



NVARC

Signal



VOL. XXXIII... No. 11

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November 2024

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Next Meeting

Meetings are held at the
Pepperell Community Center
at 4 Hollis Road in Pepperell
MA.

Next meeting:

7:30 PM November 21, 2024.

The meeting will be our
annual QSL Card Sort and
Pizza Party



Weekly 2-meter Net

The NVARC Information Net
is held Monday nights at
7:30PM local time on the
2m N1MNX repeater –
147.345MHz +100PL.

Clarksburg State Park (Clarksburg MA) is
a lovely location for a Parks On The Air
activation!

President's Corner

Bruce K1BG

November is here! The November NVARC meeting is traditionally my favorite meeting of the year. We get a visit from Eric Williams, KV1J, who manages the W1 QSL bureau. For our newcomers, the W1 QSL bureau is where QSL cards from hams around the world are sorted and distributed to US radio amateurs with a "1" in their callsign. Outgoing QSL bureaus bundle outgoing cards from hams in their countries and bulk mail them to incoming bureaus, thereby saving international mail costs for single cards. At the November meeting, we do a first level sort so that the cards can begin the distribution journey to their final recipients.

In past years, NVARC has sorted over 20,000 cards at a single meeting. With the advent of Logbook-of-the-World, these numbers have gone down, but the need is still there. The meeting is the best of all worlds – it's a great time to socialize with other club members, provide a needed service to our fellow radio amateurs, and partake in a pizza and soft drink party after the sort. Please attend – talk, sort, and eat

New club member Eliot, W1MJ (who BTW coordinated the excellent fox hunt in October) has volunteered to be the NVARC webmaster. He is in the process of porting the webpage to a modern, WordPress based page. Before it goes live, club members will be given a link and an opportunity to comment on the direction of the page. More details will be forthcoming via the club email reflector. NVARC's latest round of Technician License classes is underway, with approximately 8 students in attendance. I say approximately because due to busy schedules we sometimes have more and sometimes less! Kudos to Les, N1SV, and Bob, N1DVC, who are helping with the class. Our classes are being held at Grady Research in Ayer on Monday's and Wednesday's. If you are interested in helping or just sitting in on a session, please let me know.

Last month I mentioned one of the least pleasant aspects of being club president – announcing the passing of hams that have contributed to the fabric of NVARC in the past. We recently lost additional amateurs. Harvey Serreze, W1HBS (formerly K1KKS) passed away in July. Harvey happened upon our field day site in June of 2016 and immediately signed up as a member. He had been an amateur as a teenager and had been inactive for years. NVARC re-ignited his passion for the hobby. I'm particularly saddened to report the passing of John Kelly, GM3TCW. John's daughter Marie and her husband Paul and family moved to Harvard Massachusetts in the late 1990s. When John and his wife Mary came to visit, John immediately became a fixture at NVARC events. Field Day, club meetings, Saturday breakfasts, and club picnics. You name it and John was there. While the visits to Harvard ended when John's son-in-law was transferred elsewhere some years later, our affection for John did not. John has been awarded honorary membership by the board since then. Rest in peace my friends. 73.

It was suggested at the last board meeting that the club get together over the holidays for an informal dinner at a local establishment and just have an "evening out". Any suggestions regarding a venue that would accept us? Let us know.

I was recently reminded that the Signal should make members more aware of activities and benefits that are available to all club members. Are you receiving emails from the "email reflector"? The address of this is NVARC(at)n1nc.org. The reflector is a place where members can chit-chat, ask questions, or just receive interesting information regarding the club. If you are not subscribed, contact club treasurer Ralph Swick, KD1SM, at KD1SM(at)ARRL.net. For newcomers, NVARC members have been getting together at Tiny's in Ayer for perhaps 30 years! We gather in the rear dining area around 7:30 AM for a coffee session. Breakfast orders go in at 8:00 AM sharp. We eat and converse until around 9 AM and then attend our weekend activities.

See you at the November meeting. It is always fun!
Bruce, K1BG



Bruce K1BG with John GM3TCW(SK)



Courtesy N1SV

Stretching my brain, but Eric W1ZBT(SK), Nancy KB1KEF, Gary K1YTS, John GM3TCW(SK), Bruce K1BG, Dennis K1LGQ, Peter N1ZRG, Bob W1XP, Karen KA1JVU(SK), Les N1SV, Dave N1MNX

Treasurer's Report

Ralph KD1SM

Income for October was \$290 in membership fees. Expenses were \$8.10 in PayPal fees leaving a net income of \$281.90 for the period.

Current balances:

General fund \$3,273.10

Community fund \$7,128.25

As of 7 November we have 46 members who are current with their dues and 44 renewals outstanding. Renewal months are in the member list on www.n1nc.org in the Member's area; check yours on <https://www.n1nc.org/Members/Roster> or you may also email me.

