



About Our August Meeting/ Mike Riley, KN4OAK

an·ten·na

[an'tenə]

NOUN

zoology

1. either of a pair of long, thin sensory appendages on the heads of insects, crustaceans, and some other arthropods:

"bugs use their antennae to detect blood heat"

synonyms:

[tentacle](#) · [horn](#) · [whisker](#) · [hair](#) · [barb](#) · tactile organ · sensory organ · [palp](#) · [palpus](#) · [pedipalp](#) · [antennule](#) · factor

(antennae)

the faculty of instinctively detecting and interpreting subtle signs:

"he has the political antennae of a party whip"

2. a rod, wire, or other device used to transmit or receive radio or television signals:

"a TV antenna"

The definition above comes from the Oxford Dictionary (Lexico.com). As amateur radio operators, we are not usually interested in the 1st note... So, in item #2, what does this mean "transmit or receive radio or television signals"? If you perform an internet search with one of your search engines, you may come across this bit of information from NASA; "An antenna is a metallic structure that captures and/or transmits radio electromagnetic waves. Antennas come in all shapes and sizes from little ones that can be found on your roof to watch TV to really big ones that capture signals from satellites millions of miles away." (https://www.nasa.gov/directorates/heo/scan/communications/outreach/funfacts/txt_antenna.html)

Perhaps now things may be a little more apparent. HA!

Well, at the August 2022 NFARL club meeting we'll explore what an antenna is and then we will have a team building skill development exercise in order to build one.

We'll build several roll-up dipole antennae suitable for use on 2M and 70cm. Someone in the audience / build teams will be taking one example home with them as a door prize! Join us for the event! **Doors open at 6:30PM EDT for social exchange. Meeting gets underway at 7PM EDT to ensure we've enough time to finish the exercise.** We apologize, but due to some facility renovation work at the site we won't have any presentation or Zoom capability this month. So- we look forward to seeing you at the Preston Ridge Community Center on August 16, 2022!!

Our club meetings are held at the Preston Ridge Community Center at 3655 Preston Ridge Road (the facility is attached to the backside of the YMCA). Use this link for a map:

<https://goo.gl/maps/Zc4Cwsico3jkkxV5w7>

President's Corner / John Norris N4IHV

Recently, I have been involved in the liquidation of several NFARL member's estates who have passed away. Assisting in these estate sales has caused me to think of how we might take responsibility to help our survivors we leave behind to undertake these liquidations. I am no different than most of our members in the organization of my stuff (thought of as extremely valuable equipment). I now realize the importance of leaving help behind for those who pick up the pieces.

Help can be as simple as organizing things with labels, in boxes/containers, and creating a list of all of the equipment we have stored in many hidden places. You will be surprised what you find during this process. You will discover items you didn't remember having and don't need. These are items that can be sold or given away to other hams just starting their journey in this wonderful hobby. We are always sure we will someday need what we stash away. What usually happens is we can't find those items when we need them and buy more. Preventing this is just one of the benefits of organizing our stuff.

I have begun a process of organizing my equipment inventory and find it a challenge to say the least. It is hard to pick something up and just say I will look at that later. It is also difficult to say "do I really need that?" and place it in the disposable stack.

We are having our mini ham fest at our September 2022 meeting. This event could be the opportunity to start your organization / liquidation initiative. While organizing your stuff, another good thing to undertake is to realize the financial value of things is only what people will pay. Place a relative scale of value that accommodates the passing of time so your heirs can understand what the financial worth might be. You can use this to help decide how to set a sale price if you choose to sell it today and it will help others decide on a future price as well.

Organization is both challenging and gratifying. Consider getting organized as a means to share your knowledge and experiences.

73,
John Norris, NFARL President
N4IHV

My Portable Station / Tom Jacobs, N4NFM

With all the buzz about ham's operating portable in parks, etc. it seems like a good idea to talk through what a portable station looks like and what gear you might need, or perhaps you already have a portable radio and are wondering what to do next. There are a lot of ways to operate portable, and a lot of radio and antenna combinations. There is no "right" combination, meaning you do not absolutely have to own the most expensive radio and buy every antenna out there. Many times the simpler configurations work the best, and as with many things amateur radio being able to home brew something might help save some money down the road.

At the very least a portable station will consist of a radio, an antenna and a power supply. These are the three components that we will review in this article. Note that there are many other radios and antennas than we discuss here but I wanted to share some insights into how operating portable with my various radios and antennas has been successful, or not so successful, over time.

Radio

Icom 705

My favorite all round portable radio is the Icom 705. This radio is a bit pricey as compared to some others such as the Xiegu 6100 but you get what you pay for, and that is definitely true of this radio. There is something to having a "shack in the box" in your kit. The 705 supports 10 watts output on HF, VHF (yes, including 6m) and UHF. This is huge for a portable operator as you would normally have to carry two, sometimes three radios in order to cover this range of bandwidth.

Pros :

- All Band / All Mode
- Great Screen and Waterfall
- Included sound card for digital work
- Internal battery (5w max output)

Cons :

- Largest of the popular portable radios
- Not weatherproof
- Expensive



I personally love to carry the 705. It's larger and heavier than my other portable kit but the advantages outweigh the negatives. It is a breeze to operate in the field, the display actually works in direct sunlight, and the audio reports are always great. I have made contacts on 10 watts that I wouldn't think possible. In fact, for a year, my only SSB contact to Alaska was 10 watts off the 705 and the SuperAntenna. I do not carry this radio on hikes where rain is in the forecast but love packing it on fair weather days.

