

# The Signal Report

A Publication of the Greenwood Amateur Radio Society (GARS)

VOLUME 18 ISSUE 7

JULY 2020

[HTTP://WWW.W4GWD.ORG](http://www.w4gwd.org)

[W4GWD@ARRL.NET](mailto:W4GWD@ARRL.NET)

## 2020 CLUB

### OFFICERS

#### President

Adam Shirley, WJ4X

#### Vice President

Ken Trapnell, KQ4RB

#### Secretary

George Crane, W3RXF

#### Treasurer

Tedd Davison, AI4WN

#### Repeater Trustee

Buddy Willis, W4DEW

#### Activities Manager

Andy Bagwell, KN4DYV

#### Editor in Chief

Michael Wills, KA4CSM

#### The W4GWD Repeater Network

147.165+ t107.2

Echolink: 584003

443.900+ t107.2

**W4GWM/R**

145.420- DV

**W4DEW/R**

146.910- t123.0

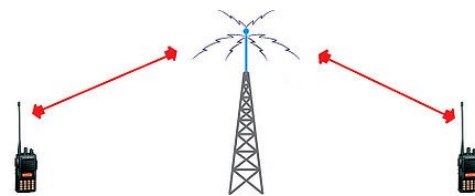
**WJ4X/R**

442.600+ t107.2 / DV

## Ham Radio - Social Distancing for Over 100 Years



## July 2020 Meeting



Our Club normally meets at the Westminster Presbyterian Church, located at 2330 Cokesbury Rd, Greenwood, SC. We meet on the 2nd Tuesday of each month making our July meeting on the 14th. **Unless notified otherwise** it will be held “On the air” at 8 p.m.. A net roll call will be taken and it will become the official attendance roster for this meeting. The clubs 2m (147.165) and 70 cm (443.900) repeaters will be linked during that time. Continue to **practice social distancing, frequent washing of hands and the wearing of masks.**

## Greenwood Amateur Society Recurring Events:



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### Chat 'N' Chew

Every Friday at 11:30am the members of the Greenwood Amateur Radio society meet at a local restaurant. Please check in to our Monday or Thursday radio net weekly, as the locations change. Everyone is welcome to have lunch or sip your favorite beverage and chat for a while. *Dutch treat. See you there*

### Weekly Nets

Each Thursday night at 9pm on the 147.165+ machine, The Greenwood Amateur Radio Society holds our weekly 2 meter net.

Our UHF net on 443.900+ is held Mondays at 8pm

Help spread the word for everyone to check-in to our nets. If you would like to fill in or be a backup net controller please contact [Tedd Davison](#)

### VE Exam Session

The next GARS ARRL Volunteer Examiners (VE) Team exam date is to be determined.

If you have any ideas for books you'd like to see in the GARS Library, Contact Mitch KJ4JGP

## Congratulations!!

### Happy Birthday!

Karla Cox	WB3LNX	July 4
Stephen Lyda	KA4PQA	July 4
Jack Witt	KN4SIK	July 12
Betty Jean Powell	family mbr	July 15
Mitchell Litwer	KJ4JGP	July 24
Jennifer Lyda	family mbr	July 27
Jeremy Manning	KI4CCZ	July 28

### Happy Anniversary!

David (W4MMC) & Brenda McCall  
July 7

George (W3RXF) & Betty Crane  
July 11

Joe (KK4RVC) &  
Wendy (KN4DYX) Suddeth  
July 12

Stephen (KA4PQA) & Jennifer Lyda  
July 16

Fred (K4RM) & Mary (N4MRY) Pinson  
July 18

Are you an ARRL Member? Joining ARRL helps protect our rights as Amateur Radio Operators as well as providing education, QSL Bureau, technical advise, and the ARRL VEC. <http://www.arrl.org>



ARRL Field Day Results - 2020—Kevan Nason



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Call: N4XL  
Operator(s): N4XL  
Station: N4XL

