

Newsletter for the Northern Florida Section Come join the FUN!

Volume 11 Issue 7

www.arrl-nfl.org

From the Shack of the Section Manager

Scott Roberts, KK4ECR (kk4ecr@gmail.com)

First, I want to extend my heartfelt thanks for re-electing me as your Section Manager for a second term. Your trust and support mean the world to me. I am excited about the next two years and all the great things we will achieve together. This is OUR Section

Your comments, questions, and ideas are always welcome. Remember, this is OUR Section. Your input helps shape our future, so never hesitate to reach out. We are a team, and together we can make the NFL Section the best it can be.

Field Day 2024 Recap

Last weekend was our 2024 Field Day, and it was a tremendous success! I want to thank everyone who participated. Whether you were setting up, operating, logging, or just visiting, your involvement made a difference. Field Day is a wonderful opportunity to showcase our skills and connect with fellow hams.

Share Your Field Day Photos

We would love to see your Field Day photos! Please send any pictures you took to kk4ecr@gmail.com. We plan to use these photos to design a banner for the NFL Section. This banner will be displayed at meetings and ham fests, showing our community spirit. Also, if your group received any media coverage, please send those links to Scott Roberts, KK4ECR.

Hurricane Season Readiness

As we move into hurricane season, it's crucial to maintain a high level of readiness. Ensure your equipment is tested, batteries are charged, and your go-bag is ready. Our ability to respond quickly and effectively can make a big difference in times of emergency.

Checking into Local and Section Nets

Checking into your local and our Section Nets is a fantastic way to stay connected and participate in our section's events. These nets help keep everyone informed and engaged. For a list of nets around our section, visit <u>ARRL NFL Nets</u>. If your net is not listed, please go to <u>Contact the Webpage Manager</u> to get it added.





July 2024

Appointed Positions in the NFL Section

If you hold an appointment in the NFL Section, you should have received or will receive an email from me in the next few days to confirm and verify that you are actively supporting that appointment. Please keep an eye out for that email and reply promptly. We will be cleaning up the NFL Appointment Roster in the coming weeks. Your prompt response is crucial to ensuring an accurate and active roster.

Speaking at Your Meetings

I would be honored to attend your meetings in person or via Zoom video. I look forward to sharing ideas, answering questions, and discussing our plans for the future directly with you. Please feel free to contact me with the dates of your regular meetings, and let's keep the lines of communication open and strong.

Looking Ahead

I am looking forward to the next two years as your Section Manager. We have many exciting plans and projects ahead. Keep an eye on the NFL Section website for an announcement about our first NFL Section Virtual Town Hall Meeting. This will be an excellent opportunity for us to connect, share updates, and answer any questions you may have.

Thank you for allowing me to be YOUR Section Manager!

NFL Officials

Section Manager Scott Roberts KK4ECR

Assistant Section Managers

Kevin Bess KK4BFN Helen Straughn WC4FSU DJ Stewart KI4ZER Joe Bassett, W1WCN

Section Emergency Coordinator Arc Thames W4CPD

Section Public Info Coordinator Jim Bledsoe, KI4KEA

Section Technical Coordinator Frank Haas KB4T

Section Affiliated Club Coordinator

Section Traffic Manager Helen Straughn WC4FSU

Section Official Observer Coordinator Robert Leasko WB8PAF

Section State Government Liaison Darrell Brock N4GOA

NFL Committees

Webmaster, www.arrl-nfl.org Kari McClure, NW4R

Newsletter, QST NFL Earl McDow, K4ZSW

QST NFL is a monthly publication of the ARRL Northern Florida Section. **QST NFL** is intended for wide distribution within the NFL Section, including club Leaders and all licensed Amateurs in Florida. A current issue of this publication can be found at the ARRL Southeastern Division web site, Northern Florida Section. <u>www.ARRL-NFL.org</u> Opinions expressed by contributors are their own, and may not express the positions of the ARRL.

Submissions may be made to the editor: Earl McDow <u>earl.mcdow@gmail.com</u>.

All submissions are subject to editing prior to publication.

Looking for Something?

Gordon Gibby, KX4Z, has taken the time to index the articles from all the 2021 issues of **QST NFL**! <u>https://arrl-nfl.org/wp-content/</u> uploads/2021/12/2021QSTNFLIndex.pdf

What's Inside...

Section Manager Section Emergency Coordinator Sumter County ARES® Loften High School NF4AC Alachua County B.E.A.N.O. CW **HOA Update** sBitx Revisited Improved NF4AC 6-meters Ultra-sharp Filter Wakulla ARES® Field Day **Escambia County Field Day** Panhandle (PARC & NOARC) Field Day Suwannee ARC Alachua NF4AC Field Day **GARS** Field Day Suwannee & Madison ARES® **Internet GOBOX** MERT **ARRL Notices FCC Testing Information**



We are always accepting nominations for the NFL Section Member of the Month. To submit a nomination, please email Section Manager Scott Roberts at <u>kk4ecr@gmail.com</u>. Include the nominee's name, call sign, county, reason for the nomination, and a photo of the nominee. Arc and I will review the nominations and contact you with any questions

Digital Library of Amateur Radio & Communications Marty Brown, N4GL

Digital Library of Amateur Radio & Communications is now archiving **QST NFL** issues. DLARC is a project of the Internet Archive (the not-for-profit online library best known for The Wayback Machine.) DLARC is growing to be a massive online library of the past and present of ham radio and related communications. It is funded by a grant from Amateur Radio Digital Communications. You can see what we have so far at <u>https://archive.org/</u> <u>details/dlarc</u>.

Three years of <u>QST NFL are now online</u>, and I am working with the curator, Kaye Savetz, K6KJN, to eventually get all the issues that I have edited since 2014. DLARC can also scan paper issues. So if you have any stashed in your attic, let me know.

From the Section Emergency Coordinator

Arc Thames, W4CPD

From the Section Emergency Coordinator

I hope everyone had a great time at the annual ARRL Field Day this year! I'm very much looking forward to reading all of your articles and browsing through your pictures in this month's edition. Thanks also to all who have sent radiograms to me from their site.



In last month's article, I talked about the importance of checking your equipment before hurricane season and field day is a great time to do just that. Locally, here in Santa Rosa County, we always use this as an opportunity to test the Emergency Management mobile command post as it has a 60' pneumatic mast so it makes a great point to hang antennas off of. Our ARES[®] volunteers are also responsible for the monthly preventative maintenance check of the trailer.

As (bad) luck would have it, as soon as we pulled the trailer out to transport it to the field day site, we started experiencing issues with the generator not wanting to start every time. From there, the front A/C unit also decided to kick the bucket. In addition, we also took out one of the larger generators that the county has in reserve for major emergencies to power buildings to give it a good run and load test. Wouldn't you know it, it too decided to have issues!

Some would say, now Arc, didn't that damper your field day. I'd be lying if I said no because it did cause some logistical issues, we had to overcome but that's why it's so important to be prepared. These types of issues are an **excellent** way to put your team to the test to see what solutions they come up with to overcome the challenges they've been presented with. I'd rather discover these issues in blue skies then need the equipment to work during a real disaster and find out it's not in working condition.

We leverage our annual field day event also as "Volunteer Santa Rosa Day", an opportunity for the various volunteer organizations that support our county to come out and showcase what they do in our community. It's also a great way to build relationships with the other organizations to see where we may be able to assist each other.



This year we also tried a different location that was a very busy park used by much of the central Santa Rosa community. We definitely had our largest number of visitors to the event so far. We also had one of the largest areas we've ever had for antennas so let's just say we probably put up more than we needed.



Let's continue being prepared and at the ready to serve our communities in the midst of disaster. Please remember, any activations we have will be posted on both the arrl-nfl.org website as well as the website for Florida AUXCOMM which is floridaemergency.net. This is where any activation plans, frequencies, etc. will be posted during an activation in which we are called upon to help by the State.

Monthly ARES® Statistics

The ARRL is still experiencing server issues, so we are unable to provide the monthly report at this time.



Sumter County ARES®

Amateur Radio Emergency Service Mark Newby, KX4LEO Emergency Coordinator



Sumter County ARES Presents Amateur Radio to the Science, Technology, Engineering and Mathematics (STEM) Class

May 15, 2024

On Wednesday, May 15th, 2024, Sumter County ARES, in partnership with the Hog County Amateur Radio Association, presented amateur radio to Mrs. Tiffany Ward's Science, Technology, Engineering and Mathematics classes at the South Sumter Middle School in Webster, Florida.



Our goal was to spark interest in amateur radio among this group of gifted students. We emphasized how their studies of science, technology, engineering and mathematics are relevant in every aspect of amateur radio.



