



# Azalea Coast Amateur Radio Club

April/May 2021  
Edition



## ACARC

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Jeff McCulloch  
(K4JEL)

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(N12S)

### Secretary

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## From the Editor

April showers bring May flowers...or a new transceiver? I know – you have a tax refund check burning a hole in your pocket. There are many things to consider. Radio upgrade? New antenna? Taller radio tower? There are so many ideas swirling around in your head it's making you dizzy. If the YL has a better idea for that check, consider dusting off those old CW skills or looking at new modes of communication. This issue will discuss some of those new modes just out from the creative minds of the WSJT-X team. A man much smarter than me once said "The mind, once stretched by a new idea, never returns to its original dimensions."— Ralph Waldo Emerson

Have a question you want answered? Curious about something ham related but need some ideas or guidance? Stumped about something and need help? We have mentors that can give you the advice you need. Please see the "Need help? Contact us" link on the home page of [ac4rc.org](http://ac4rc.org).

73! - Jeff (W4BIX) – [w4bix@arrl.net](mailto:w4bix@arrl.net)



## Upcoming Important Club Events

- |                                                      |                                                                                                   |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>April 10<sup>th</sup></b>                         | VEC Testing 10:00 AM<br>CFCC North campus                                                         |
| <b>April 20<sup>th</sup><br/>May 18<sup>th</sup></b> | Monthly club meeting, 7:00 PM<br>Location TBD but in-person                                       |
| <b>Every Monday</b>                                  | 2 Meter Rag Chew, 9:00PM<br>147.18MHz, +0.600 offset, 88.5 tone<br>Norman (KI4YSY) is net control |

# WSJT-X Team Announces New Program Upgrade and New Digital Modes

by Jeff (W4BIX)

On February 2<sup>nd</sup>, the WSJT-X team came out with a new general availability release of the WSJT-X software labeled as 2.3.0 that includes a couple of new modes:

*WSJT-X 2.3.0 General Availability release adds the new modes FST4 and FST4W along with many defect repairs. See summaries below and for the prior release candidates (2.3.0-rc1 through -rc4) of this version for details.*

*- FST4/W: Disable envelope shaping at start and end of transmission when environment variable FST4\_NOSHAPING=1. Works for fst4sim too.*

*- Add time stamp to error message boxes to aid diagnosis.*

*- Repair a defect that caused crashes at start up for some macOS Big Sur users.*

*- Repair a defect that could cause the jt9 slow mode decoder process to exit incorrectly with a failure status.*

*- Updated CTY.DAT file.*

To read the notes mentioned above about 2.3.0 RC 1-4, click on this link:

[https://physics.princeton.edu/pulsar/k1jt/Release\\_Notes.txt](https://physics.princeton.edu/pulsar/k1jt/Release_Notes.txt)

WSJT-X 2.3.0 is a program upgrade offering two new modes designed especially for use on the LF and MF bands. FST4 is for 2-way QSOs, and FST4W is for WSPR-like transmissions. Both modes offer a range of options for T/R sequence lengths and threshold decoding sensitivities extending well into the -40 dB range. Early tests have shown these modes frequently spanning intercontinental distances on the 2200 m and

630 m bands. Further details and operating hints can be found in the "Quick-Start Guide to FST4 and FST4W", posted on the WSJT web site:

[https://physics.princeton.edu/pulsar/k1jt/FST4\\_Quick\\_Start.pdf](https://physics.princeton.edu/pulsar/k1jt/FST4_Quick_Start.pdf)

**The WSJT-X team also released on the following day, 2.4.0-RC1.**

*WSJT-X 2.4.0 is a program upgrade offering a new mode called Q65. It builds on the capabilities of the QRA64 mode to offer a flexible large symbol alphabet, low code rate, mode with excellent characteristics when used for EME on VHF through to microwave bands, and with challenging weak signal propagation via iono-scatter and similar on VHF bands. The Q65 mode carries the same 77-bit message payload as the popular FT8, MSK144, FT4, and FST4 QSO modes. Q65 also offers a range of T/R periods (15 second through to 5 mins) and tone spacings (up to 16 times the base spacing) suitable for adapting to required sensitivity and various channel frequency spreading characteristics.*

