TALES FROM THE SWAMP

June 2020
Author: Kevan Nason, N4XL

Thank you to our current group leadership, particularly Ed for taking up the President's role.

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

From the Reflector:

- Last month we were happy to hear Sarah, KG4NKG, was set free and sent home after her medical problems seemed under control. Unfortunately, things did not go as well as they could of. Sarah and Frank have even more trials ahead as she is heading back into surgery. We wish them well and send our hopes and prayers for her full recovery.

- Ed, K3DNE, volunteered to become our President. Ed posted a bio on the reflector and has begun giving cheerleading lessons. Glad to have you Ed. Our President gave the club a challenge for the WPX CW test. The SFCG responded by thoroughly trouncing Ed's goals. Thanks to all who participated! Unfortunately, next time Ed will undoubtedly raise the bar some more.

- Dave, AFP, organized a post CQ WPX CW Zoom meeting get together. He invited the WPX Director Bud, AA3B, to join. Bud gave an excellent talk and presented some ideas about pre-contest planning.

- Dave, AFP, posted some CQ WPX rules to pay particular attention to. Thanks for the reminders. Always good to review the rules before a contest.

- Ed, K3DNE, posted thoughts from Frank, W3LPL, about tightening PL259's and signal attenuation. Also discussed was attenuator and preamp use.

- Dave, AFP, posted a link to audio files posted by several stations. You can probably hear yourself or listen to others as they sound at the other end of your communication just by typing in your call sign. Neat.

- Bill, N4IQ, pointed out the Field Day rule change coming about from the COVID-19 pandemic. The ARRL is allowing home stations using commercial power to work other home stations on commercial power for point credit. Usually that is a no-no. The ARRL is also allowing club aggregate scores from participants whether they are at a single Field Day site or if they operate individually at different locations. Bill will be contributing to the Greer ARC club.

Contest Tips:

K1AR Contest Tips

15 There are many factors to consider when trying to break a big pileup in a contest. One aspect sometimes forgotten is the way you call a station. If you sound like you really want to work someone (without getting carried away), you're more likely to beat the majority of stations that call with a more "layed-back" approach. Give it a try!

20 One of contesting's most difficult strategic decisions is to know when to stop calling a station in a pileup that you cannot work. Fortunately, most modern logging programs tell you specifically how many QSOs a new multiplier is worth. In the future, if your goal is to achieve the highest score possible, try to avoid wasted time calling an unworkable multiplier: a) for that 40th Zone, b) to obtain a clean sweep in the ARRL SS, c) out of sheer stubbornness that may make a nice contest QSO but a lower final score!

28 It may seem obvious, but labeling antennas and amplifier settings is a must for contest stations. In the excitement of Friday afternoon it may be more tempting to work guys than taking that final step towards efficiency. Paying attention to the details of preparation in the long run is what separates successful contest efforts from mediocre ones.

Accuracy, Penalties and Log Changes

CT1BOH is a well-known for being one of the best contesters in the world. Back in 2006 made a long post about the amounts of logs crosschecked by the contest sponsor, penalties, and accuracy on the CQ-Contest reflector. He starts out talking about the effects of the percentage of logs checked, but I'm going to pick it up a bit further into the post. I encourage you to read his full comments at:
http://lists.contesting.com/archives//html/CQ-Contest/2006-03/msg00040.html

To: cq-contest@contesting.com
Subject: [CQ-Contest] Crosschecking, Penalties, Accuracy, Log Massage
From: "José Nunes CT1BOH" <ct1boh@gmail.com>
Date: Mon, 6 Mar 2006 12:14:04 +0000

(Below is text starting partway through the email. If you are not fortunate enough to work 7000 qso's in a contest then focus on the Score reduction error rate percentage numbers.

Those percentages would apply to whatever score you had too. Also note the numbers below are ignoring the loss of any mults which is probably unrealistic meaning percent score reduction would likely be higher than indicated. – Ed.)