The presenters introduced themselves and explained how and why they became interested in amateur radio. Sumter County ARES (SCARES) member Gil Chapin, WB2UTI, started each class by explaining the history of amateur radio and its many facets, as well as how to become a licensed amateur radio operator. Mr. Chapin demonstrated how amateur operators can communicate around the world with and without the aid of the Internet. Gil later went on to demonstrate APRS and its many uses.

SCARES member and Sky Warn Coordinator, Verne Betlach, K4VEB, explained the Sky Warn program and the

importance of having trained Sky Warn spotters who can report weather conditions directly to the National Weather Service using amateur radio. Students were presented with a scenario of a hurricane knocking out cell phone and internet service for a good portion of the State and where they live. Students were asked how they would let their out-of-state relatives and friends know that they were okay and where they may be temporarily staying. Their bewildered expressions made me believe that this is something they had never considered.



Sumter County ARES Emergency Coordinator Mark Newby, KX4LEO, explained how amateur radio operators, through programs such as ARES, provide emergency communications when the normal means of communications that we rely on every day are interrupted because of disasters or other reasons.



Using a Go-Kit, laptop, Winlink, and an antenna set up outside the classroom, Mr. Newby oversaw students send an email to the classroom teacher over the air without the need for the internet.



SCARES NTS Liaison Harry Sherrer, KD4IKV, explained another method of getting messages in and out of the area, and of course we are talking about the tried and tested National Traffic System, (NTS).



Using hand-held radios and a GOTA (Get On The Air) station that was set up in the classroom, students made contact over the air with their teacher and other classmates. Mr. Newby demonstrated how they could use something that they are very familiar with, a cellular phone, to talk to someone who is using an amateur radio on the other end. Using an AllStar phone app, students made contact with the SCARES Planning Section Chief, Gene King, KI4LEH, through a local repeater that uses an internet-connected Raspberry Pi as its controller.

I want to thank all the presenters for their excellent presenta-

tions, as well as Gene King, President of the Hog County Amateur Radio Association, who coordinated the event. I also want to thank the STEM class teacher Tiffany Ward, and Sumter County School Board member Sally Moss, who were both instrumental in making this event possible. And a special thank you to the STEM class students who made the event very rewarding for all of us. It is our desire to expand amateur radio programs in our local schools.

For more information about Sumter County ARES and how to become a member, check us out at <u>www.sumterares.org</u>.



Loften High School Antenna Stack Nested for Hurricane Season

Bob Lightner, W4GJ

Each year, immediately following Field Day, I nest my antenna stack in preparation for the hurricane season.

Attached is a photo of the lowered antenna stack. The antennas consist of a Moseley Pro67-C3, an 80-Meter inverted Vee, and a 2-meter vertical.

All are on a Hazer Tram system, which makes for quick lowering and raising.

I will be a peanut whistle for a while as the beam is only at ~20' but at least it still loads!



[NF4AC] 2024 Class 4A Field Day Observations

Earl Sloan, KI4OXD - Gordon Gibby, KX4Z – Jeff Capehart, W4UFL

I know there was about an hour on Saturday (4:30 - 5:30?) where all stations were shut down due to lightning proximity. Station 1 was on 10-meters for most of the day Saturday. Station 2 was on 20-meters until around 8:00 PM when station 3 pried the band from David's hands for the fellow that wanted to run 20-meter phone. Station 2 was then put on 15-meters. Station 3 was on 15-meters until 8:00 PM then switched to 20- meters. Station 4 was all over the place with Gordon racking up CW contacts. I have no Idea what bands were used during the night as I went home brain fried.

How brain fried was I? I tried to unlock my front door with the key fob for the truck. Took me a minute to figure out why it wasn't working!

Earl Sloan, KI4OXD

On Thu, Jun 27, 2024 at 11:48 PM Gordon Gibby KX4Z wrote:

Jeff Capehart did some individual station efficiency analysis that was quite interesting. I pushed the data around so that it would start at 2PM and end at the end of the contest and here is what it looks like:



Contacts Per Hour, By Station

There you can see a lot more about how different stations and modes are working CW is hitting 35-42 QSOs/hour, and Station 3 if sometimes hitting the same level! VHF has a few very productive times Station 2 is W4JIR most of the time and you can see when he is running out of people to talk to overnight. You can see the overnight voice and data operations when only TWO stations are operating.

These rates of contacts show how much we have GROWN in the past few years. For a lot of stations to be ABOVE 20 contacts per hour??!! That is excellent! Y'all are getting better and better and better at handling radios!!

Congrats! Gordon KX4Z

B.E.A.N.O CW Only

Bob Loften, W4GJ

The Brotherhood of Every Amateur North of Orlando (B.E.A.N.O.) Field Day group was active on <u>CW ONLY</u> using the call **W4GJ** again this year. Dave Fox, NN4DF, and Bob Lightner, W4GJ, could be heard burning up the HF CW bands. We used to be a much larger group with K4WJ, K8IJ, W4IEI, and NW4C, but this year we are just doing it together. Our main power source {and secret ingredient} is BBQ Baked Beans. When will the ARRL give bonus points for methane power?



Total QSOs: 2,956 40M = 267 NN4DF 15M = 351 NN4DF 20M = 860 W4GJ





Preliminary total score: 6,062 with bonus points added.

NEW LAWS RESTRICT HOMEOWNER ASSOCIATIONS

Billy Williams, N4UF

Responding to many complaints from constituents, Florida legislators passed several bills curtailing powers and increasing responsiveness of homeowner associations (HOAs) and condominium owner associations (COAs). The bills passed both chambers by unanimous or near-unanimous margins following numerous high-profile cases of HOA misconduct especially in south Florida. The new laws take effect on July 1, 2024.

While not directly affecting Amateur Radio operators, provisions relating to HOA architectural reviewers decisions may assist hams who apply to install low profile antennas on their HOA-controlled lots. If bylaws, covenants and documents do not specifically prohibit outdoor antennas (except for OTA TV and satellite television antennas which are allowed under federal regulations)--there could be hope.

HB-1203 is the most relevant to hams. Fines may not be imposed if violations are cured before hearings are held. Florida law already allows residents to appeal fines to an independent panel. This could leave an opening for antennas that are easy to remove after a violation notice is issued.

Most important is the provision that when denying applications for external accessories and other improvements, architectural reviewers must cite "with specificity the rule or covenant" relied upon in denying the request.

Other provisions loosen restrictions on garbage cans, HVAC units, clotheslines, gardens and some other accessories. Architectural standards must be "reasonably and equitably" applied and enforced. And penalties may be imposed on HOAs and officials who violate the new laws.

Residents may park their work trucks and other vehicles (2 axles) without restriction other than those imposed by city and county governments.

Other new HOA laws address financial accountability, responsiveness to resident inquiries, unlawful kickbacks, education requirements for HOA officials, interest on unpaid fines and other aspects of HOA operation.

The biggest setback for hams is probably deletion of a provision that would have provided for appeal panels for anyone denied an architectural review application. These would resemble panels already guaranteed to contest fines

Expect more legislation in the next session if the fallout continues.

sBitx's Low USB Output Revisited: Even Better Mathematical Correction

by Gordon Gibby KX4Z

I have previously described the impact of passband ripple response around the center of the 25kHz crystal filter in my Developer Edition and V2 sBitx's (see: <u>https://groups.io/g/BITX20/message/107621</u>) with resulting up to ~8dB difference between upper sideband and lower sideband transmitted power for same audio frequency modulation. This shows up (in my specific radios) as lower relative power on CW (versus CWR) and USB modes. Other radios may have different performance. A rough "fix" was applied by adding a coefficient of 1.4 to both real and imaginary values of the frequency values of upper sideband transmit computations in the subroutine tx_process(). A few other adjustments to various limits resulted in a reasonably usable transmitter for all modes, and I've had a lot of fun with this transceiver!

Recently, I made some more careful measurements on my particular (V2 hardware) sBitx frequency response for both sidebands, recording lower sideband frequencies as "negative" and upper sideband as "positive," which matches their difference from the suppressed carrier and allows easy graphing. Previous mathematical corrections weren't included so this is "native response" of the crystal filter. These filters aren't perfect, of course, and using "both sides" of the center frequency of a 25kHz wide filter may be less common in radio design. (This filter makes the built-in panadapter type view possible.) The results are shown in the figure as **blue "before" values**, and are graphed as relative dB from a peak response.



Normalized Filter Response Before and After Math Correction

The upper sideband response appears to be reasonably modeled by a piece-wise linear response, approximately -4dB below 900 Hz and -8dB above that. I decided to apply a simple piece-wise linear correction for upper sideband below and above 900 Hz.

The correction is multiplied by both the real and imaginary values, in a statement like this inside tx_process():

```
for (i = 0; i < 19; i++){
    __real__fft_out[i] = __real__fft_out[i] * 1.3;
    __imag__fft_out[i] = __imag__fft_out[i] * 1.3;
    }
for (i=19; i< 60; i++) {
    __real__fft_out[i] = __real__fft_out[i] * 1.65;
    __imag__fft_out[i] = __imag__fft_out[i] * 1.65;
</pre>
```

Continued on next page.

