

North Fulton Amateur Radio League NFARL eNEWS

November 2021

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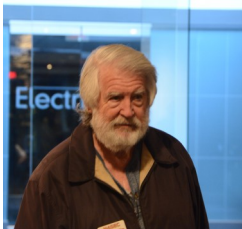
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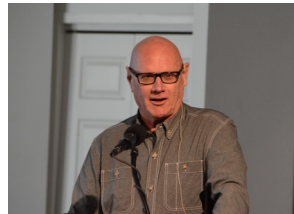
HamJam 2021 Recap / Mike Riley, KN4OAK

Proceeds to the Youth, Education, Scholarship, and Activities (YESA) funding coming from our HamJam 2021 event proved again, this event is a worthy endeavor. Based on the contributions associated with the raffle, HamJam 2021 was a success the club and sponsors can knowingly state demonstrates an on-going effort to support youth development and participation in the technologies related to amateur radio. I know that I am glad to be part of a volunteer organization that commits to achieve community participation through development of science and technology based learning activities. There is a level of satisfaction to be gained from observing how others learn and develop skills they can use in areas other than ham radio from participation in this hobby.

Here are some photos that will help you see the enjoyment participants and attendees had from HamJam 2021. We're looking forward to making HamJam 2022 even more exciting. So if you weren't able to join us in person this year, add a place to November 12, 2022 on your calendar for next year's event!



Jim Paine, N4SEC



Greg Marco —W6IZT



A view of the attentive audience



Steve Hicks, N5AC



Wes Lamboley, W3WL



John, N4IHV with Jack McElroy,
KM4ZIA & Audrey McElroy, KM4BUN



Fred Moore, N4CLA

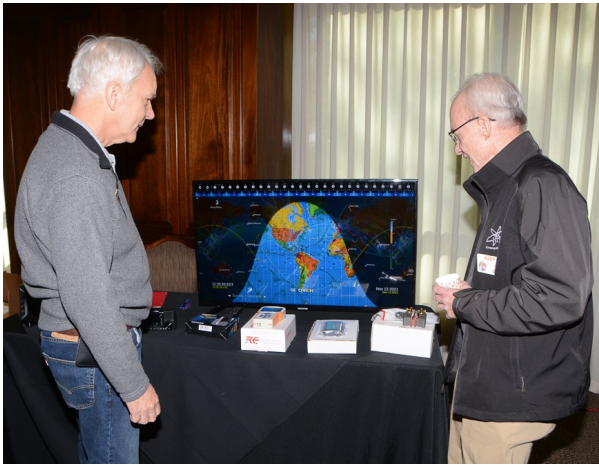
HamJam 2021 Recap / continued-



A happy Grand Prize winner...



Steve Hicks, N5AC & John Norris, N4IHV



Jack McElroy, KM4ZIA



Audrey McElroy, KM4BUN

President's Corner / John Norris, N4IHV

It is now November 2021 and the first thing that comes to mind is Thanksgiving. When I look at where we are today with the many advances in science and technology, I am truly thankful. Just consider for a moment, what would Marconi think if he could be transported to this period in time? He would be amazed, and I am sure thankful, given he started our adventure in amateur radio. It is hard for me to think of all the new devices we have access to today as compared to what I had to work with 50 years ago.

Sometimes we are in such a hurry here in 2021 that we don't stop long enough to truly see what is around us. Take a moment to reflect on all the changes we have experienced in Ham Radio in our short time on earth. Who would have thought we would have SDR radios that can do so many tasks and more than one at a time. I am thankful to be living in the USA during 2021 and wonder what the next fifty years will bring.

I am thankful and fortunate to be a member of North Fulton Amateur Radio League (NFARL). What wonderful members we have with so many talents and great personalities. I look forward to each meeting and enjoy seeing our longtime members, new members and visitors. I am beginning to see the most important reason to be thankful, and am glad that Thanksgiving reminds us each year to take time and reflect. I am so thankful for friends and the memories that come from those friendships.

We had a successful HamJam 2021, continuing support for our youth program, on November 13, 2021 at the Metropolitan Club. Look for the follow up article in this NFARL eNEWS edition. We are planning to have a Christmas party in December 2021 at Preston Ridge Community Center, Alpharetta, GA. Details on the party will be forthcoming.