Special thank you to those of you who mail your renewals or use PayPal without a reminder.

To pay membership dues via PayPal see the instructions in the same Members area.

If you are joining ARRL or renewing your membership please note ARRL's instructions to enter your NVARC membership information. As an Special Service Club, the ARRL expects a majority of Club members to also be ARRL members and will send a portion of your new or renewal ARRL membership fee back to the Club.

Contact Ralph for further information if you need it.

Board Meeting Report

John K1JEB

John KK1X reported that the Signal has 16 pages of content.

Eliot W1MJ is currently working on a new NVARC Website

Jim N8VIM needs someone to record video at the Club Monthly Meetings when he's unable

Bruce K1BG will request that Eric KV1J from the QSL Bureau give a short class on how the QSL Card Bureau works during this month's QSL Card Sort.

November NVARC Meeting will be the QSL Card Sort

December will be Show and Tell Night

January will be the Short Subjects Night

The NVARC weekly Monday 2-meter NET is currently not very active.

Jim has indicated that the GMRS antenna on the repeater site is temperamental. The 2-meter antenna is working and has an SWR of 1.8:1.

Bruce K1BG and Les N1SV have completed the 2nd session of the Technician Licensing class.

Bruce K1BG has delivered the signed HR-4006 letter to Representative Trahan

Board had a discussion on the possibility of a Club Holiday Dinner Gathering.

The board approved Card Sort Night pizza & drinks budget not to exceed \$150.

Opinion: Why Do The Only Look Back? Skip, K1NKR

Occasionally, our hobby gets some featured reference in a major magazine or media outlet. I was catching up on IEEE Spectrum this morning and found such a reference. You can read it in the September 2024 issue and is available at <https://spectrum.ieee.org/ham-radio-inspired-scranton-student>. Trouble is, in the print version the article is titled “Student’s Retro Hobby Sparks Engineering Path.”

“Retro?” Why are we always referred to as retro?

Heck, take a look at the media hits listed in the ARRL Letter. The best we can do is being portrayed to the public as “not your grandfather’s hobby.” All this is happening in a so-called high-tech world where people don’t even know that their cellphones are actually radios. By comparison, we’re experts in science and technology. We should be and we are.

Houston, we’ve got an image problem. The public doesn’t know who we are—or that we’re a significant resource for STEM education.

Think about what’s going on in our “retro” hobby. For our microwavers, 10GHz is hardly more than “DC” any more. (Long ago anything above 50MHz was considered “ultra-high frequency.”) EME is hardly a challenge anymore. We know more—firsthand—about auroras and CMEs than your local weatherman. There are full-motion TV experiments being conducted on 10 meters. WSJT lets us dig signals out from under the noise. We deploy remotely controlled stations to the far corners of the earth to put seldom-occupied DXCC entities on the air. And on, and on.

By the way, the electronic version of that Spectrum issue has an interesting article: <https://spectrum.ieee.org/first-tv/> It’s actually the source for the shorter “Past Forward” feature that occurs on the last page of each month’s magazine. Still, did you know that QST carried advertisements for synchronous motors for TV experimenters in the 1920s? The May 1930 issue of QST actually called for the nation’s electrical transmission system to be synchronized so that innovations like TV would be more practical. Now, that’s evidence that we’ve always been on the leading edge of technology and public policy.

Retro indeed. How about changing our image to “neighborhood hobbyists who have been working on the forefront of technology for over a century?” Maybe the public only looks back because we let them.

Outgoing DX QSL Service

One of the benefits of being a NVARC member is that the club will forward DX QSL cards to the ARRL Outgoing QSL Buro at club expense. Cards should be sorted by DXCC listing and proof of ARRL membership (e.g. QST mailing label) is required. Interested members should bring cards to a meeting and give them to Rod, WA1AC.



Made in New England
Leo, K1LK



K&D Manufacturing was started in 1876 by watchmaker Frank Kendrick and dentist Dr. W F Davis, a silent partner. Based in Lebanon NH, early products were watchmaker tools and dental equipment that are collectible today. By 1900 they had 50+ employees when electricity arrived. Future radio manufacturer Atwater Kent came in at that time to head the design of electric motors and electrical apparatus. Photo above displays one of their rheostats, used for many applications and electrical experiments. The company stayed in business until 1991. Dissolved in 1993, assets were ultimately sold to Boston Dental.



K. & D. Improved Rheostat and Switch

No. 23
Resistance 10 Ohms. Continuous Capacity
2 Amperes.

SUITABLE for regulating miniature lamps, the speed of small motors, and a great variety of service which it would be impossible to mention in detail.

Owing to the peculiar construction of this rheostat, the change of resistance takes place very gradually on movement of the lever, and not by sudden jumps as in the ordinary construction.

The resistance coil has approximately 160 convolutions, and as the rate of change in the resistance on movement of the lever is by single convolutions, it will be seen to admit of very fine adjustment.

