



NVARC

# Signal



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In This Issue	
Field Day 2024	1
Battery Sizing	2
January 2024 Meeting	2
Club QSL Service	3
Treasurer's Report	3
Nominating Committee	3
OCFD Antenna "Review"	4
AI Contributed this Article	5
Working POTA	6
Next Meeting: 15 February 2024	
<p>Our February guest speaker will be none other than our own Les Peters, N1SV. This month's presentation is on Test Equipment for the Radio Amateur. While it touches on common items you may have around the shack like DMMs and antenna analyzers, its main focus is on the portable NanoVNA &amp; TinySA analyzers. We'll look at both of these and explore examples of measurements you can make with them.</p>	

**Field Day 2024**

Field Day falls on June 22-23 this year.

"We" will be looking for volunteers for setup and takedown at a minimum. Operators will be needed for SSB and CW stations. Does anybody want to set up a digital station? 6M? Email the editor if you're interested in participating in what is almost always a fun time.

**NEARFest Spring 2024**

**NEAR-Fest XXXV - April 25 & 26, 2024**

**Deerfield, NH**

**Monthly Meetings**

NVARC General Meetings are scheduled for the third Thursday of the month at 7:30pm local time at the Pepperell Community center.

Meetings are not held in July or August.

**Weekly 2-meter Net**

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

Jim, N8VIM continues to make incremental improvements to the repeaters.

## Battery Sizing John KK1X

How large a battery is needed for a portable operation? It's a question I cannot answer for you, but in watching a YouTube video recently, I learned of a spreadsheet written by Philip, KA4KOE that will do the calculations for you based on a brief survey about your radio and operating habits. The spreadsheet lives at <https://bit.ly/3HmgpKk>. The QR code on the right leads there.



## January 2024 Meeting

The NVARC meeting was held January 18, 2024 at the Pepperell Community Center. The evening's theme was Short Subjects, an annual event.

Bruce K1BG was gracious enough to take charge of the meeting.

Ed KA6PNL of Brookline is a new member. Welcome, Ed!

John K1JEB presented a short talk on his use of a \$40 programmable VFO in his 6m transceiver. John was able to modify the VFO in software to restrict the frequency range to 6m from a 80-10m original design.

Mark WA1QHQ gave a presentation on one of his key interests, collecting satellite data on behalf of the Open Source Global Satellite Network (tinygs.com). Mark uses an RTL-SDR development board to capture LoRa-encoded telemetry from "CubeSat" research satellites. Nearly 1500 active ground stations collect research data under this program.

Bruce K1BG concluded the meeting with a few slides and a lot of explanation about how the Plain Old Telephone System evolved from a few hundred channels of analog data that could route your voice to California, to today's massive nest of fiber optic cables, digital pathways, and technological advances that routinely double and quadruple the amount of data that can traverse a single fiber, allowing everybody in your house to stream a different movie simultaneously.



**Nomination Committee  
Bruce K1BG**

One of the duties of club president is to appoint a Nomination Committee at the January meeting to propose a slate of officers for the April elections.

As you are aware, NVARC has been without a president since elections last May. In my opinion, this situation cannot (and should not) continue indefinitely. If that is the case, there are two possible outcomes: find a club president or dissolve the club.

The club constitution has three possible conditions for dissolving the club:

- A. The membership is unable or unwilling to fill the positions of President and Vice President for a period of sixty days after both offices become vacant.
- B. NVARC does not hold a regular monthly meeting for more than four consecutive normal meeting months as defined in Section 2 of the Bylaws.
- C. The membership votes to dissolve the club with a majority vote at a special meeting.

Because elections are held at the April meeting, it constitutes a "special meeting". While I hate to consider this a possibility, the facts remain. A volunteer organization can only last if volunteers are willing to step forward and support the organization. It's your club and it's your call.

I'll reach out to several members who have served on the Nomination Committee in years past, and we'll try to come up with a slate of candidates. But if we have difficulty, it may be time to face reality.

**Treasurer's Report  
Ralph KD1M**

Income for January was \$30 in membership fees. Expenses were \$113 for the Post Office box rental, leaving a net expense of \$83 for the period.

Current balances:

General fund	\$3,102.20
Community fund	\$6,878.25

As of 4 February we have 47 members who are current with their dues and 37 renewals outstanding.

**NVARC DX QSL Service  
Rod WA1TAC**

One of the benefits of being a NVARC member is that the club will forward DX QSL cards to the ARRL Outgoing QSL Bureau 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 club meeting and give them to Rod, WA1TAC.