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Lab599 TX-500

The TX-500 is in a class of it's own. It is an HF + 6m radio, 10 watts max, and is rated waterproof (or at least "splash proof") and dust/dirt proof. The innards of the radio are housed inside a solid aluminum block that's milled out for the radio, and the case acts as the heat sink. It has all of the features of a modern HF radio, including great noise reduction. The display is a 256x128 pixel LCD that includes a panadapter (which actually works well). The radio uses a combination speaker mic, and once you turn up the audio to the outdoor setting it works pretty well. There is a headphone jack on the speaker as well.

Pros :

- Small form factor
- Rugged, water and dust proof
- 160-6m included

Cons :

- No VHF/UHF
- Low resolution screen
- No internal battery
- Speaker mic can be difficult to copy in field conditions
- No internal sound card



First and foremost, I carry the TX-500 on any day where rain is in the forecast. My radio has been rained on, snowed on, been kicked in the dirt, dropped, and probably some other usual radio no-no's on top of that and it's still ticking. I have full confidence operating in wet or adverse conditions with this radio. The TX-500 is also about a pound lighter than the 705 when I carry an external battery, which I almost always do. That means it's my go to for long hikes or when pack space is at a premium, as it is also about half the size of the 705. For a small package this radio gets out. I have plenty in the log on this radio. I have the DigiRig interface for the radio which allows me to run digital modes like FT8, but as a friend says, with all the cables putting that all together is like "assembling the octopus," whereas the 705 requires one cable to operate digitally.

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Icom 7300



So, why am I including a full sized QRO radio in the mix? Well, I operate portable with an Icom 7300 frequently. I don't take it hiking, although I know a ham who has taken one up a mountain before, but for a POTA or a general portable operation you can't beat the functionality of a full sized QRO rig. It's nice to be able to push the power up to 100w and know you're getting out.

Pros :

- Full QRO capability
- Full featured radio, filters, etc.
- 160-6m included

Cons :

- Large form factor, heavy
- Expensive compared to most QRP radios
- Requires larger battery or power supply

One of my favorite parts of camping down on some property down in Sparta, GA is taking the big battery and the 7300 and setting up a portable station. In fact, I operated most of the GA QSO Party from this location running 50 watts on an end fed half wave. Having a full featured radio with a large, color screen and waterfall is huge in the field. I really feel like I am operating from the shack even though I am portable. Having a waterfall, a voice keyer, filters and noise reduction plus all the other features of the 7300 in the field makes for some fun operating.

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Antenna

Wires

The most common portable antennas are simple wires. The simplest is the EFHW (end fed half wave) antenna. Other simple wire antennas include the dipole and the random wire.

The EFHW has the benefit of being a multi-band antenna. I carry a Spark Plug antenna (<https://www.sparkpluggear.com/>) most frequently for field work. This antenna requires you cut your own wire so you'll need an analyzer to get started, and it can handle up to 50w (there is also a 100w version available). My wire is cut for 40m, which gives me 40, 20, 15 and 10. I cut the antenna in such a way that SWR is below 1.5 on all bands except 10m, which runs about 1.9. This allows me to quickly deploy an antenna in the field, either using a mast or a random tree branch, and gives me multi band capability without a tuner.

Another great option, and easy to build, is the dipole. Dipoles are typically mono-band but you can cut links into them for additional bands. For example, I use a SOTAbeams 40/20 linked dipole, which is a 40m dipole with alligator clip connectors to change the length from 40m to 20m. I generally set up the dipole with a portable mast but it works to just throw the apex up over a tree limb and set up an inverted V. Dipoles have more connection points than an end fed, which just has two with one close to the ground. With a dipole you have to think about getting the center up in the air as well as the two ends.

Another easy wire antenna to carry in the field is the random wire, which we know is anything but random. Random wires, like end feds, can be set up as slopers with just two connection points, one up in a tree and one close to the ground. The advantage of random wires are that they generally cover multiple bands but the trade off is having to carry a tuner to utilize those bands. This both means your final SWR will be higher than on a resonant antenna and also that you have to carry the tuner, which is extra gear and weight. Check out the Emtech ZM-2 QRP tuner for portable work, if you're running low power this is a perfect lightweight solution, and is what I carry with my random wire or when I need a QRP tuner.

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Verticals

There are several verticals out on the market, or that the illustrious can even venture to build. The two that I carry are the SuperAntenna and the Wolf River Coil.