The coil is made of a special high-resistance wire, which is very strong, and will not corrode; no soldered connections with the resistance coil.

The coil is air-cooled, and works on our maximum rated capacity at a remarkably low temperature.

Experimenters, dentists, surgeons, dermatologists, and all artisans and scientists will find this a most satisfactory and efficient small rheostat and switch.

The workmanship and finish is *first class*. Metal parts nickel plated. Hard rubber handles. Bases of seasoned wood, polished. Dimensions: 3½ inches diameter; total thickness, including rubber handle, 1½ inches.

DIRECTIONS

When the lever rests on the button marked "out," the coil is cut out, but the circuit is unbroken. To introduce resistance, move the lever in the direction shown by arrow, and *vice versa*. When lever rests on the button marked "off," the circuit is open.

—PRICE 75 CENTS—

Manufactured by **KENDRICK & DAVIS, LEBANON, N. H.**

A Motorized Antenna Tuner System George KB1HFT

For years, I have been involved with microprocessors, decades, really. I've been fascinated with the idea of a microprocessor controlling DC Stepper motors to do something useful. That probably has something to do with my time with the Hi-Speed Checkweigher¹ company, in the 1970's, when I was programming actuators for industrial process control systems. The Intel 4004 & 8080 microprocessors were cutting edge at the time.

Much later, as a Ham, I came up with the idea of a microprocessor-controlled antenna system tuner. I was intrigued by a 3-part series of articles of such a tuner in QST by W8ZR, James Garland. The series was later published as the cover feature article in the 2003 Handbook. James had designed & built a cool automated 1500-watt Transmatch type of tuner with stepper motors to drive the variable reactances and a Basic Stamp² processor, programmed in Basic to run it. Jim had made up sets of unpopulated PC boards for sale, so I bought a set. The boards have sat in my project queue for 22 years now.

So, several year ago I determined to revive the tuner idea, using current technology. My major design goal is to come up with a device that will provide the transceiver with its optimal operating load, while keeping total antenna system losses low. I realized that I would need to do a ton of research, fabrication, and programming.

I'm a tyro in the realms of circuit design: I'm more of a computer geek. So, I consulted with OMs that are seasoned in circuit and RF design. I have particularly focused my questions on the finer points of impedance matching. I admit that I'm not at the level of really understanding the mysteries of scattering parameters, but I can tell you why a high return loss is good .

Transceivers are usually designed to operate optimally when they are driving a 50 ohm non-reactive load, in other words: 50+j0 ohms. If I tune to SWR=1:1 with a tuner at the shack end of my 50 ohm feedline, the transceiver, which is looking into the tuner, will see a 50+j0 ohm load, and will be able to transfer energy with no reflections.

In order to provide the 50+j0 ohms input impedance, I must have set the tuner components so that they transform the impedance looking into the tuner from the feedline, into 50+j0 ohms looking into the tuner from the transceiver. The transceiver is happy: energy flows optimally through the tuner and up the feedline.

¹ Now subsumed into Mettler/Toledo.

² <https://hackaday.com/2015/08/27/before-arduino-there-was-basic-stamp-a-classic-teardown/>

³ $RL(dB) = 10\log_{10}(P_{in}/P_{reflected})$

“From a certain perspective 'Return Loss' is a misnomer. The usual function of a transmission line is to convey power from a source to a load with minimal loss. If a transmission line is correctly matched to a load, the reflected power will be zero, no power will be lost due to reflection, and 'Return Loss' will be infinite. Conversely if the line is terminated in an open circuit, the reflected power will be equal to the incident power; all of the incident power will be lost in the sense that none of it will be transferred to a load, and RL will be zero. Thus, the numerical values of RL tend in the opposite sense to that expected of a 'loss'.” – from Wikipedia on “Return Loss”.

A Motorized Antenna Tuner

Upon reflection⁴, however, I realized that the situation at the other end of the feedline can be problematic, since the impedance looking into the feed point of my weirdly dimensioned antenna, at some random frequency, is not likely to be the $50+j0$ ohms that is needed to match the feedline and avoid reflections back down the feedline. Reflected energy will flow back & forth up & down the feedline. This will transform some of the energy into heat; energy that I want to radiate as RF! The coax can sometimes get hot!