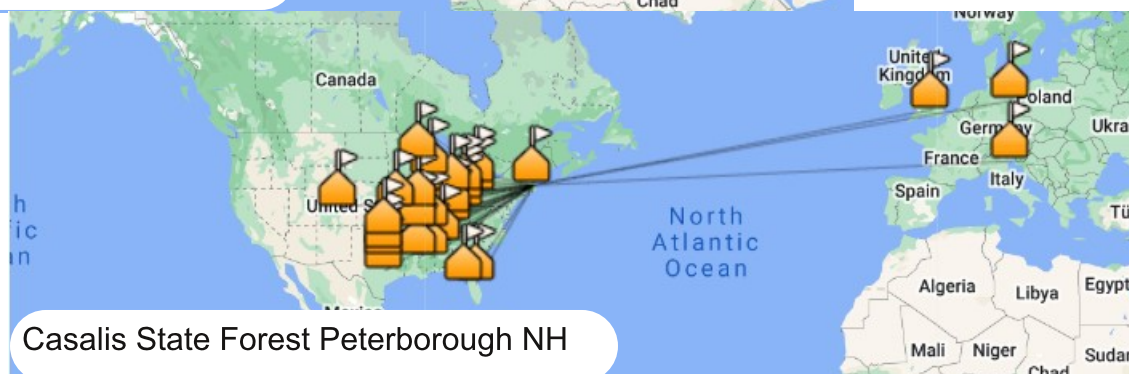
## N9SAB Off Center Fed Dipole John KK1X

Toward the end of 2023 I purchased an antenna from Tim, N9SAB. It was an End Fed Half Wave to replace the PAR end-fed I had been using until its unfortunate demise. (It might have been that "limit 15 watts" sticker...). Tim did a great job assembling this antenna - I won't go into detail, but I was sufficiently impressed that I purchased his Off Center Fed Dipole as well.

Tim's OCFD is equally well made - the transformer assembly (4:1 balun and BNC connector) is completely encased in glue-line heat shrink, and teflon antenna wire is used for the radiating elements. The ends are formed from glue-line shrink tubing, there's a center hang loop, and the antenna overall appears to be nearly bullet proof.

I haven't yet done extensive testing, and none of my testing is rigorously scientific, but this antenna passed the "plug it in and fire it up" test easily. It is a QRP antenna, rated for up to 50W SSB (5-10W digital/CW). With a tuner (my KX3 has an excellent ATU) it will work nicely on all bands 40m down to 6m. I have hung it high from a tree, low from a kite pole, and stretched between two trees, and it's held up to my less-than-delicate handling.

The maps below illustrate QSOs I've made with this antenna during two activations recently. The Leominster State Forest location is just above the lake, with Mt Wachusett to the west. I supported the antenna with the feedpoint at about 30 feet. The Casalis State Forest in Peterborough was again at lake level, with the antenna maybe 15' off the ground, the endpoints at about 7-8'. I didn't think it would work well, but 35 contacts in 90 minutes is a pretty good rate. I'm happy with this antenna.



**AI Contributed this article  
because you didn't**

Amateur radio, also known as ham radio, is a hobby that involves the use of radio frequency spectrum for non-commercial exchange of messages, wireless experimentation, self-training, private recreation, radiosport, contesting, and emergency communications<sup>1</sup>. It is a popular hobby that brings people, electronics, and communication together. People use ham radio to talk across town, around the world, or even into space, all without the Internet or cell phones<sup>2</sup>.

The International Telecommunication Union (ITU) through the Radio Regulations has established the amateur radio service (amateur service and amateur-satellite service). National governments regulate technical and operational characteristics of transmissions and issue individual station licenses with a unique identifying call sign, which must be used in all transmissions<sup>1</sup>. Amateur operators must hold an amateur radio license which is obtained by passing a government test demonstrating adequate technical radio knowledge and legal knowledge of the host government's radio regulations<sup>1</sup>.

Radio amateurs are limited to a small set of frequency bands, the amateur radio bands, allocated throughout the radio spectrum, but within these bands are allowed to transmit on any frequency using a variety of voice, text, image, and data communications modes<sup>1</sup>. This enables communication across a city, region, country, continent, the world, or even into space<sup>1</sup>. In many countries, amateur radio operators may also send, receive, or relay radio communications between computers or transceivers connected to secure virtual private networks on the Internet<sup>1</sup>.