73,

John, NFARL President
N4IHV

Stray- / Mike Riley, KN4OAK

stray: *adjective*¹

- 1) : having strayed or escaped from a proper or intended place
// a stray dog
- 2) : occurring at random or sporadically
// stray thoughts
- 3) : not serving any useful purpose : UNWANTED // stray light

Besides existing as a a noun or verb, stray can take on form as an adjective. This is typically how we find it in QST and other ham publications. Most of the time it is used to identify a random piece of information pertaining to some ham related topic, subject, event, or other item. Here we are using it to fill in some white space inside a ham radio club newsletter...

Check out the "Stray Hints" note on page 60 of the November 1981 QST issue for more definitive info https://p1k.arrl.org/pubs_archive/78888 (log in to ARRL required).

¹ <https://www.merriam-webster.com/dictionary/stray>

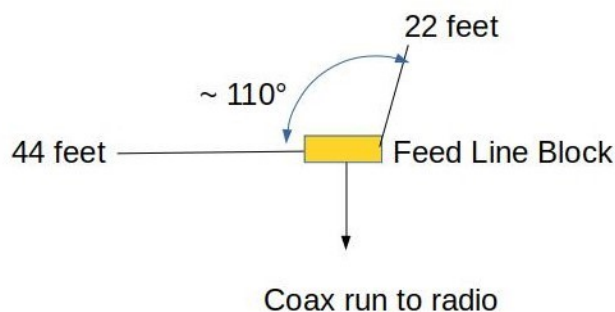
Fixing the High SWR on my MFJ-2010 OFCD / Tony Santoro, WA3TRA

Symptom: the MFJ-2010 off center fed dipole (OFCD) worked well enough to receive and transmit as I initially installed it. However, I thought I could do better given the signal reports and other feedback I got after using it for a while. I decided to focus on performance improvements the General HF bands since that's what I use most.



Test equipment: Initially I borrowed the club MFJ -259B antenna analyzer. Recently I purchased a NanoVNA-4. I re-ran the SWR tests and the readings were identical. Here is a shot of the NanoVNA screen at 40 meters. Notice the SWR in the upper left corner.

Installation: Due to a small backyard with many trees, I initially set up the antenna with about a 100 degree included angle between the two legs, with the long leg run axis on an east-west line, at an elevation of about 25 feet from ground, with the feed line block at the vertex (plan view). I'm referring to this as the "Original Installation" in my story. After making the various adjustments and re-measuring SWR, I define the present configuration and results as "Nov 9-Final".



Plan View - "Original Installation"

Results: As I stated, I measured the SWR with the MFJ-259B after the original install. After receiving the NanoVNA-4, I repeated the SWR measurement on the "Original Installation". Measured values were found to be the same between the two instruments. Here are the start and ending readings:

WA3TRA MFJ-2010 SWR Values as Measured

Frequency	7.025	7.175	7.3	14.025	14.225	14.35
Original Installation	3.2	3.2	3.1	1.7	1.8	2
Nov 9 - Final	1.9	1.9	1.8	1.6	1.4	1.34

The rest of this article describes the steps to get to the "Nov 9 – Final" configuration.

Step 1 – Adding additional 10" wire to each end did nothing for the SWR at 40 meter and 20 meters got worse.

WA3TRA MFJ-2010 Step 1 Values as Measured

Frequency	7.025	7.175	7.3	14.025	14.225	14.35
Original Installation	3.2	3.2	3.1	1.7	1.8	2
Wire added both ends	3.2	3.2	3.14	1.9	2.42	2.77

— Continued on next page

Fixing the High SWR on my MFJ-2010 OFCD / continued from Page 3

Step 2 – I moved the 44 foot line between the houses so I ended up with a straight 66 foot dipole line. SWR improved on 40 meters and 20, but still not the best setup.

WA3TRA MFJ-2010 Step 2 Values as Measured

Frequency	7.025	7.175	7.3	14.025	14.225	14.35
Original Installation	3.2	3.2	3.1	1.7	1.8	2
straight line - SHORT END W/ ADDITIONAL 10" WIRE	2.5	2.57	2.45	1.55	1.8	2.2

Step 3 – Removed additional 10" wire from ends but very little improvement on 40 meters.