Class: 1D LP  
QTH: SC  
Operating Time (hrs): 19.5  
Radios: SO2R

Summary:  
Band CW Qs Ph Qs Dig Qs

-----		
160:		
80:	264	5
40:	260	
20:	525	7
15:	415	1
10:	31	13
6:		
2:		

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Total: 1495 26 6032 Total Score = 6,032  
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## Radio Amateur's Call for Help Relayed from across the Atlantic

06/25/2020

When Richard Tashner, N2EO, of Massapequa, New York, suffered a medical emergency on May 18, his DMR radio was closer than his phone. His call for help was answered by Maxis Johnston, GM0MRJ, who put out a call for "anyone in the states."

Kent County Amateur Radio Club member Ken Dix, KB2KBD, in Delaware heard the call on the local 146.91 MHz repeater, which was linked to the North American talk group. Dix called authorities in Tashner's vicinity, and help was dispatched.

Dix said the dispatcher in New York was able to hear part of the call and was amazed at how an amateur radio communication had gone from New York to Scotland to Delaware and then back to New York. The dispatcher expressed surprise at how quickly the information had been relayed across the Atlantic. The Delaware repeater, at the Delaware State Communications complex, is set on C4FM Fusion and linked to DMR on "America's Net." — *Thanks to the **ARES E-Letter** via Jerry Palmer, N3KRX*

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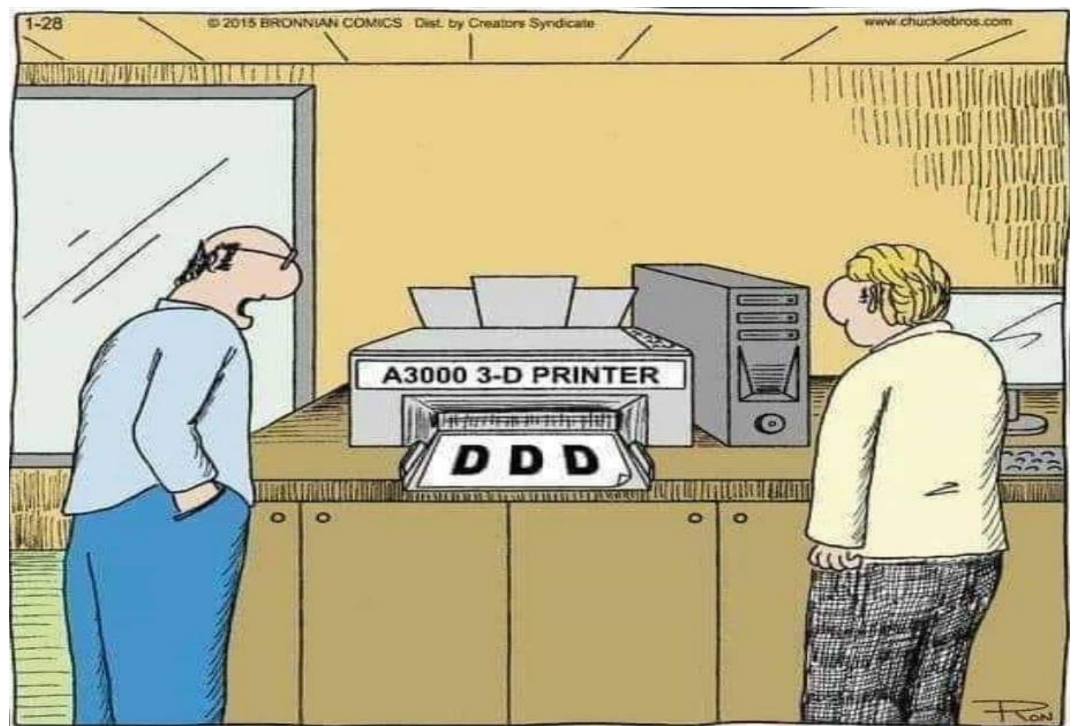
## WSPR can Be Heard Thousands Of Miles Away

This is a primer about a very low power transmission mode called Weak Signal Propagation Reporter or WSPR as it is normally called. The purpose of WSPR is to be able to judge radio propagation conditions in near real time because many low power stations all over the world keep sending signals every 5-10 minutes or so and a great many receiving stations listen and report which transmissions were heard and at what levels to a central database called WSPRnet.