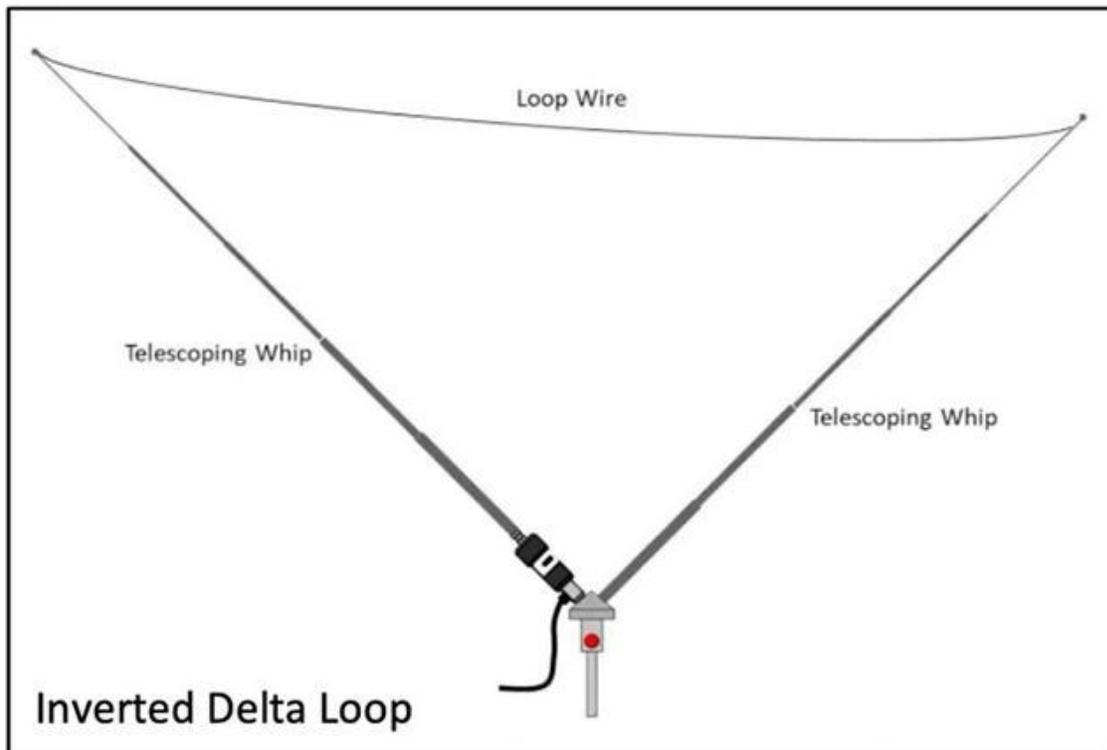
There are advantages and disadvantages to each, but first let's talk about when a vertical may be the right solution. First, if that's your only antenna, it's the one to carry. But if you have multiple to choose from, say a wire and a vertical, you will want to scout your operating area. Not every location has trees or space to guy a mast. Those locations are where the verticals shine. Both the SuperAntenna and WRC are set up on tripods, so where space is at a premium or where there are no trees a small vertical mounted on a tripod will work great.

Both the SuperAntenna and WRC have tuning coils that you 'slide to tune' to a resonant frequency and both require ground radials. A tip on the ground radials, you don't necessarily need the long stock radials that come with the antennas, what is mainly important is total electrical length of your radials, so you can cut down your set into a smaller footprint. For example, I cut 18—6 foot radials (18 is a couple more than I need at that length but I paired them in threes) and put them on ring connectors for my WRC, replacing the stock 3x33' wires. This greatly reduces my on-ground footprint without compromising performance. I also recommend replacing the stock WRC whip with the 102" BuddiPole whip, available for about \$25. The BuddiPole whip is taller and has much better quality of construction and fits into the 3/8 x 24 threading on the WRC's coil. With a few changes to stock configuration the verticals can be impressive. Their low takeoff angle helps with reaching further away stations, favoring DX and long distance contacts so they can be a lot of fun to operate.

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Loop

The final antenna configuration I carry when I am portable is a delta loop. Specifically, the Chameleon Tactical Delta Loop. This antenna is 2 17' telescoping whips bridged with a 25' wire.



With the magical CHA balun the antenna is resonant (below 1.5:1) on 40-6m in loop configuration and resonant on 20-6m in the vertical configuration using the stock 25' wire. Testing indicates that you can increase the counterpoise wire to approx. 31' and bring 40m into the vertical config without a tuner. You can just about deploy this antenna anywhere there is dirt, so aside from a few North GA summits which are purely rocky, this antenna usually fits the bill.

The TDL has rapidly become my "go to" antenna in the field. It is super simple and quick to set up and covers many bands without a tuner. The ears are excellent in loop configuration as well, this antenna will pull out the weak signals. It might be the heaviest option in my kit but it is worth carrying the weight for the multi-band, superb performance of this package.

Battery

I generally carry one of two batteries when I am in the field. I am usually operating QRP on the 705 or the TX-500, so I am generally carrying the Bioenno 3ah LiFePO4 battery. This battery gives the radio 12-13v consistently and while 3ah might sound small, at QRP levels that will last for several activations. The small, lightweight form factor easily fits into my load-out and pack.

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My Portable Station / Tom Jacobs, N4NFM - Continued from previous page

When I carry the 'big boy' 7300 for a POTA or other portable operation where I expect to operate QRO I take a 24ah battery. I purchased a TalentCell 24am LiFePO4 battery from Amazon as opposed to the Bioenno series due to prices and it works well. I eventually plan to upgrade to a large Bioenno battery at some point but until then the cheaper solution has been cranking for me for almost 2 years with no sign of slowing down.