WA3TRA MFJ-2010 Step 3 Values as Measured

Frequency	7.025	7.175	7.3	14.025	14.225	14.35
Original Installation	3.2	3.2	3.1	1.7	1.8	2
Normalized lengths (removed additional wire)	2.5	2.4	2.36	1.67	1.49	1.63

Step 4 – The final fix resulting in all SWRs below 2.0 was raising the height of the antenna system. The short end raised to approximately 35' and the long end approximately 25'. Obviously, raising the antenna even higher will result in better numbers, but for now the results and reception are much better. I also tried using a shorter coax cable (28') but it did nothing.

Two key changes resulted in a good solution and learning how dipoles work. 1 – straight line configuration and 2 – antenna height. Here is a listing of all the trial and error steps I used to get to the finish line:

WA3TRA MFJ-2010 Modification Summary

Frequency(rounded)	7.025	7.175	7.3	14.03	14.225	14.35	
Original Installation	3.2	3.2	3.1	1.7	1.8	2	Positive number is improve-
Wire added both ends	3.2	3.2	3.14	1.9	2.42	2.77	Decrease in performance
Straight line - SHORT END W/ADDITIONAL 10" WIRE	2.5	2.57	2.45	1.55	1.8	2.2	moved long part to side of house.
Normalized with no	2.5	2.4	2.36	1.67	1.49	1.63	Out of the box 66' length
Shortened 3" on both	2.55	2.56	2.45	2	1.51	1.5	Made things worse.
slightly increased length	2.4	2.38	2.28	1.6	1.51	1.7	Slightly lengthened each length by 1". Approximately
28' coax cable test	2.4	1.9	1.56	1.13	1.32	1.4	Did nothing .
Nov 9 - final	1.9	1.9	1.8	1.6	1.4	1.34	elevated short end 35',

73s, Tony WA3TRA.

Congratulations to New & Upgraded Hams! / Wes, W3WL & Steve, KO4VW

Well, it has happened again! Congratulations to those hams who took and passed their license exams on November 13, 2021! Additionally, thank you to the VE Team and a special thank you to Slope's BBQ once again for supporting the Amateur Radio license examinations given this November. Please take a minute and introduce yourself to the new hams and congratulate them all for making the effort to participate as licensed amateur radio operators. Remember that continued learning, including license advancement, is a great thing to accomplish and put to good practice!

Here's some photos from the VE session along with a few brief points of interest about each candidate.



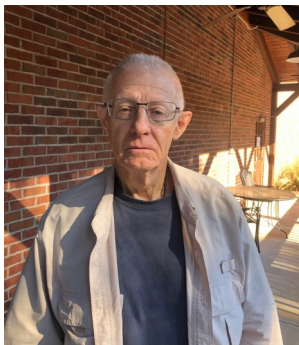
Stefano Mazzatta, KO4TFM, took his Tech with us earlier and passed his General. His primary interest is maritime communications.



Douglas Bishop, KO4JIP, got his Tech with us last year. He got his General. Friends got him into Ham radio. Douglas (on right) is shown with Steve Randall, KO4VW.



Daniel Riegel, KO4USQ, passed his Technician. He's interested in emergency communications.



James Harlow, KO4UEY, received his General



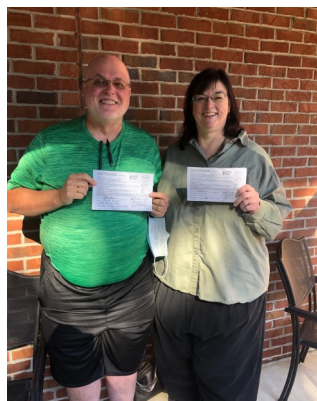
Daniel Greidinger, KO4USP, passed his Technician.



Christopher Spangler, KO4CGR, passed his General. He's ready to advance his ham radio skills.



Cameron Jensen, KY4LA, says he came to pass his Technician exam to regain his expired Extra.



Blaine, KO4USS, and Kathy, KO4USR, Wasden are a married couple, they passed both Technician and General. They are interested in emergency communications and have family that are hams.

