From the Shack of the Section Manager
Scott Roberts, KK4ECR (kk4ecr@gmail.com)

The mission of the ARRL is to **advance the art, science, and enjoyment of Amateur Radio.** This is accomplished through 5 pillars: The ARRL Five Pillars consist of **public service**, **advocacy**, **education**, **technology**, and **membership**. These pillars have been used in our materials and information to support other guiding principles, as a rallying call, and to define the organization. Each pillar underscores ARRL's broad authority and association as Amateur Radio's witness, partner, and forum.

Let's look at the next pillar this month: Advocacy.

The American Radio Relay League (ARRL) has been serving as the national association for Amateur Radio Operators in the United States since 1914. The organization has been actively advocating for the rights and privileges of amateur radio operators, also known as "hams," to ensure that they have access to the airwaves and can enjoy their hobby without undue restrictions.

First and foremost, ARRL serves as a voice for the amateur radio community. The organization is constantly engaging with government agencies and other stakeholders to ensure that the interests of amateur radio operators are represented in policy decisions. For example, ARRL has been actively lobbying the Federal Communications Commission (FCC) to allocate more spectrum for amateur radio use, especially in the higher frequency bands.

ARRL also provides technical expertise to policymakers and regulators. The organization has a team of engineers and experts who are well-versed in the technical aspects of amateur radio operations. This expertise helps to ensure that policymakers and regulators make informed decisions that do not unduly restrict the use of amateur radio equipment or interfere with the enjoyment of the hobby.

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904-759-7812 — Cell
904-602-9576 — Direct to Shack

Another way that ARRL acts as an advocate for amateur radio operators is by providing support in times of crisis. Amateur radio operators have a long history of providing emergency communications during natural disasters and other emergencies. ARRL works closely with government agencies and other organizations to ensure that amateur radio operators are prepared to provide emergency communications when needed. In addition to its work in the United States, ARRL also plays an

Continued on next page...

What's Inside

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*
Marty Brown, N4GL

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. [www.*ARRL-NFL.org*](www.ARRL-NFL.org) Opinions expressed by contributors are their own, and may not express the positions of the ARRL.

Submissions may be made to the editor: Marty Brown N4GL.MARTY@gmail.com.

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*!
[https://arrl-nfl.org/wp-content/up-loads/2021/12/2021QSTNFLIndex.pdf](https://arrl-nfl.org/wp-content/uploads/2021/12/2021QSTNFLIndex.pdf)

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important role in the international amateur radio community. The organization is a member of the International Amateur Radio Union (IARU), which represents the interests of amateur radio operators on a global scale. ARRL works closely with the IARU to ensure that the interests of amateur radio operators are represented in international policy decisions.

Overall, ARRL plays a critical role in advocating for the rights and privileges of amateur radio operators. By working closely with government agencies and other stakeholders, ARRL helps to ensure that the interests of amateur radio operators are represented in policy decisions at the local, national, and international levels. As such, its advocacy work is essential to the continued growth and enjoyment of the hobby.

Section Updates

I want to thank everyone who took time to participate in the Florida SET on April 22. We had amazing participation. I also want to thank Arc Thames for all of his hard work in planning the exercise. We learned many great lessons to get us better prepared for hurricane season this year.

I will be speaking at the DBARA Club General meeting on May 15th. They will be meeting at their new location at Embry-Riddle Aeronautical University.

I would be honored to speak at your club meeting. Please feel free to contact me with dates and times.

73 to a Great Man – Steve Szabo

Steve Stephen Szabo, WB4OMM ex WN2TAW from Port Orange, Florida, USA passed away 23 April 2023.

Information received from Kevin Bess, KK4BFN:

It is with deep regret that I must report the passing of my good friend and Elmer WB4OMM, Steve Szabo. He passed away peacefully Sunday morning on 23 April 2023 surrounded by his family. Steve was a Captain with the Daytona Beach (Florida) Police Department, having started with the department in 1994. He rose through the ranks in different roles and positions, achieving the rank of Captain in 2004. He retired from full-time service in 2010 but remained active in the department until he fully retired in 2021.

Steve was a member of the Daytona Beach Amateur Radio Association, serving as President (1992-1996,1999-2003); Vice-President (1998); Director (1990, 1991, 1997); DBARA Ham of the Year (1995, 2009), President's Award (1996, 1997). Association Secretary (2004). Former DBARA License Trustee (K4BV) and Association Treasurer (2011-2012). In 2005, he started the Daytona Beach CERT Amateur Radio Team group and had been very active in the club as President until he stepped down due to illness in early 2023.

Steve was an avid contester, belonging to several clubs. He was a ARRL Life Member and served as the Northern Florida Section Manager for four years from 2014 to 2018. He will be missed by many. https://m.facebook.com/story.php?story_fbid=pfbid02mDcMWmYrcNsTpU5rADKiXYRMe8ra3ZM2fVZ1weXR97cGZVzfZR2gnKVCePq

NFL Section Member of the Month - Randy Pierce, AG4UU - *May 2023*

Randy Pierce AG4UU has been a highly respected member of the Tallahassee Amateur Radio Society (TARS) for over 30 years. Randy is a family man - an excellent father and husband - who knows how to successfully balance the activities and duties of ham radio without neglecting his family affairs. He also served his country for a total of 28 years (8 active; 20 reserve) as a member of the US Navy and retired as a chief petty officer in 2003.

Randy's most outstanding contribution to the amateur radio community has been in leading the development and maintenance of Florida's Statewide Amateur Radio Network (SARnet) system. He also monitors numerous TARS repeaters in the Capitol District area. Randy's tenure as the TARS repeater trustee began in 1992, and he has conscientiously held that responsibility ever since. Over the years, Randy has expanded the club ownership of repeaters in Tallahassee. His faithful attention continues to improve the repeater equipment quality and reliability.

Randy also mentors many new hams, always willing and ready to give a helping hand or offer advice. If he is not knowledgeable in a specific area, Randy will identify, and enlist the support of, the appropriate contact person who is able to provide the necessary information. Randy also participates in many events promoting amateur radio. Most recently he operated a vintage transceiver at TAR's information booth during the National High Magnetic Field Laboratory Open House in February of this year. When Randy cannot attend an event in which repeater usage is crucial, he still surveils communications and quickly responds to resolve any repeater issues that may arise. In previous Field Day events, he has donated the use of his personal camper for a station site. Randy served as auctioneer at the TARS auction last year and is volunteering to repeat that function for an auction to be held next month.

Overall, because he exemplifies the Radio Amateur's Code and sets a wonderful example for new hams, we, the undersigned, are happy to nominate Randy Pierce for the North Florida Section Amateur Radio Member of the Month.

Respectfully submitted by,
Christopher Pandolfi KO4DN, TARS President, Phil Fusilier KA4US, TARS Vice President, Todd Clark KN4FCC, TARS Treasurer, Adrienne Hendrix AJ4D, TARS Secretary

Submit your candidate for NFL Section Member of the Month!

NFL SM, Scott Roberts, KK4ECR, recently introduced the "**NFL Section Member of the Month**" series, to recognize an outstanding member who has gone above and beyond to further our great hobby.

If you know someone who deserves recognition, please submit their information to Scott at, kk4ecr@gmail.com, or SEC Arc Thames, W4CPD, arc.thames@srcares.org. Please include name, call sign, the name of the club or group, the name of the person making the submission, a description of why they deserve to be the NFL Section Member of the Month, a photo of the person, and a bit of background.

From the Section Emergency Coordinator

Arc Thames, W4CPD

Our 2023 statewide communications exercise, Service Denied, was a resounding success. Over 30 county agencies ranging from Emergency Management to Fire Departments and Sheriffs Offices participated across the state from Escambia County as far south as Miami-Dade County. To my knowledge, this is the largest participation in a statewide auxiliary communications exercise to date. Regardless of whether an agency utilized ARES, RACES, or AUXCOMM, all communicators were able to participate in testing their communications abilities to and from the State EOC.

The exercise, written using HSEEP (Homeland Security Exercise and Evaluation Program) format, presented to the participants that all traditional communications methods such as landline, internet, and cellular were down requiring the use of auxiliary communications methods such as amateur or SHARES radio. Participants were allowed to utilize only voice and Winlink messaging. Over 160 messages were passed to the state EOC alone. We're still gathering data from the participants to have a full message count but, safe to say, an incredible number of messages were passed.

Supported by the various traffic nets in the state, practice health & welfare messages were also passed via Winlink and over voice nets. The practice of sending health and welfare messages has always been one of the services that amateur radio operators can provide to let the friends and family of people in an impacted area know that they are ok following a disaster.

Participants received injects, surprise additions to the scenario, for the exercise that offered them the opportunity to test capabilities such as emergency power and the loss of an antenna. Many of the participants said that having this opportunity has pointed out to them some of the areas in which they can improve or better prepare. These scenarios also provide a wealth of information to the served agencies of these communications teams so that they can help provide the equipment and resources needed to be prepared for "when all else fails."

I would like to thank all the communicators that participated for taking time out of their weekend to test their capabilities to be better prepared for when disaster strikes. I'd like to thank Leland-AA3YB, for his help in preparing and acting as the Assistant Exercise Director. Lastly, I'd like to extend a HUGE thank you to our State EOC staff communicators that were on-site and opened the State EOC on a Saturday for us to be able to test our communications with them.
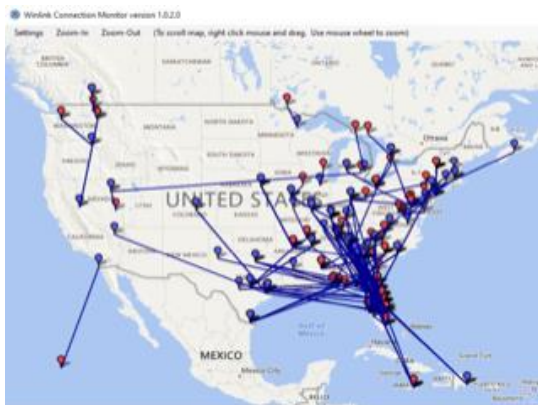
A screenshot showing the large amount of Winlink HF connections the morning of the exercise

Section ARES Report

In March our section reported 1,027 hours of volunteer time to various ARES duties within our section. Thanks to the counties and EC/AEC's for reporting their time. The information provided by our team is consolidated and then forwarded to the ARRL.

	Number	Person-Hrs
Exercises this month:	2	63.00
Training events this month:	7	84.00
Public service events this month:	1	23.00
Community service events this month:	5	367.00
Emergency events this month:	0	0.00
SKYWARN events this month:	5	30.00
Meetings this month:	18	251.00
Unclassified events this month:	106	209.00

Call signs of DECs/ECs reporting:
KN4PFZ K4SOP AI4NF W4KKJ W4CJB KK4ECR WE4MJ N4JTK WA4MN KO4YOL W4RFJ K4BJS KM4BTW KO4KUS W4CPD

The ABCs +1 of Effective Radio Communication

Joe Bassett - W1WCN, Assistant Section Manager for Training

The purpose of a directed net is to exchange actionable, pertinent information effectively. Please notice the use of the word effectively instead of efficiently. It's true that effectiveness always includes an aspect of efficiency, but the inverse is not always true.