*The Wide Graph plotter has a super-sensitive synchronization spectrum capable of detecting signals below visibility on the waterfall plot. The new synchronization plot combined with comprehensive a priori (AP) decoding techniques and message summing and averaging over multiple Rx periods should make use near the limits of extreme weak signal operating better than prior modes in all appropriate situations.*



Joe Taylor, K1JT  
Co-developer of WSJT-X

## FCC License Fee Delayed

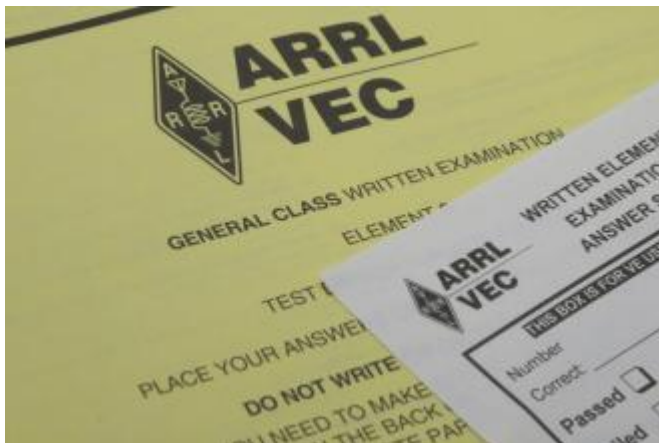
by Jeff (W4BIX)

The new amateur radio license fees are coming, but not quite yet. According to a bulletin from the ARRL:

*"The FCC Part 97 rules establishing a new \$35 amateur radio application fee go on the books on April 19, but the FCC won't start collecting the fee until the requisite notice has been provided to Congress, the FCC's information technology systems and internal procedures have been updated, and the Commission publishes notice(s) in the Federal Register announcing the effective date of such rules."*

*When effective, the fee will apply to new, modification (upgrade and sequential call sign change), renewal, and vanity call sign applications, as well as applications for a special temporary authority (STA) or a rule waiver. Fees will be collected per application. The FCC exempted from the fee applications for administrative updates, such as a change of mailing or email address. The FCC proposed a schedule of application and other fees for all services last year.*

Still no guidance yet for VE's actually conducting the tests and presumedly collecting the new fee.



## HAM Bites Shark

by Pete (WB3FYR)

Today (2/13/21) I had my first three FT8 contacts in about 6 weeks. Now you're thinking, thanks Pete for sharing that with us but so what? We'll get to that in little bit but first ...

I also upgraded (finally) my license from General to Extra at the HAM testing session at CFCC/North headed up by Steve Wilder/AJ4JJ. While I now have a bit more operating room on the bands, the major reason for wanting to upgrade my license is I am now better able to help out Steve and the other VE's (Volunteer Examiners) at our expanding testing sessions.

At the Feb 13 testing session, and other sessions, it seems more people (a lock-down by-product?) are showing up; on the Feb 13 session they more than filled the classroom and two candidates had to be seated in the hall way. Really? Yes, really. Of course, you must keep In mind that Steve was following the NC Covid-19 separation rules so the room could not accommodate the normal amount of people for which it was designed. *Note: one of the candidates was my son Steve, now a Tech.*

For those of you that hold a Technician Class License and are thinking of upgrading your license, here is how I studied for the exam: First get serious about it. How? Buy some of the latest books/CDs and sign up for HamTestOnline(\$\$) like I did or use other testing services (free). Then reduce distractions. Finally, study, study, study. Simply right? Yes, it requires some work, but its not that hard. Is it worth it? Yep. As a General you have all of the Technician and General privileges. And in no time you'll be chasing operating awards like ARRL's WAS-Worked All States (US) and DXCC-DX Century Club (a DX is one of approximately 340 non-continental US entities). Or just having fun.

Let's go into a little more detail about how I upgraded my license, at least from my point of view.

