HAMRAG

Visit our website for more club and area ham information at ***http://w9axd.org****, or join us on Facebook at this* ***LINK***

RARA
ROCKFORD AMATEUR RADIO ASSOCIATION

RARA Mission Statement

A member association with common interest of public service to the community through the use of amateur radio.

March 2025

INSIDE THIS ISSUE

RARA is a volunteer run organization of individuals donating their time each month to develop activities, maintain repeaters, nets, and education. There are associated expenses and when you become a club member, your dues are providing a service to your community and furthering the hobby of amateur radio.

Welcome New Member!

Rich Ludwig, K9PK

Thanks to the contributors for this month's Hamrag

David Gauger, W9CJS

Kevin Puckett, N9EGF

Kerry Tatlow, KD9MAP

Editor's Note

If you would like to have something published, please call me at 815-505-8170, or email me at vernas.kd9yum@gmail.com

Articles are welcome and encouraged from all hams.

Due Date for the April Hamrag is Friday, March 28, 2025

73, Verna—W9YUM, Editor

NEXT MEETING

Friday, March 14, 2025 at 7pm

Program: UPS Backup Conversion - Kurt, KE9N

This will be a virtual meeting on Google Meet

A meeting link will be emailed to members and posted in the Facebook Group

Local Events and Information

Tuesday, March 11, 2025 RARA Board Meeting 7:00pm on Google Meet
Friday, March 14, 2025 RARA Membership Meeting 7:00pm on Google Meet

2025 RARA Officers and Directors

Officers:
President - Larry McFall, KD9HKX, 815-900-1820, lpmcfall@charter.net
Vice President - Matt Marshall, W3MBX, 815-222-5959, matthew.marshal@gmail.com
Secretary - Joe Perry, K9JPP, 815-2138-3891 K9jppham@gmail.com
Treasurer – Verna Schubert, KD9YUM, 815-505-8170, vernas.kd9yum@gmail.com

Directors:
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Webmaster - Verna Schubert, W9YUM, 815-505-8170, vernas.kd9yum@gmail.com
Repeater License Trustee - Gordon Seaman, KC9NEX, 815-262-0294, kc9nex@gmail.com
Repeater Chairman - Kurt Eversole, KE9N, 815-389-2784, kurt.eversole@gmail.com

Local Net Information

Mon - 7:00pm - RARA Info. Net & CW Lesson, 147.195 (+0.6) offset, pl 114.8
- 8:00pm - McHenry County RACES Net, 146.835 (-0.6) offset, pl 91.5

Tues - 7:00pm - RARA Tech & Social Net & CW Lesson , 147.195 (+0.6) offset, pl 114.8
- 7:00pm - Rock County Public Service Net, 145.450 (-0.6) offset, pl 123.0

Wed - 7:00pm - RARA Chat Net, 147.195 (+0.6) offset, pl 114.8
- 7:00pm - Stephenson County ARES Net, 147.390(+0.6) offset, pl 114.8
- 7:30pm - Greater Beloit Radio Net, 147.120 (+0.6) offset, pl 123.0

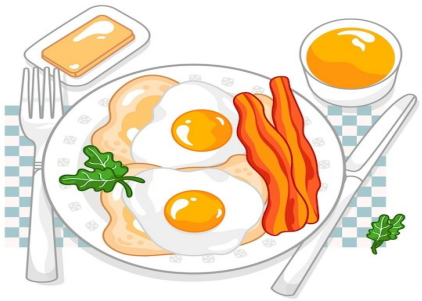
Thu - 7:00pm - Northern Illinois Skywarn Training Net,147.195 (+0.6) offset, pl 114.8

Fri - 8:00pm - Friday Night Fun Net, KC9GCR, 147.195(+0.6) offset, pl 114.8

Sat - 8:00pm - Saturday RARA Ragchew Net, 147.195 (+0.6) offset, pl 114.8
- 8:00pm - Pink Hamsters YL Net, Milw., 146.910 (-0.6) offset, pl 127.3
- 9:00pm - Saturday Night Fun Net Milw., 146.910 (-0.6) offset, pl 127.3

Mon. thru Friday - 8:00am to 9:00am - Senile Net, 14.287 (HF USB)

Local Events and Information



WEEKLY FRIDAY MORNING BREAKFAST

Meets every Friday morning from 7:30 am until about 9:00 am.
We order breakfast at 8:00 am.
An informal gathering of ham folks, no affiliations necessary, good food and good company.

Everyone is welcome to attend.

"The Spring Garden Family Restaurant"
4820 N. 2nd Street
Loves Park, IL 61111

MONTHLY SATURDAY MORNING BREAKFAST

The Greater Beloit Amateur Radio Club (GBARC) meets monthly on the 2nd Saturday of the month at 8:00 a.m.

Denny's Restaurant
Flying J Truck Stop (IL 75 & 190/39)
All are welcome to join the group for food and lot's of "ham" talk.

During the warmer weather month's, a fox-hunt follows breakfast (approximately 10 a.m.).