Please allow me a (true) parable.

I was once part of a net which was operating in response to the impending landfall of a hurricane. Net control, operating at the county EOC, had opened the net and ham operators at each of the shelters had checked in appropriately. The net quickly settled into a routine of shelter report traffic transmitted at or near the top of each hour.

Following this well founded routine the net control operator keyed his mic and called for "stations with traffic." Immediately an unfamiliar station transmitted their call sign with no further information. Of course, replying to a net call in this way is perfectly acceptable, but it was out of the ordinary for this specific net at this time. Three shelter operators then replied with their tactical call signs and their traffic listings which included the count of messages to be transmitted, each message's precedence (all routine) and destination.

With no indication that any one station's traffic was a higher priority than any other the net control operator followed common protocol and called the unfamiliar call sign first, because they were the first to answer the net call, and asked, "Is this formal written traffic?" The net "newcomer" replied, "No, but I do have information for the net." Without un-keying his mic the newcomer then regaled everyone on frequency with advice and best practices for how to prepare a motorcycle for a hurricane. This operator was evidently familiar with the settings on that particular repeater because he would unkey after just shy of three minutes to avoid "timing-out" and then immediately rekey to continue his diatribe. This continued for about twelve minutes before the operator politely and mercifully concluded with , "Back to you."

Was this station's behavior or operation in violation of Part 97? Certainly not. Was it in some way an egregious breach of procedures? Not at all. Sure, there were some omissions of information, but nothing that couldn't be corrected "on the fly." Should he have been rebuked and corrected by another station on-frequency? Absolutely, positively NOT! Once he relinquished the frequency the net control station politely thanked him for the information and then continued with the net.

Was the information accurate? Yes, being a rider myself I found it informative. Was it brief and concise? By and large, yes. The operator provided twelve minutes worth of information in about twelve minutes without repeating himself or using filler words such as "um," "like," or "you know."

Was it efficient? Yup. He transmitted a large amount of accurate information in a relatively short period of time.

Was it effective? Not by a long shot. It's true that the transmission contained accurate and interesting information, but it was far from relevant, actionable, or valuable to the operation of the net. In fact, it prevented pertinent information from being passed in a timely manner.

Before transmitting information on a directed net ask, "Is this Accurate, Brief, and Concise…plus R.A.R.E.?"

R - Relevant
A - Actionable
R - Reliable
E - Effective

Next month we'll explore what R.A.R.E means.

Suwannee County ARES® News - April 2023

J. Gordon "Gordie" Beattie, Jr., W2TTT
w2ttt@att.net

Well this has been a busy month of April here for Suwannee County ARES! We have a relatively small team, but folks are working around health, family and work issues to cooperatively accomplish more than we could have done by ourselves. Like all small counties here in the North Florida Section, we have a small population of active Radio Amateurs, many with health issues, many with work obligations and all with family and personal challenges. Having said that, we managed to participate in a good number of daily and weekly nets, made a solid showing in the "Service DENIED" SET exercise, boosted our capabilities with WinLink, mentored our colleagues in Madison County to help them enhance their already excellent capabilities, and we upgraded our repeater coverage.   Here are some details.

1. We had a full month's on-site staffing of the EOC on Wednesdays for the morning Section ARES Net on 3.950 MHz and only missed one Statewide County and Agency Net on SARNET.   We all took turns and had quite a solid showing during the month.

2. The "Service DENIED"-themed SET exercise took a team effort from a relatively small group of operators, but it highlighted the embedded resilience of the team. Our EOC and the two remote stations participating all had standby power, antennas and radios sufficient to seamlessly flow through the deprecating injects that were built into the exercise. Because we only had three operators and stations available, we divided all the roles among us. Mike Meador KM4BTW, our EC manned the EOC station KK4RQY, Joe Kelman KI4TRR our AEC manned his home station and Gordon Beattie W2TTT manned his home station. We divided the role playing as follows:

- KM4BTW/KK4RQY EOC
- KI4TRR Hospital and POD
- W2TTT Shelter and digital outlet for EOC

Most of the traffic from the Hospital, POD and Shelter was sent by WinLink and through RMSs. We wanted to experience that challenge, but a more practical approach in a real-life event would be to use WinLink P2P (Peer to Peer) mode except when we needed to get traffic to the State EOC in Tallahassee.

We also had to address a gap in functionality with a bit of planning. Specifically, the EOC has only one HF radio with multiple antennas, but the computer that allowed us to use WinLink was not in service. To cover this, we planned to use our local Resource Net on 2m to communicate tactical messages to a remote station that had WinLink capabilities. Because we were a small operation, we also used the local Resource Net to exchange tactical messages. In the event of a failure of the repeater or excessive traffic, we had planned to use another repeater and an array of 2m simplex channels for these nets.

Accuracy and speed are competing forces, but with experienced and trained operators, the essential details can be communicated to or from the EOC and embodied in an ICS-213 or ICS-213RR efficiently and with accuracy. So for example, when messages had to go to the State EOC, or out to a net that would take Health and Welfare traffic, the remote station would format the message and move it. Gordon Gibby KX4Z had disconnected his WinLink RMS station from the Internet, but it did forward the messages we posted there on HF and we received replies. Later, we did not have a path to KX4Z and had to search out RMSs to take our traffic. This was frustrating and caused delays. To solve this, we made good use of the WinLink "Autoconnect" feature.

Another aspect of the exercise was that we have created a permanent SOP for team "ALERTING" (NOT Activation) that addresses the case where there is no wireline or wireless service available. When there is "nothing heard", we will be calling out on specific frequencies and times to get folks into an Alert status until things settle down or get escalated to an activation.

3. In Alachua County, the North Florida Radio Club embarked on an ambitious program to bring folks up to speed using WinLink and to understand its features. Led by Reid Tillery K9RF, and assisted by Gordon Gibby KX4Z, they have created a four-part syllabus consisting of three one on one sessions 101, 102 and 103 for the user features and a group session 201, on running an RMS. They called this program the "WinLink Academy" and Reid issues certificates for each level completed. Earlier this month, Gordon W2TTT was tutored by Reid in the 101, 102 and 103 levels and is now up and running.

In preparation for the SET exercise, Gordon and Joe Kelman KI4TRR were able to exchange messages and together, they worked out a naming convention for the different types of addresses in the Contact List. Gordon is also now a WinLink Academy Instructor. If you need help with WinLink or would like to spend a few enjoyable hours "playing radio" while really learning this mode of operation, contact Gordon W2TTT.

4. Gordon has since trained Jim Shanklin K4DBC to a 101 level and now Madison County is up and running on WinLink. The model of one on one training, while labor intensive, is efficient in its productivity. The syllabus that Reid has set up is easily

reproduced and shared and that is one of his stated goals. It's basic "Elmering" or mentoring in Amateur Radio - we all need to do more of that in this ARRL Year of the Volunteer! http://www.arrl.org/files/file/QST/This%20Month%20in%20QST/2023/01% 20Jan%2023/EDITORIAL%20%20JAN%202023.pdf Jim also spearheaded Madison County's participation in the SET exercise and had good participation!

5. The 145.27 W2TTT repeater got a bit of a boost this month with an improved antenna and some parameter tweaks that have made useful coverage better. For those who may not recall, this is the old W1QBI repeater restored to service in Suwannee County. Its offset of -600 kHz, tone of 123.0 Hz and three minute timer are all the same. It provides Suwannee County with a welcoming, conversational meeting place on the air. All are welcome!
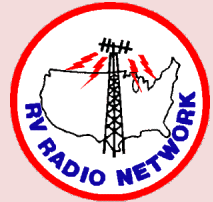
Well, that's all that's been going on here!

RV Radio Network (RVRN)

Chuck Cole, K4TzO

My interests probably aren't mainstream for them or outside Florida, but the Ham RV nets, DIY, and stuff look interesting. They list online networks and rallies all over. Perhaps some will be interested, even if their RVs stay parked!

From the ARRL web site:

The RV Radio Network (RVRN) is an ARRL affiliated association of Amateur Radio Operators who share an interest Recreational Vehicles. Here you will find information about rallies, hamfests, radio nets, and other activities of interest to the members of our club.

We invite all Amateur Radio Operators with an appropriate FCC license to participate in the ***RVRN 40m net*** *on about 7264 KHz at* ***7:00 pm*** *Central Time Sunday through Friday, and in our* ***Multi-mode EchoLink net*** *each Thursday at 8:00 PM Central Time on the *SELINK* node.*

https://rvradionetwork.com/

Loften High School Grad Makes the NFL

Bob Lightner, W4GJ

One of our graduates, Gator Quarterback Anthony Richardson, was drafted by the NFL in the first round of the 2023 Draft. He operated K4WTL when he was a student. $35 million is a good haul!

Five Flags ARA (FFARA) Participates in International Festival
Gene Bannon, KB4HAH