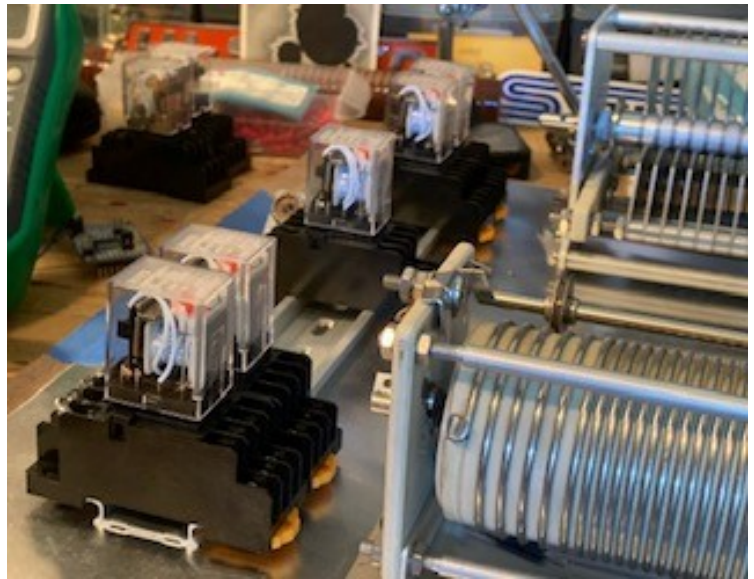
How about if I put a motorized tuner at the antenna feed point, with its controls down in the shack? There would be no tuner in the shack and reflection losses would be minimized.

So, Watson, the Game's afoot! I'll come up with a remote motorized tuner!

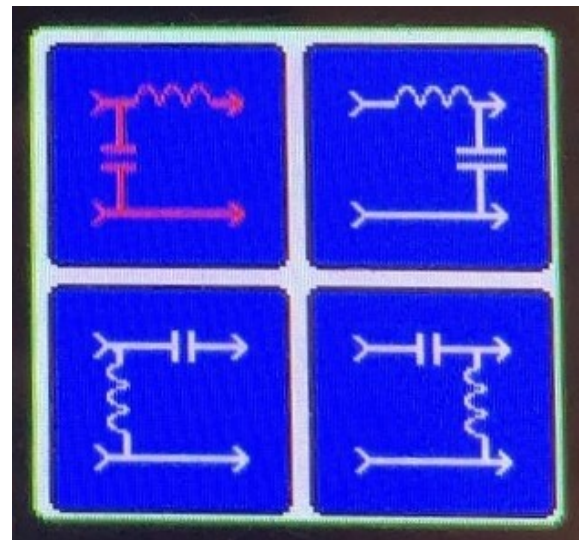
Over the decades I have accumulated pieces of a W8ZR type of tuner and have consulted with experts in RF design on the finer points of impedance matching. Among other tips received is that a tuner design with only two reactances and a switchable topography, instead of the usual three reactance T network, would be easier to fine tune. Simulations with SimNEC bear this out graphically.



Over the past year I have begun assembling a prototype of such a thing, designing as I go. Here, laid out on a ground plane, are a roller inductor, on the left, with its driving stepper motor. The capacitor and its stepper are on the right.



Above the reactance elements are relays that will be used to alter the connections between the reactances, giving the four possible configurations on the right:

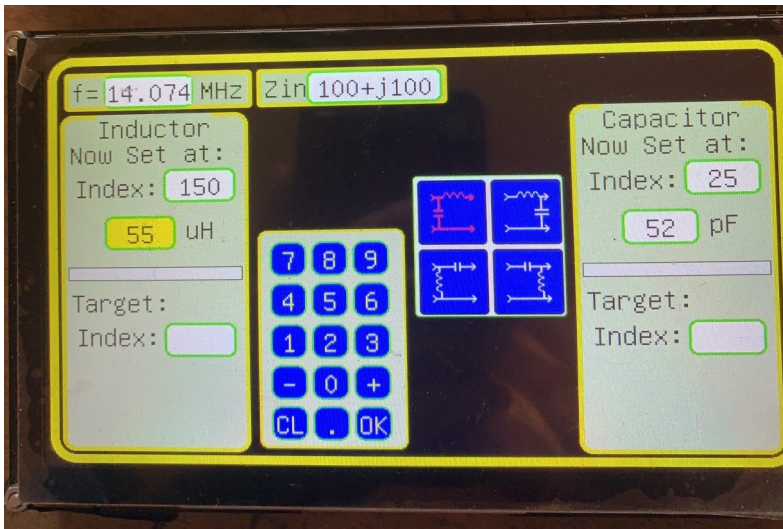


⁴ Pun intended

⁵ SimNEC. It's Free:

<https://www.dropbox.com/scl/fo/npviayd3suq8fr7pxx62i/h?rlkey=80ckskojj8e3efs7njtae7ybv&e=2&dl=0>

A Motorized Antenna Tuner



A touch screen will provide a user interface to control the tuning.

My plan is to get the basic functions of the tuner and UI constructed and coded (in C++) on a Teensy 4.1 microprocessor.

The touch screen user interface will be built on a windowing system that I had devised several years ago.

Then I'll add a tunable signal source as part of a "3-voltmeter method" impedance monitor. By using the 3-voltmeter circuit and a little trigonometry as I tune, I'll be able to see the complex impedance at the input to the tuner vary. If I can get a reading of $50+j0$ ohms, the entire system will be matched with no tuner in the shack. Voila!