Summary

So, in summary, the best portable station is the one you can cobble together. Operating portable is always a compromise of some sort. Being portable means you are generally in locations that have low noise and interference so QRP levels usually suffice but if you want to be heard and take a big boy radio that works too. The most important aspect of building your portable station is to understand where you will be operating. Will there be trees or supports for antennas or do you need a mast or another solution? Do you have power at the site or do you need to think about batteries? What radio do you have, and what will work best to achieve your activation goals?

Generally good scouting, and sometimes experience, will answer these questions for you. Do not be discouraged if you take a particular radio and antenna to a site and you cannot operate. Rather than a failed activation that is a learning experience, take those lessons learned and apply them to your load out going forward. It is always better to try to get out there and sometimes fail than to never try at all. I hope to see you all taking radios portable to operate and activate. I'll be watching for your spots!

de N4NFM

VE Testing in August 2022 / Wes Lamboley, W3WL

August lets us know "the dog days of summer" are here. Things appear to slow down a bit during this time. This month we had two takers at Slope's, but again- what a two they were! First was Shravika Pendyala, and she earned her Tech credentials. Shravika is a rising senior at Alpharetta High School. Some of you may have had a chance to speak with Shravika at our July club meeting. Shravika's interests include satellite communications and computer science fields. Help us congratulate Shravika the next time you meet her (hopefully again on August 16th)!

Stanislav Plago, KK4DJB was the second VE radio license test taker. Stanislav earned his General credentials. Stanislav works for Caterpillar in Alpharetta in their controls division. Please congratulate Stanislav the next time you meet!

Please take a few moments to thank the VE Team, Slope's Barbecue, and the NFARL members helping to make the amateur radio license examination sessions work each month!



Shravika Pendyala (right) and John Norris, N4IHV



Stanislav Plago, KK4DJB (right) and John Norris,

N1MM+ User Defined Contest Files / Tony Santoro, WA3TRA



Just a quick article on how to configure files with a UDC Extension.

First: what is a UDC file?

If you perform a Google search you will find a multitude of definitions such as a spell checker reference and Adobe Acrobat InDesign User dictionary. However: with N1MM+, UDC stands for *user defined contest* file. It's a text file and when you load it into N1MM+, it configures the logging details for a particular contest. This picture shows just a sample of the details in the file. Note: you can change the names to your preference.

```
[Contest]
Name =ICWC-MST
DisplayName =ICWC MST
CabrilloName =ICWC-MST
Mode =CW
DupeType =2
```

Figure 1

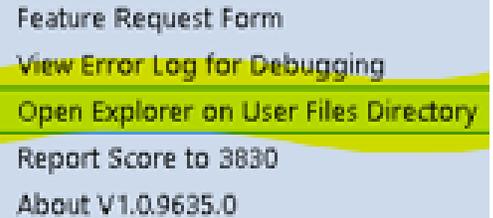


Figure 2

Where to install the file?

This discussion assumes the use of Windows 10. First, download the file. Then, open N1MM+ and under Help menu, click on the "Open Explorer on User Files Directory" (Figure 2). Note: this directory is not the same as the C:\Program Files(x86) directory. If you install the file there, you will not see it in the contest listing.

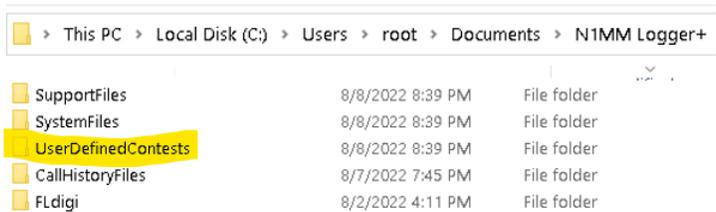


Figure 3

Figure 3 displays what you should see when you click the 'Open Explorer on User Files Directory'. The users\Root is my login ID, so this part will vary based on how you are logged in. This is where N1MM+ stores details.

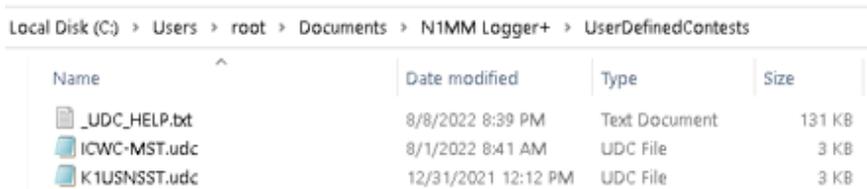


Figure 4

Open the *UserDefinedContests* folder and you will see a listing similar to the picture. You can copy and paste the downloaded file into this directory (Figure 4). In my case, I loaded the **ICWC-MST.udc** file.

Now when you create a new log, the file will be listed as shown in Figure 5.