Ham Radio Plays dual role during a Halloween Festival / Ted Macklin, K4MPM

Daniel – W2DJC asked for some ideas on the NFARL repeater several weeks ago on how to incorporate Ham Radio into his Church's Halloween Festival. Initially, I responded to Daniel that I would be glad to listen for his calls (and reply) during the Halloween Event – from the comfort of my home. (TBH, I wasn't sure exactly what he had in mind). Ultimately, however, I joined Daniel on site for the event. It was an OTP (over the top) production! His Church went all out for the local kids and Halloween. A very large field next to the Church (near Hardscrabble in Roswell) was set up with multiple challenges for Trick or Treaters to complete in order to get candy. There were obstacle courses, and other tactical challenges for the kids to complete, again the reward being some highly prized Halloween candy.

For Daniel's station, he brought in a closed in trailer set up with a lone HT sitting out front on a table (and his ICOM 705 inside for demo in case we had further interest). The lone HT on the table was an FRS Walkie Talkie [that saved us the headache of having to keep up with call signs, etc., over our "standard carry" 2M HTs].

The idea here being that as Trick or Treaters came by, they would have to call out over the transmitter and ask for some Candy. Daniel was tasked with teaching the kids how to find the PTT button and talk into the microphone. Quite the challenge as you might imagine! For my part, I was listening and hiding in the back of the trailer with a stash of candy. As soon as I heard the crackle come over my radio requesting candy, I would answer back with "Roger, Roger, coming right up with candy, please stand by". I would run around to the front from my hiding spot and load them up with candy. It was a hoot!

Daniel also made use of a handful of other FRS radios given to other Church staff members in order to coordinate the planning and movement of kids around the various challenge stations.

It was a busy night of RF fun and a great way to introduce pre-K and some elementary school aged kids to the concept of ham radio's first steps, with Halloween candy as the incentive.

Thank you for inviting me Daniel!

73's!!

-Ted – K4MPM



CW Key Contact Repair / Steve Randall, KO4VW

I was lucky to acquire an old CW Bug key probably made in the 1940's by Telegraph Apparatus Company from W4QO, who I consider my Elmer. It's in amazing condition. The only issue other than getting used to a bug that wants to run at 28 words a minute at its slowest, the "dit" contacts were squawking pretty badly. Standard methods of cleaning worked OK for the "Dah" contacts but not the "Dit". Further inspection revealed the silver plating had pretty much worn through.



Considering options like trying to fit a Vibroplex contact, a silver plating kit and so on, I brought it up at CW Chat and Phil Specht, K4PQC said he would supply me with what I needed. He sent me a length of "fine silver" which was 3/16 inch wide, the same width as the contacts, as well as sage advice on how to proceed. The strip was a little wavy so I straightened it using a large socket and rolling over a glass surface.

After cleaning any tarnish I cut a piece about 1/4" long, to give a little play in at least one direction. After removing the entire contact post from the base, I created a stable hold with a rag and locking pliers. I sanded the old contact surface and added a tiny bit of flux, then tinning it with a small amount of 60/40 solder. It was worrying me that solder from my iron would get on the contact surface so I cleaned all the solder off the tip I could. After placing the tiny piece of silver over the contact, holding it in place with a pick and heating it with the tip of my 60 watt Weller, it adhered to the old surface perfectly flat!!!! After that I was surprised how easy it was to file the silver to match the contact resulting in what came out to be a perfect contact of 1/64 thick fine silver rather than a silver plate. The tiny bit of soft solder from the iron easily burnished off.

The process was repeated for the other contact. Now it works great!!!!

Don't be afraid of an old CW key if you are worried about contacts, as this method will result in contacts that are better than new. One could also fashion their own this way, if making a key yourself is something you might want to do. Check out WWW.RioGrande.com for .999 silver 3/16 wide strip.

Steve Randall
KO4VW



Testing Receive Antennas

It's fall and thoughts are turning to low band DXing. Here in the Northern Hemisphere QRN is decreasing as the days grow longer, atmospheric absorption is lessening and DX prospects on 80 and 160 are improving. As most readers know, transmit antennas for 80 and 160 are noisy. Separate receive antennas are in order to work low band DX. Receive-only antennas provide a better signal-noise-ratios than our transmit antennas. That improvement however comes at the expense of gain.