The Five Flags Amateur Radio Assoc (FFARA) was invited to have a booth at the Pensacola State College (PSC) 1st Annual International Festival on Apr 15th. This was initially was a bright breezy warm sunny day. With Skip-N4XXO, Esther-KQ4EUM, Gene-KB4HAH & Gene's Granddaughter (Hadley Krantz) operating/manning the station/booth. The Festival was scheduled from 11AM to 6PM at PSC main campus large parking lots. It was a very lively event with lots of stage performances & other various activity and food stations for all ages to participate in. The FFARA sat up Gene's-KB4HAH portable go-box with a FT-891 for HF connected to a 10 meter mag mount hamstick mounted approximately 7-8ft up on a nearby Dickie Dumpster container, and a Kenwood D-710G for VHF/UHF operations connected to a 2 element Quad antenna mounted on a portable mast assembly about 15 ft up. We made several local and DX QSO's including New Zealand, the Yukon Province of Canada, Tulsa, Oklahoma, and even Pensacola, FL (approximately 4 Miles away) on 10 & 12 meters HF. We had several folks come and look at our station, including Skip's-N4XXO QSO on 10 & 12 meters, with George-W4BGG who's home station was just 4 miles away. George drove up and end up with an Eye-ball QSO with us as well. We had several folks who came up and asked about the PSC's Amateur Radio class and how they could get their Amateur Radio License as well. We had one lady come up and stated she had been looking for an Amateur Radio class in the Pensacola Area and was glad to hear that we will be conducting a class during the Fall term (Sept12 - Nov 17th) of this year.   All was going well, *UNTIL* (dramatic music: daut-daut-dun) a cold front came roaring in about 3PM. This front came in what was later confirmed to have 40-70 MPH straight line winds and large rain down pours. It blew over the Festival's main 40 x 20 ft dining/eating canopy among several other vendors small canopies. All the festival's other stage performances were IMMEDIATELY canceled and the festival commenced a mass evacuation of all guests and vendors. Luckily, no casualties were reported. We were watching this front approaching our area with our cellphone and laptops connected to PSC Wi-Fi network, and commenced our demobilization ahead of the front's arrival. By the time the front came roaring in, we had secured our operations, demobilized, and had left the area. Here are several pictures of our operations.
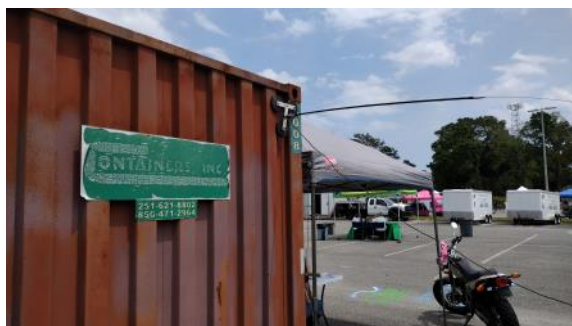
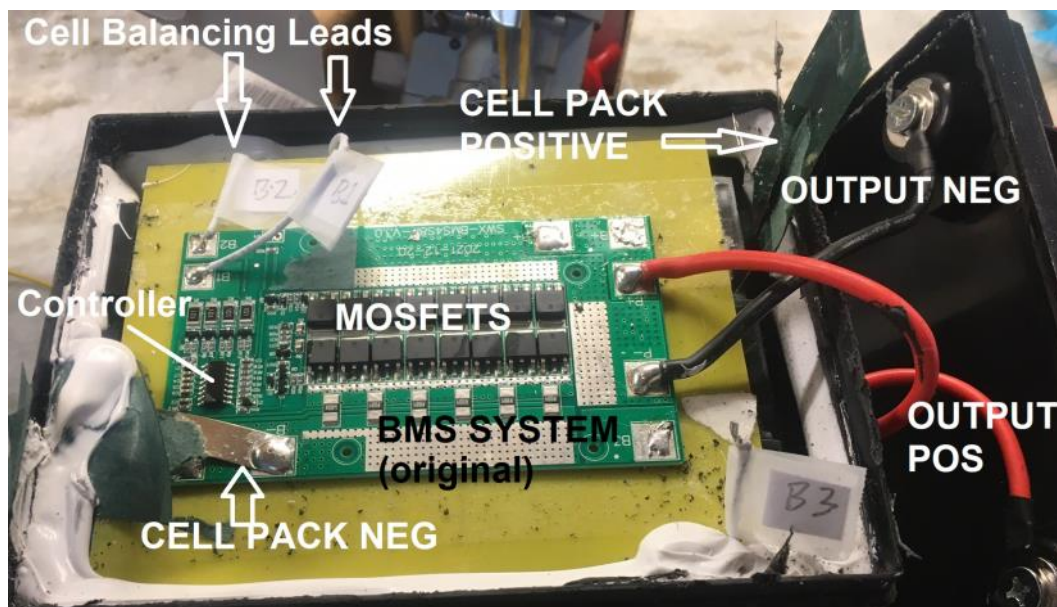*10 meter ham stick*

Skip-N4XXO in QSO

KB4HAH gokit

W4UC operating station

Replacing Blown LIFEPO4 Battery Management System for $7

by Gordon Gibby KX4Z

Lithium Ferro Phosphate battery packs offer many advantages over traditional lead-acid systems, and the price for nominally 12-volt systems has come down to around $4/AHr. Their output voltage holds up more strongly than lead-acid batteries, and they promise thousands of recharge cycles, compared to hundreds for lead-acid or sealed lead acid batteries. They are also much lighter in weight than lead-acid batteries, and have much lower self-discharge. Despite their higher price, the great improvement in number of recharge cycles and the stronger, flatter voltage during usage (typically maintaining >12.8 volts for most of the discharge) make them a more enticing choice for many amateur radio purposes. Our Alachua County club has used Bioenno and Dakota brands for funded efforts, and we've had success with Miady budget-priced batteries for personal use. I purchased a 36-AHr Miady brand battery from Amazon before Christmas as a "present" to myself, at $155. ($4.30/AHr) https://www.amazon.com/gp/product/B089SDC497

While the LIFEPO4 chemistry hasn't had the ignition/fire problems that "lithium ion" earlier technology has had, these batteries usually include a solid-state Battery Management System which manages both charging and discharging to avoid damaging conditions.   However, that's what got me into grief. After setting the new big battery with its beefy terminals aside, in March I had the idea to see if it could run a cheap 12-volt electric drill which had a dead nickel-cadmium battery.   A bit of soldering and power pole connectors and I gave it a try! One little "oomph" from the drill and everything QUIT. The output voltage of the LIFEPO4 battery now measured only 9.something volts.   Disaster! Looks like I've destroyed something, either with excessive startup current or some "back-EMF" from the inductive startup of the electric drill.   One of my worst "money saving" adventures ever.

After the initial shock/disappointment, I resolved to try and fix this catastrophe. The battery was out of its "30-day" warranty, and besides, I had a suspicion that I was the cause, not a defective battery.   Time to learn something about battery management systems!   This article: https://www.renesas.com/us/en/document/whp/battery-management-system-tutorial was extremely helpful.

Using a hacksaw, I carefully sawed through the narrow sides of the case at the plastic "weld" and easily got inside to find an obvious BMS insulated from a pile of LIFEPO4 cells by a plastic plate.   Just as the tutorial article explained, there were lightweight wires coming from "B1", "B2", "B3." There were also large flat strips corresponding to NEG and POS for overall cell pack. A bit of probing with a voltmeter indicated the cell wiring was as shown in the nearby schematic, with the POS
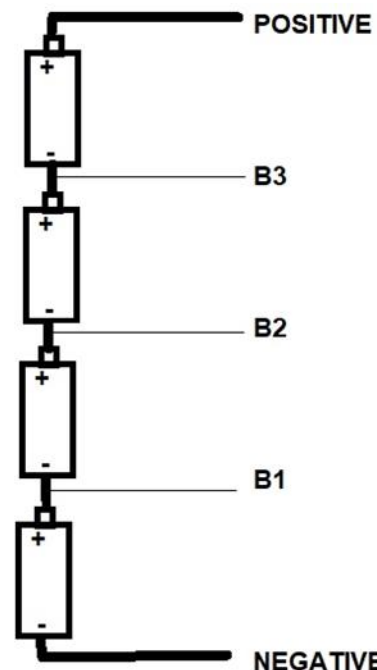
and NEG straps providing the final connections to the lowest and highest series cells.   The B1, B2, B3 wires appeared to be about AWG #22, so they are likely used only for sensing and small-current "balancing" of the pack.

All the voltages were correct (about 3.3 volts DC across cells) except for B3-to-POS.   This was showing NEGATIVE 0.5 volts.... Had I reversed an entire cell set?   Surely this couldn't be "good" for the expensive battery!   I set about to indvidually "recharge" the top cell using a small power supply.   Trying voltages from 3.0 to as high as 4.5 VDC for several hours, I found the connections accepted only about 20mA -- and the apparent "reversal" was NEVER fixed.

The Battery Management System has several purposes:
1. Disconnect the battery from charging when any cell layer reaches full charge to avoid damage. (This is done by turning off a series MOSFET between the battery terminals and the actual cells, likely the huge SMT MOSFETS visible on the BMS.)
2. Disconnect the battery from service when any cell layer reaches a dangerously low state of charge, to avoid damage (also handled by a series MOSFET in the battery terminal wiring)
3. Shunt current around cell layers, or feed current as desired preferentially to some cell layers in an attempt to equalize the charging of cell layers.   Judging by the specifications of typical BMS and the size of the #22 wires, this is done at a low current, not in the Ampere range.

The apparent "reverse charged" cell layer appeared to be some artifact of the BMS system, which was still connected to the cell pack.   I took a chance and simply unsoldered all the wires from the BMS -- and hooray! the top cell
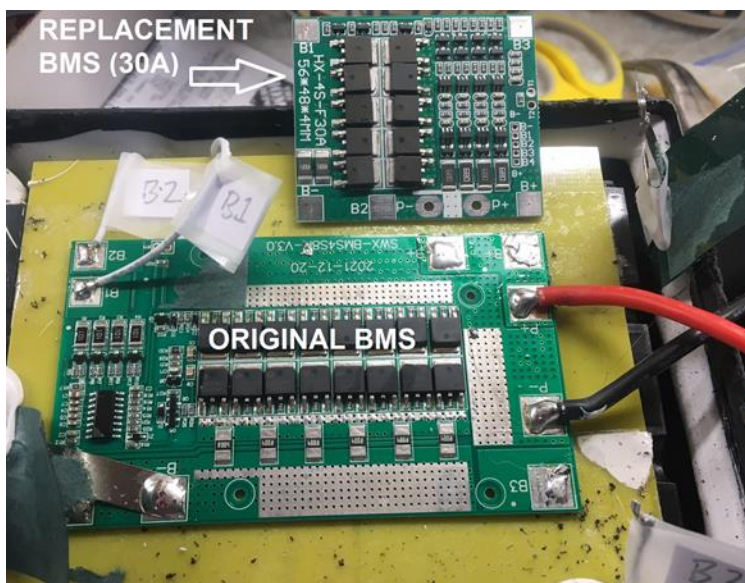
layer now measured a normal 3.3 volts.   The actual voltage from the POS and NEG leads BEFORE entering the BMS was a normal 13.x volts.   Cells are OK!   I can't fully explain the measurements with the BMS in place.

There are many choices for replacement BMS systems on Amazon. "4S" refers to 4 series layers of cells, as in my nominal 12V battery.   The maximum charging and discharging current is also specified for various choices.   I picked a modestly priced unit that claimed up to 15A charging rate and up to 30A sustained output (plenty to run an HF transceiver) and peaks of 60A discharge. https://www.amazon.com/gp/product/B07T6LQC8Y   Although likely less capable than the massive BMS originally in the battery, it does what I need to run one ham transceiver easily.

This unit has solder terminals with similar labeling as well as a modular connector that appears to provide for exactly the same connections, and also has connections for battery negative and battery positive, and then for output positive and output negative.

How to connect?   When does the "state machine" inside become active?   Would it do something untoward while being connected?   I chose to solder without delay starting from the battery negative and working my way "up" the cells to B1, B2, B3 and finally the battery positive.   And that last strap, spot-welded to the parallel straps between cells, chose to fall off when I manipulated it!   I very carefully soldered new wires to the strap paralleling the final cell layer, between cells.   Thankfully the straps eagerly accept solder.   CAUTION: **There is a LOT of energy in these cells when charged, so one should work carefully and completely avoid loose wires making dead shorts that could easily cause a fire or worse.**

The output of the BMS immediately was 13+ volts, and the layers all had "normal" cell voltages.   The pack appeared still near full charge.

TESTING: I used the pack first on a VHF transceiver for two net sessions and it worked perfectly. Afraid to put any untoward loads on it, I chose to use ham gear to discharge it instead of a car headlamp. It ran an ICOM 718 / Pactor Modem / Antenna Tuner in my SHARES RMS for about 24 full hours (like watching paint dry....) and finally disconnected itself. Removing the load, the open circuit voltage of the BMS output was around 10.2 V as expected. I then tried charging characterization using a variable voltage MFJ 25A power supply, carefully adjusting the voltage. The pack would eagerly accept many amps of current; I adjusted for 5A, and had to readjust every few hours as the battery pack quiescent voltage rose. With more confidence, I experimented toward the last and found it could indeed accept up to 15A and I finished out the charging at 7.5 Amps, with no ill effects of any type. The BMS dutifully disconnected from charging somewhat later, leaving my charger at an open circuit voltage of 14.6, and the battery open circuit BMS output measured 13.8 -- the expected "100% State of Charge" output.