Books (remember I was going for my Extra license). I bought "Amateur Radio Extra Class Licensing" by Stephen Horan, Extra Class License Manual by ARRL and even used my 2016-2020 Extra Class (old dated) by Gordon West. Why so many books? Some answers needed memorization. Most times, though, I wanted to put the answers into context of what does this mean to me, my radios, my procedures, the propagation...etc. Not every book would explain it in a manner I could readily grasp, so I got another view from other books, Wikipedia, wherever. Once I knew more and why it mattered, it was easier to remember.

Testing Services. In HamTestOnline's "Study Mode" it explained the topic before asking you a question about it. This gave me some background. If I didn't understand it, I went to another source (again) and viewed the topic from another writer's perspective. And then, maybe I got it and answered the HamTestOnline question correctly. If I didn't answer correctly then HamTestOnline would ask the same question over and over until I got it. Was it that simple? No. Many times the answer wasn't the problem. I didn't read the question or the answers correctly because I was going too fast. Example: I missed a simply the "ELI the ICEman", a mnemonic I learned 50 years ago many times. Shame on me. Note: HamTestOnline has a very good reputation.

Distractions. My WSJT-X (computer-based digital software) to Yaesu 891 HF radio stopped working and I didn't even attempt to fix it. Why? Because I would say to myself that "just a few contacts then I'll get back to studying", then "oh, just a few more" ....etc. (HAM addiction?) There are lots of things that you cannot control but you can prioritize your ham activities. *One more "extra" note: I not only upgraded my license but upgraded my knowledge of our hobby. That is the most satisfying of all.*

So I passed the test so I can get back on the air. Wait, I have to fix the ham gear problem, which I

did, a simply fix, then made 3 contacts with the worst of my three antennas. I'm back on the air.

I'm happy for you Pete but what's with the "Ham bites Shark?"

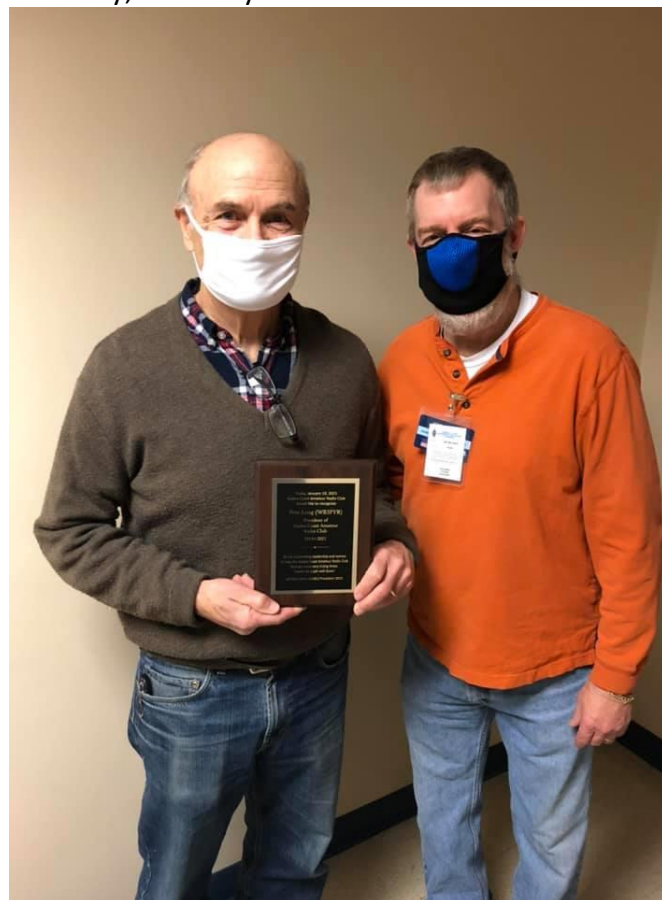
Got you to read this didn't I?