I've listed below the forward gain of some common low band receiving antennas on 160 meters. You've probably heard of a few of these and may own (or have owned) one or more. While different from each other in some respects, they all share one property - they have low gain compared to the antennas we use for transmitting. At the top of the list I've included a 4 element 20 meter Yagi for reference.

<u>Antenna</u>	<u>Forward Gain (dBi)</u>
4 el 20M Yagi at 50 ft.	+ 12
One wavelength Beverage	- 11
BOG (Beverage on the ground)	- 21 to - 26
K9AY Loop	- 23
Double Half Delta Loop	- 27
EWE	- 20 to - 30
Flag	- 28

Remember, the gains shown are forward gains and these antennas claim as much as 20 dB improvement in signal-to-noise ratio (SNR) over omnidirectional antennas. The gain off the back and/or sides must be many dB lower than the forward gain to accomplish that SNR improvement.

Assuming a low gain receiving antenna is installed properly, how well it works will depend on how signals, particularly the weak ones off the sides and rear, are not degraded by extraneous pickup. Coax leakage, ground connections, common mode signals and inter-component coupling within switching and termination boxes matter when we are dealing with signals in the range of -30 dBi and weaker.

So the question arises: How can we measure signals that are - 30 dBi or weaker without calibrated test equipment and knowledge of RF electronics? The good news is none of us needs any of that! If you have an S meter or your rig has a spectrum scope, you have what you need. You can even run the necessary test just using your ears!

Remember, within a wide range we don't care what the forward gain of our receiving antenna(s) is. We only care that the antenna's SNR improvement is as good as we can make it. We care that the antenna's gain to the rear and sides is as many dB below the gain to the front as we can get. We care that the weakest signal, the one off the sides or back is well above signal(s) leaking in from sources other than the antenna. Our concern is relative gain, not absolute gain.

The first-order test to check for SNR degradation is simple. Here are the steps:

- Find a local AM broadcast station that is to the front of your antenna. It should be strong enough that you will be able to hear it off the back of the antenna (given the antenna can be switched through directions).

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- Record the S meter reading received "from the front."

- Switch the antenna 180 degrees and record that S meter reading received "from the back."
Hopefully you are seeing some front-to-back.

- Now, disconnect the antenna wires from the feed point termination and record the signal strength. In a perfect system you won't hear anything. None of our systems are perfect. If you are working with a strong local signal you will still hear some signal without the antenna connected and it may register on your S meter. That's fine. What we are looking for is the signal entering your system with no antenna to be many dB (S units) below the signal off the back of the antenna when it is connected.

Some notes and caveats are in order.

- Typically, S meters are poorly calibrated. Spectrum scopes tend to be reasonably well calibrated. What we are looking for is the signal with the antenna disconnected to be significantly reduced (10 dB or more is my rule of thumb) below the signal off the back of the antenna when the antenna is connected, as measured at the shack end of the transmission line. I like to see signals off the back of the antenna drop several S units when the antenna is disconnected and you can hear this with your ears if you have no way to make a measurement. Precision is unnecessary. We want considerably less signal when there is no antenna connected. It's that simple.

- Receiving antenna wires typically terminate at a box. The box may contain a matching transformer, coils and/or resistors to adjust impedance, switching relays and in some cases a bandpass filter. The box, everything in it and the transmission line to the shack can form part of the antenna when we are considering the reception of very weak signals. The test outlined above entails disconnecting the antenna wire(s) from the terminating box, not disconnecting the feedline from the terminating box. If you try it both ways you will discover the terminating box and its contents do collect signal.

- This test also works for antennas that can't be rotated or switched, but only crudely. A Beverage without a reversing box is an example. The front-to-back of a Beverage is strongly dependent on the angle of arrival of a test signal and that is unknown. Remember, we are looking for SNR not forward gain and not front-to-back. The signal with the Beverage wire disconnected should be at least 30 dB below the signal from the antenna when it's pointed at a local AM broadcast test station. I arrived at 30 dB by adding the nominal front-to-back ratio of a Beverage antenna (20 dB plus or minus) to my rule of thumb 10 dB for isolation from unwanted signal incursion. I did say this is a crude measurement.