PENALTIES

Lets now assume we have three different entrants with exactly the same contest performance, but different accuracy rates - 1% error rate, 3% error rate and 5% error rate (assume 60% crosschecking of QSO's):

Entrant 1
Claimed score = 7000 * 700 * 3 = 14,700,000 points
Accuracy = 99%; QSO error rate (bad calls and not in Logs) = 1%
Final score = 6832 * 700 * 3 = 14, 347, 200 points
Score reduction = 352,800 points (2.4%)

Entrant 2
Claimed score = 700 * 700 * 3 = 14,700,000 points
Accuracy = 97%; QSO error rate (bad calls and not in logs) = 3%
Final score= 6496 * 700 * 3 =13,641,600 points
Score reduction= 1,058,400 points (7.2%)

Entrant 3
Claimed score = 700
Accuracy = 95%; QSO error rate (bad calls and not in logs) = 5%
Final score = 6160 * 700 * 3 = 12,936,000 points
Score reduction= 1,764,000 (12%)

With this score reduction numbers example ranging from 352,000 points to 1,7 million points it is amazing some contest entrants do not realize that accuracy is the best point-value asset in today's contesting performance. Because of the high level of penalties for errors (bad calls and not in logs) it is absolutely important to log accurately:

If not absolutely sure of a call ask for a repeat. If not absolutely sure of a QSO, don't log it. *(Emphasis added – Ed.)*

ACCURACY

If accuracy is so important what can an entrant do to improve his error rate? There is no straight answer to this but it evolves around being a better operator:

Experience
Carefully hearing
Logging only when absolutely sure

Knowing what can cause an error
Log only exact timed QSOs
…

There are so many little things and they all add up, but being aware of the impact of careless operating is a good starting point to improve accuracy.

LOG MASSAGE

There are some log accuracy tools to improve performance during the contest. The most widespread one is SCP (super check partial). If used correctly and not to help guess calls it is a great tool. Also some logging software provide N+1 calls, which are calls that differ from the copied call by one character, against a call sign database and can alert the entrant to a possible mistake.

There are some log accuracy tools to improve performance after the contest and before the log deadline. This is a very tricky area to say the least, but with 30 days deadline to send logs, anything goes:

Apparently it is OK to change a call if it is an obvious typo. Imagine after the contest you find in your log P4oE. Most entrants would surely change it to P40E (CQWW annotated rules).

Apparently it is OK to remove a call from your log if you think it is a bad call (CQWW annotated rules).

It is not OK to change calls after the contest (annotated rules).

How can an entrant identify a bad call in order to remove it from the log? Until now only the most sophisticated users had the tools to do this, and the procedure was very limited but nowadays anyone can do it. SH5 (http://rescab.nm.ru/) is a free contest analysis software available for download that reveals potential mistakes in the reception of calls, checking against a data base after the contest is over. Because the accuracy score penalties are high there is the risk of "not so skilled" contest entrants removing from their logs potential bad calls (good calls after all + real bad calls), hoping that the outcome of this is better than leaving the potential bad calls and facing the removal of the real bad calls plus the 3 times bad calls penalty.

The problem with this action is it will have a great impact in others scores, because by removing potential bad calls from his log the entrant will cause a NIL in the logs of the good calls he worked in the contest but removed after the contest based in his potential bad calls list from the post contest log checking tool.

IT IS A VERY PERVERSE SIDE EFFECT - in order to try to improve his accuracy the entrant will cause inaccuracy in others logs.

And there is no point in reducing the 30 days deadline to submit logs, because all these actions can be executed in a couple of minutes although it is true that reducing the 30 day deadline to submit logs would definitely reduce cheating combining the use of contest recording audio and these after the contest tools to change calls.

I appreciate that WRTC06 organizers require recording of the contest in their rules for the championship. This is the way to avoid tampering of logs after the contest is over at 23:59.

May be contesting software could generate a log/time stamp code to avoid any changes to the contest log after 23:59.

It is interesting to see that the good efforts by contest adjudicators to penalize inaccuracy and the ever increasing score reduction penalties may be backfiring with increased tampering of logs by the entrants made possible by the widespread availability of post contesting log checking tools.