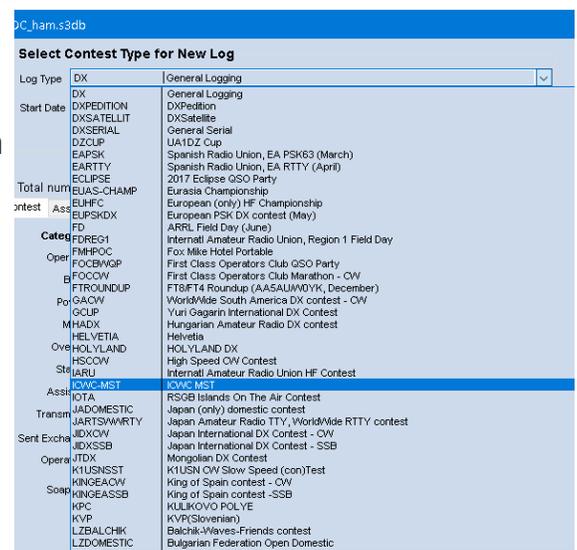


Figure 5

That's it for now..73s

Tony, WA3TRA

Hints and Kinks - The N4GG Woodstock Station Part Three – Lightning Protection

This month I'll describe some of what went into the lightning protection scheme at N4GG. As I've mentioned many times, lightning protection is a subject I usually avoid writing about. It's also the subject that generates frequent requests for a write-up.

There is plenty of information available on the web describing methods to gain protection from lightning strikes. The National Electrical Code (NEC) sets requirements for lightning and surge protection – these should be read, understood and followed whenever possible. It's interesting to note that surge protection as a subject goes all the way back to the first edition of the NEC, published in 1897. The NEC and something called NFPA 780 (National Fire Protection Association) treat lightning and surge protection exhaustively. So much so it's hard to digest it all.

Books have been written on the subject - many books. *Grounding and Bonding for the Radio Amateur*, by Ward Silver, NOAX, is a good place to gain actionable knowledge for setting up or improving a station. It is published by the ARRL and readily available from Amazon, DX Engineering and others. The book's subtitle is: *Good Practices for Electrical Safety, Lightning protection and RFI Management*. It's a good book.

- Here is why I usually avoid writing about lightning protection:
- To cover it properly requires a book.
- It's been done. Google: Lightning protection.
- Although I see the risk as minimal, writing much about lightning protection opens one up to litigation. If I recommend spacing ground rods six feet apart and your house burns down, will I be blamed?
- The subject is chockablock with false information and I'm unwilling to attempt the impossible – which is to straighten it all out. Lot's of the bad info is rooted in folklore that's been passed down and passed around for decades. Ever hear: Lightning can't strike the same place twice? [False] Use a PolyPhaser on every line and you are all set? [False] Some of the bad info is not rooted in folklore - it's promulgated by people with things to sell.
- The very best you can do with regard to lightning and surge protection is case specific. The NEC is the right starting point, but with some applied engineering you can build on the NEC to further minimize a station's susceptibility to lightning damage. The data needed to design an optimized station is available, but the design itself has to come from an engineering-level understanding of lightning.

Having said all that, what am I willing to write about? The answer is things that have a sound engineering basis and belong in every station. I was reminded of many of these things as N4GG was dismantled, revealing what I had built 15 or more years ago.

N4GG passed the lightning acid test many times including sustaining no damage from a direct hit on one of the antennas. The antenna (80 meter dipole) was vaporized, but everything else survived unharmed. Meanwhile, there is no panacea. Lightning effects are complex, unpredictable to some extent, and can cause damage to the best designed stations. Commercial broadcast stations expend great sums on lightning mitigation and still occasionally get knocked off the air.

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Here are some generic things we can do:

Every station needs a single point ground (SPG). Figure 1 shows the one I built for N4GG. It's an aluminum bar about 12 inches long and ¼ inch thick. It does not need to be copper. Connect every piece of gear to the SPG. The SPG helps keep everything at the same potential when high current flows through various elements within a shack. The SPG in Figure 1 used tapped screw holes and ring terminals for connections – nothing fancy here.



Figure 1– Single Point Ground (SPG)

What's often missed is how important it is to ground everything possible to the SPG, not just the gear that has a grounding stud on the back. Following best practices, you will be adding grounding studs and connections to gear where it has not been provided by the manufacturer (possibly to save a dollar?). I'd like to repeat something I wrote in March, 2020 in the article titled Station Un-design Tips:

Think through the need, cost and benefit as well as the unwanted, unintended and unanticipated consequences of every nut, bolt, wire, fuse, power strip, connector, insulator, fan, plug, socket, jumper cable, filter, balun, three wire to two wire AC adapter, "lightning protector" (typically useless and/or installed wrong), ground rod, LCD display and piece of gear in your shack. This list is not exhaustive – you get the idea.

The statement was offered to help with station reliability, but it applies to lightning protection as well.

Figure 2 shows an example of grounding that's the product of careful assessment of the hardware at hand. The output of many 13.5 VDC power supplies float. The negative output terminal is not connected to the case and escapes being connected to a SPG. It's this way to allow power supplies to be hooked in series to provide higher voltages. The figure shows the back and bottom of an Astron 13.5 VDC supply where I connected the negative output terminal to the case. A wire was run from the case to the station SPG. Note there was no grounding stud for the case. Case ground had to be picked up with a ring terminal. Nothing floats in a well protected shack.



Figure 2– Added grounding wire



Figure 3 shows the back of a Top Ten Devices DX Doubler. The case is grounded internally to the circuitry – good – but no external case connection was provided. At N4GG a wire was slipped under one of the case screws to return the case to SPG.

Continued on page 13

Figure 4 shows the back of a control box for an Array Solutions SixPak antenna switch. In this case not only was no case connection provided, the internal circuitry was not connected to the case. I connected the ground side of the 13.5 VDC internal circuits to the case and added a grounding stud to the case. A wire was run from the stud to SPG.