- Results will vary; experimentation is required. The K9AY loop at N4GG yields front-to-back ratios anywhere from -10 dB to -25 dB depending of which AM station I'm testing with. The signals from local stations arrive from different elevation angles due to many factors including terrain, ground conductivity and, sometimes, multipath. I've observed the highest front-to-back and most consistent test results from distant stations. The test signal has to be strong enough however such that the signal off the back of the antenna is still a few dB above the noise. We are looking for that signal to disappear into the noise when the antenna is disconnected. There are lists of local stations available on the internet. Web sites list AM station locations and power, and will calculate the distance from your location to the transmitter if you enter your coordinates or zip code.

- Notice we are working with SNR measurements and not front-to-back ratio. If you look at Figure 1 you can see the gain off the back of a K9AY loop is very dependent on the angle of arrival of the signal.

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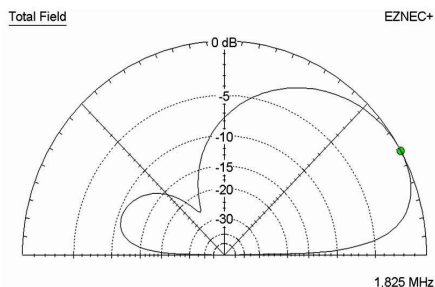


Figure 1. The elevation pattern for a K9AY Loop on 160 meters

- This is a daytime test. It should be run hours after sunrise and hours before sunset. Skywave signals will render the test meaningless.

- The modulation on AM radio station carriers can make S meter or other assessments difficult. The best way to test is using your receiver in CW mode and using the narrowest bandpass filter available. This will leave a stable carrier to measure with most of the modulation stripped off.

Figure 2 shows my K9AY loop termination box with the antenna wires connected. Figure 3 shows them disconnected. I consistently see a signal drop of more than 20 dB with the antenna wires disconnected compared to signals off the back of the antenna with the antenna connected. K9AY loops have a reputation for not performing well, yet mine does.

Let's take a close look at the construction of mine with particular attention given to how the grounds within the box are arranged. [W9RE once told me the worse an antenna looks the better it performs. Could this be part of it? My K9AY termination box is ugly!]



Figure 2. N4GG's K9AY Loop outdoor termination box.



Figure 3. N4GG's K9AY Loop outdoor termination box with the antenna wires disconnected.

Figure 4 is the schematic for the outdoor termination box of my K9AY loop. The antenna consists of a pair of wire loops arranged orthogonal to each other. Relays internal to the box switch between the loops and also reverse the ends of the loops to switch directions.

There are THREE grounds inside the control box. They are the shield of the coax carrying the signal back to the shack, the antenna ground which connects to a ground rod, and the negative side of the relay coils that do the switching.

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Note the connection to the ground rod and the rod itself are part of the antenna. Connecting anything else to the ground rod connection will result in unwanted signal incursion.