73
José Nunes
CT1BOH, CT3NT
www.qsl.net/ct1boh

An even earlier posting from 1999 by Pat, K9RV, also caught my eye. Pat is also a great operator and part of the regular team at K3LR. He was also a past editor of the National Contest Journal. Although Pat's comments are skewed towards the log checking aspect, it is enlightening to read it paying particular attention to what he says causes log errors and then think about what you have experienced during your own contest efforts.
http://lists.contesting.com/archives//html/CQ-Contest/1999-08/msg00100.html

Subject: [CQ-Contest] Log accuracy, etc.
From: pbarkey@gw.bsu.edu (Patrick Barkey)
Date: Thu Aug 12 11:18:34 1999

This has been a very timely and interesting discussion on log checking, penalties, and so forth. Following the CQ WW's lead, many of the major contests are adopting very thorough (although not foolproof by any means) checking procedures for a substantial proportion of all submitted logs.

This represents a departure from the past, when only the very top scores were thoroughly checked. Sadly, in some contests, virtually no checking was being performed at all.

There is probably no backing down from these new checking policies, so let me pause from the detailed analyses of specific NIL reports, etc., and comment on the overall topic of accuracy that these procedures address.

Here are the "facts" about log accuracy, from the perspective of someone who has been checking logs for eight years.

Fact #1: Not all contesters are equally accurate

This spread between the accurate and the not-so-accurate (OK, sloppy) exits at all levels of competition. Important differences exist between competing for the very highest awards, as well as those in less closely watched competitions.

The spread is larger on SSB than on CW, for some reason.

It is common to find a situation where two or more stations compete for, say, a country award, and to see one have a 2 percent UBN rate and another have a 15 or 20 percent rate.

The inaccuracy comes about, as I see it, in at least three ways.

[1] Sloppy or lazy run techniques

Stations who are CQ-ing simply do not work hard enough to copy stations who call them on their run frequencies accurately. This results in a lot of unique and impossible callsigns being logged.

[2] Sloppy calling techniques

Stations who call in pileups don't take the time to verify that the CQ-ing station actually came back to them. They double with the "real" QSO and never realize that the QSO they are logging didn't take place. Result: NIL.

[3] Miscellaneous

This is a huge category, the encompasses everything from CQ-ing cross-band situations (40 SSB) where two run stations share a common listening frequency, to stations submitting partial logs, to the accidental entry of corrupt data by a participant. The most common example of this is the failure to accurately record a band change.

Packet is a huge contributor here as well. It is truly frightening to see the parade of stations who will inaccurately assume the veracity of a packet spot.

Fact #2: Some people cheat in contests

I don't want to give this topic any more time than it deserves, because the numbers are very small. But its a fact that some people pad their logs, use packet, etc. in ways that are contrary to the spirit and the letter of the rules.

Fact #3: As a competitor, you can only control the information that you transmit, and the information you write down.

You cannot control what the other guy does. That's the way it is. So there will never be any one hundred percent accurate logs, sorry.

Conclusions:

[1] Log checking has had a favorable impact on competition

In the contests where thorough checking takes place, the situation where a station can use inaccuracy to gain a competitive edge has been largely eliminated. If you have QSO rates that are consistently, say, 10 percent higher than your competition because you're not asking for fills, then you are going to lose that edge when your log is checked.

This benefit has a new cost, unfortunately, but hopefully a temporary one. That is the situation where two stations compete in some way (even for just bragging rights), and one is computer checked and the other is not.

In the not-so-distant future, computer log submissions will be a requirement, so that this situation cannot occur. As it is, contest committees spend hundreds of hours hand entering log information to reduce the scope of this problem.

[2] The "out-of-box experience" of have your log checked is never pleasant.

Who likes to see their score reduced? Not me, certainly. The only thing that eases the pain of having my hands slapped for missing a call is the knowledge that everyone else is going through the same thing.