CONCLUSION: There are many levels of quality/features in available BMS circuitry. Some include advanced parameter measurement, "gas gauges" and can even connect to a cell phone using blue tooth reporting. A less capable, inexpensive 30-A discharge-rated BMS appeared to work fine for my application. Cheaper BMS systems do NOT appear to be protected against short circuit or high reverse voltages (as from inductive loads). Adding a series fuse might help (no guarantees as MOSFETS can concentrate current in a "hot spot" and blow quickly) and adding a TVS diode to clip massive over-voltages and any reverse voltage might improve protection from inductive loads or EMP induced voltages. The expensive part of a LIFEPO4 system is the cell pack -- the BMS is relatively inexpensive and can be replaced by an amateur radio operator of reasonable expertise. A spare BMS is less than $10 and might be a wise purchase for a battery system that may have over 2000 cycles of life!

Alachua County ARES®/NFARC Update

by Gordon Gibby KX4Z

We had one of our larger attendance meetings in April! Counting Zoom and in person, we hit 21 persons, perhaps driven by interest in all the EXERCISES and activities we have been having and are set for! I had trouble keeping the comments short with so many different reporters and leaders on 14 different topics, so the meeting went almost 3 hours!

By the time you read this, all of us have already participated in the wonderful All-Florida HSEEP Exercise "Service Denied" created principally by Arc Thames W4CPD, SEC. What a great exercise! I was out of town and Leland Gallup was helping Arc, so it was a great chance for additional leaders to step up and they did! Jeff Capehart W4UFL and Susan Halbert achieved ARES(R) Level Two and Alachua County EOC Level 2 prior to the exercise to enable them to help effectively staff the EOC during the Exercise. They were the local Exercise Directors and I hope they will report separately on the exercise and their AARIP. Great exercise! We had great participation from both ARES(R) and the GARS group as well.

Figure 1: Deployed Position, 2023 SET

Next, we have an HSEEP "Functional Exercise" put together by the Gainesville Area NVIS Net, principally Reid Tillery K9RFT. That comes May 20 - see https://qsl.net/nf4rc/2023/NVIS-VHFGTMOFunctionalExercise.pdf This exercise stresses some of our internal portions of our Alachua County volunteer backup comms plan. Hooray for Reid! He has been teaching Winlink classes (101, 102, 103) to a ton of interested volunteers in Alachua County.

Jim Bledsoe KI4KEA, our PIO for Field Da**y**, scored a big win with a Ham Radio Proclamation from the Alachua County government, and hams will be on hand to pick it up (on TV!) in June. He is ready to go with all kinds of publicity for our Field Day where we will be right at a popular soccer field county park and have great visibility.
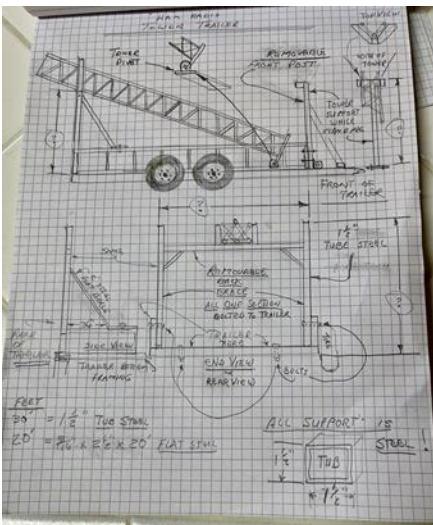

Figure 2: Tower Trailer Plans

Stewart Reissener KK4DXF is ready to start turning an older equipment trailer into a base for an AlumaTower that was given us.   After a lot of discussion and great ideas, we voted to proceed on this ambitious project -- Stewart indicated a week later that he has most of the steel to begin production.   This will be the first TOWER our group has had.   As with most of our gear, the "club" owns nothing; private parties handle upkeep and insurance

Steve Panaghi KC2ASY is just volunteering for any and everything.   He has put up a new WordPress Web for us (https://nf4rc.club/) which already looks great, and we are beginning to move material over to it and learn how to use it.   Steve also volunteered to head up the "Sustainability" portion of our 3-year training plan, working to help our volunteers be able to keep on keepin' on for at least 2 weeks despite all kinds of deprivations.

In addition to Reid's entry-level WINLINK classes, I taught a "train the trainer" type Winlink course on how to set up and understand the nuances of both VHF and HF RMS stations.   4 people drank in 2-3 hours of knowledge.

Our Field Day plans (we got whupped by Columbia County last year!) are barreling forward.   Fire Chief Kevin Rula-paugh KE4NVI says for sure we will have the MARC Unit Region 3 tower and we have 2 VHF and about 5 HF anten-nas planned.   Oh my!!   Reconnaissance teams have come up with plans and assets are being procured. https://qsl.net/nf4rc/2023/FieldDay2023/ICS201GLG2023.pdf We plan 4F + GOTA + Free VHF -- so we will have PLENTY of seats for new-comers to sit down and get into action.   Plus we have big plans to meet and greet the public and explain the wonders of how America allows ordinary citizens to develop radio and electron-ics skills and have fun! Our Logistics Chief (Wendell KN4TWS) and Operations Chief (Leland AA3YB) gave updates and lists of what they need to fill all our needs.   We have SO many sta-tions and SO many antennas to set up -- and Rosemary KI4QBZ is going to be our TALK IN helper on the 146.820 repeater -- that we're using "station captains" and extension-cord holder

Figure 3: Field Day Site Plans

pre-rolled antenna setups.   Columbia has their Dress Rehearsal April 29 and ours isn't until June, but we are going to try to give them a run for their money! Two of us are practicing CW as much as we can because we have lost Dave, our premier CW guy!
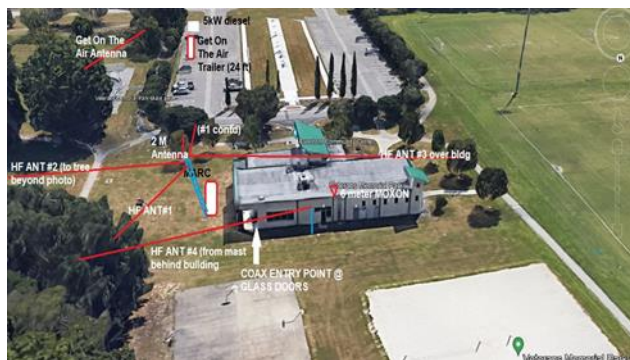
David Huckstep has completed moving the EOC HF Station into the gorgeous wooden go-box that Stewart created for us, accomplishing on of our Integrated Preparedness Plan goals.   For the first time, our EOC HF station can be pulled out and moved quickly.

Figure 4: Rollup for Antennas

Two LabNLunches scheduled for MAY as we work on band-pass filters and antennas.

What a great hobby and what fun we all have!

FFARA Completes 6th Year of Ham Radio Courses

Gene Bannon, KB4HAH

The Five Flags Amateur Radio Assoc (FFARA) and Pensacola State College (PSC) just completed our 6th year under the revised course, Spring term of the "Amateur Radio Introduction & Upgrade" course this past Thursday (Apr 17th). The course is a 10-week course that is conducted on Tuesdays & Thursday Evening between 6PM - 8:30PM. We hold the class on the main campus of PSC in Bldg 96, RM 9663. We had 13 students initially register for the course. The course is tailored to the students attended. As stated in the class title, we have students with little to no experience with Amateur Radio to students that are attempting to upgrade to Extra Class. With that type of mix of students, we try to keep the lectures in the classroom tailored so that no one is left out or overwhelmed. The course is designed with several demonstrations for hands-on experience, including what we refer to as our "Mini Field Day". This is when we bring in our equipment, including long wire antennas, and have the students connect them up. They are under supervision of course, after all it's our toys, and we want them to still be in working order at the end of the class, Ha HA HA. We also have an antenna construction project where the students build their own 2-meter antenna to take home. There are two field trips in the course, one is to the Escambia County Emergency Operation Center (EOC) to show the students what Amateur Radio does during any Emergency Events in the Pensacola Area. The second Field trip is to the FFARA club meeting, in which the students get an idea of what activities hams do in the Pensacola area, and to meet other hams in the local ham community. With this class, we had 6 Students Plus 1 walk in take their FCC Exam and all passed, with one of the students took the next level exam and passed that as well. We had 2 of the students take their test earlier during the course and get their Technician License before the course ended. We now have 8 new hams, with 2 of them Upgraded to General Class. It is always a happy event when we are having new hams, joining our Ham community. We are already getting ready for our Fall class that will start on Tuesday, Sept 12 and continue until Thursday, Nov 16th 2023"

Here are some pictures of pass classes.

Fall 2017 Amateur Radio Class Antenna Construction project

(L) Esther-KQ4EUM on the mic before her license at Mini Filed Day 10-2022

(Above) The Instructors for FFARA & PSC Spring Class 2021

FAll term 2021 VEC testing

Limited Space Expedient Deployment HF Antenna
Part Two: 9:1 Balun (UNUN) & Antenna
by Gordon Gibby KX4Z

In Part 1 of this article (p8 https://arrl-nfl.org/wp-content/uploads/2023/03/00-QST-NFL-April-2023.pdf), I ex-
plained how interest in portable, expedient HF operations in the Alachua County volunteer community spurred us to build **simple and inexpensive 9:1 baluns**, which work well with non-resonant **end-fed monopole antenna wires** of varying lengths.   Commercial packaged solutions with "everything needed" include the Chameleon MPAS-LITE ($360, https://chameleonantenna.com/shop-here/ols/products/mpas-lite) among others. A lower-powered commercial version of the 9:1 that we built, can be had for $30 by itself, such as: https://www.dxengineering.com/parts/ldg-ru-9-1   Ran KN4ZUJ suggests inexpensive "Painters' Poles" available for $24 that can provide an ex-
pedient height of 25+ feet.   In the photo, Joe DiPietro N2UF is assisting Pat Benson K0OO in Balun construction.
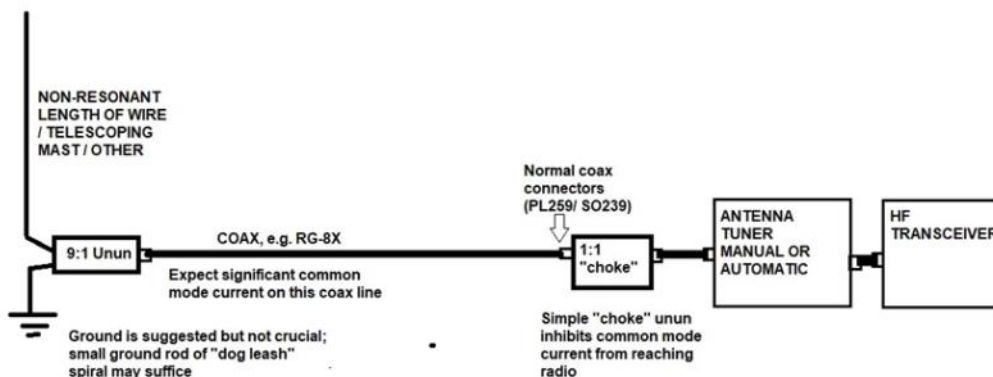
Non-Resonant Lengths
Various experts have produced lists of suitable lengths of antenna wire non-resonant on ham bands, which never create *very low* (end-fed 1/4 wave) or *very high* (end-fed 1/2 wave) impedances. 9:1 baluns have been popular with these non-resonant antennas, because the "intermediate" impedances provided aren't' far from the 500-
ohm range, when operated end-fed, against the effective counterpoise of the outer surface of the feedline coax, or with a ground rod, or with a separate counterpoise wire.   One such list of suggested wire lengths comes from *balundesigns.com* (https://www.balundesigns.com/content/Wire Lengths for 4 and 9-1 ununs.pdf)