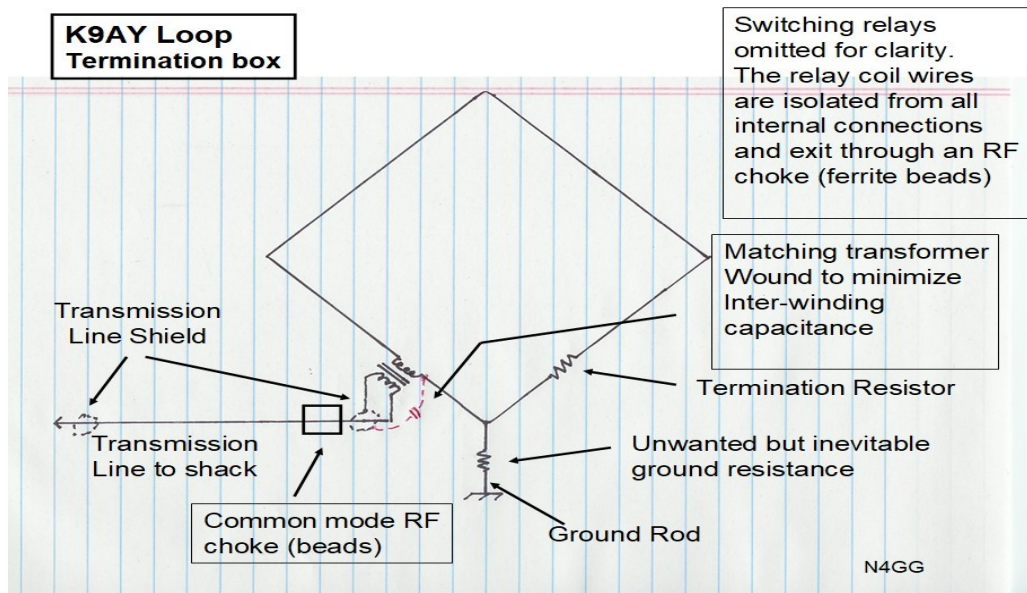


Figure 4. The schematic of N4GG's K9AY Loop outdoor termination box.

Look carefully at Figure 2. Note the coax feedline and the relay control lines are large in diameter for the first two feet from the termination box. Under the tape and heat-shrink tubing are about 100 ferrite beads on each line. These are there to prevent common mode current from flowing into the box. Inside the box the grounds are not tied together and the layout of the components has been managed to minimize capacitive coupling. It works.

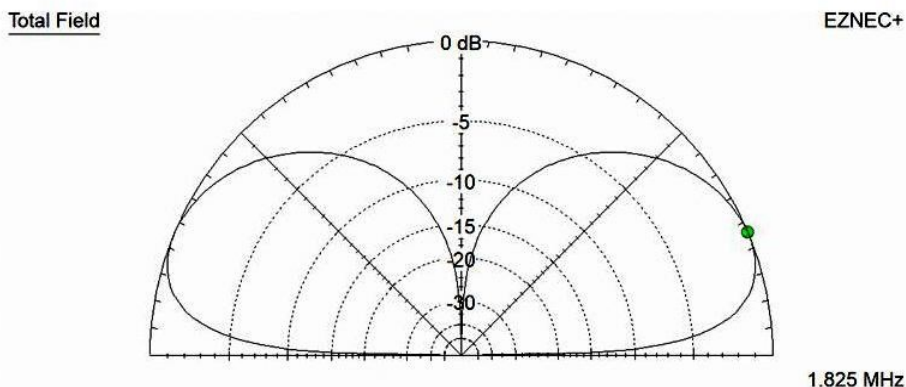
So, unhook the wires to your receive antenna outdoor box and see what you hear. Ideally you will hear nothing, but in practice signals well below the lowest signals you will hear with the antenna connected are all you need.

Note: For an exhaustive treatment of low band receiving antennas, I suggest obtaining a copy of *ON4UN's Low-Band DXing*. Published by the ARRL.

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How Does Daytime AM Broadcast Work?

Here is some homework. Figure 5 shows the elevation radiation pattern for a quarter wavelength vertical typical of those used to transmit AM broadcast. Figure 1 is the elevation pattern of a K9AY loop receiving antenna. The elevation pattern of a vertical monopole at your QTH and the AM antenna on your car will differ from Figures 1 and 5 but will share one thing in common. Their gain at zero degrees elevation angle is zero.



The gain of an AM broadcast transmitter is zero at zero degrees elevation angle. The receiver gain is also zero at zero degrees elevation angle for a K9AY loop as well as for most other receive antennas, including Beverages. If the transmitter radiates nothing at zero degrees elevation and the receiver can't

Figure 5. The elevation pattern of a quarter wavelength omnidirectional vertical antenna. The gain at zero elevation is zero.

receive anything at zero degrees elevation, how is it we hear anything on the AM broadcast band during the daytime? For this quiz, let's assume the transmitter and receiver antennas are at the same height above sea level and are well beyond line-of-sight of each other. Also, the antennas are not cross polarized. The coverage pattern for WSB-AM is given in Figure 6. Note WSB's signal can reliably be heard 100 miles from the transmitter (purple line) and often as far as 150 miles. This is during the daytime when there is no skywave propagation and the signal is not being reflected off the ionosphere. How is this possible?

I will leave it up to the reader; there is a lot to read about this. One of Marconi's earliest experiments sent an assistant to the far side of a tall hill - with a shotgun. If the assistant heard a signal he was to fire the gun. Sure enough, when Marconi transmitted the gun sounded. Marconi was ecstatic. His invention could go through hills and maybe through mountains too! Marconi was proven wrong as the years went by. His assistant did hear the signal, but the signal hugged the ground and went over the top of hill, not through it. But how and why does this work?