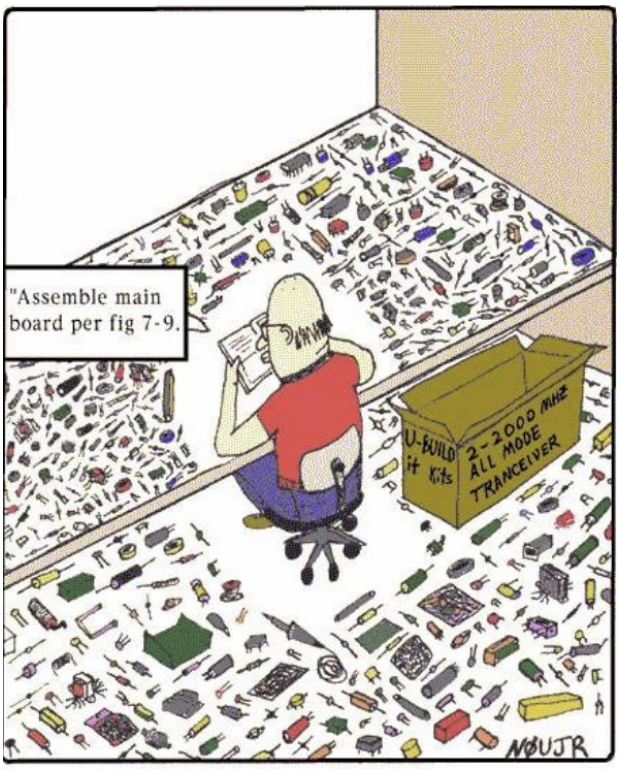
President's Message– Larry McFall, KD9HKX

Spring Is here and many of you, like me, are thinking about outdoor projects. Getting out and inspecting the antennas, fixing any damage that occurred during the winter, and thinking about those tweaks we want to make on the antennas. In my backyard I have a 75 ft wire receiving antenna, an end-fed antenna that's good for 80 through 10M, and an inverted V antenna for 40M. I was out after the snow melted a few days ago and found that they had survived the winter quite successfully.

We've also had an entire winter to think about the antennas we'd like to install this spring and summer. Antennas that I am tentatively going to install this spring and summer include the Ed Fong, WB6IQN, DBJ-1 dual band 144/440 MHz antenna and a 6M homebrew dipole (You can check out Ed at his website: https://edsantennas.weebly.com). I use the DBJ-2, hanging from a hook in the ceiling of my home office and a handheld to reach many of the repeaters in our area. The DBJ-2 is also a great portable antenna for 2M/70cm work in the field.

March Is also a good time to be going to hamfest's in the local area. RARA is going to have a table at the Jefferson hamfest on March 16th and after being shut in for the winter it'll be a good opportunity to get out see our fellow hams and maybe pick up an item or two that you've been looking for.

Larry, KD9HKX



Kit fun.

Tech—Topics

1977

There's one word which is heard probably more frequently than any other in this day of technology.....MICROPROCESSOR.

It is the most revolutionizing discovery since the transistor. Its application is so diverse it boggles the mind. It is, without a doubt, the most important addition to our technology that we are likely to witness during our lifetime.

We will have, as the technical topic of our November meeting, a presentation on microprocessors. Covering the subject, will be John Jencks and Harold Keirn, both from a local company which deals in this type of equipment.

Harold is President of a company called Imperial Punch and Manufacturing, Inc., and is involved in the manufacturing of tooling and custom moulding equipment. Since he has had a background in electronics, from both a sales and service standpoint, it seemed natural to get involved in industrial electronics. The advent of Imperial Computer Systems was the result.

This brings us to John Jencks. John has had extensive training as an electronic technician and computer programmer over the past several years. He has worked in local industry as a computer and microprocessor technician, and he has quite a lot of training in the audio electronics field. John is now General Manager of the Imperial Computer Systems operation. He is very heavily involved in the sales, application and operation of the equipment about which he will speak.

The number of applications and variations of microprocessors is too extensive for anyone to be aware of. These gentlemen will cover some of the more common uses, some rather amusing games and, in general, explain the anticipated future of this infant about to become a giant.

A demonstraion of the equipment and its versitility will prove to be very informative and entertaining. John will show us some of the possible uses that may apply directly to communications and slow scan TV work.

A question and answer session will wrap up the evening. I am sure that everyone will want to have a chance to play "Space War", a game that John has devised for the microprocessor.

Please be there for this most informative and enjoyable evening. Get to know this newcomer to the world of electronics. In the next few years, it will probably control a good share of your life's activities, such as cooking, laundry, alarm clocks or what-have-you.

So, I Made a Small Magnetic Loop Antenna
Kerry Tatlow, KD9MAP

I get great HF performance from my two EFHW antennas, but I craved a HF antenna that fits indoors, and preferably can be deployed portably. Since the high bands are working so spectacularly well now at the peak of Solar Cycle 25, I'd like the antenna to work on 10m, and if possible 12m. The 'small magnetic loop' (SML) fits the bill. It has the additional advantage of easily steered directionality, which ought to be fun to play with.