Suggested Non-Resonant Antenna Lengths for 160m-10m (dimensions in feet)								
53	59	72	88.5	98.5	124.5	146	162	175
Coverage Limited to 40m through 6m (dimensions in feet)								
36			44			49		

Expedient HF Antenna Method
Pick a non-resonant length such as 36 or 52 feet, toss a rope over some high point, pull up the far end of the wire, feed it as an "end-fed sloping vertical" from the 9:1 Balun.   You can optionally drive in a small ground stake at the Balun (I often use a "dog-
leash spiral"), and then just run your coax to your trans-
ceiver. *Add a "choke" 1:1 current Balun before entering your building or reaching your transceiver, as these end-fed monopoles will always have some common-mode RF that will be traveling and radiating from the outer surface of the braid of your coax.*   A good

NON-RESONANT LENGTH OF WIRE / TELESCOPING MAST / OTHER

9:1 Unun

COAX, e.g. RG-8X

Expect significant common mode current on this coax line

Ground is suggested but not crucial; small ground rod of "dog leash" spiral may suffice

Normal coax connectors (PL259/ SO239)

1:1 "choke"

Simple "choke" unun inhibits common mode current from reaching radio

ANTENNA TUNER MANUAL OR AUTOMATIC

HF TRANSCEIVER

choice for only $30 is: https://www.dxengineering.com/parts/ldg-ru-1-1 With a reasonable auto-tuner capable of handling SWR's up to about 10:1, such a 9:1 expedient antenna is generally a very quick setup.

Successful Usage

I use a much longer non-resonant end-fed for the KX4Z Winlink RMS-- about 120 feet of wire making a giant "C" around an oak tree, and a left-over 6:1 voltage Balun similar to the 9:1.   Works fine!   At my North Carolina home during a vacation I tested two "short" antenna lengths expediently raised up to my fiberglass mast that is inserted into a short piece of PVC pipe in a post-hole in my back yard.
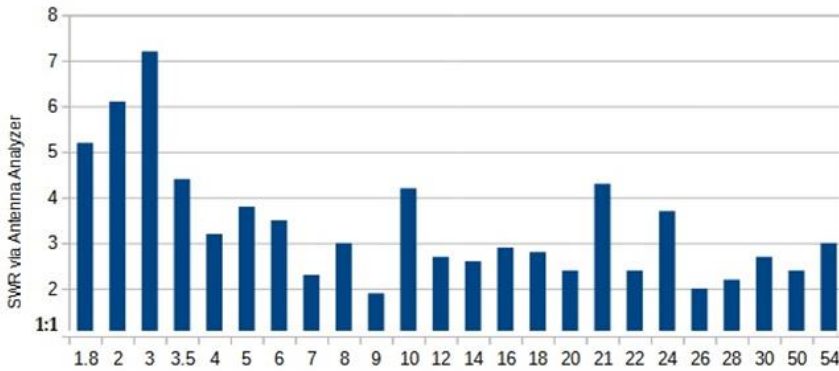
36 Foot Antenna Test

The first bar chart shows the SWR's measured at my end of 100 feet of RG8X at frequencies between 1.8 MHz and 50 MHz.   All of these are "match-able" by a normal external tuner. The 36-foot wire was hoisted up as a "sloping vertical" toward my mast. A dog-leash spiral into the North Carolina dirt provided a "ground" connection.

36 Foot Random Wire

100ft RG8X; DogLeash Ground; 1:1 balun

The second bar chart shows the SWRs measured from a 52 foot length of antenna wire also pulled up to the fiberglass mast and with the same coax and dog-leash "ground".
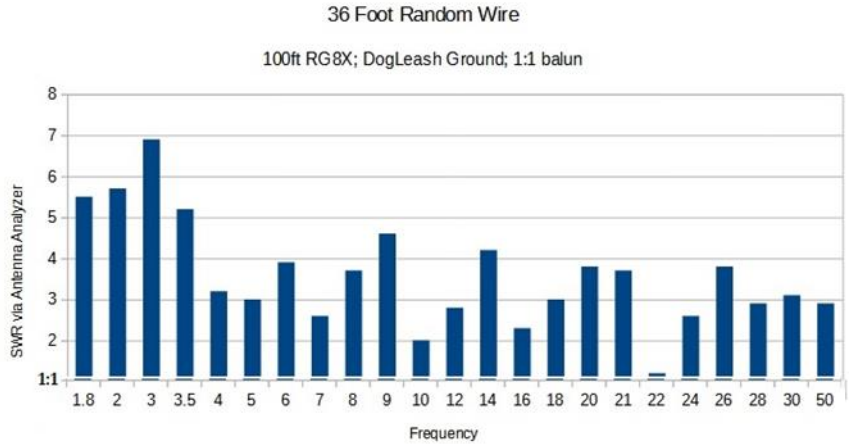
52 Foot Random Wire

100ft RG8X; DogLeash Ground; 1:1 balun

As you can see, this also is a very usable antenna judging by SWR measurements.

Performance

Both the 36-foot and 52-foot expedient antennas allowed me to have good received signal levels and easy contacts on 30/20/ higher frequency bands.   I tested making 500-mile connections from NC to FL (KX4Z RMS), a contact with which I have a lot of experience. **The ambient noise levels on 80 meters were noticeably reduced on both these shortened antennas**, suggesting the expected inefficiency (loss) of a too-short-for-wavelength expedien antenna.   But on higher bands they were quite workable!

DIVIDE MEASURED LOSSES BY TWO

back to back loss @ 30MHz = -1.16
Therefore one device = approx -0.6dB

Laboratory Evaluation

A standard technique for measuring the loss of Baluns is to build two identical Baluns and connect them "back to back" so that they take 50-ohms at the input, raise it to some intermediate impedance, and then reverse it back to 50-ohms on the output end.   Then use a spectrum analyzer and tracking generator normalized to "0 db" (when fed directly from the tracking generator).   Replace the feed through coax with the back-to-back Balun system, measure the loss, and divide by 2 to get the loss of one individual Balun.
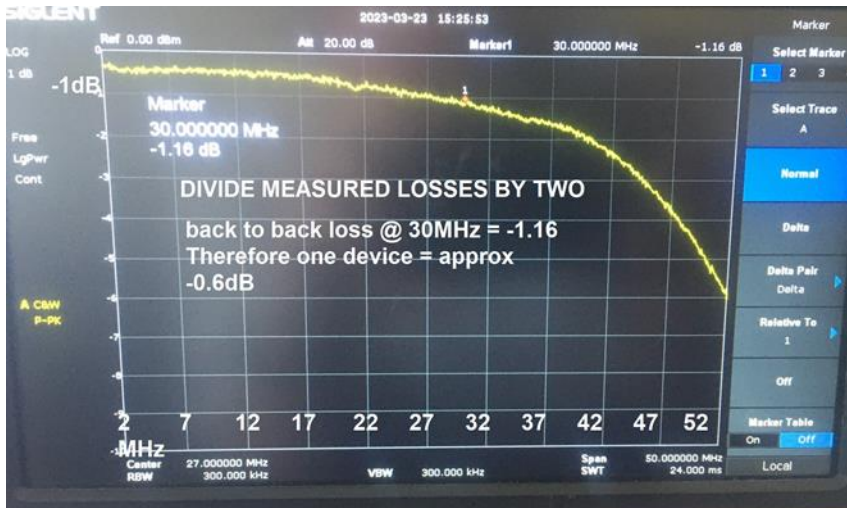
Using that technique, the spectrum analyzer photo shows the combined loss (before the division by 2) with back to back 9:1 baluns using our 5-turn design on FT-240-43 toroids. **We had phenomenally LOW loss for an individual Balun below 30 MHz.** At and below the 20 meter band, the Balun loss is on the order of 1/4 dB (almost unnoticeable). Even at 30 MHz, where the resistive loss component of the Type 43 mix is starting to become obvious, the loss of one Balun is only about 0.6 dB!

Our crew happily built 6 of these baluns for a cost of about $25 each installed in a plastic electrical box with terminal block screw output connectors and standard SO-239 50 ohm inputs. Some of our members bought or used "flex-weave" or similar wire, others just used regular #14 House Wire (THHN) for their expedient antennas.

Conclusion

Every antenna, and every commercial offering is a COMPROMISE. Different people and different cicumstances favor various solutions. Our team worked on a cheap version of a popular and time-tested field-expedient antenna system.

Alachua County Comms Volunteers Investigate Mobile Broadband Kit

by Gordon Gibby KX4Z

The mobile broadband kit (https://mobilebroadbandkits.com/)   is a commercial version of a personal cell-phone hotspot, providing WIFI Internet to dozens of users from a high capacity cell data modem accessing existing cell service.   Numerous military groups and emergency management teams have purchased the system sold by mobilbroadbandkits.com (appears to be a subsidiary of the Midland, GA firm 4KSolutions).   Alachua County Emergency Management owns one of the complete $10,000 systems and invited members of our NFARC/ARES® volunteer group to an "inservice" practice with the device after it had been utilized in a couple of hurricane deployments.

ARES® and other ham radio volunteers are likely to have increasing contact with this commercial system for providing relatively high speed Internet to a deployed organization.   Florida Baptist Disaster Relief al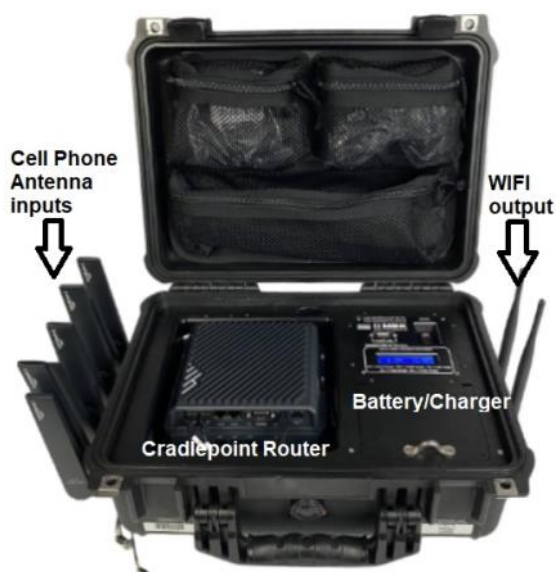ready uses this type system as well. Cisco appears to have a competitive product (https://www.cisco.com/c/dam/en_us/about/doing_business/ business_continuity/eck-cisco-solution-overview.pdf)   Our experience is that ham radio expertise will be a huge help in getting one of these units working properly.