[3] The checking process itself could use improvement

There's nothing wrong with criticizing the process. It doesn't mean that you're in favor of inaccurate logs. Yes, volunteers are largely behind the scenes. But there is a lot we can all learn in this.

I happen to agree that the 3 penalty QSO deduction employed in many major contests is out of step with reality. Others may not. This and other aspects of checking are worthy of debate.

[4] Improving your accuracy is one of the easiest, cheapest things you can do to improve your competitive standing.

No one likes to change, myself included. But if you step back a moment, you see that more universal log checking is actually an opportunity. If you, say, double the length of all of your booms on your yagis, you will gain 2 or 3 dB to your signal, and an increase in your contest scores. For thousands of dollars and hundreds of hours of effort.

Spend some time to analyze and learn from your previous mistakes, and you might realize that same improvement with nothing other than your time invested. Think about that.

  - Pat
   N9RV

Observations by the Editor:

1) Permatex threadlocker has long been relied on to keep threads from loosening. The red formula keeps almost anything from unthreading, but it is very difficult to remove the fasteners. It sometimes holds too well and it is impossible to separate them without damaging the threaded parts. The blue formula isn't as strong, but at least you can get things apart. I don't remember in what ham source I read about it, but there is a new orange formula which supposedly has the best of both worlds. Holds great yet comes apart. https://www.permatex.com/products/thread-compounds/threadlockers/permatex-high-strength-removable-orange-threadlocker/

2) There was a discussion on the TS590 Groups.io reflector about how operators adjust their rig CW settings. Most experienced CW ops use a tone lower than 500 Hz and normally select a filter bandwidth of 200 Hz. In researching a response to a question asked about solid research about using lower frequency tones I ran across an interesting thread on eHAM. https://www.eham.net/forum/view?id=topic,71700.0.html
DJ1YFK mentioned he had done some experiments with band filter width and has some comments about both tone and filter selection here: http://fkurz.net/ham/stuff.html?noise

It was also mentioned in the thread something I am very aware of. Your two ears hear differently. Each has its own amount of hearing loss and frequency degradation. I am considering revamping my stations audio processing capability to compensate for that. When listening to a mono signal into my stereo headphones the difference between my right and left channel hearing capability is obvious to me and great enough to occasionally distracts my

attention from trying to pull someone out of the mud because I wish things were more balanced.

3) The HF bands have been doing very well lately. If you haven't been on you should give the VFO a spin now and then.

4) World Wide Radio Operators Foundation (WWROF)

Many Hams are either not aware of this group or have only read their acronym when it is associated with a contest mentioned in a Ham Radio news article and don't know what or who they are. The WWROF performs a significant amount of unrecognized work supporting our hobby. Contest management (funding, awards, plaques and/or general support) for: CQ WW DX, CQ WPX (CW, SSB, RTTY), CQ 160, 10 Meter RTTY, Hamvention QSO Party and the WW Digi DX are some. Support Youth On The Air (YOTA) camps and donate equipment to encourage young hams to become new contesters. Produce and provide network hosting for contest related webinars including CQ Contest and Contest University support. Donate money to support Ham Radio actions including the WRTC competitions, DXpeditions; and they matched the first $5,000 donated to provide generators to the Puerto Rican Ham operators after the island was devastated by hurricanes Irma and Maria in 2017. They administer the Cabrillo log format specification, maintain the Contester's Code of Ethics, and develop wideband recording systems (think RBN skimmer recordings to help adjudicate contest judging and cheating). The groups volunteer Directors and Board Members providing this support are currently K3LR, K1DG, N5RZ, K8AZ, K1AR, N5OT, K3EST, VE3EJ, S50A, K5ZD, K8MNJ, N5KO, N6TR, K5TR, K1EA, W0YK, and N2NT. You will undoubtedly have several of those call signs in your contesting log.

Their home web page starts:

World Wide Radio Operators Foundation, Inc.

Dedicated to improving the skills of amateur radio operators around the world, utilizing education, competition, advancement of technology and scientific research, promoting international friendship and goodwill, and preparing them to better serve society in times of communication need.