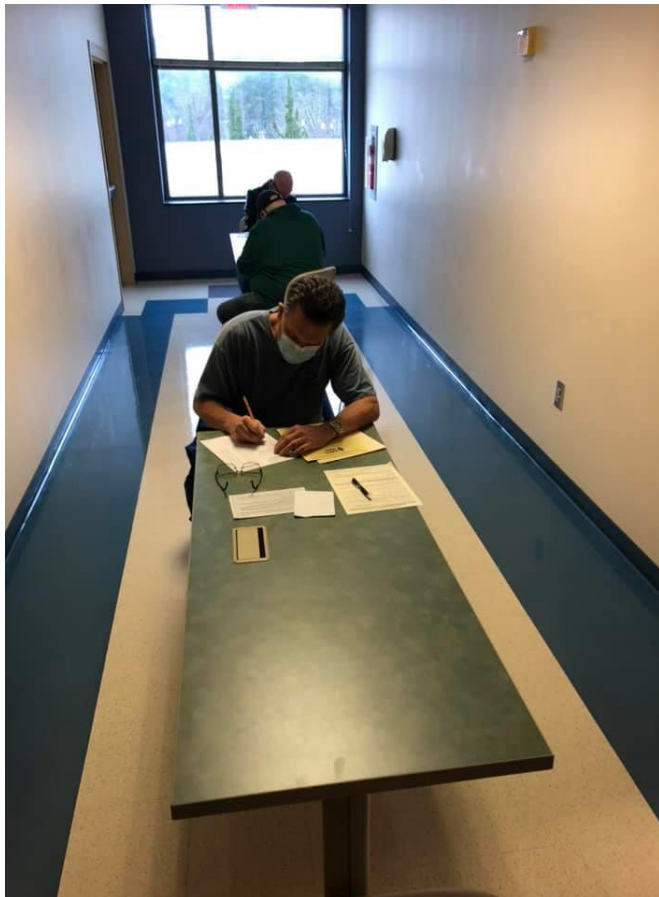
## ACARC Club News

by Jeff (W4BIX), Steve (AJ4JJ) and Bill (N2COP)

1.) Current ACARC President Jeff McCulloch (K4JEL) (on the right) presents a plaque of appreciation to immediate past President Pete Long (WB3FYR) for his service. The ceremony took place at the club's VE test session at Cape Fear Community College (North Campus) on Saturday, February 13<sup>th</sup>.



2.) Fourteen socially distanced and masked candidates turned out on February 13th for the club's bimonthly VE test session at the North Campus of Cape Fear Community College. There were so many candidates the examiners had to place tables in the hall to meet public health requirements. Congratulations to all who passed (5 new Techs, 4 new Generals & 5 new Extras)! All fourteen walked away with a new license.



## 2021 Field Day – Save the Date!

by Jeff (W4BIX)

The annual ARRL Field Day will be conducted the weekend of June 26<sup>th</sup>-27<sup>th</sup> and you can expect our club to participate. More detailed information will be in next month's newsletter. The ARRL has extended last year's special rules as related to COVID-19 to this year's Field Day as well. From the ARRL:

*The COVID-19 pandemic-modified ARRL Field Day rules from 2020 will continue this June with the addition of a power limit imposed on Class D (Home Stations) and Class E (Home Stations-Emergency Power) participants. The news from the ARRL Board's Programs and Services Committee comes as many clubs and groups are starting preparations for Field Day in earnest. **Field Day 2021 will take place June 26 – 27.***

*"This early decision should alleviate any hesitancy that radio clubs and individual Field Day participants may have with their planning for the event," said ARRL Contest Program Manager Paul Bourque, N1SFE.*

*For Field Day 2021:*

*Class D stations may work all other Field Day stations, including other Class D stations, for points. **This year, however, Class D and Class E stations will be limited to 150 W PEP output.** An aggregate club score will be published — just as it was done last year. The aggregate score will be a sum of all individual entries that attributed their score to that of a specific club.*

*ARRL Field Day is one of the biggest events on the amateur radio calendar. Last summer, a record 10,213 entries were received.*

*"With the greater flexibility afforded by the rules waivers, individuals and groups will still be able to participate in Field Day, while still staying within any public health recommendations and/or requirements," Bourque said.*