Supervised by Emergency Management Coordinator Dalton Herding KO4RGT (who got his license after one of our courses), Wendell Wright KN4TWS, David Huckstep W4JIR, Leland Gallup AA3YB and myself first opened up and examined the Pelican-cased MBK (mobile broadband kit) before tackling the mast and external antennas.

This pricey high-datarate system is built around the $2000 Cradlepoint R1900 router, with dual-SIMcard access to cellular networks, and a 8AHr LiFePO4 battery with charging system.   The Cradlepoint R1900 router capabilities include both 5G and 4G LTE.   (Ref: https://customer.cradlepoint.com/s/article/R1900-Getting-Started)   Our system is configured for FirstNet and should add a second cell vendor in the future.

Multiple SMA connectors on the left side of the Pelican case allow cell service multi-band antennas to be installed, as well as a GPS antenna.   On the right side, (a) power enters from any of several sources, including charger, solar powered charging system, or vehicular connection.   Also on the right hand side are (b) multiple possible WIFI SMA output connectors.

Operation of this system is fairly turn-key.   Turn it *on* with appropriate antennas connected, observe blue cell-service "bars" of signal eventually show up on the Router, and then use your computer or phone to find the SSID of its WIFI network, provide the proper password, and you are connected to the Internet.   The EM Dept had a nice handout with all of the relevant names and passwords.

The solar power system has some "interesting" connectors and we were glad that we studied it carefully BEFORE it was desperately needed.   After we figured out what goes where, we taped some connectors together to prevent confusion later.

MOVING TO THE TOWER

It got much more interesting when we started to deploy the $$$ 30-foot telescoping mast system (https://www.buddipole.com/10mmatrandma.html) and associated various cell-phone and wifi antennas.   The cell anten-

nas include both **wedge-shaped directional (10dBi) antennas** and **omnidirectional verticals** with N connectors.   The wifi antennas are relatively short collinear antennas, also with wifi connectors.   There are multiple 75 foot coaxial cables for both systems in the large pelican case for the antennas -- but only much later did we realize that the *MBK input connectors on the left side (cell phone antennas) and right side (wifi antennas) are DIFFERENT SMA "polarity" and that the supplied cables have different male/female SMA connectors to match*!   Thankfully we didn't damage anything by forcing the wrong SMA connectors before we figured this out!

The instructions for the 30-foot mast are lengthy and confusing.   First we worked INDOORS just to figure out the guy wires and mounting of the cell phone wed antennas (see photo).   Then we moved OUTSIDE and dared to try to send this slender bendy tower up into the sky.   Eschewing READING THE MANUAL, our team looked at the pictures and **forged ahead** -- ***leading to a moment when the mast almost tipped over or broke.***   Our pa-

tient EM mentor got a little "exercised" at that point! There are two sets of triplicate guy ropes (6 total) and "tent stakes."   We found that following the instructions, and setting up the tent stakes and guy wires with the mast extended to the first position, and then the final position BEFORE adding antennas turned out to be a wise plan (and that of the instructions!) because even though the guys were quite loose until the mast reached normal height with antennas attached, they still acted effectively to prevent undue tilting/tipping.
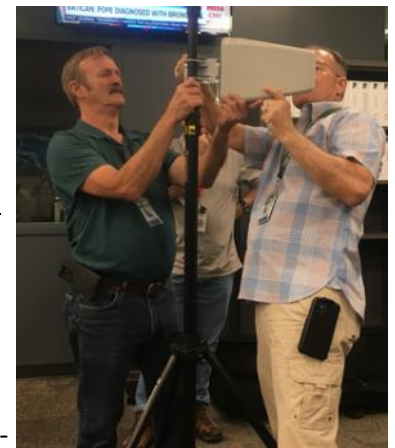
UNRESOLVED ISSUES

There was a problem with the Cell antenna inputs.   The Router apparently has MIMO (multiple-input-multiple-output) antenna capability.   We did not understand this and probably did not provide the proper "pairs" of antennas (x2 or x4) to exploit this

properly; using only a single cell phone external antenna (with 75 foot cable) we found only the left rear ("main") SMA connector actually took input and made cell connections.

We also found an issue with the external WIFI antennas.   Comparing the short plastic indoor WIFI antennas right on the right-hand wifi outputs, to a collinear at 30 feet on the tower through 75 feet of the cable, we had a stronger signal to our cell phones even 30 yards away.   A bit of internet sleuthing suggested the loss in the 75 feet of cable was 10dB or more.   Our conclusion was that the external cell phone mast antennas might be useful if local cell service is out; the ability of the expensive mast to rotate and align one of the 10dB gain wedge antennas might be very helpful in that circumstance.   The indoor wifi antennas' lack of the 10db loss from the cabling suggested that positioning of the MBK itself optimally inside the building where service was needed might provide better service than the tower-mounted WIFI antennas.

Suggested Tutorial on MIMO: https://www.electronicdesign.com/technologies/communications/article/21799530/the-fundamentals-of-mimo

FFARA Participates in Denial of Service Exercise

Gene Bannon, KB4HAH

On Apr 22nd, the State of Florida Emergency Management, conducted a simulated attack on the Internet Network in the State of Florida. The overall scope as stated in Escambia County After Action Report (AAR).

Exercise Scope: Simulate loss of all internet and other normal forms of normal commercial communication due to outside hostile forces instigating an internet "Denial of Service" attack on the state of Florida.

Escambia County ARES had set up a pre-planned Incident Action Plan (IAP) response for such situation and activated it at the commencement of the exercise. We had stationed the Escambia Search and Rescue (ESAR) Mobile Command Communication (MCC) Vehicle to a parking lot of one of the local Hospitals (West Florida Hospital). The MCC was the manned by Anna Cary-KN4ZEA with James Harrison & Sherry Glover (both recent graduates from the Pensacola State (PSC/FFARA) Amateur Radio Class and awaiting FCC to process their CSCE for their technician license) ESAR and ARES volunteers who were to make Simulated Injected reports back to Escambia County EOC. We also deployed a Field Station to that hospital to act as an Evacuation Shelter. ARES team, manned by Eugene (Gene) Bannon-KB4HAH, were also tasked to make Simulated Injected reports back to the EOC. The EOC was fully manned with Escambia County ARES team at each of the Communication work station (WS) in the EOC. WS-1 is our OUT of the effected area communication with an HF and Linear Amplifier connected to 80 Meter loop antenna with which Mike Jacobus-N4DIA manned the North Fla Traffic net and the State Health & welfare net. This station also has the State wide SARNET, in which all of Florida's 66 counties EOC can communicate back to the State EOC directly, which was manned by Victor (Vic) THompson-N4VKT. WS-2 is the local/IN to the effected area communication station which was manned by John Seely-KO4DDF acting as NCS for the Escambia County Emergency Net (ECEN) W4UC VHF(146.76/16) repeater, and Esther Barnes-KO4EUM as Logger, and to respond to the W4UC DMR when stations were unable to check into the ECEN. WS-3 is the Digital Station manned by Joe McLemore-KF4DVF who was sending out the responses from Escambia County to the Florida State EOC via out of area (outside the State of Florida) Win-Link gateway stations in TN and TX using VARA and Pactor modes. WS-4 is the ARES room Manager/Administrative station, manned by Alfred "Skip" Bollens-N4XXO. We did uncover some glitches and of course Murphy did show his ugly head on a few of our activities, but overall we had a successful mission. We hope to learn what are short falls were from this exercise and improve our capabilities in any future exercises or, if required, in any future Emergency events that may crop up. Here are some Picture of our Escambia County ARES room.
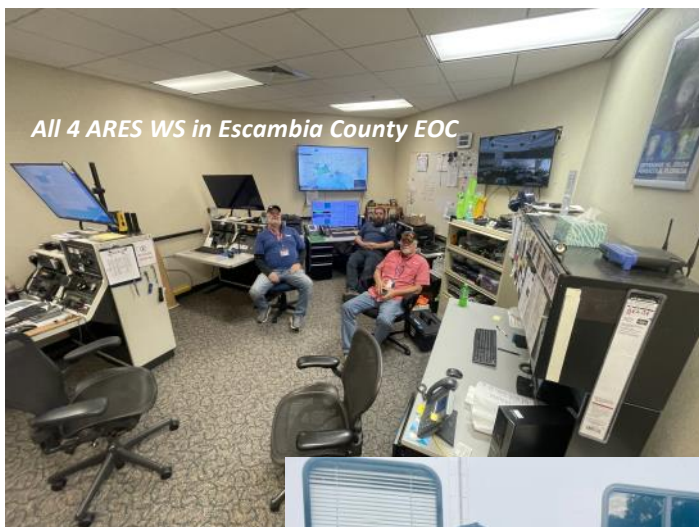
All 4 ARES WS in Escambia County EOC

ARES room during Ian

Escambia County Field Station with VHF gokit operator Gene-KB4HAH

Walton & Okaloosa Counties!

DJ Stewart, KI4ZER, Assistant Section Manager, NFL , ARRL
President of W4ZBB, WF4X, W4AAZ, #HamOn!

The Walton County Amateur Radio Club kicks off immediately following a rainstorm with their Monthly Breakfast the Saturday before the 1st Tuesday of the month! What a great time, wonderful food, and AWESOME people! Get this on your calendars and show up at 0800 located at 171 Country Club Lane in Defuniak Springs! Your wallet won't hurt, and the food is wonderful!

The Sunday Pile-Ups at the Playground Amateur Radio Club are always in full swing and new Hams as well as seasoned ones are continuously stopping by for assistance from everything with programming radios to mobile installs and to operate the club station! These Sunday events are so much fun you'll be guaranteed to leave with a smile on your face as you interact with this highly technical club! Come see the action in person at 17 First St SE Fort Walton Beach Florida at 3pm! You will not be disappointed!