I'd build and test all this in the Lab. Once working, I'd separate the UI part from the mechanical part to make the tuner controllable remotely. Maybe via WiFi?

It would be quite cool if I can then enhance the programming to make it an "auto-tuner". That is, I'd program it to automatically find the sweet spots that produce $50+j0$ ohms at minimum internal tuner loss. Now THAT would be sweet.

I might even add a Smith chart display. [Caution: Scope Creep!]

Hmmm... As my grandfather used to say: "We shall see". Stay Tuned!



Our October Guest speaker was Philip Gladstone N1DQ. Philip is author and maintainer of PSKReporter.com. Typically, thousands of hams around the world send reception reports in near-real-time to PSKReporter, which archives the information, and allows hams to examine world-wide instantaneous radio propagation.

Bruce K1BG awards NVARC coffee cup to Philip Gladstone N1DQ after Philip's October 2024 presentation on PSKReporter.

Working POTA John KK1X

October was a much slower-paced month than September. I had my 500 contacts by the 21st, on a leaf-peeping tour out to Clarksburg State Park, only about 40 miles or so from Albany. It was a new park for me, and it was a gorgeous day to sit at a picnic table playing radio. I managed 18 contacts on

20 meters FT8. I needed 10 to make my quota of 500 contacts for the month. Peg read a book while I operated.

I managed to add a few new parks to my collection (current standings are 338 activations in 141 parks, totalling 9207 QSOs), but I've worked pretty much all the parks in Central Massachusetts. New parks will require a drive of an hour or more...

A new twist – I've recently done a couple phone activations. I've always had the gear with me (what, you don't carry two HF radios in the car?) but default to FT8. But the phone was kind of fun, once I got it through my head that this was not Field Day, and the call was NOT N1NC.



Yet Another Antenna John KK1X

The one antenna I tested was inspired by watching a video from Tim, G5TM, which I briefly mentioned in last month's Signal. That test iteration was built using the core from a roll of produce bags and whatever wire I found laying around.

A proposed JOTA (Jamboree On The Air) operation was in the offing, so I wanted a QRO version of the antenna. I cut a section of 4" drainage pipe (the light stuff made of corrugated plastic) and wound the calculated (K7MEM.COM) number of turns, 18 if I recall correctly. See construction article on page 10 for methods. While I would have liked to use one continuous length of wire it was impractical to tune the coil. Instead I terminated the coil in #10

stainless machine screws and added upper (~51") and lower (~200.5") elements. The corrugated drain pipe weighs very little and is considerably less expensive than pressure-rated PVC. Plus, I had a length of it already on hand. It cuts easily with a hand saw. Not shown are the big ugly notches in the back side to allow room for the screwdriver to tighten the screws. The screws are held in place by fiber-insert nuts. The upper and lower elements are terminated in ring terminals secured between two washers with a wing nut.



Is This Antenna Too Short?

(or is it just far away?)

John KK1X

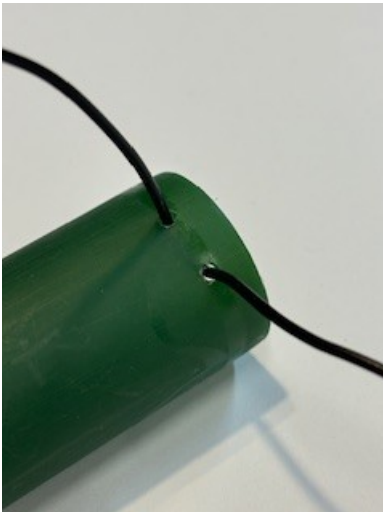
Friday 4 October, Hunting Hills WMA in Townsend, about 2050Z, 1650 local. Ground mounted vertical with 6 radials. 20m, looking to score big DX with 5 Watts as the grey line approaches. Half a dozen domestic calls come in, mostly midwest. Then an HI, followed by HG, IZ. SP, EA. Then the DX fizzled out as the grey line turned to dusk. 20 meters isn't cutting it. I could erect a different antenna, but gee, that's work. My inner Maynard G Krebs objects. I'd like a simpler solution, so I'm going to build a base loading coil for this antenna.

I've seen advertisements online, and reviews posted on YouTube, of such coils - the Wolf River is one example, though there are several, all with one common trait - they cost a lot of money for what they do. Granted, the Wolf River and similar devices are tunable by moving a contact along the coil. I'm too cheap (not *thrifty*, not *frugal*, **cheap**) to pony up that kind of money just for a taste.