The World Wide Radio Operators Foundation was created in 2009 by a group of radio operators who saw a need for an independent organization devoted to the skill and art of radio operating.

We believe that amateur radio contests provide a means of testing operating skill and that worldwide contest sponsors can benefit from the support we can provide.

The Directors and Officers of the World Wide Radio Operators Foundation are all well-known and highly-respected radio operators. In addition, each brings a specific skill set and proven track record in his professional career to the management of the organization.

A FOCUS ON OPERATING

Amateur radio is a very diverse hobby. Some amateurs enjoy designing and building their own equipment. Some enjoy the thrill of chasing DX. Some simply enjoy casual

conversation with other amateurs in far-off locations. Still others use their skills to provide communications in emergency situations where other forms of communication are not available.

National organizations such as ARRL serve the whole spectrum of pursuits in the hobby. Some clubs and organizations, such as the Northern California DX Foundation, YASME Foundation, and mode-specific groups such as FOC and CWOps, are devoted to specific segments of the hobby. However, no organization exists that is focused on radio operating across all bands and modes

Check out their website and webinar archives. The organization is completely dependent on contributions for funding. While on the page please consider donating to this worthy cause. They are a 501(c)(3) tax-exempt public charity and you can claim your donation as a charitable tax deduction.

https://wwrof.org/

N1MM+ Tips:

Call History Files – Use, Assigning, Correcting While Contesting

Call History files are a listing of the exchanges used by call signs active in previous occurrences of a contest. They are nothing more than a text file listing contact information in a specific order. You can either download one from the internet or create your own.

```
!!Order!!,Call,CqZone,UserText,
2E0CVN,14,
2E0FFT,14,UNIQUE CALL. Found in only 1 of 16 top logs in 2018,
2E0FTD,14,
2E0GUI,14,
2E0LJZ,14,
2E1ADT,14,UNIQUE CALL. Found in only 1 of 16 top logs in 2018,
2M0NBW,14,
```
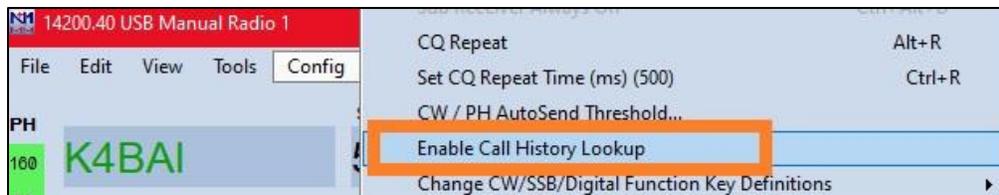
Above is the beginning of the 14,000 call sign list created by KE2D for the CQWW. With this list loaded during a CQWW DX contest, Zone "14" will be automatically filled into the Exchange Field of the Entry window when you type the call 2E0CVN. The same is true for 2E0FFT, but in that case it will also show "UNIQUE CALL. Found in only 1 of 16 top logs in 2018" at the bottom of the Entry Window to let you know it might not really be a valid contest call. Seeing that information while logging a qso with 2E0FFT might make you ask if you have his call correct before you enter him into your log.

Here is a shot of the start of a CW file for the NAQP. Using this file prefills the name and state when entering their call sign. Notice some entries only have the state listed. Names are often a variable in NAQP's and depend on current events, club decisions, or just because an operator likes to change things