Moving right along, Walton County Amateur Radio Club held their meeting! They discussed the Florida QSO Party and reintroduced their Tech Nights! This club is growing by the numbers and is capable and ready to serve the local Ham and civilian community! Other upcoming events include the Defuniak Springs Lakefest where they have a booth reserved and are ready to show off their portable operations! The event itself is three days long and the Walton County ARC will take part on Saturday, May the 20th! Be sure to come and see them, heck, even join in as it is an open invite to represent the benefits of Amateur Radio! https://www.defuniaksprings.net/1101/LakeFest

The Tech Night at the Playground ARC this month was kicked off by Brett KQ4HDO! A newly licensed Ham Operator and he came from Hurlburt to instruct on recognizing & reporting Severe Weather! While not an NWS class, Brett did a great job and was very informative as he practices what he preaches for the USAF! What a great night and wow the amount of people that came to meet a new member and support his jump right in tech night!
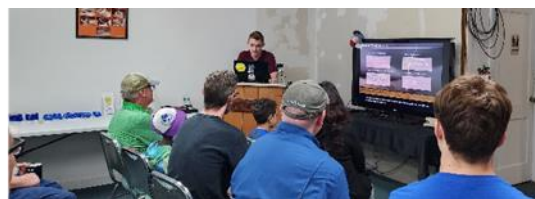
Other than another wonderful Pile-Up at PARC, we had to wait almost a whole week for another bout of the #Hamventure to appear! And wow what a night with the fine people of the North Okaloosa Amateur Radio Club! NOARC had their meeting and opened the floor with the announcement of their FOX HUNT! Apr 29, 2023, just before the Florida QSO PARTY from 0900 to 1130 with the lunch included! Hams love finding the FOX and they love to have a good ol' fashioned BBQ! If you get the chance to participate do so safely and have fun! In other great news, NOARC also announces the new Lead VE Craig KK4WDQ! Congratulate him as you hear him on the air!

Multiple members from WCARC, PARC and NOARC also attended the Daleville AL Hamfest! While this is outside of the NWFL area this event is worth noting due to it being a brand-new club and a wonderful team that put it all together! The hosts were great, the food was wonderful, and the goodies were a plenty! Check them out and be sure to make their next event! You will not be disappointed with their shows in the nearby area! https://daleville.us/

Guess who met next! If you said the Walton County ARES then you are correct! They meet each 3rd Tuesday of the month at 7 pm in Defuniak Springs Florida at 75 S. Davis Lane! What a great time as they covered go kit operations and DRATS! What an exciting time as they taught Hams and non-hams alike (with instruction and control stations) how to send forms and messages over a viable system that requires no access to internet or cellular services! Clearly a pathway for areas impacted by all hazards! That same week! We find our way back to PARC and they (like many other clubs) are discussing their eagerness for Field Day 2023! https://field-day.arrl.org/ The activity here and people constantly going over the capabilities of the equipment and training of their people and others is just astounding! They also fixed their 70cm repeater K4FWB and re-installed it at the repeater site! Give it a key with your call and see if someone is there at 444.450 + 5.0 100 Hz! It was at the Clubhouse undergoing maintenance and testing with a limited range but now its's back to full function! Great job to the team that spearheaded this!

Moving out of the area we had a chance to reunite with some of our friends and colleagues in Mobile at the W4IAX Hamfest! What a great show at a new location in the Mobile Fairgrounds! If you missed this show, you missed wonderful smiles, great deals and just down-home people with open arms! Be sure to always mark this show on your calendar as they support us thought the year at the shows in our areas!

Another Pile-Up with the team at PARC and guess what?! Another mobile radio installation! That's not all, the team also talked DX around the globe and back! What great times the Sunday's are! And let me tell you, if you don't have the time during the week to make the other meetings, events or outings, the Sundays are a great way to get caught up with you wonderfully social hobby and share stories akin to all!

Remember earlier when we discussed the Walton County Tech Nights coming back?! Yes?! Well in case you missed it! Bill, WD9GIU gave a wonderful presentation covering the Florida QSO party, the plan of action for executing it for the club, Openly invited people to set up multiple stations at his home and make the QSO Party FUN! He also covered Field Day Operations given the new Hams in the area and detailed what it was all about, the scoring, operating procedures and what equipment would be needed!

Have you had enough excitement for one month?! Not according to NOARC! They ended this month with a Tech Night solely dedicate to their FOX HUNT! KN4UDS and KM4VKY presented as a team and wow what an informative night! Going over how to build a loop and Yagi antenna along with how to use an attenuator to isolate and locate a signal. This is a practical exercise that can locate signals which can lead to the rescue and preservation of human life! Great work team and keep up the interest-bearing activities that you have ben doing!

Want to know more about events, meetings, outings, technical nights, training sessions, gatherings, operating club stations, getting licensed, upgrading your license, enhancing your skillset or just plain want to meet more hams?! Drop an email to info@nwflhamradio.net and they will be sure to get you on the track for the area you are interested in from within FOUR counties of the Florida Panhandle and beyond! No matter your level of interest or desire, it can be fulfilled, and you are a part of yet another golden age in Amateur Radio! Be proud of that and be sure to QSO on your favorite frequencies!

## Okaloosa ARES and "Service Denied"

Robert Dallons, KM4VKY

The Okaloosa County ARES team participated in this year's SET (Simulated Emergency Test) along with 25+ other ARES, RACES and AUXCOMM teams around the State of Florida. Held April 22nd, this year's SET, titled "Service Denied" was based on the concept that due to a cyber-attack, all communications (telephones, internet) were taken down. "When all else fails, Ham Radio works" would truly pick up its real meaning.

It was an eye opener for me. We had time to prepare for the exercise, yet it seemed a struggle to get it going when we started it. What would it have been like if it was real and an event, whether it was a cyber-attack, or a storm, arrived unannounced? Some of our difficulties were 'real', such as radio failure and poor HF band conditions. And being understaffed.

Despite the rough start and sorting out the problems, the exercise went well. The Okaloosa ARES team will be using this as a

learning experience and will be making plans based on our experience for the real thing. Thank you ARES team – Capt. John Johnston – W4KKJ, Gary Grahm – KF4JK, Mike Behr – W4BZM, and Robert Dallons – KM4VKY.


Robert, KM4VKY setting up the digital HF station.
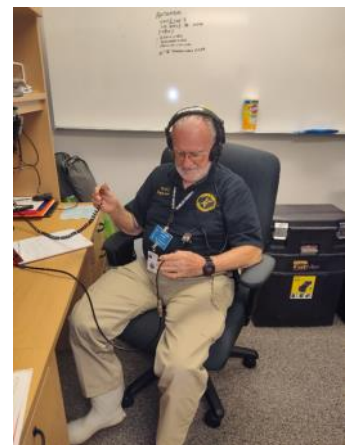
Capt. John, W4KKJ, has HF in the right ear, VHF in the left.

What's happening? Santa Rosa County Edition

Arc Thames. W4CPD, EC NFL

March was an incredibly busy month for our volunteers in Santa Rosa County as we held the first county wide CERT, Community Emergency Response Team, class for the 2023 season. As mentioned in previous articles, we're working to cross-train our ARES and CERT volunteers so they can work in either capacity depending on the needs of the incident we're responding to.

Our CERT class took part over two consecutive weekends from Friday to Sunday. Volunteers were provided with basic supplies and of course, we fed them too. This was one of the largest CERT classes that I know of as we hosted 40 participants. Students learned skills ranging from basic first aid to light search and rescue.
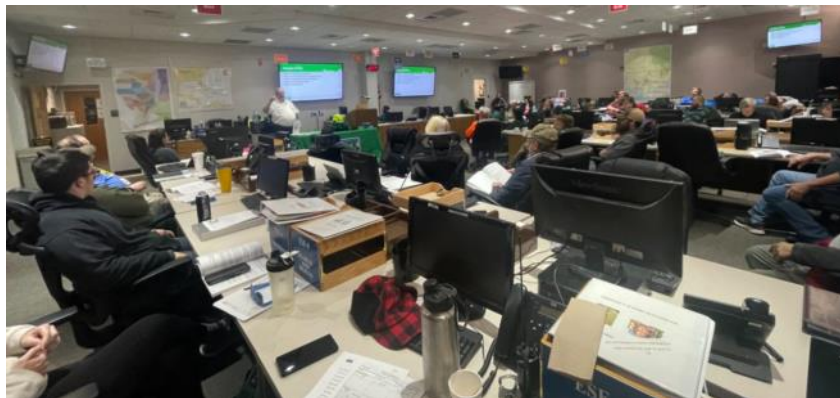
One of the biggest emphases of the class was to provide hands-on training. It's one thing to sit and listen to a lecture but another to actually have the practical experience to go along with it. Students got experience in life saving techniques such as stopping the bleed and patient assessments. Students also had the opportunity to fight a simulated fire with one of the local fire department chiefs.

The class ends with a large scale simulated mass casualty event in which the students' skills and ability to remain calm are put to the test. We utilized students from the Pace FL High School drama department to act as victims and boy, they did an amazing job. The feeling and emotion they put into the exercise made it feel as real as it possibly could have. Instructors applied makeup and other simulated injuries to the victims to allow the participants to triage their patients. Firefighters from the City of Milton Fire Department participated as evaluators and said that even their team would've had a hard time dealing with the amount of victims that our students did.

CERT Instructor Steve Samaha demonstrates patient evaluation

I'm incredibly proud of this class and the way they came together as a team. Many of these CERT students were ARES volunteers already and the ones that aren't will be attending our amateur radio technician course that kicks off May 6 in which we have 46 people signed up. To help remove any barriers from someone getting licensed and on the air, we're providing the class books, the class itself, the license test, and a basic handheld radio to those that pass for free. The entire class is free to help get as many people on the air as we can.

Our team got a bit of a break in the month of April until the end in which they participated in the Statewide Communications Exercise, Service Denied. Assistant EC, Jon-KM4QQO, led the response efforts as Arc-W4CPD was acting as the Exercise Director. Jon and the team onsite and at our area hospitals did a fantastic job. This was one of the first times they'd operated without Arc at the helm and the team was able to handle everything that was thrown at them.

Randy-KF6CC operating station 2 at the Santa Rosa

Assistant ARES EC Alan-KW4MO operating the primary station at the Santa Rosa County EOC

Our team is on the move and growing! If you're looking to get involved or for information on joining or participating in the Santa Rosa County ARES team, please reach out via email info@srcares.org, visit our website srcares.org, or find us on Facebook.

TAILGATE
SILVER SPRINGS RADIO CLUB

DATE:	June 3, 2023
TIME:	9:00am to Noon (setup 8:00am)
LOCATION:	Green Clover Hall Parking Lot
	319 SE 26th Terrace, Ocala, FL
ADMISSION:	FREE
VENDOR FEE:	$5 / TAILGATE SPACE (Provide your own tables and chairs)

Coffee and Donuts will be available

More Info: K4GSO.us

Installing RJ-45 or Similar Connectors

J. Gordon "Gordie" Beattie, Jr., W2TTT
W2TTT@ATT.NET

Introduction
Today's modern ham shack contains at least one, if not many "RJ-45" Ethernet connections, microphone cords and even some RS-232 serial type connections. These eight conductor connectors are popular because they are easier to assemble in an industrial setting than soldering a round eight pin, or a nine or twenty-five pin "DB" connector. Further, you might also see their four and six conductor cousins the RJ-14 or the RJ-25 connectors and have a similar challenge.

From time to time, these crimped connectors break, or we need a cable to patch drvices together. We stare at the crimped cable connection with a forlorn and exasperated expression in anticipation of how this task is going to be accomplished. You know it's a challenge to solder a round microphone connector or a nine or twenty-five pin DB connector, but you know the drill of carefully stripping, soldering and closing the connector. So out come the tools and soldering kit and off you go! However, for this crimped "RJ stuff" you are stymied.

