



North Fulton Amateur Radio League NFARL eNEWS

March 2017

*Celebrating 40 Years
Service | Friendship | Education | Fun*

www.nfarl.org



40th Anniversary Celebration US Islands Club Contest !

US Islands NFARL Contest / Terry Joyner, W4YBV

Our US Islands club contest is off to a great start with 10 islands activated at the time of this article.

Two islands were activated in February down in the Keys, Windley Key FL051s and Matecombe Key FL61s with 10 contacts each. Then this past week Jim N4SEC and I set off on a 1200 mile truck ride and a 20 mile boat ride in Florida. We qualified (5) new islands for the US Islands awards program and the club NF4GA. Our first stop was on Coocie island, a drive on island about 6 miles up the Steinhatchee river from the gulf. We made 38 contacts in just a few hours. Next day Sunday we went to Dark island FL 513s and Kenton Beach island FL525s and made 10 contacts on each. Both islands were also drive on islands.



**Jim, N4SEC & Terry, W4YBV
Operating as NF4GA in US Islands Awards Program**

On Monday we went to Linsey Island FL526S, another drive on island, and qualified it with 26 contacts. On Tuesday we took a 130 mile truck ride South to New Port Ritchie Fl. and met up with my friend Jim Taylor. From there we took a 7 mile boat ride to Three Rooker Island, FL495s. We qualified the island with 47 contacts and headed back to Steinhatchee FL.

On Wednesday we put my 26 ft. boat in the Steinhatchee River and headed out to Lazy Island, FL514S, 3 miles down river. We made our first contact at 1601z and by 1730z we had made 34 contacts and qualified the island. With time left and the tide still in we headed up river 4 miles to Middle island, FL535R, and made our first contact at 1931z. By 2022z we had qualified the

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island with 34 contacts.

We have set the stage for our contest! Many of our contacts were NPOTA Chasers and looking for something new to do. We had a lot of pile ups like the ones in the NPOTA program. They will be looking for NF4GA all year long trying to make 40 contacts with us and get an award. This is great for ham radio and our club!

I did make a contact with Scott Straw, KB4KBS, while he was using the NF4GA club call on Columbia Island, DC001R. Scott was also experiencing some pile ups.

I hope many of you can take part in our island contest this year. It is going to be a lot fun!

President's Message / Mark Schumann, KK4FOF

So much for Flu shots! As you may know, I was unable to attend the February meeting because my family and I were hit with the Flu. As they say, The Show Must Go On and I want to thank Daryl Young K4RGK, Steve Mayes, KS4KJ and the Executive Team for stepping in at the last minute to ensure a successful meeting. I was also disappointed to have missed Scott Straw, KB4KBS's great presentation on "JT65 on the HF Bands" which I am looking forward to seeing on the NFARL Club Videos on YouTube!

As I mentioned in January, 2017 is NFARL's 40th Anniversary! The Executive Team has formed a committee to finalize plans to celebrate the club's milestone throughout the year. Terry Joyner, W4YBV kicked off the NFARL US Islands Award Contest at the February meeting. Members can participate as a chaser or an activator. Jim Paine, N4SEC and Terry activated islands in Florida the week of March 6th and Scott Straw activated several islands in the Washington, DC area on March 12th. Activators are encouraged to notify the club of upcoming activations on the NFARL Reflector and visit the NFARL website for more information. Plan on joining in the celebrations and enjoying some cake at upcoming events!

NFARL also wrapped up a General Ham Cram on March 4th. Unlike the one day Technician Ham Cram's, the students met on three consecutive Saturday's. We had 17 students attend the class with 10 students upgrading to General. I want to thank Elden Morris, N1MM for facilitating the class, Martha Muir, W4MSA for hosting the class at Mill Springs Academy and the NFARL VE Team lead by Hal Prosser, KK1B for administering the exams!

Next weekend is the Atlanta Science Festival (ASF) at Centennial Olympic Park. ASF is Atlanta's biggest interactive science event with over 100 exhibits. The event is free and is open to everyone with an interest in Science and Technology. Several area clubs will represent ARRL on Saturday March 25th!

The 57th Annual Georgia QSO Party is less than a month away on April 8th & 9th. This is your chance to be the "DX". It is also great practice for Field Day by "running", calling CQ and letting stations come to you. You can also earn a coveted NFARL certificate! Never participated? We can partner you with a mentor (Elmer). By last count we have over 25 members signed up to participate so plan on joining in on the fun!

I look forward to seeing everyone at the March meeting and Bill Morton's presentation on "Remote Stations"!