}

Initially, I just looked at the square root of the magnitude of the power differences to calculate voltage correction coefficients, and thus I selected voltage multiplication coefficients that turned out to be *much* too large. This turned out to be because the total amplification of a coefficient **A** when applied to *both* real and imaginary portions of a complex number has the magnitude impact of not just **A**, but 1.414*A:

Magnitude of [**A***(real portion) + **A***(imaginary portion)]

= $(\mathbf{A}^{2*} (\text{real portion})^2 + \mathbf{A}^{2*} (\text{imaginary portion})^2)^{1/2}$

= $(2 A^2)^{1/2}$ * (magnitude of original value)

= 1.414 * A * (magnitude of original value)

As a result, I ended up with multiplier of 1.3 for coefficients 0-18 and 1.65 for coefficients 19-65 to make the desired corrections. This ended up with a very good compensation that allows me to have nearly equivalent power on either sideband with CW, voice, or digital signals (supplied through the microphone input from external hardware).

Since different instances of the sBitx may have different crystal filter responses, the exact solution for each radio may be different. An automated system could be programmed to allow the sBitx to calibrate itself by programmatically creating tones and measuring output powers, and then computing a correction. However, it was simpler for me to do it manually.

Improved NF4AC 6 Meter Performance

Mike Hasselbeck, WB2FKO

"We improved our capability on 6m from last year by replacing the 2-element Moxon with a 3-element Yagi that was donated by Peter KA6U.

The beam was mounted at a height of about 17 ft on a separate mast next to the HF tribander. The mast was clamped to a frame rail on the tower trailer and rotated manually using the "Armstrong" method. I was concerned that the 100+ foot run of feedline would hurt performance, but relaxed when I started making FT8 contacts into the upper-Midwest. I got a lot of exercise running back and forth, adjusting the antenna position looking for sporadic-E openings. Conditions were flat on Saturday and we logged only a couple dozen QSOs. It was much better on Sunday morning and I even managed to get a brief run going on SSB. I need to publicly thank Mark McDow for helping setup the 6m computer and networking -- just minutes before operating started.

When 6m looked like it was shutting down on Saturday evening, I wandered over to the open 40m operating position. I saw a lot of activity on FT4 and was interested to see what kind of QSO rate I could maintain. I operated straight through the night, sitting at the table next to David W4JIR who was doing the same on 80m using the same end-fed wire antenna.

It's clear that FT4 is fast and efficient, but it can't match the rate of the analog modes in the hands of a competent operator (KX4Z is a cw wizard!) with a good station and propagation. The digital modes do have advantages: greater sensitivity, almost zero chance of incorrectly copying and/or logging callsigns and exchanges, and less operator fatigue. Our group was able to use both analog and digital effectively."

Alachua County Ultra-Sharp Receiving Filter Construction

Gordon Gibby KX4Z

Having two HF stations on the *same* HF band (on different antennas) at the same deployment site is difficult because even if they are at opposite ends of the same HF band, the isolation between their antennas may be insufficient (e.g. < 70dB) to prevent overload of their respective receivers by the opposite station's transmitter. On analog receivers this may show up as *desensing*; on SDR receivers such as the ICOM 7300, it is said to manifest by the **overflow indicator** (OVF), possible dramatic desensing and distortion. But during various operations, such as Field Day, it is highly desirable to be able to simultaneously operate



Two sets of ultra-sharp filters (one for CW, one for Phone) and their associated relay bypass boxes, on either side of a simple 7300 go-box.

CW/Phone or even CW/digital or Digital/Phone, such as on 20 meters.

High isolation Antennas: Very widely spaced antennas with buildings between may result in >70dB isolation between the antennas and allow this kind of same-band operation (without the need for this kind of a filter). Operating antennas of opposite E-field polarization can also help, or using side-nulls of Yagi beams to reduce coupling. However more closely-spaced antennas (100-200 feet) may have inadequate isolation (in the -40dB to -50dB range) and be very prone to overflow. Mitigation strategies can include (a) turning off all preamplification; (b) reducing RF gain; and (c) adding attenuation in the receiver input line.

Using notch filters to help: If frequency-dependent attenuation of any type is available, it can be very helpful in mitigation when the antenna isolation alone isn't adequate. KA2C published a 3-section inductor-capacitor notch (trap) design intended to allow dual operations on the CW / phone segments of a single band (<u>www.ka2c.com/wp-content/uploads/2021/01/Field-Day-Ultra-Sharp-RX-Filters.pdf</u> (*Unsecure*) It is the older http: rather than the newer https: but it appears safe.) He considered it wasn't sharp enough to separate the CW and FT8 segments, but it can help with that. His design achieves notches in the range of 30dB-- which can be a HUGE leg up to an antenna separation of 40-50dB. The basic schematic is as follows:



Construction: KA2C used commercial rf transformers on input and output to reduce the working impedance of the series traps to ground to 12.5 Ohms. I elected to wire those transformers myself using FT37-43 toroids, with 11 turns bifilar. My homebrew transformers appeared to work well. Although KA2C recommends toroid inductors for 40/80 meters, and air-core for 14MHz and higher, I had trouble getting Q's above 300 with homemade wire inductors, so I built two 20-meter (14MHz) ultrasharp filters simply using T80-6 iron powder toroids from https://kitsandparts.com/ I used inductance and capacitance notch values derived from his guidance. *It is very important to use high quality toroids.* Some toroids obtained via Amazon ended up with notch Q's in the 60's (unacceptable) while replacing them with identical windings on T80-6 cores from https://kitsandparts.com/ I used inductance and capacitance notch values derived from his guidance. *It is very important to use high quality toroids.* Some toroids obtained via Amazon ended up with notch Q's in the 60's (unacceptable) while replacing them with identical windings on T80-6 cores from https://kitsandparts.com/ returned the Q's to the 200 range (huge improvement). Either a spectrum analyzer or VNA of some sort will be needed for accurate tuning.

20 Meter Notch Filters					
Inductance	Construction	Capacitance	Construction		
~ 2.8 uH	~ 25 turns of #20 magnet wire, ad- just as needed	~ 45 pf adjust as needed	combination of paralleled capacitors, try to use minimum 500pf, mica or ce- ramic		

The Q of the coils seems much more important than the Q of the capacitors. I used mica or 3kV ceramic capacitors without any problem. On my CW-side filter, I was able to obtain ~30pf air-variable trimmers from <u>https://www.rfparts.com/</u> and used those alongside parallel fixed capacitors to make adjustment much easier. I was able to drill mounting holes that allowed snug fitting of some of the surplus variable capacitors. For all, I used our standard printed circuit board design for RF filters. The Phone-side filter that I built had only two sections, and I used fixed capacitors and "tuned" the traps by bunching or separating the turns on the cores, with acceptable outcome.



The interconnection capacitor (or inductor) determines the insertion loss and somewhat the performance of the filter. I elected for fairly high insertion loss on the CW filter in an attempt to position even the FT8 20meter slot on a higher loss portion of the response curve. 100pf capacitors worked in the "phone" filter and tiny inductors made by wrapping a few turns of magnet wire around a small screwdriver worked for the "CW" filter. KA2C points out even the interconnecting wire has inductance!

The insertion loss of these filters is beyond what would be acceptable for transmitting through-- they would burn up. Therefore, a **relay bypass switching system** is required to bypass the filter during transmit. Our group has seen this before, as our 80meter/75meter narrow filters also have significant passband loss and require bypassing during transmit. KA2C has an elaborate circuit for doing this; I accomplished it using a separate set of aluminum boxes with simple relays inside to allow driving by the "send" output of a 7300. Since this is designed for modest HF usage, ordinary relays suffice. <u>https://www.amazon.com/gp/product/B07L1L3RJT</u> (I used a reed relay to drive the larger relay.)

Below are the filter performance curves for the low-end ("CW") and high-end ("Phone") filters. Note these are optimized for differential filtering even of CW versus FT8, *not for lowest passband loss*. It is your choice how you position the notches, so you can easily adopt less-stringent goals and get lower pass band losses if you wish.

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"CW"(left) and "Phone"(Right) Filter responses. Easy to tell which is which -- insertion loss is minimized BELOW the notch on the CW filter and ABOVE the notch on the Phone filter. Both are somewhat unusually positioned to give some chance of separating even CW from FT8 on 20 meters

Utility point	Frequency	Absolute Response	Change from baseline
Low CW response	14.026 MHz	-13 dB	+4 dB
High CW response	14.050 MHz	-17 dB (baseline)	0 dB
FT4 response	14.080 MHz	-23 dB	-6 dB
Phone response	14.176 MHz	-30 dB	-13 dB

CW Filter (3 sections, can be adjusted with screwdriver)

"Phone" Filter (just two sections to notch narrow CW/FT area)

Utility point	Frequency	Absolute Response	Change from baseline
Phone response	14.224 MHz	-3 dB (baseline)	0 dB
FT8 response	14.074 MHz	-15 dB	-12 dB
High CW response	14.050 MHz	-21 dB	-18 dB
Low CW response	14.032 MHz	-27 dB	-24 dB

These responses can be adjusted (with appropriate tools) as needed depending on our operating needs.