to keep people using Call History files on their toes – or is it just to keep their ears open and brain engaged?

```
!!Order!!,Call,Name,State,
4U1WB,MASA,DC,
7L1WII,SAM,
8P5A,Tom,
8P6AM,Keith,
AA0AI,STEVE,IA,
AA0AW,DOUG,MN,
AA0BA,,TN,
AA0BR,,CO,
AA0BW,,MO,
AA0CY,BOB,PA,
AA0CY/3,BOB,PA,
AA0DQ,FRED,IA,
AA0EN,,MO,
AA0FO,MARSH,KS,
AA0L,RAY,CO,
AA0MZ,JIM,KS,
AA0N,,IA,
AA0NI,DAN,OK,
```
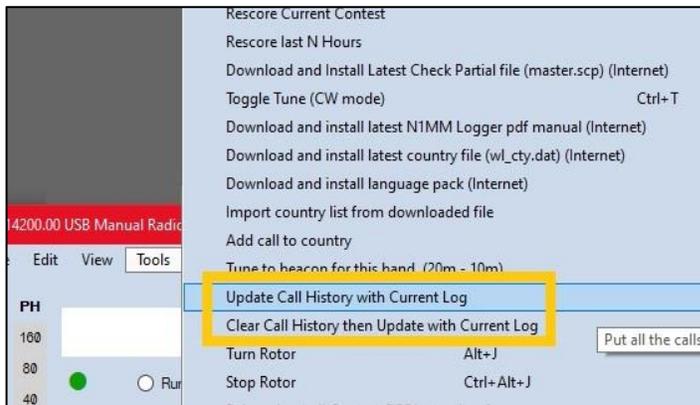
You associate a Call History file to a contest under the "Associated Files" tab when creating a new contest log. Once a history file is loaded you enable or disable fills from the Configuration Menu.

Some call using this cheating. I did for quite a few years. However, you can't depend on them. Failing to copy what you hear and instead rely on the information in the file will definitely hurt your accuracy, and therefore your score. There are reasons to use it though. I have become a convert for something most operators wouldn't think about. The radius bone in my right arm was fractured years ago and I have lost quite a bit of rotation because of that. I hold my arm in an awkward position to place my hand properly on a keyboard and have had to cut a few contests short because arm pain from holding the elbow out from my body for many hours stopped me from enjoying the contest. Using these files lets me relax my arm more during a contest meaning I can last longer in the operating chair.

It used to irritate me when someone changed the name they used for a NAQP or if they had the gall to contest in Zone 5 during the CQWW DX contest when they should have stayed in Zone 4. Who do they think they are that they can make my prefill from the history file be incorrect? Changing things up like that from one contest to the next means each time I worked the "offending" station on a new band I have to delete the wrong fill and retype the correct one. What a pain. Sometimes a literal pain in the arm. And since I'm not perfect I sometimes mess up and hit the enter key without noticing a fill is wrong. Oops. Dang. Entered the incorrect exchange into the log and didn't know it. Can you say, "Penalty points removed during log check"? Yes, I thought you could. Although I've learned not to, I too often used to work the same station on multiple bands and kept entering the wrong exchange over and over. I don't really know why I did that. I would unquestioningly override what I thought I heard because the program told me what his exchange was. Who is he to tell me different? I'll ignore him and trust my prefill. That'll

teach him. Try and give me the wrong information, will you? Liar! I'll log the trusty prefill instead of the crap you tried to send me. Ha, ha, ha! {Enter Click} Take that! Glad I got over that way of thinking.

N1MM lets you update the Call History file associated with the contest in real time (more or less). It's in the Tools menu. When you run across a call with a different exchange from the prefill run the mouse cursor over and update the file. I've known that option was there since first using N1MM, but for some reason I've been ignoring it for years. Starting a few months ago I now make a point of updating the history file at the first lull in rate after noting someone has changed their information. And I try to remember to do it every two or three hours just on general principle. I've not yet felt the need to use the "Clear Call History then…" option, but it is there too.

You can "roll your own" Call History file simply by using a text editor program.