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!
- **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 but Internet is not required to join the net. Check NFARL Nets [website](#) for "how to".
- **Every Wednesday — Hungry Hams Lunch Bunch** - 11:15 AM
Slope's BBQ, 34 East Crossville Road, Roswell.
- **Every Thursday — YL Net** – 8:00 PM - 145.47 MHz (-) PL 100
Check NFARL Nets [website](#) for "how to."
OM's (guys) are welcome to listen in to this YL net.
Great opportunity to get your YL's on the radio!
- **Every Saturday — Royal Order of the Olde Geezers (ROOG) Lodge No. 1**
9:00 AM - Reveille Café, 2960 Shallowford Road, Marietta (at Sandy Plains and Shallowford). Everyone is welcome: You don't have to be "old" or a "geezer" to join this breakfast get-together.
- **Second Tuesday — NFARES Meeting** - 7:00 PM - 9:00 PM
Fellowship Bible Church, 480 W. Crossville Road, Roswell.
Check [NFARES.net](#) for more information.
- **Third Tuesday — NFARL Club Meeting** - **March 21st, 2017**, 7:30 PM.
Pre-meeting activities begin at 7:00PM.
Location: [Alpharetta Adult Activity Center at North Park](#)
13450 Cogburn Road, Alpharetta, GA 30004
Program: Bill Morton, W4ASE, presents "How Can I Be In Two Places At Once - Changing the Laws of Physics"
- **Fourth Tuesday — NFARL Executive Team Meeting**
March 28th, 2017, 7:00 PM
Location: [Arbor Terrace at Crabapple](#)
12200 Crabapple Road, Alpharetta, GA 30004
Meetings are open to all NFARL members. Space is available on a first arrival basis. Please contact the [President](#) to ensure available space.

Antenna Observations / Jim Stafford, W4QO

I hear a lot of comments about antennas on the repeater, on Tech Talk (Mondays, 8:30PM) and on reflectors everywhere. I have to really bite my tongue sometimes, which is not my nature! I have put forth from time to time a series of suggestions for ham operators and this article is about antennas, feed line, SWR, etc. By no means is this a total list nor will everyone agree with my "observations".

- 1. A LOW SWR CAN KILL YOU ...** That was from an article by Walt Maxwell (SK), W2DU, back in the 70s and what he meant was if you are going up a ladder or climbing your roof or tower to lower your SWR and fall off trying to achieve a 1:1 match, you could be DEAD! My friend Dave Fischer, W7FB, says "if the SWR is less than 10:1, call CQ". While that might be a bit high, certainly anything below 3:1 or 4:1 is fine as long as your rig will not cut back the power at that level of SWR. Most do not. So I'd prefer not to hear things like "my SWR is high on 80M as it's 2.7:1, so I can't operate that band". The copy of Walt's Chapter 1 of his book can be found here: <https://www.scribd.com/document/98115017/Too-Low-an-SWR-Can-Kill-You> In certain portions of the 10M band, my YAGI shows a 4:1 reflected power, yet I have worked well over 100 countries at 5 watts or less with that YAGI.
- 2. A HIGH SWR CREATES MORE LOSS IN COAX CABLE...** While this is true, it is not as great as you might think. In that same article, Walt shows a graph and here is an example. If you have coax cable that has a 1 db loss at some frequency (loss does go up with frequency), you only add an additional db of loss when the SWR goes to 5:1. If the SWR is 2:1, the loss is only 1.2 db vs 1.0 db with a perfect match. Now it really goes up quickly above 5:1 so at that point, you should give consideration to using a better matched antenna. Your first move should not be to run out and buy LMR-400 to reduce the losses at HF for example.
- 3. THE REFLECTIVE POWER COMES BACK INTO MY TRANSMITTER AND HARMS IT...** no, no, no! It might make things look a little weird when you take measurements but the power that comes back to the transmitter gets reflected to the antenna. Of course, all this bouncing back and forth encounters the cable loss (sort of) on each trip of the cable. So it might heat your cable a tad. Here is what Walt says in that Chapter 1 of his book: *Adding still further to the confusion is the old-wives' tale that the reflected power is dissipated in the transmitter, causing tube and tank-coil heating and all kinds of other damage. This myth developed out of ignorance of the true mechanics of reflections and became the easy, but fallacious, explanation of what seems to be abnormal behavior in the transmitter when feeding a line with reflections.*

- 4. I HAD BETTER USE REALLY BIG COAX TO REDUCE LOSSES.** Well, in some cases, YES. At VHF and UHF, losses do mount up but at HF, I think RG-8X is the best value and balance between losses and costs. For that discussion, let's look at a site that shows losses for various types of COAX cable vs length vs frequency. This comes up on Tech Talk