Wakulla Field Day



L-R William KQ4AMP Ed KN4WOW. Mile K4CRO setting up coax



Ken W4KEF pulling up the rope and antenna to the top of the fire tower at Wakulla Fire grounds Ken Fields W4KEF. EC of Wakulla President of SPARC



Weston KQ4MLT looking over his daughter trying out the band



Mike K4CRO at his operation station



For any fields day to work you have to have some food Sam KQ4GUM. And Weston KQ4MLT getting the low country boil



On June 15 the Wakulla County Emergency management held a Disaster Preparedness Expo in Crawfordville. And members of the Sportsman's Paradise Amateur Radio club had a table setup at the event.

Escambia Hams Take To The Airwaves For Amateur Radio Field Day, Practicing Emergency Communications—FFARC

Published Article—<u>https://www.northescambia.com/2024/06/local-hams-take-to-the-airwaves-for-amateur-radio-field-day-</u>

practicing-emergency-communications-2 By William Reynolds

June 23, 2024



Local ham radio operators at two locations in Escambia County took part in the 2024 American Radio Relay League Field Day this weekend.

ARRL Field Day was an opportunity for about 40,000 amateur radio enthusiasts throughout the U.S. and Canada to set up temporary communications stations and make contact with like-minded people. Licensed radio operators, often called "hams," spent the weekend practicing community outreach, emergency preparedness and technical skills



Thirteen year old Hadley passed her Technician Exam that morning. After getting over a bad case of Mic-fright, she operated as a 3rd Party operator on the GOTA station.

The Five Flags Amateur Radio Association operated continuously from 1 p.m. Saturday until 1 p.m. Sunday at Ashton Brosnaham Park off East 10 Mile Road.

Amateur radio operator Gene Bannon, call sign KB4HAH, said amateur radio operators were the only ones providing communications for 36 hours after Hurricane Ivan. He said sheriff's deputies could not talk to each other and the fire departments couldn't talk to each other.

He added that amateurs were the communications source for the first 36 hours before the arrival of satellite trucks and other equipment arrived.

Bannon said that's one the reason amateur radio exists.

For a photo gallery from both field day sites, click here.

Club members set up their amateur radio equipment — ranging from old 1980s radios to modern digital gear and satellite communications. With a generator and portable antennas, including a wire antenna spanning half a soccer field, they were soon communicating with ham operators across the United States and Canada.



The goal was to reach other ham operators in as many Canadian provinces and U.S. states as possible, including Alaska and Hawaii.

The Southern Amateur Radio Union (SARU) participated from Travis Nelson Park on West Highway 4 in Bratt, near Northview High School. Club members from both Escambia counties (Alabama and Florida) participated from 1 p.m. Saturday until 1 p.m. Sunday. Operators would carefully tune radios, repeat their call sign and see who would answer from where.

The amateur radio operators have their own equipment inside the Escambia County Operations Center, ready to provide needed communications during local emergencies. That room was named for Rudy Hubbard, WA4PUP, a ham operator that passed away in May 2021.





The Panhandle of Florida is a buzz with RF!

DJ, KI4ZER NWFL ARRL ASM Pres. PARC/W4ZBB Pres. NOARC/W4AAZ

We begin our Hamventure in June with Hams of all ages uniting and introducing improvements to communication capabilities in preparation for Field Day at the end of the month! Experiments abound as teams form; plans are lined up, and gear is tested! With the North Okaloosa Team the plan is complex, and a wide antenna array will be utilized to cover multiple bands and operational capabilities. The idea s to set up as an operational outpost and ensure reliability in communications with multiple operators!

With the Playground Amateur Radio Team, the plan is to use portable equipment to establish remote setups in a public location and exercising the advances in small form factor Amateur Radio capabilities!

While those plans were being formed, each entity held meetings and tech nights that bolstered the hobby and interest to all who chose to attend! The Playground Team instructed a course on understanding voltage and its relation to SWR decreasing transmitter efficiency. This key understanding of a basic principle allows for the required minimum and maximum power to be applied in a mobile environment to not overload a radio and reduce reflected energy (potentially harmful).

The NOARC Team held a great briefing on the controlled plan for set up and tear down along the lines of safety being paramount for their large-scale Field Day operations. If you missed this briefing, you missed out on how Hams have been coordinating a simulated response to re-establish communications in an area which were limited as a result of an impact.

Both entities had local officials visit and take the time to understand the processes and take part in the invaluable resources that can be utilized to not only contest, but also to assist the first and second responders in traffic handling for the restoration of services and message passing from everyday Joes and Janes needing to communicate outside of an impact area.

During this time, the NOARC team, thanks to its members and affiliates, was able to repair its repeater antennas and brackets which were impacted for the first time in decades by severe straight-line winds associated with a storm nearly 8 weeks ago. The 147.360 W4AAZ repeater was not taken out of service and full transmit and receive capability was restored.

Finally, we made it to Field Day! Staring in Crestview Florida, the team assembled to deploy tier gear and set up their antenna field. This was done with great skill and wonderful knowledge all under the watchful eye of their volunteers and safety officer. Testing and tuning were accomplished to allow for a wonderous success in communications and contesting! Those that stopped by were able to witness firsthand the invaluable capabilities of NOARC and how they set the pace for future events! This event was both indoor and outdoor.

The Playground Team accomplished more with less. Using backpack radio kits, batteries, and portable antenna systems that a single operator could set up in under ten minutes, they took a foothold in Niceville Florida and completely outside in the elements. This event showcased how rapidly reliable communications could be set up for multi-mode and multi-band operations.

Both Field Days in Okaloosa County were highly successful and enjoyed by those that took part! Event the visitors took note in the capabilities offered. One such instance was a class taught by NOARC covering Radiograms! What an experience it was and KN4WOO got to send his first one ever!

The events also gave insight for new and old operators at both locations on what needs to be improved upon such as replacement equipment and what worked very well. This was a wonderful opportunity to experiment with recent builds that many local Hams have been experimenting with as well such as APRS communications in lieu of internet services.

Enjoy the included pictures and as always HAMON!





















Suwannee ARC

Steve Kostro N2CEI, President

The month of May was weekend after weekend of work party's that paid off for our clubhouse operations in June. The goal was to have the majority of outdoor work completed before the summer's heat slows all projects down to a halt. But, we did take the time to complete a Tower install at one of our newest member's QTH. Pig, (a nickname from his military service) or KG7QNK, Randy as listed in QRZ, acquired a Rohn 25 Fold-over from a local Estate and the membership chipped in with the install. After finishing some refurbishing and assembly of acquired antennas, the installation will be complete with the assistance of some additional materials that the club has in surplus. Being absent from "Ham" radio for the past 10 years, and operating and mingling with membership at the clubhouse, Pig is anxious to get on the air with his new installation. Welcome back to the Hobby Pig!

June's activity's started this month with the operation of the ARRL International Digital contest. It is a new contest developed by the ARRL and offers a class of operation for club members to operate as a team. A team may consist of up to 5 members. We organized the team as KO4VFA, KE4PWE, N4UTX, K1UHF and N4SVC. The rules of the class stipulate that the team members need to be single operators but as the enthusiasm spread in our club (as it usually does) other members wanted to join in on the fun. KJ4YPY, N2CEI and K4SME and joined KD4AMP in operating N4SVC at the clubhouse placing it in the Multi-Operator class. Then N9MC joined K1UHF in Lake City also operating as a Multi-op. This removed both call signs from the Team competition but, the net result was we all had more fun than should be allowed with Amateur Radio!

The very next weekend was the ARRL June VHF contest. There were some issues still being resolved with the 2 meter EME/Tropo array. The final alignment of all antennas was still required and the final calibration occurred the morning of the contest. Due to previous commitments, a full team was not able to participate but those of us that could were able to determine that all of our previous months work had paid off. Our new electrical service provided all of the AC power we needed to operate all off our higher power equipment. EME contacts were made on 2meters and the station checked out form 6 Meter through 1.3 GHz Good job membership!



The following weekend was the ARRL Kids Day and membership was lacking any Grandchildren (yes we are all that old!) that were living close enough or had the interest to participate so it became a readiness weekend for Field Day. We prepped our generator, and tested our five Field Day operating positions for antenna switching and interference. Our goal was to provide training and instruction to our newest members of basic Amateur Radio protocol, how the clubhouse station's equipment is operated, and how to work with each other in a Multi-operator environment with the excess room noise, side conversations, and operation schedules. There is always something to learn! And , it was a Rowdy Crowd at Dinner time!