Components and Tools
Well, let's try to conquer your fears and get you going in the modern world. First, we'll start with shielded RJ-45, CAT6 pass through type connectors. These are marvels because they have little holes to help you align and verify your wiring BEFORE you crimp. They aren't expensive and are highly versatile.
https://a.co/d/it5IwOY

You will need some tools. Specifically, a crimp tool, a cable tester, and some connectors.

This crimp tool starter set is less than $20 and even comes with some unshielded RJ-45 plugs, strain relief hoods and a test set.
https://www.amazon.com/gp/aw/d/B08DHJBLXQ?psc=1&ref=ppx_pop_mob_b_asin_title

Side cutters were bought as a box of ten for about $21. Why a box of ten you ask?
https://a.co/d/4pIVcSP

You'll thank me later for this idea... buy a boxful of these inexpensive, but decent side cutters and put them in all your work spaces and tool boxes. If you still have some, then endear yourself to loved ones, or make friends and give them to others. They will thank you.

As far as cable goes, I've been using shielded, buriable CAT6 cable which may be overdoing it in your application.   One thing to remember is that if the cable is going to be in frequent motion, use stranded cable so that it can flex. Otherwise use solid conductor wire as it is easier to position into the connectors.

Let's begin!
These are the tools needed to strip, assemble, crimp and trim the connectors.

(Left) There is a wire stripper built into the crimp tool. Leave plenty of length to help grab and align the wires.

(Right) Using the side cutters, cut away the support core, excess foil and fabric string as needed. Be careful not to cut the shield wire if you are using shielded cable.   Untwist the pairs.
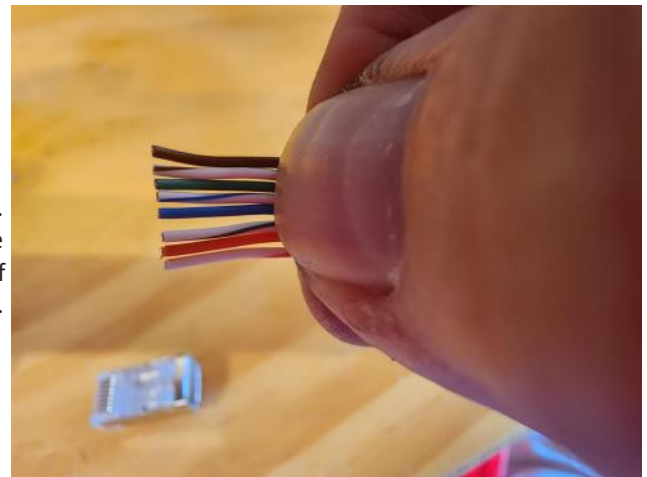
Align the pairs per the Ethernet T-568B layout.   Pin 1 is on the bottom and pin 8 is on top. They are White-Orange, Orange, White-Green, Blue, White-Blue, Green, White-Brown, Brown.
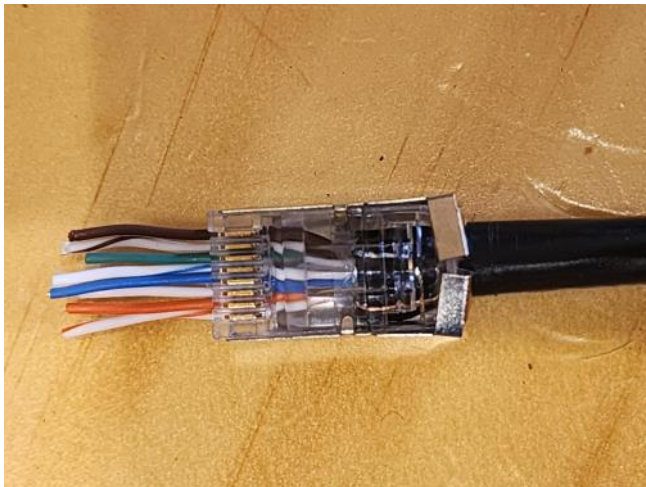https://images.app.goo.gl/sSJSYe78KTLn8oR18
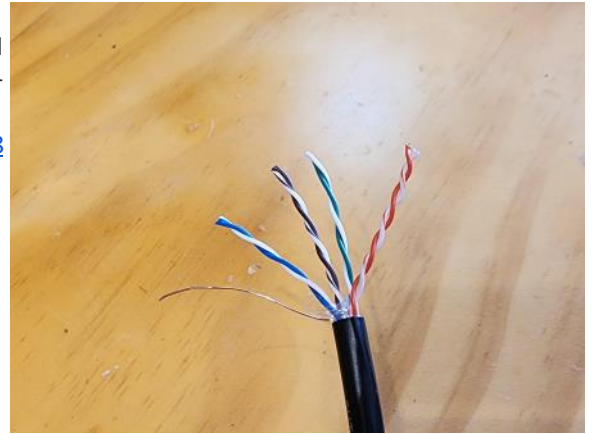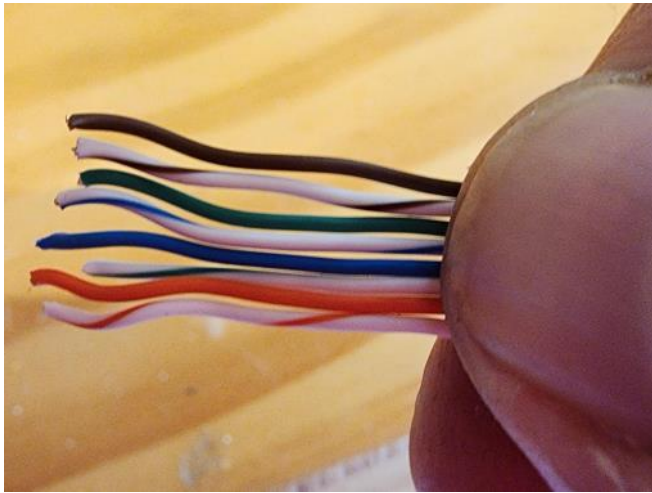
Trim the wires with either the crimp tool or the side cutter.

With the clip up, insert the conductors into the RJ-45. Before seating the cable into the connector, wrap the shield wire around the end of the shield to make contact with the metal part of the connector once crimped. Crimp the connector.

Trim the wires with the side cutter.
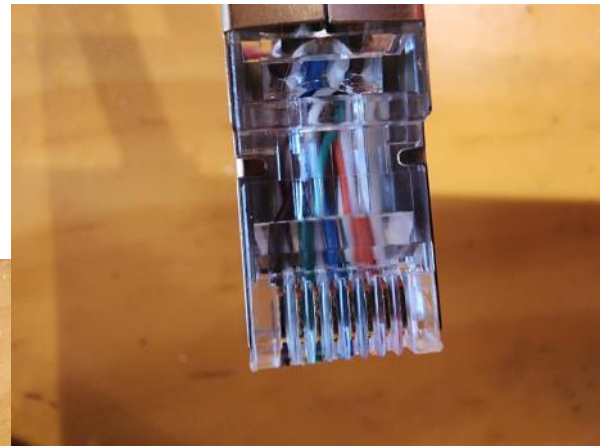
Take a minute to quality check and admire your work!
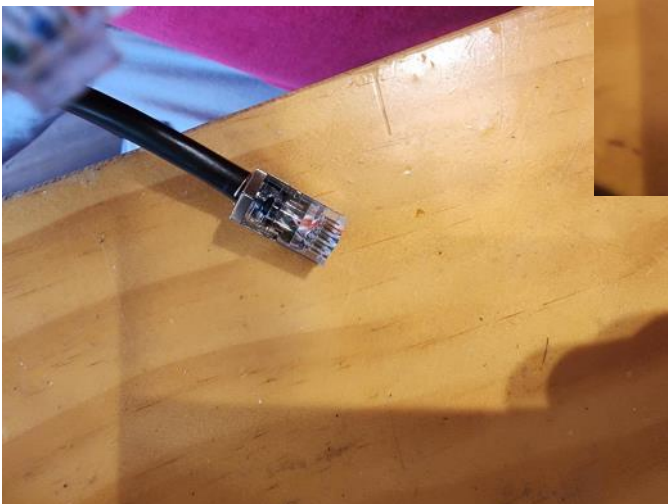
Testing Your Handiwork

Once you have connectors on both ends, plug one end in each of the two test set connectors and turn it on. The LEDs on each side will each flash together in sequence if wired correctly. If one side or the other skips a position, then inspect each connector and then cut off the suspicious connector and redo it. If that does not clear the fault, then cut the other connector and redo that one. You will need to keep track of which end is which!

Final Thoughts

If you are not using pass through connectors, then you might want to use your phone camera or a magnifier to help inspect the connector before you crimp, or after if there is a fault. You want all the wires fully seated against the stop and in the correct order before you crimp.

If you are crimping six conductor RJ-25s, or four connector RJ-14s, then the task is simpler, but the same. If it is a special cord or a microphone cord, then follow the wiring chart.

Happy wiring!

QCWA Chapter 62, Ocala

Ken Simpson, W8EK, President

Ocala Florida Chapter 62 of the Quarter Century Wireless Associate held their regular meeting on April 27, 2023 at the new China Lee Buffet. We previously met at China Lee at their old location, before they moved about 1/4 mile east in a new facility. The new facility is very spacious, and even seems the have a larger variety of food. Everyone was very impressed.

Following a good meal, several things were discussed. Since this was Samuel F.B. Morse's birthday, many things about him were discussed. It is safe to say that those present learned a bit more about him!

Stranding in rear, W8DYV; Seated, left to right, N4KPI,

The Florida QSO Party being held the coming weekend was discussed.

Results of the National QCWA election were announced. Congratulations to all!

The next meeting of Chapter 62 will be held on Thursday, June 22 at 12:30 PM at the China Lee Buffet.

Chapter 62 holds a net every Saturday morning at 9 AM local Eastern time on 3940 KHz. All are welcome.

FCC Testing Information

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 monthly 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 n4ng@icloud.com 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 miltonarc.org
- 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
- Central Florida Fairgrounds Craft Building, 4603 W Colonial Drive, East Gate off Fair Villa Road
- Info: testing@orac.org, Robert Cumming, 407-333-0690

Santa Rosa County FL ARES Testing (Walk-in)

- Information and dates can be found at srcares.org

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, w2bzy@cfl.rr.com

Silver Springs Radio Club, Ocala FL (SSRC)

- Go to http://k4gso.us/class/ to signup for classes
- Go to http://k4gso.us/test-signup/ for testing. Testing is held on the 2nd Tuesday of odd months at 7 PM.
- Note http://k4gso.us/ncvec605/ 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, geraldlguy@gmail.com

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. https://k4tlh.net/faq/license-testing/

West Volusia Amateur Radio Society

- Second Saturday of each odd numbered month
- 9:00 AM
- Elks Lodge, 614 S. Alabama Avenue, Deland, FL
- Info: https://westvars.org/testing

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

Statewide Digital Radio Resources

Did you know we have designated ARES DSAR Reflectors & a DMR Talkgroup?

· **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!