Set Parameters as Desired	
Line Type:	Belden 9258
Line Length:	70 <input checked="" type="radio"/> Feet <input type="radio"/> Meters
Frequency:	28 MHz
Load SWR:	4 : 1
Power In:	100 W
<input type="button" value="Calculate"/>	

Results	
Matched Loss:	1.109 dB
SWR Loss:	0.881 dB
Total Loss:	1.99 dB
Power Out:	63.246 W

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every couple of months, so check out this site: <http://www.arrg.us/pages/Loss-Calc.htm>
Now for one simple example. As you can see, the loss of the cable when the SWR is 1:1 is 1.109 db. Adding in the loss due to SWR yields another 0.881 db for a total of 2 db. Yes, the power loss looks sizable but as to the other person's reception of your signal, two 2 db is 1/3 of an S unit and only 1 db of that is related to SWR!

5. **THOSE eHAM REVIEWS LOOK GOOD FOR XYZ ANTENNA.** This one sort of bothers me the most. I know, every antenna is better than no antenna, but my experience would indicate that many reviews are by folks have only that single antenna be evaluated. Here are some general guidelines:

- a. Get the most wire the most high... well, the most wire part may not apply to say 2M but for HF that is a good rule to follow. The antennas that are very small always perform worse than a full size dipole. When you see the words ISOTRON, TAK, MAGIC, or NO RADIAL VERTICAL, I'd look for more input before purchasing. My guess is that you will not purchase even if the eHAM ratings look very good. Be sure to check on those "1" or "0" ratings before you buy. Or even contact one of the NFARL antenna "elmers" for their input. One of our members bought a vertical that boasted low SWR from 1.8 Mhz to 6M with NO RADIALS and to top it off, it cost over \$400. It was basically a "fraud" and was returned to HRO who gladly refunded his money. He went with the MFJ 40-6M OCF which worked really good for him.
- b. Horizontal wire antennas almost always perform better than a single element vertical. The latter may be all you can erect at your location due to HOA, etc. But if you have a house and one tree or a telescoping fiberglass pole, you will do better with a wire at 25 feet horizontal than a vertical. Plus verticals usually require radials which are more difficult to deal with. I once used 2 sections of the metal TV mast for several years. The other end came to the eave of my house, supported a dipole fed with open wire feeders (very low loss), and was only 20 feet above ground! Worked pretty good; worked lots of states and countries with it on several bands with a simple tuner which I built on a plywood board. No shielding!
- c. Speaking of radials... If you need to use a vertical, elevated radials at 2 feet above ground perform much better than those in or on the ground.
- d. Try building your wire antennas. Yes, you might need a "store bought" balun for example, but wire antennas are very easy to build and you get a lot of satisfaction to boot. Again, ask the NFARL elmers for help; they are most willing.
- e. There is no free lunch in antennas.. by that I mean that if you get gain in one direction it has to take away from gain in another direction. This can be great for antennas such as rotatable YAGI beams. I believe in horizontal wire loops as a high value antenna. They are wire, and do not cost a lot to build BUT while they do perform well in certain directions they may also have nulls in other directions. See my article on the NFARL website for antenna patterns looking down from above:
<http://nfarl.org/articles/loopSkywire.html>
- f. Another very useful wire antenna is a different kind of loop – the vertical delta loop.

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This one was presented at a club meeting by Chuck, AE4CW who looked at different feed points and lengths of feedline to achieve an antenna system that is easy to load on many different bands. He called it the Side Fed Inverted Loop:
http://www.nfarl.org/sigAntenna/SFIDL_Handout.pdf

Well, I could go on and on but thought I'd bring some of these points (opinions) to your attention. Yes, you will find other opinions. That's fine. Check them out. Research on the Internet. Ask friends in the club. It's all about LEARNING. And after all, that's one of the cool things about ham radio, isn't it?

Georgia QSO Party / John Tramontanis, N4TOL

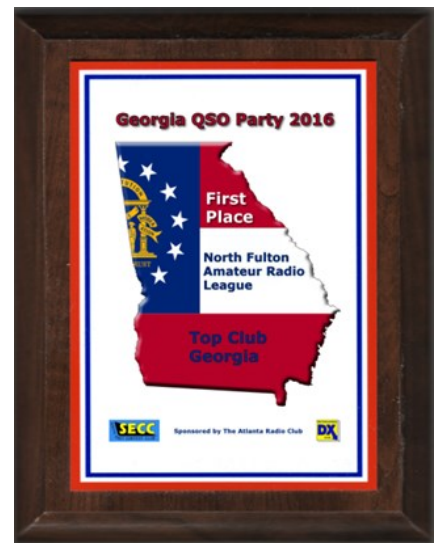


The 2017 Georgia QSO Party will be held on April 8-9 with **two operating periods**: 1800Z (2:00 pm EDST) Saturday until 0359Z (11:59 pm EDST) Sunday and 1400Z (10:00 am EDST) to 2359Z (7:59 pm EDST) on Sunday.