The Suwannee ARC operates in the Emergency Power Class (Class "E") during Field Day to prove to ourselves that we can be ready for disaster relief if called upon. The organizing committee purposely did not "Top Off" our generator with fuel to test our backup UPS power supplies. The goal was to verify their operation. We indeed had 1 failure and it will be rectified! We then refueled and got back on the air and operated until Midnight Saturday netting 500+ QSO's. Everyone had previous commitments for Sunday so the FD operation was shutdown.

We worked many other Class "E" stations and Class "F" stations (Emergency Operating Centers) during our operating time. What became a side discussion topic was the absence of the local ARES station that is utilizes our County's EOC facility. Though Suwannee ARC membership understands the county EOC it is equipped for operation by the ARES group, it does not understand why it has not been in operation during Field Day for the past 5 years.

So, as always, when the Suwannee ARC has an operation event and especially on Field Day, there is always good food, a lot of stories told, and techniques learned about the bands and the various modes of operation. Our participating Field Day team



July will be a slow month for the club membership but we will have a Business meeting on July 2^{nd} to discuss any changes, upgrades, or repairs required for a better multiple position operation. Someone mentioned we need a better Air Conditioner! There is the IARU HF World Championship Contest on July 13-14th that we will operate on a limited basis and then the CQ WW VHF contest that a small multi-op team will be utilizing our 6 and 2 Meter stations in a very competitive fashion. Take the time to check out the activity on those bands on the weekend of July 20-21st

What Seems To Work In Alachua County - Field Day 2024

by Gordon Gibby KX4Z

Our group in Alachua County is **certainly** *not* **a contest powerhouse** at all(!) and <u>many of our members feel overwhelmed</u>, so maybe we do TOO much? But we <u>keep improving</u>, and we managed with 17 volunteers to carry out a 4A Field Day operation at a county park, providing diesel/gas generators, two towers, one triband beam, and as many as five stations simultaneously on the air, using a combination of antenna placement, and our sixband soldered-together antenna multiplexer system. Networking was via tcp/ip and microwave Ubiquity mesh. The best part? **We ended up with many, many personal triumphs!** All told, we had 1643 contacts in all US Sections, and 17 foreign countries, most but not all of the bonus points, and a total of 7,890 estimated points.



Every team is different! However, these are the ideas that have worked well for us -- and I'm interested to get your improvements and even better ideas than these below!!

Antennas	 Stewart Reissener KK4DXF's creation of the tower trailer saved us SIX HOURS of setup in the heat, compared to last year. The sidearm would hold up a wire antenna if needed, and we could put VHF/UHF whip on top. This also allowed us to create "end-on" isolation from the CW station's antenna 600 feet away, and the trailer members held up our 6meter antenna also! 	
Multiplexer	We expanded VA6AM's 3-band multiplexer kit to SIX bands and in two halves and now we can operate <i>many stations simultaneously covering different</i> <i>nets on different bands at our EOC</i> or making contacts at Field Day. (We also had an SWR testing sequence that caught some bad ground connections in the 20m and 10m filters which we quickly fixed just before Field Day operation.)	

Isolation	We wanted stations on the SAME BAND (different modes) and practiced measuring isolation using a spectrum analyzer at our " dress rehearsal ." 5W transmitted is 36dBm and just subtract the spectrum analyzer reading from this. Using the "side null" of the beam (we graphed out measurements at 3 different points 30° apart) we got 70-80+ dB isolation on 20/15/10 meters! This was <u>horizontal</u> beam end-on, to <u>vertical</u> off center fed dipole (no need for radials) at our 600-foot-away CW station. No problem to run CW and FT8 on 20 meters simultane-ously! Allowed many more points on hot bands!
Wire Anten- nas x 2	We wanted stations on the SAME BAND (different modes) and practiced measuring isolation using a spectrum analyzer at our " dress rehearsal ." 5W transmitted is 36dBm and just subtract the spectrum analyzer reading from this. Using the "side null" of the beam (we graphed out measurements at 3 different points 30° apart) we got 70-80+ dB isolation on 20/15/10 meters! This was <u>horizontal</u> beam end-on, to <u>vertical</u> off center fed dipole (no need for radials) at our 600-foot-away CW station. No problem to run CW and FT8 on 20 meters simultane-ously! Allowed many more points on hot bands!
Cable Spools	Our SETUP SECRET WEAPON! Every minute in the hot Florida Sun is brutal so we used more than a dozen plastic extension cord spools to make delivery and take- down of all lines easy: hundreds of feet of RG8X coax (LMR400 won't bend enough), hundreds of feet of 120V extension cords, and also "green" extension cords used I n a ready-to-connect ground system where each ground rod has a receptacle and legs of the tower have male plugs ready to connect. Green extension cords are ONLY used for grounds , and are limp and less likely to trip pedestrians. Ropes, paracord, guy ropes EVERYTHING went onto cable spools and then come on and off in moments without tangles and knots. (Got this idea from Susan Halbert KG4VWI's winding techniques.)
Generator Power	We built up our own generator utility trailer with a 5kw Diesel generator and a 3kw gas generator. Zero RFI because voltage regulation is mechanical governor and Maxwell's Laws instead of electronic. Audibly Loud for sure, but 18 hours on a tank of diesel! Fiberglass mast if we need more help with antennas.
Solar Power	We are only consumers at this, but we mounted a MPPT controller system with connectors to easily connect to any solar panel < 70Voc and with an inline current meter to monitor battery charging. We charged at 14A and had batteries ready to go in only a couple hours.
Networking and Time Services	Earl and Mark McDow are our IT crew and Earl built absolutely gorgeous "go-boxes" for remote networking with Ubiquity microwave high power mesh systems, and local Tenda WIFI. While we suspect some throughput issues with the WIFI, we were also able to use the built-in Ethernet switches and that dramatically sped up the communication to the database and a monitor station.

CW	David Fox NN4DF kindly taught us how to use the capabilities of Winkeyer and N3FJP to make CW contacts a pure
	joy with almost no manual transmissions. Thanks!!
FT8/FT4	I think this was the year that digital "gelled" in our group. FT4 became very popular with us because it is about as
	fast as CW for a non-expert group like us I

Carefully Designed Written Plans: We are the *farthest thing from "experts"* at towers and beams. So we developed safety-focused, step-by-step instructions for how to

- assemble and hoist our new beam and tower (https://www.nf4rc.club/field-day-pages/tower-trailer-instructionsyagi/)
- check SWR of all antennas at key frequencies (we literally filled in a table)
- test antenna-to-antenna coupling/isolation (see App. 2 of this portion of our Incident Action Plan: https:// www.nf4rc.club/field-day-pages/2024-field-day-iap-appendices/)
- get all this done on a fairly tight Saturday morning schedule. (See section 8, "Planned Actions, Strategies and Tactics" https://www.nf4rc.club/field-day-pages/2024-field-day-main-iap/

Dress Rehearsal: Certain members of our group (not naming names, but callsign starts with AA) demand a "dress rehearsal" for major exercises like this. We reported 80 man hours of training practice in that effort! *Everything* got done, including the SWR and isolation measurements -- so on Field Day, people already knew the skillsets. This was especially important because we had new antenna and other assets and everyone **needed training on them**.

This drill/training to get used to these procedures was certainly a ton of work the Saturday before, but it <u>paid off royally</u> when **Earl Sloan KI4OXD** was making the SWR measurements on Field Day morning and caught the mechanically unstable grounds in our 20meter and 10meter bandpass filters! Pavel VA6AM bandpass boards don't have a built-in ground plane, and depend somewhat critically on good connections to the enclosure. Earl and I were able to correct the situation in both filters in an hour's work on Field Day morning with a soldering iron and some hookup wire, and the repaired filters were flawless throughout the day.

Leland Gallup, AA3YB observed: "For Field Day 2024, however, I saw our people coming together as a superb team....Field Day can play out as a social or competitive event, or as a combination of the two. For us in Alachua County it was both. Simply put, we did better by numbers of contacts – by far – than we have done in past years. This wasn't by chance or because of propagation during the solar maximum (which didn't hurt!). It was because we were a motivated, competent, and well-functioning team. I was impressed and gratified to see so many giving great time, treasure, and talent to ensure our Field Day was going to be the most skilled and productive in the years of our involvement. And it was."