# April/May 2021 Contest Calendar

From WA7BNM

<https://www.contestcalendar.com/>

<b>April 2021</b>	
+ CWops Mini-CWT Test	0300Z-0400Z, Apr 1
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 1
+ SARL 80m QSO Party	1700Z-2000Z, Apr 1
+ NRAU 10m Activity Contest	1800Z-1900Z, Apr 1 (CW) and 1900Z-2000Z, Apr 1 (SSB) and 2000Z-2100Z, Apr 1 (FM) and 2100Z-2200Z, Apr 1 (Dig)
+ SKCC Sprint Europe	1900Z-2100Z, Apr 1
+ QRP Fox Hunt	0100Z-0230Z, Apr 2
+ NCCC RTTY Sprint	0145Z-0215Z, Apr 2
+ NCCC Sprint	0230Z-0300Z, Apr 2
+ K1USN Slow Speed Test	2000Z-2100Z, Apr 2
+ PODXS 070 Club PSK 31 Flavors Contest	1000Z, Apr 3 to 0400Z, Apr 4
+ Florida State Parks on the Air	1400Z-2200Z, Apr 3 and 1400Z-2200Z, Apr 4
+ Mississippi QSO Party	1400Z, Apr 3 to 0200Z, Apr 4
+ Louisiana QSO Party	1400Z, Apr 3 to 0200Z, Apr 4
+ SP DX Contest	1500Z, Apr 3 to 1500Z, Apr 4
+ EA RTTY Contest	1600Z, Apr 3 to 1600Z, Apr 4
+ North American SSB Sprint Contest	0000Z-0400Z, Apr 4
+ DARC Easter Contest	1500Z-1730Z, Apr 4
+ K1USN Slow Speed Test	0000Z-0100Z, Apr 5
+ 144 MHz Spring Sprint	1900 local - 2300 local, Apr 5
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Apr 6
+ ARS Spartan Sprint	0100Z-0300Z, Apr 6
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 6
+ Phone Weekly Test - Fray	0230Z-0300Z, Apr 7
+ CWops Mini-CWT Test	1300Z-1400Z, Apr 7
+ VHF-UHF FT8 Activity Contest	1700Z-2000Z, Apr 7
+ RSGB FT4 Contest Series	1900Z-2030Z, Apr 7
+ CWops Mini-CWT Test	1900Z-2000Z, Apr 7
+ UKEICC 80m Contest	2000Z-2100Z, Apr 7
+ CWops Mini-CWT Test	0300Z-0400Z, Apr 8
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 8
+ NCCC RTTY Sprint	0145Z-0215Z, Apr 9
+ NCCC Sprint	0230Z-0300Z, Apr 9
+ K1USN Slow Speed Test	2000Z-2100Z, Apr 9
+ QRP ARCI Spring QSO Party	0000Z-0600Z, Apr 10
+ JIDX CW Contest	0700Z, Apr 10 to 1300Z, Apr 11
+ IG-RY World Wide RTTY Contest	1200Z, Apr 10 to 1800Z, Apr 11
+ SKCC Weekend Sprintathon	1200Z, Apr 10 to 2400Z, Apr 11
+ FTn DX Contest	1200Z, Apr 10 to 1200Z, Apr 11
+ OK/OM DX Contest, SSB	1200Z, Apr 10 to 1200Z, Apr 11