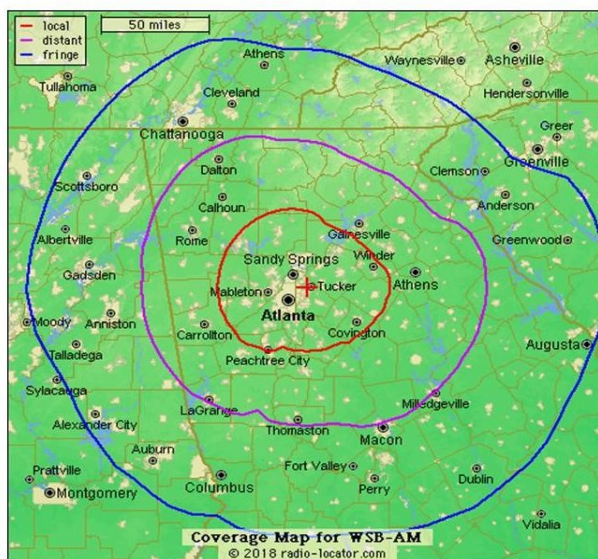


Figure 6. The WSB AM Daytime Coverage Area. 50 KW clear channel. 750 KHz.

Extra Extra! / From the Extra Class Question Pool

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



E8B01

What is the modulation index of an FM signal?

- A. The bandwidth of the transmitted signal divided by the modulating signal frequency
- B. The ratio of frequency deviation to modulating signal frequency
- C. The type of modulation used by the transmitter
- D. The ratio of modulating signal amplitude to frequency deviation

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](#).

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](#).

Contest Corner

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

+ CQ Worldwide DX Contest, CW	0000Z, Nov 27 to 2400Z, Nov 28
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Nov 30
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Dec 2 and 0200Z-0300Z, Dec 3
+ ARRL 160-Meter Contest	2200Z, Dec 3 to 1600Z, Dec 5
+ ARRL 10-Meter Contest	0000Z, Dec 11 to 2400Z, Dec 12
+ RAC Winter Contest	0000Z-2359Z, Dec 18
+ ARRL Rookie Roundup, CW	1800Z-2359Z, Dec 19
+ ARRL EME Contest	0000Z, Dec 18 to 2359Z, Dec 19

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 SIG** — 8:00 PM on ZOOM. Meeting ID is 815 5160 3634; password is CW-CHAT (all CAPS)
- **Every Saturday — Royal Order of the Olde Geezers "Breakfast"** - 8:45AM-10AM
This informal breakfast group on Saturday mornings is NOW ***AGAIN*** meeting IN PERSON. **A notice that Lodge Number 1 of The Royal Order of the Olde Geezers, will convey its weekly soiree at Reveille Cafe**, 2960 Shallowford Road, Marietta 30066 in the Kroger shopping center (Shallowford Rd and Sandy Plains). The festivities commence at 8:45 am on Saturday.
- **Second Tuesday — NFARES Meeting - December 14, 2021** ***Presently- Online meetings only*** Check NFARES.org for more information.
- **Second Saturday – VE Testing - NFARL December 11, 2021 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.
- **NFARL Holiday Party - December 10, 2021, 7:00 PM**
Preston Ridge Community Center - Sit down dinner \$15.00 per person. Reservations and tickets will be on the Mart , so keep watch for the details announcement.
- **Fourth Tuesday — NFARL Executive Team Meeting** - December 28, 2021, 7:00 PM ***Online meeting only*** — monitor website and NFARL Groups.io reflector for updates.
- **GARS TechFest** — January 15, 2022 9:00 AM– 2:00 PM Gwinnett Medical Resource Center, 665 Duluth Highway (GA-120), Lawrenceville, GA 30046 ***NFARL will be running a youth soldering workshop! Details forthcoming!***

Contact Us

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North Fulton Amateur Radio League

P.O. Box 1741
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eNews can be located online at:
<https://www.nfarl.org/enews/eNewsIndex.html>

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 Callsigns: NF4GA and K4JJ

Extra Extra answer: B (question E8B01)

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