You can view the recently uploaded 'WSPR Spots' (reported receptions) in tabular form or even better in maps of the world showing transmit and receive connected by lines. You can visit [wsprnet.org](http://wsprnet.org) and select up at the top right 'Map'. Have some fun and take a peek sometime. Look for your area and for USA and Europe there are a great many stations. The map when I have my home made 2 watt transmitter on the air shows my station in CM97 can make it to Hawaii, Boston, and as far north as the Yukon near eastern Alaska. Another site that maps receptions of signals with easy filtering is located at [wspr.aprsinfo.com/](http://wspr.aprsinfo.com/).

WSPR transmissions are low power transmissions typically no more than 1-5 watts that are digitally encoded 120 second transmissions sending just 50 bits each transmission using encoded sophisticated state of the art error correction. A transmission includes the call sign of the station, the transmission signal level in dBm and the grid square of the station's location. There are small bands within most all ham radio bands where the WSPR transmissions are located.

If you want to try receiving WSPR signals yourself the easiest way is to get the WSJT-X program, the same program that is very popular for FT8. Use the WSPR mode and as long as your receiver has a sound card ability like many modern units have you can set things up and just monitor. You will be surprised to see just how far away you can receive these signals.



**"I hate to be the one to tell you this, Jerry, but I think you've been ripped off."**



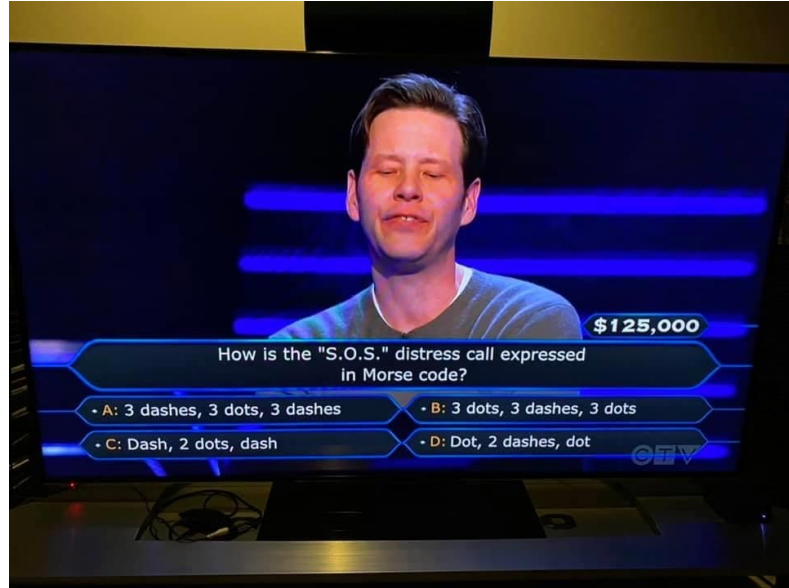


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Old 1,000,000 watt transmitter, followed by 1.4 million shortwave station submitted by Al West KB4RA

<https://www.youtube.com/watch?v=7WXZ2T2fosw&feature=youtu.be>



Popular Electronics—November 1954, submitted by Darrell Manning

<https://worldradiohistory.com/Archive-Poptronics/50s/54/Pop-1954-11.pdf>



## Squelch, AF5NP

**Squelch** is a funny word that is familiar to many of us without understanding what it really means. Hard to improve on the definition beyond that in the Technician license exam question:

T4B03-2018: What is the purpose of the squelch control on a transceiver?  
***To mute receiver output noise when no signal is being received***

Most useful when using voice modes (phone), squelch makes radio operation more bearable by turning off the audio when there is no valid signal. Without [squelch](#) our radios would be cranking out a lot of unwanted background noise.

