, you know why.

9. Learn, Apply, Practice, Experiment and Listen. (LAPEL) Work your contest band plan for Running and S&P and always remember a single multiplier is often worth 5 or 10 points more than working another domestic QSO.

10. On 160 not all countries have the same frequency allocation. You must know where DX can operate, a few but not many, will risk going out of band to work another US QSO – Would you?

- Tips from Other Members

N4YDU – Understand propagation and don't spend too much time on one single multiplier. Tune high in the band away from QRM and be persistent.

K2AV – Listen with narrow bandwidth. In a pile up send your call a bit higher or lower than the masses calling a multiplier.

K4CIA – Upgrade to Extra Class in order to gain full band privileges and use headphones when working weak ones.

N4CW – Improve your station in order to hear weak stations and for them to hear you. Use Packet/Telnet Spotting

AD4L – Put up the best receiving antennas you can. Run high power and pick the best opportunity to call multipliers

W4KAZ - Keep your butt in the chair, you can't work them if you are not operating. Employ the best possible antennas.

WA2JFK – Use the biggest and best antennas you can afford, size matters. Staying power means more multipliers, taking more breaks means less multipliers. Run when you find a clear frequency and log correctly.

K4CZ – Call below rather than above the multiplier's frequency. List very closely between strong signals

NX9T - Use the best radio you can, load it with filters. Use big, high antennas.

K4QPL – Get the best antennas, radio and filters you can. Put up the best antennas you can and learn to set up speech processor. Employ a contesting type microphone versus one designed for audio fidelity.

K3KO – Use Internet Spotting. No Doze helps.

K4ARB – Persistence pays off. Tune multipliers slightly off frequency and call there as well. Use narrow filter settings.

Observations by the Editor:

- Three tidbits from the August 31, 2021 issue of The ARRL Countest Update
  - Contemporaneous
    "Existing or occurring in the same period of time"

    In the ARRL General Rules for HF Contests below 30 MHz, rule 1.4 states:

1.4. Each claimed contact must include contemporaneous direct initiation by the operator on both sides of the contact. Initiation of a contact may be either locally or by remote.

This rule means that an actual operator must initiate each contact by an operator action such as keypress, use of a paddle, key, pushbutton, and so forth, during each contact. It precludes the use of "automatic QSO machines" in any form (hardware, software, etc.) to make contest contacts.

Editor's Note: The ARRL is somewhat unique in how it posts contest rules. There are specific rules for a contest such as the ARRL International DX Contest, Sweepstakes, or Rookie Roundup. There are General Rules for All ARRL Contests. There are also General Rules for ARRL Contests Below 30 MHz and General Rules for ARRL Contests Above 50 MHz. Check all applicable rules before the contest.

o The Icom IC-7300 is a very popular radio, but the designers didn't anticipate every need. For example, there is no factory option for use of a dedicated receive antenna. Hamtenna seeks to fill that void with the IC-7300 RX-Antenna board. The product is a board that fits inside the radio, with a toggle switch and SMA connector taking the place of the auto-tuner connector on the radio's rear panel. The price is listed as kr1.290, which at today's rates is approximately $149 USD.

o Bob, N6TV, provided these hints to consistently get spotted when CQing in his presentation to the Spokane DX Association:
  - Send everything at the same speed
  - Use the words "CQ" or "Test" and send your call twice
  - Use computer keying; consistent spacing is important
  - The following words also count as "CQ": FD, SS, NA, UP

- I often repeat things I have previously said about contesting and sometimes find myself putting duplicate information in these newsletters. I hope that doesn't bother you. It doesn't me. In fact, every few months I scan through the contesting computer folder and reread things I've had around for years. Things I've probably read five or six times. Things that are covered in files from other contesters that I have also read another six times. That's because everyone forgets, and it is good to be reminded about tips that can help you do better.

More importantly, it is also because as your contesting skills grow you can better understand the nuances of what those great contesters were trying to tell you. Rereading things can often result in discovering "new" ideas for you to try. That helps keep my interest in contesting alive and motivates me to sit my Butt In Chair one more time. If nothing new leaps out at me as I review things I just skim read and move it closer to the front of my brain where it can better help me next time I compete.