This is your chance to "be the DX." It is a real opportunity to practice "running," calling CQ and letting other stations come to you. All NFARL members and friends are encouraged to join in the GQP. Special "coveted" NFARL certificates will be awarded to all club members for participation in the contest and also certificates will be awarded for key accomplishments in select categories.

Also, a strong effort may earn you a "GQP" Award Plaque from the contest sponsors. There are many categories in which to compete at various power levels and modes. Several NFARL members have etched their names into GQP contest history with such an accomplishment, as well as the club earning top honor last year.

Please visit the contest website for details:
<http://georgiasoparty.org/>



The site will provide information such as: the contest rules, categories and awards, county lists, and many other details.

Please contact me with your intent to be part of the NFARL contest team for the GQP and we can put you on the list or feel free to contact me at n4tol@arri.net with any questions.

I look forward to working you in the contest.

73, **John N4TOL**

DXing From Curacao (PJ2) / Nathan Wood, K4NHW

Imagine taking a week-long trip to a beautiful island in the southern Caribbean just off of the coast of South America. Your accommodations are straight from a travel magazine with a spectacular view of the coastline. Just outside your room, the private infinity pool simply disappears into the ocean. The only sounds that you hear are the songs of the native exotic birds along with the waves crashing into the shore below. You are truly secluded from the hustle and bustle of any city. In fact, you are one of the only human beings present for miles!!!! Your day is filled with counting the ships as they pass on the horizon and enjoying the brief showers that blow through every day or so.



Your balcony overlooks 3 guyed towers with antennas too numerous to count. Dacron, coax and radials trace every crack and crevasse of the property. A house, plain yet full of character, is nestled long the coast. Inside, you find 2 modest bedrooms, a kitchen and a sitting area. But right in the center of the floor plan is a ham radio operators dream; 4 individual radio consoles, 2 of which are K3's and the other 2 are FT 2000's. Each station has its own computer, Heil headset and an iambic paddle. Each station is also fitted out with its own legal limit amplifier and an antenna switching system that gives you access to any antenna on the property. The only thing you won't see anywhere is an external antenna tuner. This is because every antenna is cut so that the SWR is never over 1.5:1 in the intended spots on the band!



This is precisely where I found myself from February 28th through March 7th of this year. Bob Allphin, K4UEE, lead a group of 15 operators (of various skill levels) to Curacao with the primary intent on reclaiming the first place spot in the ARRL International DX phone contest. Some operators were well seasoned from some of the top dxpeditions. Others had a little experience in operating from the "fun

side" of the pile up and a few had no experience other than their home stations. All of us were members of the SEDXC and shared a love for ham radio and travel.

In preparation for this trip, one of our duties was to study some material on DXing and how to handle the anticipated pileups! The topics included how to respond to partial call signs,

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preventing and managing QRM and other tips for keeping our Q rate as high as possible. This study proved to be invaluable while operating.

In the days leading up to the contest weekend, we had a chance to operate as PJ2/ our home calls. This allowed us to stretch our legs out a bit and practice before the big event. It's one thing to study for something. It can be a totally different story to put those lessons to use. Some enjoyed working JA's early in the morning on 40m. I got a kick out of working ZL on 15m, long path off the side of the beam! Just hours before the contest, the stations were set up and ready for the pileups.

At 0000 UTC, the flood gates opened and we had our top operators at the helm. The individual Q rate broke 300/hr very quickly. Multipliers were filing up and the point count kept rising. This continued for 48 hours! The only variant were the operators, the bands and at times the rates. Otherwise, butts were in the seats and the contacts were being made all day and night.

A wise man once said "contests are won and lost on 10 meters". Boy, was he right! We had a station assigned to monitoring 10 meters during the most probable times of openings. When we started hearing Caribbean stations on 28 MHz, we knew it was coming! When the MUF line hit the shores of the states, it was like the Hoover Dam busted wide open! It didn't take long for the multipliers to fill in across that band too!



Come 2359 hrs UTC Sunday night, the bell rang as if it were the closing of the NY Stock exchange! With over 10,000 q's and well over 10 million points, we celebrated as the presumptive winners of the "multi multi" category.