Mike Hasselbeck WB2FKO said, "When 6m looked like it was shutting down on Saturday evening, I wandered over to the open 40m operating position. I saw a lot of activity on FT4 and was interested to see what kind of QSO rate I could maintain. I operated straight through the night, sitting at the table next to David W4JIR who was doing the same on 80m using the same endfed wire antenna. It's clear that FT4 is fast and efficient, but it can't match the rate of the analog modes in the hands of a competent [CW] operator...... with a good station and propagation. The digital modes do have advantages: greater sensitivity, almost zero chance of incorrectly copying and/or logging call signs and exchanges, and less operator fatigue. Our group was able to use both analog and digital effectively."

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GARS 2024 Summer Field Day 22-23 June Summary

Attendance: 22 signed in with 10 as guests. We had a visit from the fire chief (Kevin Rulapaugh KE4NUF). Three guests went on the air and made contacts (David Heeder K4ABJ, Jelani Young, and Diana Benton KQ4SJV).

Activities: Attaching a crimp-on PL-259 connector to RG-8 coax cable, (we made up two cables with crimp-on connectors) and a solder-on PL-259 connector (we made one cable with solder-on connectors). Demonstrated Coax cable analyzer and tuning a 6 cavity duplexer. We provided instructions on amateur radio to all visitors. The newly demonstrated connector attachment came in handy when two connectors needed to be replaced. We finally got our first aid kit mounted to the wall near our fire extinguisher (yeah!).



Barbara Mathews stripping coax with Mike Martell instructing



Barbara Mathews soldering the tip on a crimp-on PL259 connector



Shannon Boal (in center of picture) demonstrating attaching a solder -on PL-259 connector to coax. Vann Chesney (in green shirt), Terry Gordon (standing in black shirt), Dave Dockus (in front of Terry), Barbara Mathews (sitting in blue shirt) and Hugh Minnich (leaning against the wall).



Terry Gordon sitting in (black shirt seated) demonstrating a cable analyzer to John Troupe (sitting) and Dave Dockus (standing).



Jim Carr (standing) teaching how to tune a 6 cavity repeater duplexer using a spectrum analyzer to Terry Gordon (seated) and Hugh Minnich (in ball cap).



Ken Miller showing Terry Gordon what he uses to explain amateur radio to visitors.

Operating:

We had a number of amateurs and guests making contacts through out Saturday and Sunday. Here are some of the pictures.



Barbara Mathews assisting David Heeder, K4ABJ (Adjusting the ICOM 7300 radio) and Jelani Young (recording contacts) on 20 meters.



Barbara Mathews assisting David Heeder, K4ABJ (Adjusting radio) and Jelani Young (recording contacts) on 20 meters. John Troupe in background making CW contacts on 15 meters.



Diana Benton, KQ4SJV, and Barbara Mathews, KO4TWZ, making contacts on 15 meter phone.

Not everything ran smoothly:

On Saturday we were not making as many contacts as we had hoped. After investigation we found two connectors and a bad coax cable. Also going on the roof we found the Hex beam was damaged. The connection between the rotor and the beam was broken so the beam was pointing mostly south. There was also a cracked spreader arm on the beam. Terry Gordon went on the roof and managed to secure the connection between the rotor and the beam with a pin and (yes be surprise "Duck Tape"). This temporary fix got us back on the air in the right direction. We did not want to use our multiplexer and filters so we only ran one radio on the Hex beam and used the two dipoles for two other stations.

Time for lunch:

We had an excellent feast for lunch. See are menu below;

Smoked pork butt (Thanks Karyn) Home made Macaroni and Cheese (Thanks Lorilyn) Home made Chili (Thanks Debra) Home made Corn Bread (Thanks Barbara) Home made Tossed Green and Fruit Salad (Thanks Carol) Soft Drinks (Thanks Shannon and Debra) Barbecue and Hot sauce, chopped onions (Thanks Shannon and Debra) Spring Water (Thanks Ken) Coffee, Bagels, and Cream cheese (Thanks Barry) Cookies, Grated Cheese, Rolls, crackers, and butter (Thanks GARS)

Topics of Discussion:

Simplex Testing - We will start simplex testing again in August

Using a Baofeng radio as a mini repeater

- Using a Baofeng radio with a plug in attachment you can make a mini repeater
- Haul this up into a tree and get much better antenna height without hauling up a coax line.

Using cross band repeat for emergency and special event support

Hosting a "Where is Waldo" get on air event to raise money for the Waldo EOC.

Establishing a periodic maintenance schedule for the Waldo EOC.

- Check all feed lines (run coax analyzer on each feed line)
- Visually inspect all antennas
- Test radios output
- Test grounding
- Run computer checks

Suwannee and Madison Counties ARES®

Gordon Beattie, W2TTT

Well, despite a few last minute changes and emergencies, experience and teamwork provided the combined team of ARES operators from Suwannee and Madison Counties with another successful radio operation during the 2024 ARRL Field Day!

In the last few days before Field Day 2024, a scheduling mix-up required a change from our usual operating location, then a key operator had to go into work on Saturday, yet another, our CERT leader, was activated for a lost child search, and finally another key operator came down with a stomach virus on Friday. (NOTE: The lost child was found in the woods the next day in generally good health, but dehydrated. and the ill operator felt better and was able to eat lightly by Sunday evening.)

These challenges had implications for the deployment of radios, antennas and computers, but most importantly, for our MENU! Food is the key to keeping butts in seats and more "butt in seat" time means more contacts. Now, our group has no delusions of grandeur. We simply want to get practice setting up and operate while having plenty of basic, but good food. The decision was made to move our 2024 Field Day site to Gordon W2TTT's workshop - NOT HIS HAM SHACK! We had operated there for Winter Field Day and running antenna cables under the roll-up door and through to the various work benches was straightforward.

On Saturday morning, things fell into place with Nancy N2FWI making a food delivery order at the local Publix that delivered all the food and supplies directly to the operating site by 9:00 AM. Ken KN4IMN arrived with a 120 quart cooler full of ice and an 80-6m OCF dipole and a 20m dipole at 9:30 AM. A few minutes later, Bill AA4TM arrived with his POTA HF vertical and ICOM IC -705. Gordon pulled Nancy's IC-7300 from the household radio room and another from the ham shack and we were gold-en! Multiple 50 ft rolls of LMR-400, RG-213 and RG-8X with UHF Female-Female "barrel" connectors came from "Go Kits" and



80-6m OCF dipole set up on a stack of four foot military poles. The tension was a bit much in one direction, but it worked fine!



Ken KN4IMN setting up the 160-6m OCF dipole.



Bill AA4TM setting up his HF vertical



Bill AA4TM setting up his HF vertical . ICOM IC-7300, 100AH LiTime battery and Heil Proset on VOX. Large LiFePo4 batteries and solar chargers made for a quiet Field Day 2024 for our 3B NFL operation.



While we didn't use it, we had to take a picture of Gordon's ICOM IC-905 stacked on Bill AA4TM's ICOM IC-705! It would have been lovely to run both the 160m and the 5cm bands! Perhaps next year? ③

We operated into the late evening on Saturday and then resumed on Sunday morning after Church, concluding at 2 pm. Antenna takedown was simple and Bill, Joe and Gordon got it done with everything neatly put away in case of an activation. The spare food was secured and we each went home and all took naps before dinner.

We logged on paper except for the one radio that ran FT-8 using WSJT-X on a 12V Evolve III mini laptop. This week has been busy with work so the paper logs have not been de-duped and the laptop hasn't been turned on, but we expect about 300 contacts with most being 40m PHONE, some FT-8 DIGITAL and ten on CW. Most of all, the operators Bill AA4TM, Joe KI4TRR and Gordon W2TTT appreciated the support given by Nancy N2FWI and Ken KN4IMN to make Field Day 2024 a success!

Creating an Internet Go Box

Ted Brannen, W4KOD, Gordon Beattie, W2TTT

The purpose of this article is to demonstrate the steps taken to build an Internet Go Box. As we know, during storms in this area it is fairly easy to be without power and/or wired cable, fiber or DSL Internet for awhile - and during major weather events, to be without them for an extended period of time. In recognizing that there is much that can be done using the Internet to stay in contact with others through available applications, we set about creating an Internet Go Box to stay in touch with family and fellow Hams to apprise them of our situation. Applications such as EchoLink, AllStar Link, digital radio hotspots, WinLink, and other network linking and store and forward email systems are a few of the options were having access to the Internet via a cellular modem connection can be useful and can help us to participate in emergency communications activities. While the system relies on a reachable cell phone tower, it is still a useful tool for many incidents of both short duration and long.

The orange case that is seen in the pictures was given to Ted W4KOD by Gordon W2TTT, acting as Elmer. Gordon's assistance in this process was invaluable as Ted had never built a box like this before. After obtaining the supplies and tools necessary for this project, it was begun at Gordon's ham shack and with his assistance.

The early stages such as drilling the holes in the orange case and installing the weatherproof connectors as seen in the photographs, was completed prior to these pictures being taken. A small pilot hole was drilled and then a "step drill" was used to enlarge the hole to the size needed for each type of connector.