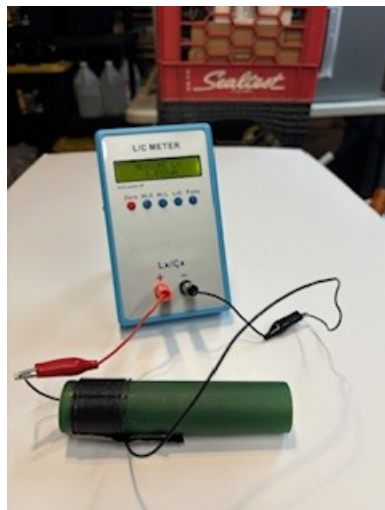
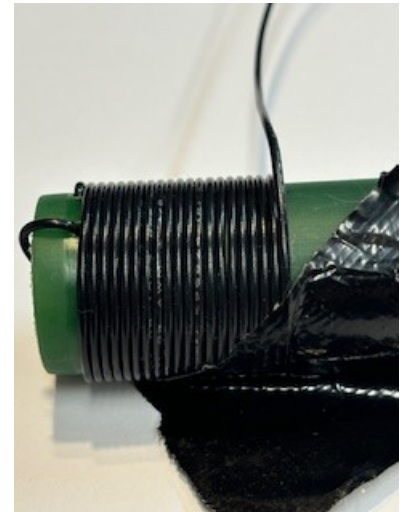
A bit of snooping around the internet revealed a particularly useful site: K7MEM.COM provides a page dedicated to base- and center- loaded antennas, complete with calculators. I used this calculator to determine the proper inductance for the task. I plugged in numbers: 7.1MHz (FT8-ish), a radiating element 1/4" in diameter (I suspect it's about that on average - it's a telescoping whip), and an antenna length of 200". This setup is typically used with a 102" CB whip, but a 200" whip requires a much smaller inductor, and is what I use for FT8 on 20 meters. 66Pacific.com is also a very helpful site. I used it for cross-checking K7MEM results.

The calculated inductor is 10.095uH. Using what I had on hand for supplies, I plugged in some values to determine the coil properties - 22ga insulated solid wire (0.0625 dia), and a coil former diameter of 1.125". The calculated inductance calls for 26.9 turns. Now to start building one.

For the inductor core, I used the discarded core of a roll of plastic produce bags from the market: 1.125" diameter, a hair over five inches long, polyethylene, and – FREE. Start by drilling a pair of holes at one end to hold the wire.



Apply turns to the core by turning the core rather than wrapping the wire to avoid twisting. It takes only a few seconds longer. When you've applied a few more turns than the calculator predicts, tape the loose end to the core and cut a rather long lead for adjustment. Measure the inductance of the coil at this point, and adjust the number of turns to make corrections. Partial turns count!



When the coil measures to within your own tolerances (only you know...), drill two more holes and thread the wire through them to secure. (Hint: cut the tube to length first)! As the coil is in an enclosure, it's not necessary to wrap it with tape or tubing, but if you're so compelled... As the coil has to be in-line with a 17 foot whip antenna, it needs to be mounted in something that would support it. I used 1.5" Schedule 40 PVC as an enclosure. It's stiff, it's cheap, it's easy to work.

Antenna too short?



The hard part of this project is getting the proper stainless steel hardware. Lowe's and Home Depot carry some stainless, and the local hardware stores carry *some* stainless, but the selection overall is quite limited and usually quite expensive!

Here you see the PVC enclosure, two PVC end caps, and the expensive stainless steel hardware – a 1" 3/8"-24 hex bolt, along with lock washer and hex nut for each end. One end of the enclosure needs to have a female connector. Not available locally, I ordered some stainless 3/8"-24 "coupling nuts", which are just long hex nuts threaded lengthwise. One of those will substitute for the simple nut on one end of the coil enclosure. I ordered them online at McMaster-Carr.



The end caps were center-drilled with a 3/8" (0.375) drill. 3/8" #10-12 crimp terminals were soldered to the inductor leads, leaving sufficiently long leads to allow for assembly (and a few mistakes.) Oddly, 3/8" ring terminals don't come sized for 22 gauge wire so crimping was inappropriate.

No lock washer is needed on the inside due to the concave surface – the hex bolt head digs right in.

The outside gets a lock washer and a hex nut on one end, a coupling nut on the other. Crank it town nice and tight!



Before gluing the end caps on, double-check the value of the inductor to make sure it's right. Disassembly won't happen once the glue sets up...

The connector nuts came in from McMaster-Carr...

Harvard Flea Market Adam Rypinski KC1RVK

Bruce Blain, K1BG and I often talk about how we can draw more people to our fun hobby. Bringing the hobby to where the people are seems to be a common idea. But which event to pick can be a challenging question to answer. We volunteered at the Big E last year and reception by the public was lukewarm, especially for such a large and well-attended event. We decided to experiment with an annual event in our local community, the Annual Harvard (pronounced Hah-vid) Flea Market. This event attracts thousands of attendees, and we figured it would be a great way to expose the hobby. We were right!

Bruce and I were joined by John Griswold, KK1X and Libby Levison, KC1RKH. Gordon Weast, WA9WTK, who manages the Harvard repeater, also hung out with us for a while.