+ Nebraska QSO Party	1300Z, Apr 10 to 0100Z, Apr 11 and 1300Z-2200Z, Apr 11
+ New Mexico QSO Party	1400Z, Apr 10 to 0200Z, Apr 11
+ Georgia QSO Party	1600Z, Apr 10 to 0400Z, Apr 11
+ North Dakota QSO Party	1800Z, Apr 10 to 1800Z, Apr 11
+ Yuri Gagarin International DX Contest	2100Z, Apr 10 to 2100Z, Apr 11
+ WAB 3.5/7/14 MHz Data Modes	1000Z-1400Z, Apr 11 and 1700Z-2100Z, Apr 11
+ DIG QSO Party, CW	1200Z-1700Z, Apr 11 (20m-10m) and 0700Z-0900Z, Apr 12 (80m) and 0900Z-1100Z, Apr 12 (40m)
+ Hungarian Straight Key Contest	1500Z-1600Z, Apr 11
+ RSGB RoLo SSB	1900Z-2030Z, Apr 11
+ K1USN Slow Speed Test	0000Z-0100Z, Apr 12
+ 4 States QRP Group Second Sunday Sprint	0000Z-0200Z, Apr 12
+ RSGB 80m Club Championship, CW	1900Z-2030Z, Apr 12
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Apr 13
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 13
+ 222 MHz Spring Sprint	1900 local - 2300 local, Apr 13
+ NAQCC CW Sprint	0030Z-0230Z, Apr 14
+ Phone Weekly Test - Fray	0230Z-0300Z, Apr 14
+ CWops Mini-CWT Test	1300Z-1400Z, Apr 14
+ VHF-UHF FT8 Activity Contest	1700Z-2000Z, Apr 14
+ CWops Mini-CWT Test	1900Z-2000Z, Apr 14
+ CWops Mini-CWT Test	0300Z-0400Z, Apr 15
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 15
+ NCCC RTTY Sprint	0145Z-0215Z, Apr 16
+ NCCC Sprint	0230Z-0300Z, Apr 16
+ K1USN Slow Speed Test	2000Z-2100Z, Apr 16
+ Holyland DX Contest	2100Z, Apr 16 to 2100Z, Apr 17
+ ES Open HF Championship	0500Z-0559Z, Apr 17 and 0600Z-0659Z, Apr 17 and 0700Z-0759Z, Apr 17 and 0800Z-0859Z, Apr 17
+ Worked All Provinces of China DX Contest	0600Z, Apr 17 to 0559Z, Apr 18
+ YU DX Contest	0700Z, Apr 17 to 0659Z, Apr 18
+ CQMM DX Contest	0900Z, Apr 17 to 2359Z, Apr 18
+ Texas State Parks on the Air	1400Z, Apr 17 to 2000Z, Apr 18
+ Michigan QSO Party	1600Z, Apr 17 to 0400Z, Apr 18
+ EA-QRP CW Contest	1700Z-1800Z, Apr 17 (10m) and 1800Z-1900Z, Apr 17 (15m) and 1900Z-2000Z, Apr 17 (20m) and 2000Z-2100Z, Apr 17 (40m) and 2100Z-2300Z, Apr 17 (80m) and 0700Z-0900Z, Apr 18 (40m) and 0900Z-1000Z, Apr 18 (20m) and 1000Z-1100Z, Apr 18 (15m) and 1100Z-1200Z, Apr 18 (10m)
+ Ontario QSO Party	1800Z, Apr 17 to 0500Z, Apr 18 and 1200Z-1800Z, Apr 18