We used a "build/test/make permanent" strategy as we built up the Go Box. This allowed Ted to understand each component and its function, then we both had the opportunity to test fit each element before "locking it in" to the design of the Go Box.

The next few pictures were taken on the night we started the project with wires, components and Ethernet and Anderson connectors that were available from Gordon's "junk box". You can see the components and wires laying in the bottom of the case in the pictures of this initial prototype phase.



In this photo there is a dual Anderson Power Pole bulkhead connector in the lower right and temporary cables laid out inside the box.

In this photo there are Ethernet bulkhead connectors in the upper right, the dual Anderson Power Pole bulkhead connector in the lower left and again, temporary cables.

The Mesh Router will run down to about 12VDC, but runs better at 24VDC, so a "buck boost" module is used to raise the battery voltage.

In the picture below, we show the case with the battery which was initially a sealed lead acid (SLA), and later upgraded for a LiFePo4 battery.

At time all I had bought were these items and was collecting the necessary parts to build the Anderson Power Pole power block and the power connections for the mesh router and the modem. This picture shows the 15 amp fuse holder installed. The short Cat 5 cables were ordered online in 6 and 12 inch lengths. The red cable between the mesh router and the external connection on the left side was later changed to a two foot cable in order to route it behind the battery.

In the picture below, we show the case with the battery which was initially a sealed lead acid (SLA), and later upgraded for a LiFePo4 battery.

At time all I had bought were these items and was collecting the necessary parts to build the Anderson Power Pole power block and the power connections for the mesh router and the modem. This picture shows the 15 amp fuse holder installed. The short Cat 5 cables were ordered online in 6 and

The major components of this project are:

A Mikrotik Router Board flashed with AREDN Mesh software. Check the web site <u>www.arednmesh.org</u> for device compatibility, software and guidance.

- A 7-9 AH, 12VDC LiFePo4 battery.
- A Netgear LM1200/1300 cellular modem router.
- A 12VDC to 24VDC power module.
- A 12VDC to 5VDC power module with USB "A" sockets.
- Ethernet bulkhead connectors
- An dual Anderson Power Pole bulkhead connector
- A USB "A" to USB "C" cable
- Miscellaneous Ethernet cables in various colors.
- Anderson Power Pole connectors
- #12 solid wire
- Heat shrink tubing
- Electrical tape
- And of course the box!
- For this last component, consider the Harbor Freight Apache 2800 case.

A "Project within a Project"

A Power Pole distribution block was needed for this project, so instead of buying a completed power block, one was constructed. This ended up being its own "project within a project". As the pictures show, it had been a long time since Ted had used a soldering iron and it showed! There is a combination of heat shrink tubing and electrical tape used to insulate the completed power distribution block. The wire was #12 solid wire and the Power Pole connectors were all 30 amp tips. These photos show the step by step process of building a Power Pole distribution block for about \$7, which is a small fraction of commercial units.











As a first project for Ted, this was rewarding in that he was able to learn and apply skills and thoughts about what would make this project function and provide Internet access when the power is out. The addition of a switching power supply, solar power, etc. would allow this system to continue to function as long as the local cell phone tower functions. Further, even when standalone and absent an Internet connection, the Go Box provides a robust local area network (LAN) that can be extended by connecting an RF-based AREDN Mesh node on 900 MHz and 2.4 or 5 GHz. Internally, there is space for any number of application servers using Raspberry Pi computers. Ted wishes to thank Gordon for all the advice and assistance and Gordon is happy to know that Ted now has a useful tool for his family and the community. More exciting projects will likely follow!

Additional Pictures







Marion County Sheriff's Office Division of Emergency Management

COMMUNICATIONS UPDATE

July 2024

MERT's primary role is to support all open

<u>Evacuation Shelters throughout Marion County during de-</u> <u>clared Emergency events</u>. We also support EOC and emergency personnel along with Community Emergency Response Teams (CERT) with voice, image and data communications esources. "

Call MERT... When all else fails!"

MERT Monthly Meeting <u>The next meeting is on</u> July 20th @ 10:00 am. <u>All Amateur Radio oper-</u> <u>ators are Welcomed!</u>

Hurricane Season is here



Harlan Cook (KN4VRM) MERT

"NOAA National Weather Service forecasters at the Climate Prediction Center predict abovenormal hurricane activity in the Atlantic basin this year. NOAA's outlook for the 2024 Atlantic hurricane season, which spans from June 1 to November 30, predicts an 85% chance of an above-normal season, a 10% chance of a near-normal season and a 5% chance of a below normal season." NOAA 5/23/24

Ugh certainly not the sort of "news" anyone likes to learn!

With this update and consistent with revious years activities, members ramped up activities this spring verifying our equipment is ready and complete, conducted 8 Shelter inspections, identified any improvements or changes required and continued specific training in refamiliarization with our equipment. Another key action is revisiting our procedures and documentation insuring each is consistent with best practices and is up to date with the latest information.

I am especially proud sharing several members have made significant contributions who followed through and lead key events, classes and activities. My sincere thanks to each of you for your commitment to see we meet and exceed our Mission and Goals outlined by the Division of Emergency Management. My sincere thanks to all!

ARCK



Meeting Documentation Manager Position Open

We sincerely thank Gray Moffett (KC3DWY) for filling this position over the last 2 years. Gray's support included conducting our "MERT Annual Meeting Report" and the "Annual Highlights" Summary of 022 and 2023.

MERT needs YOU!

What does the Meeting Documentation Manager do? This individual completes an

annual report of the Annual Activity Highlights and conducts the Annual Meeting. If you can help for 5 hours **per year**, please contact the MERT Coordinator or Assistant Coordinator. **Thank You Gray for your great support over the last two years!**

Shelter Emergency Radio Kit (SHREK) Update

The faulty microphone cables and two headphones along with a couple missing connectors were replaced with all SHREK Kits now 100% stocked, radios reprogrammed, tested and ready for use.



Additionally, all the Kits have been moved in the MERT warehouse to the lowest shelf making them easier and <u>safer</u> to access in the future.

A big thanks to Gary Neron, Nick Kiddey and Ray Woody for the excellent teamwork in completing this relocation.

MERT SHREK Kit



Thanks to Gary Neron, Nick Kiddey and Ray Woody for the SHREK kit relocation for easier access & safety.

In coordination with the Marion County Public School personnel and Rob Morris (Division of Emergency Management & MERT Advisor), MERT Members completed eight Shelter Inspections & System Tests on May 29th, 2024.

Testing was conducted at eight (8) Shelters: Belleview High School, Forest High School, Liberty Middle School, Lake Weir High School, Madison Street Elementary, Saddlewood Elementary, Vanguard High School and West Port High School.



Gray Moffett KC3DWY





We thank Leon Jurcyszyn (K8ZAG) Technical Advisor & Past Coordinator and Pat Davis (KQ4BRW) Administration & New Member Manager for their leadership in helping organize, conduct and complete all the Shelter reports. Awesome job Leon and Pat!

Monthly Meeting – June 18th

MERT wants to thank Bill Gillespie, MERT Assistant Coordinator for leading the June Monthly Meeting. Some of the topics

included:

- A review of revisions to the uniform standards recently adopted;
- Spouse participation guidelines;
- Shelter inspection/testing results;
- Florida State Shelter status reviews;
- MERT repeater relocation into new communications building at the Sheriff's Office Complex;
- Receipt of the new MERT radio equipment supporting the MCC deployments,
- The arrival of the 2024 Hurricane Season and its challenging forecast.



Bill Gillespie (KW5BG) MERT Assistant Coordinator

Shelter Activation and Procedures Reference



All Members are encouraged to review the guideline for Shelter Activations located in each <u>Shelter</u> <u>Reference Manual</u>. The document outlines many important and relevant details in successfully operating from a Shelter and supporting the local Shelter Manager assigned to that school.

Learn more at: KG4NXO.com under the "MERT SHELTER Reference" - "3-Ring Binder Recommendations for Shelter

Operators" – "Shelter Activation Procedures (Revised Sept. 2023)" The following link will redirect you

https://kg4nxo.com/wp-content/uploads/2023/09/2023-Revised-Activation-Procedures-and-Recommendations-2023-09.pdf

Major MERT Upgrades and New Communications Building – Sheriff's Office Complex

Over the past two months, the Marion County Communications Dept has been in the process of upgrading the Sheriff's Office Complex tower and communications building facilities. MERT personnel were invited to participate in this major project which included a replacement of all of the antenna cables on the tower along with the MERT antennas supporting KG4NXO 2 Meter (VHF) and 70 cm (UHF) repeaters with the KG4NXO-10 Winlink Gateway on 145.630 MHz. It also included a complete replacement of the previous communications "hut" with a state-of-the-art new communications building.