- Advice from other contesters is not always relevant to you though. For example, I have a beam and give ideas of how to use it in conjunction with spots. That means nothing to someone who only has a single OCF dipole or ground mounted vertical. By the same token, tactics found useful at my 100 watt station with its triband yagi at 50 ft located in the southeast United States may or may not when operating a superstation like K3LR. I operated differently at NQ4I when using 1,500 watts into a 4 ele 40 meter monobander at 135 ft, or when using Rick's 20 meter monster yagi (it had an 89 ft boom) at 180 ft. It has been helpful to me to find ways to separate the wheat from the chaff. In other words, I figured out some ways to determine if advice given was likely useful to my particular situation or not. Here are some things I look for...
    - Is the call sign of the person giving advice known to me? In the article above are calls like N4YDU and K4QPL. If you don't know who they are you should look them up so you will start paying attention when they speak.
    - Look them up? How? I often use 3830, the WRTC qualification standings, and QRZ.com home page describing their stations. Pay attention to what categories they enter. SOAB 20, vs SOAB All. If they win a SOAB ALL band it means more to me). Did their high scores only happen at operations that involve other operators? Maybe the other ops carried the load. Where were they are located? I don't hold high New England scores to be as valuable as those coming from the Southeast, Midwest or California. It's harder from those places if it is a DX contest.
    - Does what they are saying make sense to you? Have you read similar comments from other ops too? Do follow-up postings to their comments from hams you respect agree or seem to question the statements?

    3830 postings in particular carry a lot of weight with me. Too many times I've read a claim from someone who posts all the time. Since they are always talking it seems they should know what they're talking about. But when you look at their 3830 postings you see they usually only operate two or three hours of a 48 hour post or did 20 hours but only scored the same as many who only operated half as much. Or worse yet, they have only entered two or three major contests in several years and are trying to tell you how to win them. Maybe their ideas are sound, but I look at people who fit that profile with a bit more skepticism than someone like K4QPL who is ranked 53rd in the US for the 2022 WRTC. K4QPL is right next door in North Carolina and I hear him on the bands all the time, so I figure he has a clue what works and what doesn't.

    But no matter who you get your advice from it must suit your own operating style and station. As in most other aspects of life you shouldn't believe everything you hear or read – no matter how legitimate the source.

N1MM+ Tips:

More Buttons

As we discussed in the May 2020 SFCG Newsletter, the four blank buttons at the top of the band map can be custom programmed to perform various functions. I use them to send radio commands to my TS590's to turn the receive antenna and attenuator on or off and to use additional filter settings rather than simply wide or narrow. Update Version 1.0.9252 on August 31, 2021 included this change to N1MM

1. Added 32 buttons to each bandmap. The number of buttons grows from 4 to a max of 36 by adding buttons in the button edit dialog (right click on a button) (Coded by N1MM)
   - The buttons can be accessed from the keyboard via Ctl+AltShift+0 through Ctl+Alt+Shift+Z. Obviously these are tough combinations to type. They are better accessed with mouse clicks, AutoHotKey shortcuts or Touch Portal.
   - There are separate buttons for the left and right bandmaps. If only one bandmap is open, then both the left and right shift keys work to open the left bandmaps buttons. If both bandmaps are open, you must press the key combo with the shift key corresponding to the bandmaps. Left = Radio 1, Right = Radio 2.
   - Both AutoHotKey and Touch Portal can distinguish left/right/either shift keys.
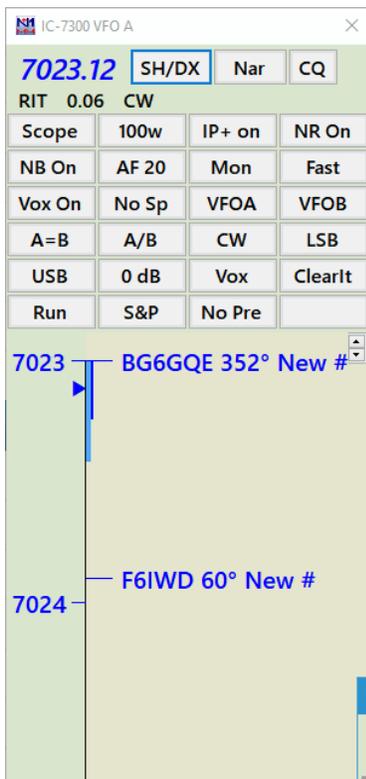
Disappearing N1MM Windows

People sometimes discover that the Entry Window for N1MM has disappeared. Sometimes it is just hidden behind another window, but every now and then it is completely off the screen. The problem is usually accompanied by an error message saying you are not allowed to open more than one copy of N1MM and one is already open. It isn't immediately obvious what is wrong because you canot see N1MM on your screen.