The amateur radio community is represented and coordinated by the International Amateur Radio Union (IARU), which is organized in three regions and has as its members the national amateur radio societies which exist in most countries<sup>1</sup>. According to an estimate made in 2011 by the American Radio Relay League, two million people throughout the world are regularly involved with amateur radio<sup>1</sup>. About 830,000 amateur radio stations are located in IARU Region 2 (the Americas) followed by IARU Region 3 (South and East Asia and the Pacific Ocean) with about 750,000 stations. A significantly smaller number, about 400,000, are located in IARU Region 1 (Europe, Middle East, CIS, Africa)<sup>1</sup>.

Ham radio is a type of radio communication that doesn't use a standard broadcasting frequency. Instead, it uses a specific frequency range to allow users to communicate<sup>3</sup>. The first amateur radios were developed in the 1860s, but they have been improved over time to be more effective<sup>3</sup>.

<sup>1</sup>: [Wikipedia]([https://en.wikipedia.org/wiki/Amateur\\_radio](https://en.wikipedia.org/wiki/Amateur_radio))

<sup>2</sup>: [ARRL](<http://arrl.org/what-is-ham-radio>)

<sup>3</sup>: [Hamtronics](<https://www.hamtronics.com/what-is-a-ham-radio/>)



**Working POTA  
John KK1X**

It's been mentioned in prior articles, but I like to operate in the Parks On The Air (POTA) program. Approaching the end of January, I noticed that in my January outings, I had accumulated over 400 contacts. I surmised that I should be able to finish the month with 500 contacts or more. I don't make New Years resolutions (me being perfect and all), but to make things interesting I challenged myself - I'll attempt to make 500 contacts a month - each month - for 2024. January started me off with 505. I worked a couple of spares to cover for duplicate calls - POTA doesn't count those.

In January I managed contacts from seven different parks (see table below) over fifteen "activations". An activation requires ten completed contacts. I activate in Oxbow a lot as it's local. Rhododendron gets into the mix often because it's near my sister's house, and I visit her weekly. Rutland has a nice paved mile loop for walking, plus miles of trails. Moore State Park in Paxton has a large mill pond and three spillways, all which historically serviced a grist and saw mills. It's not always just radio...

I used a mix of antennas in January - a telescoping 17' whip on a roof triple mag mount, an EFHW made by Tim, N9SAB, and a Rybakov 28' vertical with two or three radials. I'm trying to tame the (frustratingly intermittent) RF feedback with the whip, but the other

antennas work great, plus they're multi-band, great for a lazy person like me. I do like the roof-mounted whip for quick setup - pull the antenna out to the Magic Marker line, screw it in, and go.

All of my operating time lately, certainly for this challenge, is done using either FT8 or FT4. The bands have been open a lot during the day so there are plenty of contacts on 10m and 20m. Occasionally I'll venture out to 12m and 17m but the pickings are slim. I've started using FT4 as the QSO cycle is twice as fast, but there are far, far fewer operators than on FT8. 40m is usable if I get out really early. Parks are typically "open" from sunrise to sunset, limiting the use of the lower frequencies.

I started off the month with ten watts of transmitter power as I had for many months. The finals got "kind of" hot, though, so I reduced TX power to five watts. (I could keep my fingers on the finals heat sink, but it was still too hot). Given the low signal levels required for FT8, the reduced power doesn't really seem to make a difference in practical terms.

My radio is an Elecraft KX3, equipped with the ATU. I use a Bioenno 12V12Ah LiFePO battery to power the radio and a laptop that runs on 12V. The radio is controlled by a DigiRig interface made by Denis, K0TX.

Park	Activations	Contacts
Oxbow NWR	3	81
Rhododendron SP	2	70
Leominster SF	4	125
Rutland SP	2	81
Moore SP	2	66
Walden Pond SR	1[1]	25
Great Meadows NWR	1	57

[1] I made only one contact on one attempt, so not an "activation". I had feedback problems that day, and didn't have time to mess around, as I was sneaking in some radio after another activity.





Nashoba Valley Amateur Radio Club  
PO Box 900  
Pepperell MA 01463-0900  
<https://n1nc.org>

**Officers:**

President: vacant  
Vice President: Phil Erickson W1PJE  
Secretary: John Bielefeld K1JEB  
Treasurer: Ralph Swick KD1SM

**Board Members:**

Bruce Blain K1BG 2022-2025  
Robert J. McArthur K1QT 2023-2026  
James Hein N8VIM 2021-2024

N1NC Trustee Bruce Blain K1BG

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. Submissions, corrections, and inquiries should be sent to editor (at) n1nc (decimal) org to reach the newsletter editor.

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