Figure 4—Ground stud added to control case

Like the Array Solutions control box, SteppIR control boxes have no connection between the internal circuits and the case, and no provision to connect the case to ground. If you are going to modify a SteppIR controller box, be careful. Unlike every other piece of gear I have worked on, the ground side of the controller PCB is the top side, not the bottom. I have made grounding changes to many SteppIR control boxes for friends.

One crucial area I have no pictures of is the ground connection for the shack computer. N4GG used a tower computer – the case of the tower was easy to connect to SPG. Internet was via WIFI – not an Ethernet cable. A common lightning induced failure is the loss of the RS-232 or USB driver chip in modern rigs. Connecting the rig and computer to a SPG prevents this.

Now let's turn to control lines running from the shack to outdoor antenna switches and relays. Figure 5 shows the shack-end tie-point for all my control line connections. Every line is bypassed to a metal plate with a metal oxide varistor (MOV). The MOVs I chose clamp at 18 volts, just above the 13.5 volts present on these lines during operation. Rotor control lines (no rotors at N4GG) and SteppIR control lines use voltages other than 13.5 volts. The MOVs for those must be chosen accordingly. The 18 volt MOVs I used are rated for 1,000 amps pulse current! They cost less than \$1 in quantities of one from Mouser Electronics. When not conducting, MOVs act as RF bypass capacitors - they can help reduce RFI. MOVs will be the subject of a future column.

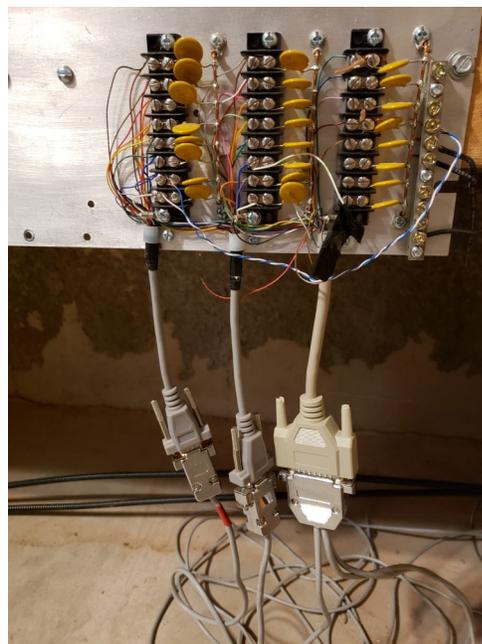


Figure 5– Shack-end tie points

The back-yard end of the control lines was shown last month and is repeated here as Figure 6. Note the MOVs in among the rust. The same MOVs were used on both ends of the control lines at N4GG. I recall buying 100 of them from Mouser when I set up the station. The cost was less than \$30 (that was 17 years ago).

Another example of adding grounds where needed is shown in Figure 7. This is an Array Solutions SixPak antenna switch. Notice a black wire exiting the case alongside each of the two control cables. These were tied to ground on the internal circuit board (Figure 8). This is a great example of the need to analyze every screw, bolt, etc., etc. in the shack.

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Around the Shack/ Hal Kennedy, N4GG - continued from page 13

Look carefully at Figure 7. The U-bolt clamp on a SixPak is often bolted to a tower leg and an assumption made that this grounds the switch. Note the U-bolt clamp on mine is rusty after 17 years outside, and the case of the switch is powder coated with paint. The connection from the U-bolt clamp to the case can't be relied on. Next, notice the case is held to the inner connector chassis with four stainless steel screws.



Fig 6—Back yard end of control lines

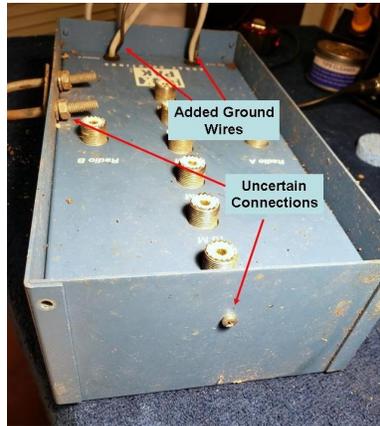


Figure 7—SixPak grounds



Figure 8—Inside SixPak

Figure 9 shows the inside of the case – it's painted. There is no solid path from the inner connector chassis through the U-bolt clamp and stainless screws to ground. The U-bolt clamp provides support for the switch but a dubious path to ground at best. At N4GG the U-bolt clamp gripped a PVC pipe, not a tower leg. The black wires in Figures 7 and 8 were required to achieve a ground connection for lightning protection. The switch would have operated fine without the added ground wires – this was an easy thing to miss.



Figure 9—Inside Case

Figure 10 shows the entrance into the house for coax and control line connections. Note all connections can be quickly disconnected. While on vacation and during lightning season the cables were disconnected when not operating.



Figure 10—Coax entrance

Continued on page 15

Around the Shack/ Hal Kennedy, N4GG - continued from page 14

Figure 11 shows the AC power connection for all of the gear. By “all” I mean all. My two amplifiers were plugged into the 240 VAC sockets shown, and all the 120 VAC gear was connected to a large power strip which was plugged into the lower socket. When the antennas and control lines were disconnected outside, the AC plugs were unplugged inside. It was done this way to disconnect all the connections to AC power – including the third wire safety ground (the green wire people sometimes forget). Throwing a breaker or power-strip switch is not sufficient – these virtually never disconnect the safety ground and sometimes don’t disconnect the neutral connection (white wire) either. With every external and internal shack connection disconnected there was no path for current to flow through the shack and gear.