Our Setup

Our plan was to keep it simple. We set up an EFHW (End Fed Half Wave antenna) in a nearby tree and used Bruce's IC-746Pro running 50 watts off a car battery, to operate CW and SSB. Bruce visited our space the night before to shoot a halyard into the tree without hitting passers-by, and tied off to a stake in our space. When I arrived the next morning to start setting up, the line was cut and tossed in the trash. Apparently, someone on the flea market team thought it was the work of mischievous kids and assumed we would be angry about the line (quite the opposite). Luckily Bruce, who is always prepared, brought his potato gun and was able, on the first shot, to get another line into the tree with little fanfare. Our space was the perfect one for us, right next to a tall oak tree and a fair amount of foot traffic.

We also had CW practice oscillators and Morse charts for kids to try, handouts, and a poster showing various ways to enjoy the hobby (a liability in the wind)! The club banner was flown and there was a sign-up sheet for more information (including Bruce's upcoming Technician class.) We also had some neat things to show off, such as a hidden fox hunt transmitter, a QRP Radio and a couple of handhelds. A canopy tent, a couple of tables and chairs rounded out our setup. Set up and teardown took about an hour.



How Did It Go?

While the propagation conditions were up and down much of the day, we managed contacts to Australia, multiple countries in Europe and several states across the US. This was great for when we got the “How far can you reach with that thing?” type of question. Several times we had observers listening as we made contacts, which is always a neat experience. There was an ongoing CW contest and several POTA activations, giving us other avenues for contacts.

The four of us had a great time talking to people of all ages about the hobby. We had several very interested people that we felt would likely take the next step, including an already licensed ham that has never been active. We had someone involved with Girl Scouts express interest in having their troop get involved. In all, we had 14 people give us their name and email and at least twice that stop by with some level of curiosity.

Next Year!

When I asked if we wanted to do this again next year, I heard a resounding YES! We would, of course, learn from our first attempt. Adding FT8 to the mix with a nice sized monitor would create a great visual for younger STEM-minded kids. Using an SDR transceiver with a waterfall would do the same. A bit of simple social media advertising to draw more people could be valuable. We could also use more volunteers to allow the team to have shorter shifts. There are a lot of considerations. Replicating this success and adding to it will be good for the hobby and our club.

If you are interested in joining our team for next year's flea market and possibly other events, please send an email to me at arypinski@yahoo.com



Real Live Hurricane Preparedness

Phil, N1PJE

Radio and Life Lessons From A Hurricane and 1000 Year North Carolina Flood: The Experiences of Thomas K4SWL

On Thursday 26 September 2024, Hurricane Helene made landfall and devastated huge swaths of the east coast of the US with epic flooding and Category 4 level winds reaching 140 mi/h (220 km/h). Wikipedia notes that it was the strongest hurricane on record to strike the Big Bend region of Florida, the deadliest Atlantic hurricane since Maria in 2017, and the deadliest to strike the mainland U.S. since Katrina in 2005. Many affected areas remain at the beginning of recovery and cleanup, and power crews, FEMA, and relief organizations are continuing around the clock work in support of citizens.

One of the hardest hit areas was the city of Asheville, NC and its outlying suburbs. Near Asheville, the town of Swannanoa, NC, located in Buncombe County, was particularly devastated with flooding approaching 1000 year levels, in a region where a number of people live in rural areas on roads with limited access during normal times. Cell phone service and power were cut almost immediately, and the Asheville public water supply was also halted due to failures in pipes as well as power failures at pumping stations.

In a relevant twist for us, the radio hobby is providing a central and unique view into the lives of people caught in the disaster. NVARC readers might be interested in the documentation of surviving the storm and in the resulting struggle to emerge from the wreckage left behind by Helene, as provided on an ongoing basis by Thomas Witherspoon K4SWL. Since 2008, Thomas has run a popular and active blog "The SWLing Post | Shortwave listening and everything radio" (<https://swling.com/blog/>) as well as QRPer.com (<https://qrper.com/>). He is also a frequent panelist guest on the Ham Radio Workbench long-form podcast series (<https://www.hamradioworkbench.com/>).

Thomas lives right in Swannanoa in the center of the devastated area, on a long road with 1000+ feet of vertical variation and with a house surrounded by widely spaced neighbors on 10+ acre lots backing onto a protected wilderness. During the hurricane, Thomas and his family listened to huge first-growth hickory trees crashing around them in the forest, although none hit the house (one destroyed their car). Immediately after the storm, Thomas became a center of neighborhood recovery activity as he had functioning satellite internet, likely Starlink, and a Tesla PowerWall fed by a solar panel system for whole house electricity.