There are a couple solutions, but this tip from Rick, N2AMG, was in the N1MM Reflector and is easiest for many to use. I have also used it for other programs that have become lost due to rearranging my multiple monitors.

> If it is telling you that you can't run 2 instances at one time, then open the Task Manager and Stop N1MM from running.

> Once you have stopped all instances of N1MM try loading it again. If it does not appear hold your mouse over the N1MM icon that is in the taskbar. You should see other icons along with the main N1MM icon. Right click on the main N1MM icon and select Move Then use your arrow keys to move N1MM back on the screen. It sounds like it has been moved off the screen.

Upcoming Contests:

See the WA7BNM webpages https://www.contestcalendar.com/contestcal.html

SFOTA Current Leaderboard:

Sep-14-2021

Current Leaderboard

2021 OVERALL STANDINGS

	CALL	Contests	CW QSO'S	SSB QSO'S	DIGITAL QSO'S	RTTY QSO'S	TOTAL QSO'S
1)	N4IQ	87	11174	776	332	4305	16587
2)	WB4HRL	131	7262	1185	231	1758	10436
3)	WN4AFP	57	5660	1271	0	0	6931
4)	K3DNE	36	1013	4771	227	824	6835
5)	AC4MC	27	2489	1358	4	133	3984
6)	N4XL	10	2755	1089	0	17	3861
7)	K7OM	26	1573	80	0	2179	3832
8)	KG4IGC	16	632	974	0	1897	3503
9)	NU4E	7	1645	820	0	875	3340
10)	K4QQG	39	0	2806	0	0	2806
11)	WA2BCK	5	1187	1173	0	0	2360
12)	N2OG	9	108	896	34	799	1837
13)	KS4YX	4	120	14	77	368	579
14)	NI7R	3	569	7	0	0	576
15)	K9JDP	3	0	208	0	74	282
16)	KY4ID	2	0	111	0	59	170
17)	AJ4UQ	2	0	0	45	65	110
18)	NE4EA	1	55	0	0	0	55
19)	AF7T	1	4	0	0	0	4

3830 Activity:

Contest	Call	Class	Power	Score
AlQP				
12-Sep-2021	K4QQG	SOSSB	HP	18
ARRL Sep VHF				
13-Sep-2021	K3DNE	Single Op	HP	2,485
13-Sep-2021	N4IQ	Single Op	HP	3,198
CoQP				
5-Sep-2021	K4QQG	SOPh	HP	56
CWOpen				
5-Sep-2021	N4IQ	Single Op	HP	90,090
4-Sep-2021	N4IQ	Single Op	HP	82,170
KsQP				
29-Aug-2021	K4QQG	Single Op	HP	1,720
MDC QP				
15-Aug-2021	K4QQG	Amplified	HP	60
NAQP SSB				
22-Aug-2021	K3DNE	Single Op	LP	70,918
22-Aug-2021	K4QQG	Single Op	LP	8,208
22-Aug-2021	KY4ID	Single Op	LP	5,439
22-Aug-2021	NU4E	Single Op	LP	75,000
22-Aug-2021	WA2BCK	Single Op	LP	77,714
22-Aug-2021	WB4HRL	Single Op	LP	4,429
22-Aug-2021	WN4AFP	Single Op	LP	3,952
OhQP				
29-Aug-2021	K4QQG	Single Op	HP	340
Rus RTTY				
5-Sep-2021	K7OM	SOAB	HP	6,210
SARTG				
22-Aug-2021	K7OM/4(K7OM)	SOAB	HP	123,540
23-Aug-2021	KG4IGC	SOAB	LP	117,150

Contest	Call	Class	Power	Score
TnQP				
6-Sep-2021	K4QQG	SO FixedSSB	HP	4,608
WAE CW				
17-Aug-2021	K7OM	Single Op	LP	700
17-Aug-2021	NU4E	Single Op	LP	8,610
16-Aug-2021	WN4AFP	Single Op	LP	46,980
WAE SSB				
12-Sep-2021	K4QQG	Single Op	HP	15
13-Sep-2021	NU4E	Single Op	HP	167,359
WW RTTY				
30-Aug-2021	K7OM	SO Unlimited	HP	1,872
WWDigi				
29-Aug-2021	AJ4UQ	SOAB	LP	912
31-Aug-2021	WB4HRL	SOAB	LP	8,307

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73 es QRT de N4XL