This upgrade was the first in over 20 years and was conducted for multiple reasons. First, the radio operations for the County had changed significantly over the past two decades and various antennas and cables were no longer required. The County also needed to add new facilities on the tower to support the current operations.

"You have not lived today until you have done something for someone who can never repay you." - John Bunyan

As you would expect, projects like this are complex and require multiple groups,

agencies and contractors to coordinate the schedules and tasks necessary to complete the activity. MERT wants to thank Patrick Kirkowski, Technology Support Specialist with Marion County for his ongoing support and assistance in seeing Division of Emergency Management equipment supporting MERT activities was supported at every step of the project. We also extend a huge thanks to Preston Bowlin, Director of the Division of Emergency Management for his significant support and financial commitment in making resources available to replace two antennas (one damaged & one corroded) along with the additional cables and connectors necessary for activation.

MERT is now at the final phase where we can begin moving the radio equipment from the old location into the new communications building. We anticipate having everything moved and reactivated by the first week of July. Training classes will soon be created to

document our facilities along with support and circuit documentation resources.



NOAA/NWS "Mini-Doppler" unit will be added to top of tower soon.



Photo of tower before having old antennas and cables removed.



Photo of new antenna cable entry plate showing all four MERT cables. (Notice the huge grounding plate.)



Interior photo of new communications bldg. showing state-ofthe-art facilities with the interior lightning protection grid and high-capacity UPS.



Tower has had all old cables and antennas removed. Now ready for all new equipment.



(L-R) Phil Lewis and Harlan Cook review the new ultra-high gain dual-band antenna which will be installed.



(L-R) Bill Gillespie and Phil Lewis putting the new antenna together.

Inventory Update

This year's preparations included transferring spare cables and equipment out of some cardboard boxes and into new larger capacity storage bins having MERT identification.

The inventory identified spare hardware, cables and other resources necessary to backup MERT operations should any failures occur. We also grouped some equipment into a category of "needing retirement". Thanks to all the Members who supported the effort!

<u>A Special Note of Thanks to Kathy Oxendine</u> who happily photographed all the activities on June 26th. Thank You and Well-Done Kathy!



Cindy Sheffield detailing all MERT spare equipment.



(L-R) Hayden Kaufman and Gray Moffett inventory radios and electronic equipment.



(L-R) Dee Seagraves and Cindy Sheffield identifying and labelling every item.



Our new storage containers will better protect MERT equipment and improve inventory control.

PLEASE SPREAD THE WORD ABOUT THE MARION COUNTY EMERGENCY RADIO TEAM (MERT).

WE NEED NEW AND ACTIVE MEMBERS TO FULFILL OUR MISSION IN SUPPORTING ALL THE OPEN SHOOLS WHENEVER ACTIVATED FOR CITIZENS SHELTER AND SAFETY.

Learn more about MERT at.... KG4NXO.com

Effective 12:00pm ET / 16:00 UTC we will be returning Logbook of The World[®] (LoTW[®]) to service.

As work progressed on the network, some users encountered LoTW opening briefly during which some 6600 logs were uploaded.

The logs were not processed until this weekend as we tested that the interfaces to LoTW were functioning properly.

We are taking steps to help manage what will likely be a huge influx of logs. We are requesting that if you have large uploads, perhaps from contests or from a DXpedition, please wait a week or two before uploading to give LoTW a chance to catch up. We have also implemented a process to reject logs with excessive duplicates. Please do not upload your entire log to "ensure" your contacts are in LoTW as they will be rejected. Lastly, please do not call ARRL Headquarters to report issues you are having with LoTW. You can contact support at LoTW-help@arrl.org.

Through the end of the year, you may experience planned times when LoTW will be unavailable. We have been using this time to evaluate operational and infrastructure improvements we would like to make to LoTW. Those times will be announced.

We appreciate your patience as we worked through the challenges keeping LoTW from returning to service. We know the importance of LoTW to our members, and to the tens of thousands of LoTW users who are not ARRL members. LoTW, just behind *QST*, is our second most popular ARRL benefit. Copyright © 2024 American Radio Relay League, Incorporated. .

ARRL Foundation Club Grant Program – Application Deadline Approaching

Now is the time to gather your club members and start thinking about how you can improve the future of amateur radio — and we have funding available to help!

The ARRL Foundation is pleased to announce the return of the Club Grant Program for 2024. This is an opportunity for clubs to apply for grants up to \$25,000 to fund projects in areas that will motivate and develop active radio amateurs, with an emphasis given to projects that are of a "transformational" nature. Consider applying TODAY to support a project or activity from which your club would benefit.

Can your club create a plan to improve the active amateur radio community through education and training in, recruiting for, and promotion of amateur radio? This is for you! The application period is NOW OPEN and runs through Friday July 26, 2024 at 4:00PM Eastern Time. Clubs across the country are encouraged to apply, even if your club is not an ARRL Affiliated Club or not a 501(c)(3) organization—all are welcome to apply.

Grant recipients will be required to share progress reports and updates with ARRL. Information about the Club Grant Program can be found at:

ARRL Club Grant Application Submission Deadline: July 26, 2024—www.arrl.org/club-grant-program.

FCC Testing Information

Daytona Beach Amateur Radio Assn (DBARA)

Monthly, third Monday, 5:30 PM, prior to meeting
Lehman Building, Embry-Riddle Aeronautical University
Registration Required

Info: <u>https://dbara.org/testing/</u>

Hog County Amateur Radio Association, Bushnell FL

First Saturday, 11:00 AM
Cross Connection Church, 1451 West County Road 476, Bushnell, FL 33513
Info: sumterVE@gmail.com

Lake ARA, Leesburg FL

Monthly on the 3rd Saturday, prior to meeting. (Except December)
8:00 AM

- •LARA Clubhouse (11146 Springdale Ave, Leesburg off of CR 473)
- •For more information and registration, contact: Dave Templeton N4NG, 386-804-2806 <u>n4ng@icloud.com</u> in advance of the meeting.

Lake Monroe ARS FCC Testing, Sanford FL (LMARS)

- •Third Saturday of every month
- •Seminole County Sheriff's Office, 100 Eslinger Way, 1st Floor, Sanford, FL
- Registration Required
- •For more information and registration, contact Bob Cumming, W2BZY, 407-333-0690 or w2bzy@cfl.rr.com

Milton Amateur Radio Club, Milton FL

Check date at <u>miltonarc.org</u>
Walk-in
Bagdad United Methodist Church
Info: Chuck, N4QEP, merlinman3@yahoo.com

Orlando Amateur Radio Club

•First Wednesday

•5:30 PM, Walk-ins allowed

•ARRL/VEC

•William Beardall Senior Center 800 S Delaney Ave Orlando FL 32801.

•Info: testing@OARC.org Robert Cumming, 407-333-0690

Santa Rosa County FL ARES[®] Testing (Walk-in) •Information and dates can be found at <u>srcares.org</u>

Testing information is subject to change. Check with the testing venue to confirm the testing session and requirements.

Seminole County

•Every month on the third Saturday

- •9:15 AM
- •Seminole County Sheriff's Office off SR 17-92, on 100 Eslinger Way in Sanford, FL
- Info: Bob Cumming, W2BZY, <u>w2bzy@cfl.rr.com</u>

Silver Springs Radio Club, Ocala FL (SSRC)

•Go to http://k4gso.us/class/ to signup for classes

- •Go to <u>http://k4gso.us/test-signup/</u> for testing. Testing is held on the 2nd Tuesday of odd months at 7 PM.
- •Note <u>http://k4gso.us/ncvec605/</u> is requested to be filled out before you show for testing. It is best to download the form and open it as a PDF so you can fill in the blanks.

Suwannee ARC, Live Oak, FL

Last Saturday of the month
Suwannee Regional Library
Contact Gerald Guy, <u>geraldlguy@gmail.com</u>

Tallahassee Amateur Radio Society (TARS)

The Tallahassee Amateur Radio Society (TARS) has begun limited License testing. Please refer to the following for the updated testing dates and requirements for individuals wishing to take exams. <u>https://www.k4tlh.org/getting-started/</u> <u>license-testing</u>

West Volusia Amateur Radio Society

•Second Saturday of each odd numbered month •6:00 AM

•St. Johns Lodge #37, 2557 N. Spring Garden Ave, Deland FL •Info: <u>https://westvars.org/testing</u>

Gainesville Amateur Radio Society

- 1st Saturday of even numbered months
- •Tech day two weeks after testing
- •https://gars.club/Testing.html

Statewide Digital Radio Resources

Did you know we have designated ARES[®] DSAR Reflectors & a DMR Talk group?

· DSTAR Reflector 046

o REF046A – Florida Statewide o REF046B – NFL ARES[®] o REF046C – NWS Mobile, AL SKYWARN · DMR Florida State ARES[®] TG 31127

Feel free to link your local repeaters to help create a digital repeater network through the state!