The reality of both AM and FM radio (which we covered [recently](#)) is that there is [electrical noise](#) in the bands from many sources, natural and man-made. This noise is often randomized so that it appears as hiss or fuzz (white noise) from radio receivers. A squelch circuit mutes receiver audio to block the noise when there is no real signal. Squelch acts as a noise gate which closes for random noise and opens when a real signal (such as modulated voice) appears on frequency. How the squelch circuit determines what is a valid signal and what is noise varies; there are a few common techniques (refer to algorithm link in references below).

While less prone to electrical noise, FM technology is [susceptible to a lack of true signal](#). Traditional FM receivers use an LC tuning circuit that generates 'hiss' with no signal present. You may have noticed this while tuning between stations on your broadcast FM radio. Since hams commonly use VHF/UHF FM transceivers for local chat and EmComm work, the squelch feature of our rigs is of particular interest.

## Squelch, Continued

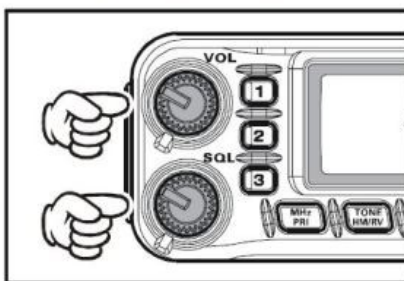
Squelch setting is important because if you make it too tight you may not hear a weak signal; too loose and you get constant noise. General good practice (at least a starting point) is to turn down the squelch until you hear background noise (hiss), then increase the threshold until the noise goes away, then just a little more.

Squelch threshold is always settable on your FM transceiver. There may be a knob to turn as in the example below, or it may be through keypad menu.

### ADJUSTING THE AUDIO VOLUME LEVEL AND SQUELCH SETTING

At first, set the **SQL** knob fully counter-clockwise. Now, you may rotate the **VOL** knob clockwise to adjust the receiver volume for a comfortable listening level, using the background noise as a reference.

To set the squelch, turn the **SQL** knob clockwise a slightly past the point where the background noise is muted. This is the point of best sensitivity to weak signals, and we recommend that you not rotate the **SQL** knob very much past the point where the background noise is just silenced.