Upcoming Contests: Including VHF/UHF
- Don't forget Field Day lets you operate other home (Class D) points this year.
- The IARU contest is always a fun one and is two weekends after Field Day this year.
See WA7BNM for other contests

SFOTA Current Leaderboard http://www.sfota.com/

Jun-10-2020

Current Leaderboard

2020 OVERALL STANDINGS

	CALL	Contests	CW QSO'S	SSB QSO'S	DIGITAL QSO'S	RTTY QSO'S	TOTAL QSO'S
1)	N4IQ	51	5935	1292	395	2512	10134
2)	WB4HRL	104	4044	1122	0	1677	6843
3)	K3DNE	31	370	6153	0	0	6523
4)	WN4AFP	59	4222	1250	0	640	6112
5)	NU4E	9	2150	1576	0	737	4463
6)	N4XL	13	2390	824	0	0	3214
7)	KG6MC	16	1681	1197	0	0	2878
8)	NI7R	22	2203	58	0	313	2574
9)	K7OM	13	1102	180	0	1111	2393
10)	KG4IGC	5	408	18	0	662	1088
11)	KS4YX	8	419	55	7	404	885
12)	NJ4F	3	50	0	0	779	829
13)	WU0B	1	0	358	0	0	358
14)	AJ4UQ	2	0	0	6	61	67

2020 INDIVIDUAL MODE STANDINGS

CALL	CW QSO'S	CALL	SSB QSO'S	CALL	DIGITAL QSO'S	CALL	RTTY QSO'S
N4IQ	5935	K3DNE	6153	N4IQ	395	N4IQ	2512
WN4AFP	4222	NU4E	1576	KS4YX	7	WB4HRL	1677
WB4HRL	4044	N4IQ	1292	AJ4UQ	6	K7OM	1111
N4XL	2390	WN4AFP	1250			NJ4F	779
NI7R	2203	KG6MC	1197			NU4E	737
NU4E	2150	WB4HRL	1122			KG4IGC	662
KG6MC	1681	N4XL	824			WN4AFP	640
K7OM	1102	WU0B	358			KS4YX	404
KS4YX	419	K7OM	180			NI7R	313
KG4IGC	408	NI7R	58			AJ4UQ	61
K3DNE	370	KS4YX	55				
NJ4F	50	KG4IGC	18				

3830 Activity:

(Activity since the last newsletter and 05.09.2020)

Timestamp	Call	Class	Power	Score
ArQP				
5/11/2020	WB4HRL	SOMixed	HP	480
Baltic				
5/25/2020	WN4AFP	SO CW	LP	6
Hamvention				
5/17/2020	WB4HRL	Single Op	HP	65

King of Spain CW				
5/17/2020	K7OM	SOAB	HP	5,632
5/17/2020	N4IQ	SOAB	HP	32,235
5/19/2020	WN4AFP	SOAB	LP	1,152
KyQP				
6/7/2020	K3DNE	SO Fixed	HP	2,572
6/7/2020	KG4IGC	SO Fixed	LP	4,560
6/7/2020	WB4HRL	SO Fixed	HP	2,525
6/7/2020	WN4AFP	SO Fixed	LP	12,600
NCCC RY-Sprint				
5/15/2020	N4IQ	Single Op	LP	663
NCCC Sprint				
5/22/2020	WN4AFP	Single Op	LP	374
Volta RTTY				
5/12/2020	K7OM	SOAB	HP	20,358,754
WPX CW				
6/1/2020	AC4MC	SOAB	HP	227,911
5/31/2020	K3DNE	SO(A)AB TB-Wires	LP	170,368
6/1/2020	K7OM	SOAB	HP	208,725
6/1/2020	KG4IGC	SO(A)AB	LP	31,248
6/1/2020	KS4YX	SOAB TB-Wires	LP	80,136
6/1/2020	N4IQ	SO(A)AB TB-Wires	HP	2,186,034
6/1/2020	NI7R	SO(A)AB	HP	857,076
6/1/2020	NU4E	SO(A)AB	LP	1,505,952
6/1/2020	WB4HRL	SO(A)AB	HP	68,112
6/1/2020	WJ4X(@N4XL)	SO(A)AB	LP	2,135,880
6/2/2020	WN4AFP	SOAB TB-Wires	LP	732,213
YL Day				
5/25/2020	WN4AFP	OM	LP	1

Guest Article:

Nothing submitted

Space WX: From Tamitha Skov

https://www.youtube.com/watch?v=s5zt4L_iBfE

73 de N4XL