+ Feld Hell Sprint	1800Z-2159Z, Apr 17
+ ARRL Rookie Roundup, SSB	1800Z-2359Z, Apr 18
+ Run for the Bacon QRP Contest	2300Z, Apr 18 to 0100Z, Apr 19
+ K1USN Slow Speed Test	0000Z-0100Z, Apr 19
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Apr 20
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 20
+ Phone Weekly Test - Fray	0230Z-0300Z, Apr 21
+ CWops Mini-CWT Test	1300Z-1400Z, Apr 21
+ CWops Mini-CWT Test	1900Z-2000Z, Apr 21
+ 432 MHz Spring Sprint	1900 local - 2300 local, Apr 21
+ RSGB 80m Club Championship, SSB	1900Z-2030Z, Apr 21
+ CWops Mini-CWT Test	0300Z-0400Z, Apr 22
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 22
+ NCCC RTTY Sprint	0145Z-0215Z, Apr 23
+ NCCC Sprint	0230Z-0300Z, Apr 23
+ K1USN Slow Speed Test	2000Z-2100Z, Apr 23
+ 10-10 Int. Spring Contest, Digital	0001Z, Apr 24 to 2359Z, Apr 25
+ QRP to the Field	0800-1800 local, Apr 24
+ SP DX RTTY Contest	1200Z, Apr 24 to 1200Z, Apr 25
+ Helvetia Contest	1300Z, Apr 24 to 1259Z, Apr 25
+ Florida QSO Party	1600Z, Apr 24 to 0159Z, Apr 25 and 1200Z-2159Z, Apr 25
+ International Vintage Contest HF	1200Z-1800Z, Apr 25
+ BARTG Sprint 75	1700Z-2059Z, Apr 25
+ K1USN Slow Speed Test	0000Z-0100Z, Apr 26
+ QCX Challenge	1300Z-1400Z, Apr 26
+ QCX Challenge	1900Z-2000Z, Apr 26
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Apr 27
+ QCX Challenge	0300Z-0400Z, Apr 27
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 27
+ SKCC Sprint	0000Z-0200Z, Apr 28
+ Phone Weekly Test - Fray	0230Z-0300Z, Apr 28
+ CWops Mini-CWT Test	1300Z-1400Z, Apr 28
+ CWops Mini-CWT Test	1900Z-2000Z, Apr 28
+ UKEICC 80m Contest	2000Z-2100Z, Apr 28
+ CWops Mini-CWT Test	0300Z-0400Z, Apr 29
+ RTTYOPS Weeksprint	1700Z-1900Z, Apr 29
+ RSGB 80m Club Championship, Data	1900Z-2030Z, Apr 29
+ NCCC RTTY Sprint	0145Z-0215Z, Apr 30
+ NCCC Sprint	0230Z-0300Z, Apr 30
+ K1USN Slow Speed Test	2000Z-2100Z, Apr 30
<b>May 2021</b>	
+ 10-10 Int. Spring Contest, CW	0001Z, May 1 to 2359Z, May 2
+ RCC Cup	0300Z-0859Z, May 1
+ SBMS 2.3 GHz and Up Contest and Club Challenge	0600 local, May 1 to 2359 local, May 2
+ Microwave Spring Sprint	0800-1400 local, May 1
+ F9AA Cup, Digi	1200Z, May 1 to 1200Z, May 2
+ ARI International DX Contest	1200Z, May 1 to 1159Z, May 2
+ 7th Call Area QSO Party	1300Z, May 1 to 0700Z, May 2



+ AGCW QRP/QRP Party	1300Z-1900Z, May 1
+ Indiana QSO Party	1500Z, May 1 to 0300Z, May 2
+ FISTS Saturday Sprint	1600Z-1800Z, May 1
+ Delaware QSO Party	1700Z, May 1 to 2359Z, May 2
+ New England QSO Party	2000Z, May 1 to 0500Z, May 2 and 1300Z-2400Z, May 2
+ MIE 33 Contest	2300Z, May 4 to 0300Z, May 5
+ SARL VHF/UHF Digital Contest	0500Z-0700Z, May 8 (6m) and 0700Z-0900Z, May 8 (2m) and 0900Z-1100Z, May 8 (70cm) and 0500Z-0700Z, May 9 (6m) and 0700Z-0900Z, May 9 (2m) and 0900Z-1100Z, May 9 (70cm)
+ VOLTA WW RTTY Contest	1200Z, May 8 to 1200Z, May 9
+ CQ-M International DX Contest	1200Z, May 8 to 1159Z, May 9
+ Arkansas QSO Party	1400Z, May 8 to 0200Z, May 9
+ 50 MHz Spring Sprint	2300Z, May 8 to 0300Z, May 9
+ NZART Sangster Shield Contest	0800Z, May 15 to 1100Z, May 16
+ His Maj. King of Spain Contest, CW	1200Z, May 15 to 1200Z, May 16
+ FISTS Sunday Sprint	2100Z-2300Z, May 16
+ Baltic Contest	2100Z, May 22 to 0200Z, May 23
+ QRP ARCI Hootowl Sprint	0000Z-0100Z, May 24
+ CQ WW WPX Contest, CW	0000Z, May 29 to 2359Z, May 30