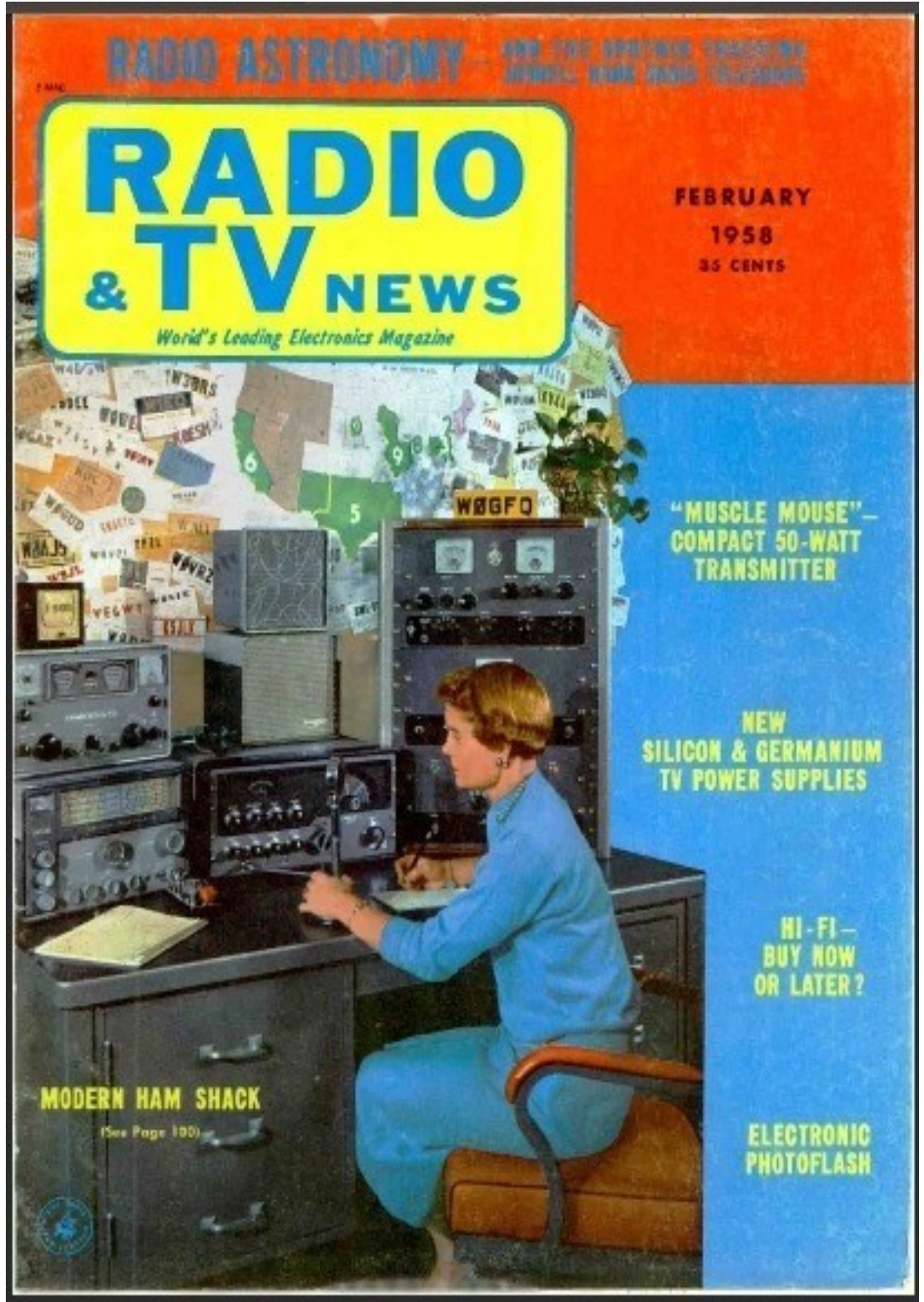
So far we have discussed the basic squelch feature of common ham radio transceivers. There are other squelch techniques in common use with repeaters such as CTCSS, DCS, and PL. These fall into a separate category called selective calling or one specific variant known as tone squelch, mainly because they have a different purpose and functionality. We may discuss this in a future post.