The SWLing Blog and QRPer.com have been run since the disaster by Thomas's friend Vince VE6LK, but Thomas has managed to get out several updates in both forums detailing his experiences. I believe they are great reading for anyone interested in what it's like at the center of such an event. (For instance, he tells a pretty harrowing story of riding a bike into town on a completely devastated access road and across a bridge of unknown structural status, caked with mud and debris.) Here are some posting links, made as things happened:

<https://qrper.com/tag/helene-aftermath/?swcfpc=1>

<https://swling.com/blog/2024/10/post-helene-update-and-the-importance-of-radio-after-a-natural-disaster/>

Thomas's satellite internet connectivity allowed a very long (3+ hours!) discussion on the most recent Ham Radio Workbench podcast:

<https://www.hamradioworkbench.com/podcast/hrwb-221-thomas-witherspoon-k4swl-on-hurricane-helene-and-emergency-prep>

Real Life Hurricane Preparedness

He shared some lessons from his ordeal in these posts and on the podcast. A few of them stuck with me and are worth repeating here in as-I-remember-it form, both as food for thought and also as encouragement for readers to check out his direct posts:

Community is everything. Due to its rural nature, everyone with chainsaw experience was essential to even start blazing an egress path immediately after the storm (e.g. 20+ massive trees down on a 0.1 mile driveway). Sharing of resources began immediately and was key to a good initial recovery. This extended even to arranging a medevac flight out for several residents who needed help, called in through radio means.

Communication is everything. With cell phone towers completely blown away, the Mt. Mitchell repeater on a mountaintop (with a huge coverage range) remained powered up and switched immediately into EMCOMM mode, facilitating numerous wellness checks, requests for medical evacuations, and even notices where FEMA and relief groups were deployed in the area so that residents did not miss out on supply availability. Ham radio operators also served essential functions in initial recovery without getting professional responses tangled up. Thomas's neighborhood thought far ahead and set up a 2x/day simplex VHF net for residents to check in and share needs and status.

Relative to the last point, people - including non-hams - need simpler technology ways to communicate that are not cell phones in disasters. Most HTs designed for amateur radio are of course quite reconfigurable, which doesn't work well when you are handing it to an elderly neighbor who might accidentally bump the frequency dial or do something else wrong. Thomas recommended that you know your HTs (and put superior non-rubber duck antennas on them!), have a few around to hand out to others (who can use them without a license in an emergency situation), and lock the functions down as much as possible. Dual watch / dual receiver capability, allowing you to listen simultaneously to repeater traffic as well as the local simplex frequency, was a huge and unexpected benefit.

Print out on paper a list of repeater frequencies and manuals for your radios. Have the appropriate repeater book (<https://www.repeaterbook.com/index.php/en-us/>) loaded statically into your phone's memory. When the internet and cell network goes down, you're not going to be able to look up the material online and you might have to relocate to a different area with unfamiliar repeaters.

Individual preparedness was essential. Battery or crank powered AM and FM radios were the lifeline to wellness relays, disaster relief information, and general knowledge. Potable water - 10+ gallons at least - helped out when well pumps had trouble and certainly in areas where central water lines were cut. And it goes without saying that keep those radio batteries charged - plus exercise them, say on the Monday night NVARC net, to keep your skills sharp.

Whole house generators running on propane worked well with a large tank based supply, but when the tanks ran down, there was no way to deliver more on the destroyed roads. By contrast, solar panel based house backup systems had less capacity and had to be conserved as to power usage, but on every sunny day, charging could occur without anyone needing to deliver anything.

With climate change driving mean water temperatures way up, hurricanes and tropical storms will remain frequent and supercharged. Wherever you live, no one will be completely safe in the future from some form of disaster. We all need to be prepared. As radio operators, we have 'superpower' skills and it is useful to think about how we might react, and how we might be able to help, in these situations. Reading about one person's direct experience, and how his preparedness really paid off, makes for compelling and ultimately very relevant information. I certainly found it quite useful. Perhaps you will too.

Items for Sale

Something to sell? Submit a list with simple item descriptions, price, and contact info – email or phone.

- 1) (tr)uSDX multimode QRP radio kit. 2 batteries, hand mic, feed line, enclosure - \$125.
- 2) Kenwood TM-231A 2m mobile radio - \$30.
- 3) Surecom 2m SWR meter - \$5.
- 4) Vintage Motorola watt meter – FREE
- 5) AN/PRM-33 watt meter - FREE

Contact: Adam KC1RVK (arypinski at yahoo.com)



Participants in the Technician Class being presented at the John Grady Building. The class is being headed up by Bruce K1BG with assists from Les N1SV and Bob N1DVC.

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Join NVARC! Annual dues are
\$15 individual, \$20 family

Contact us on the N1MNX repeater:
442.900(+) PL100
147.345(+) PL100
53.890(-) PL100

This newsletter is published monthly. Submission,
corrections, and inquiries should be sent to

editor@n1nc.org

to reach the newsletter editor.

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