I hope this is helpful. There is a lot at stake. Damage to gear is bad enough, but gear can be replaced. Lightning can and does start fires. The NEC exists to mitigate (note: not prevent) such an event.

As mentioned above, moving beyond the NEC is case specific. Some of what was done at N4GG may not apply to your shack and situation. A scenario that requires a significantly different approach is the one where gear must be operating continuously. This includes repeater sites and stations set up for people to operate remotely. Keeping those protected is a challenge.

Here is my last point:

Moving beyond the NEC in a haphazard way or based on folklore is a bad and dangerous approach!

73,

Hal N4GG



Figure 11—AC Power connection

Extra Extra! / From the Extra Class Question Pool

New info for Technicians and Generals and a refresher for Extra Class Licensees!



E4A07

Which of the following is an advantage of using an antenna analyzer compared to an SWR bridge to measure antenna SWR?

- A.) Antenna analyzers automatically tune your antenna for resonance
- B.) Antenna analyzers do not need an external RF source
- C.) Antenna analyzers display a time-varying representation of the modulation envelope
- D.) All these choices are correct

See answer on the last page!

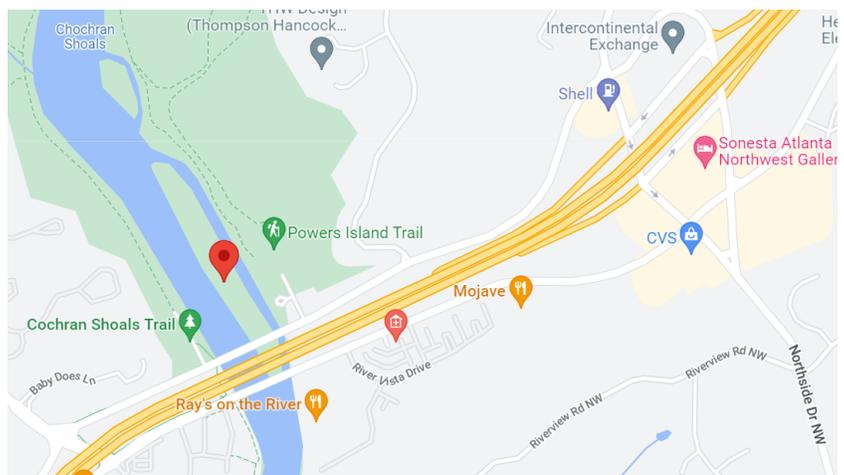
The new Amateur Extra-class license examination question pool, effective from July 1, 2020, through June 30, 2024, has been released and is available at the National Conference of Volunteer Coordinators (NCVEC) [website](#). Note the new Technician class license examination question pool is effective July 1, 2022.

Ian NV4C and his team hold license test sessions on the second Saturday of each month. For more information including upcoming test dates, [click here](#).

W/VE Islands QSO Party / Terry Joyner, W4YBV

Not only does August herald in the “dog days of summer”, it also means it’s time for the W/VE Islands QSO Party! U.S. Islands Awards Program celebrates its 28th year of operation in 2022, and from 1200Z August 27, 2022 to 0300Z August 28, 2022, is the “once a year contest” run by the organization. This year Jim Paine, N4SEC and I are planning to operate from Powers Island (GA026R). This island is located in the Chattahoochee River National Recreation Area at 33° 54'13.1"N+84°26'36.1"W (@33.9064053,-84.4317983 for you GPS users...). This is where the Chattahoochee passes under I-285 and can be accessed from Interstate North Parkway (exit I-285 W at New Northside Dr., I-285 E at Northside Dr., and cross I-285 to head west on Interstate North Parkway).

We would like you to join us! Join via a QSO or live! Then contact us via QSO from your home QTH or mobile, or your friend’s place! Thanks!!



Contest Corner

These are some contests and events besides the "routine K1USN, CWops, and other organizational events" scheduled to occur the near future