The days following the contest were spent wrapping up the trip with sightseeing, souvenir shopping and resting from the busy week in paradise. We concluded the trip with a cookout for the team and our newly acquainted friends. A few ham radio operators have some mad cooking/grilling skills too!

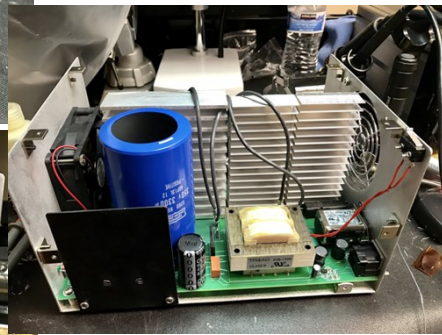
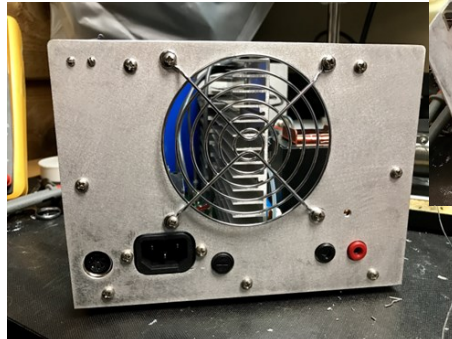
I share this with you in hopes that it may spark a desire to do the same. Yes, it takes time, resources and discipline but in the end, it is so worth it! This portion of the hobby isn't for everyone. But if my story sparks an interest, it's worth looking into. For me, this was my 4th DX entity (outside of US) including HH2 (Haiti), 6Y5 (Jamaica), 9Y4 (Trinidad and Tobago) and now PJ2 (Curacao). I made over 1,200 contacts while in Curacao. I guess you could say that I've got the bug.

'til next time....73's de **K4NHW**.

Building the High Voltage Power Supply Featured in the January 2017 Issue of QST Magazine / Mack McCormick, W4AX

As many may know I like to collect and restore vintage receivers and transmitters plus I am an avid builder. When I saw the 3.3 KV at 1 amp switching power supply featured in the January 2017 QST I knew instantly I wanted to build it to power RF amplifiers and also to further my knowledge. This power supply was designed by Ralph Crumrine, N0KC, a former Honeywell design engineer. His design is elegant though complex. The secret component in his design is the 60 KHz high voltage transformer that features one primary winding and three secondary windings. The transformer is smaller than the palm of your hand. Because of the frequency and

high voltages careful attention to detail is required to prevent excess winding to winding capacitance and possible arc overs to ground. The transformer insulation must stand off at least 5 KV to ground. Careful insulation is required at several places on the board and chassis. The two FET transistors used for switching the 480 volt DC primary voltage are rated at 60 amps and cost \$35 each. The power supply requires 240V AC input at 10 amps. The total project parts cost is about \$600.



Building the project was relatively straightforward but only for the experienced builder. Ralph graciously provided the printed circuit board, detailed drawings, and the transformer for a modest fee. Parts were ordered from DigiKey and eBay using his parts list. The sheet metal work must be done yourself and it is very detailed and complicated. Extreme attention to detail is required because you are dealing with close tolerances and very lethal voltages. It is doubtful you would survive touching the high voltage output. There are 83 surface mount parts to be installed. Most of the parts are 1206 size and easily handled. I hand placed the surface mount parts and used a custom built reflow oven to follow the specified temperature curve for the solder paste.

Ralph tells me I'm the first person to complete the power supply so if you are an experienced builder and need a power supply that provides high voltage at high current then this is an excellent project. It performs exactly as designed. Under load at 500ma in a 1.5 KW amplifier the voltage only sags by 50 volts. This is quite remarkable.



So, while you may not build this project I encourage you to include building as part of your ham radio hobby. The insight and knowledge you gain are invaluable. If you'd like to see some of my vintage collection you can go to <https://qrz.com/db/W4AX>. Shack visits are always welcome.

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Club Repeaters

Frequency—Description	P.L. Tone	Location
145.470 (-) EchoLink Node 56086 NF4GA-R	100 Hz	Sweat Mountain
147.060 (+) Primary ARES Repeater	100 Hz	Roswell Water Tower
224.620 (-) Joint Venture with MATPARC	100 Hz	Sweat Mountain
443.150 (+)	No Tone	Roswell Water Tower
444.475 (+)	100 Hz	Sweat Mountain
927.0125 (-)	146.2 Hz	Sweat Mountain

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