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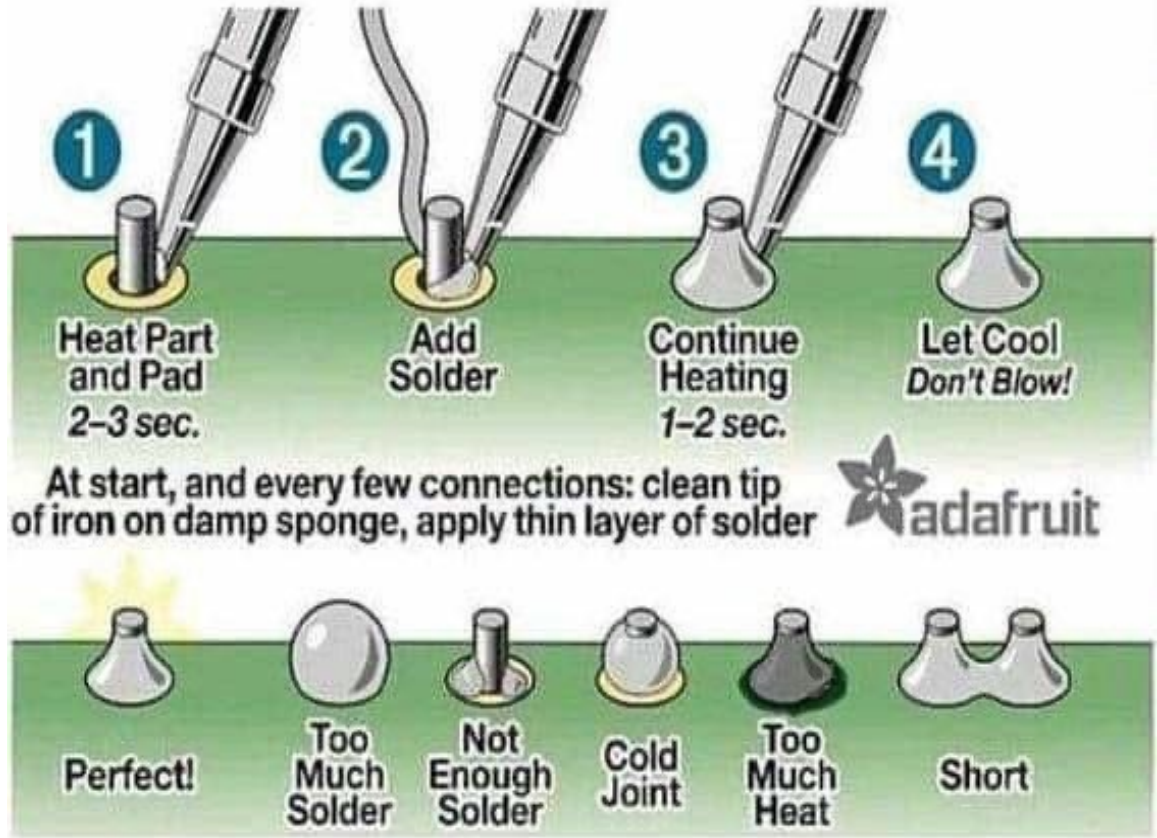


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# Soldering Procedures





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## Observations by the Editor (of the Swamp Fox Contest Group, Kevan Nason, N4XL)

1) [Permatex](#) thread locker 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.

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 re-vamping 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.



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## Observations by the Editor, Continued

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



# HAMFESTS & EVENTS

Shelby Hamfest, 4-6 September 2020 **Cancelled**

Blue Ridge Amateur Radio Society Upstate Hamfest,, 12 September 2020

W4DXCC DX and Contest Convention, Pigeon Forge Tn, 25 & 26 September

Rock Hill Hamfest, October 3, 2020

Lake Hartwell Hamfest, Darwin Wright Park, Anderson, October 17, 2020 8 a.m. until ?

Greenwood Amateur Radio Society Hamfest (GARS) January 9, 2021

Hamcation , Orlando, Florida 11-14 February 2021

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- \* The American Radio Relay League protects our rights as Amateur Radio Operators <http://www.arrl.org>
  - \* Support for SERA supports proper coordination! <http://www.sera.org>
  - \* Remember your local and regional interest clubs!
  - \* Southeast DX Club <http://www.sedxc.org>
  - \* Spread the word GARS weekly nets: 147.165 2m Net Thursdays 9 p.m.  
443.900 70cm Net Mondays 8 p.m.
  - \* Callsign info <http://www.ae7q.com>\*
  - \* Track us on APRS: <http://aprs.fi>,
  - \* Swamp Fox Contest Group <http://swampfoxcontestgroup.com>
- 

## Classifieds:

Classifieds will be run for 3 consecutive months then removed. They may be may be posted again after a 3 month period. 3 on then 3 off.

I hope you have enjoyed reading our newsletter. Please contact me at [Mike31406@gmail.com](mailto:Mike31406@gmail.com) to place a classified ad or with any ideas/ comments/suggestions etc.

*Mike*