Contest Name	Time & Date
+ 4 States QRP Group Second Sunday Sprint	0000Z-0200Z, Aug 15
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Aug 18 and 0200Z-0300Z, Aug 19
+ ARRL 10 GHz and Up Contest	0600 local, Aug 20 to 2400 local, Aug 21
+ North American QSO Party, SSB	1800Z, Aug 20 to 0559Z, Aug 21
+ NJQRP Skeeter Hunt	1700Z-2100Z, Aug 21
+ ARRL Rookie Roundup, RTTY	1800Z-2359Z, Aug 21
+ FISTS Sunday Sprint	2100Z-2300Z, Aug 21
+ Run for the Bacon QRP Contest	2300Z, Aug 21 to 0100Z, Aug 22
+ ARRL EME Contest	0000Z, Aug 27 to 2359Z, Aug 28
+ Hawaii QSO Party	0400Z, Aug 27 to 0400Z, Aug 29
+ ALARA Contest	0600Z Aug 27 to 0559Z, Aug 28
+ YO DX HF Contest	1200Z, Aug 27 to 1200Z, Aug 28
+ W/VE Islands QSO Party	1200Z, Aug 27 to 0300Z, Aug 28
+ World Wide Digi DX Contest	1200Z, Aug 27 to 1200Z, Aug 28
+ Kansas QSO Party	1400Z, Aug 27 to 0200Z, Aug 28 and 1400Z-2000Z, Aug 28
+ Ohio QSO Party	1600Z, Aug 27 to 0400Z, Aug 28
+ CWOps CW Open	0000Z-0359Z, Sep 3
+ CWOps CW Open	1200Z-1559Z, Sep 3
+ Colorado QSO Party	1300Z, Sep 3 to 0400Z, Sep 4
+ Tennessee QSO Party	1800Z, Sep 4 to 0300Z, Sep 5
+ SKCC Weekend Sprintathon	1200Z, Sep 10 to 2400Z, Sep 11
+ Ohio State Parks on the Air	1400Z-2200Z, Sep 10
+ Alabama QSO Party	1500Z, Sep 10 to 0300Z, Sep 11
+ ARRL September VHF Contest	1800Z, Sep 10 to 0300Z, Sep 12
+ North American Sprint, CW	0000Z-0400Z, Sep 11

These links can be found on the WA7BNM Contest Calendar (<https://contestcalendar.com/>).

You should visit that site to obtain additional links to each of the contests listed above. Clicking on the link in the "Contest Name column will bring to the specific contest page at contestcalendar.com.

NFARL Upcoming Events and Dates

- **Every Sunday — NFARES net** - 8:30 PM - 147.06 MHz (+) PL 100
All licensed hams are welcome, you do not need to be an ARES member!
Check NFARES.org for more information.
 - **Every Monday — Tech Talk** - 8:30 PM - 145.47 MHz (-) PL 100
NFARL's flagship technical based "non check-in" net. The net is always better when using the web based chat room (Discord) but Internet is not required to join the net.
Check NFARL Nets for more information and "how to". Here's the link to the NFARL server on Discord web app <https://discord.gg/spr2a9D>
 - **Every Wednesday — Hungry Hams Lunch Bunch** - 11:15 AM
Location: Slope's BBQ, 34 East Crossville Road, Roswell, GA 30075
(770) 518-7000

Dining Room is OPEN. Get Take Out if you can't stay!
 - **Every Thursday — YL Net** — 8:00 PM - 9:30 PM - 145.47 MHz (-) PL 100
Check NFARL Nets website for "how to." This is a great opportunity for YL's to get on the radio with other YL's! OM's (guys) are welcome to listen in to this YL net.
 - **Every Wednesday — CW CHAT** — 8:00 PM on ZOOM. **meeting link and credentials:**
<https://us06web.zoom.us/j/84722087419?wd=VIN2d0xvQVhKcDIUL0R4N1hQMTQ2UT09>
Meeting ID: 847 2208 7419; Passcode: CW-CHAT
- **Every Saturday — Royal Order of the Olde Geezers "Breakfast"** -
This informal breakfast group on Saturday mornings is **NOT MEETING IN PERSON** during the COVID issue. A notice will be made when in-person meetings commence again.
- **Second Tuesday — NFARES Meeting - August 9, 2022** **Presently- Online meetings only.** Check NFARES.org for more information.
 - **Second Saturday — VE Testing - NFARL September 10, 2022 session:**
By reservation only. See the "Test Sessions" web page for details & registration process. Contact Ian at nv4c.ian@gmail.com for questions / concerns / reservations.
- **Third Tuesday— NFARL Club Meeting** - August 16, 2022, 7:00 PM
Live meeting ONLY! Preston Ridge Community Center -
—August 2022 WORKSHOP meeting : "
(see Page 1)
Door opens at 6:30 PM for Social Networking. Meeting begins at 7:00PM
- **Huntsville Hamfest-** August 20-21, 2022. Von Braun Center, 700 Monroe St. SW, Huntsville, AL 35801 Website: <http://hamfest.org> Hosting the ARRL Southeastern Division Convention.
- **Fourth Tuesday — NFARL Executive Team Meeting** - August 23, 2022, 7:00 PM.
Online meeting only — monitor website and NFARL Groups.io reflector for updates.
 - **September 2022 NFARL Club Meeting** - September 20, 2022, 7:00 PM
Live meeting ONLY! Preston Ridge Community Center -
—September 2022 Swapmeet / Mini-HamFest " More details coming!

Contact Us

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North Fulton Amateur Radio League

P.O. Box 1741
Roswell, GA 30077

nfarl.org

eNEWS can be located online at:
<https://nfarl.org/enews-index>

Club Repeaters

Frequency—Description	P.L. Tone	Location
145.470 (-) EchoLink Node 560686 NF4GA-R	100 Hz	Morgan Falls
147.060 (+) Primary ARES Repeater	100 Hz	Roswell Water Tower
* 224.620 (-) Joint Venture with MATPARC	100 Hz	TBD
443.150 (+)	100 Hz	Roswell Water Tower
444.475 (+)	100 Hz	Morgan Falls
* 927.0125 (-)	146.2 Hz	TBD

* Currently off the air

Club Call signs: NF4GA and K4JJ

Extra Extra answer: B (question E4A07)

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