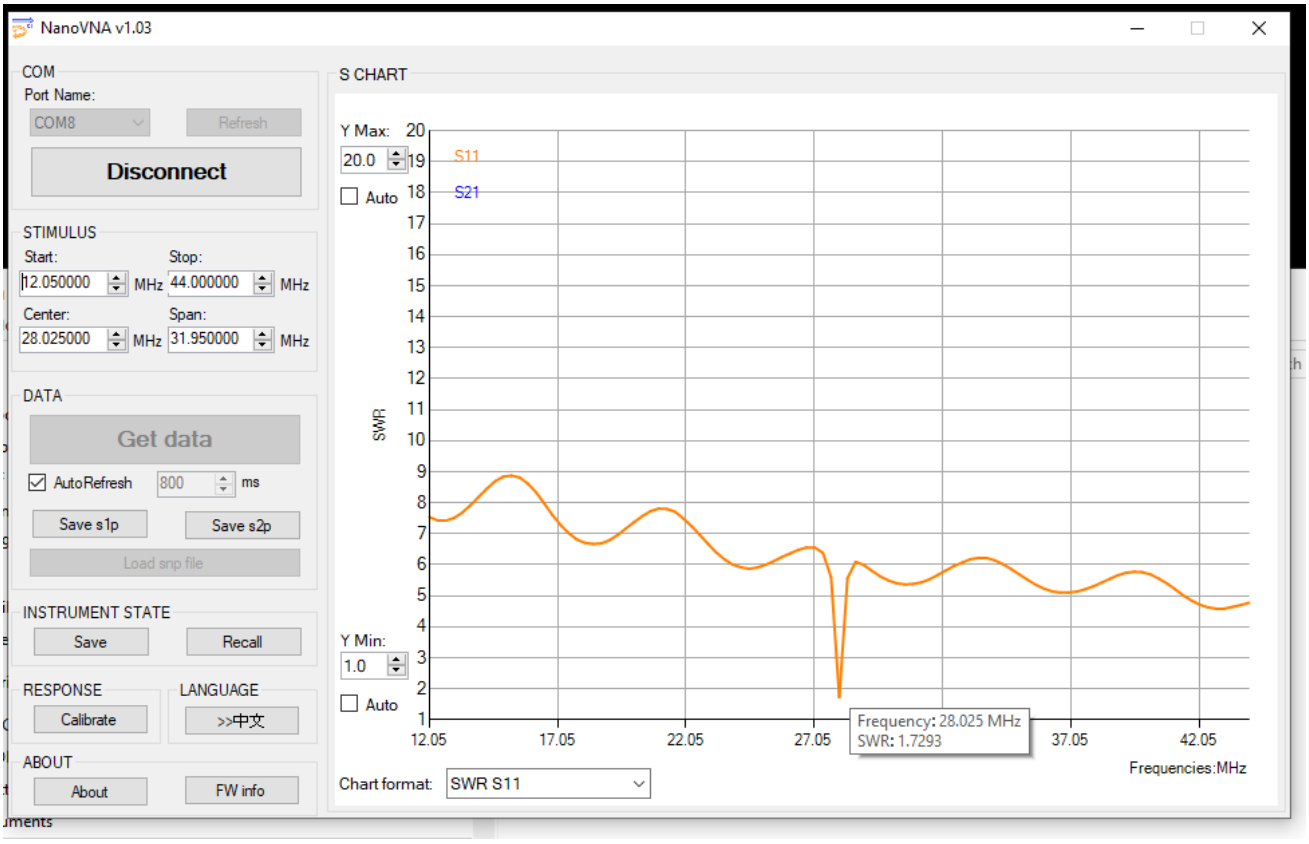
The factory-made SMLs are priced out of my reach. SMLs require high-voltage variable capacitors, which are themselves very pricey. I found a B&W JCX-100E butterfly cap, 1/8-inch plate spacing, for $20 plus $17 shipping, which I snapped up without even knowing the capacitance range, because it seemed like such a bargain. My cheapo LC meter measured 15pF-85pF from rotor to each stator, but only about half of that across the stators at max. According to one online calculator, a 60pF capacitance is appropriate for a 10m resonant loop of 6AWG wire, 24" diameter; it predicted 46% efficiency, which for all I knew was better than a sharp stick in the eye at least. I went ahead, and hoped for the best.

A HF SML is just a big dumb lethal high-Q LC tank circuit with a single turn of L. It has to be tapped somehow to connect via 50 ohm unbalanced coax to the xcvr. I chose what I guess is the commonest tap, a transformer primary made out of another, smaller, single 'Faraday' loop, or as I call it, a tickler. I wasted a lot of time studying other taps that were more expensive, more complicated, and/or downright frightening.

The rest of the parts I already had on hand: a good tripod with a five foot extendable 1" wooden dowel, just exactly enough 6AWG solid copper wire for the loop, a slab of scrap wood for mounting, a BNC binding post pair and 12AWG insulated solid copper wire to make the tickler, and a knob for the cap shaft.

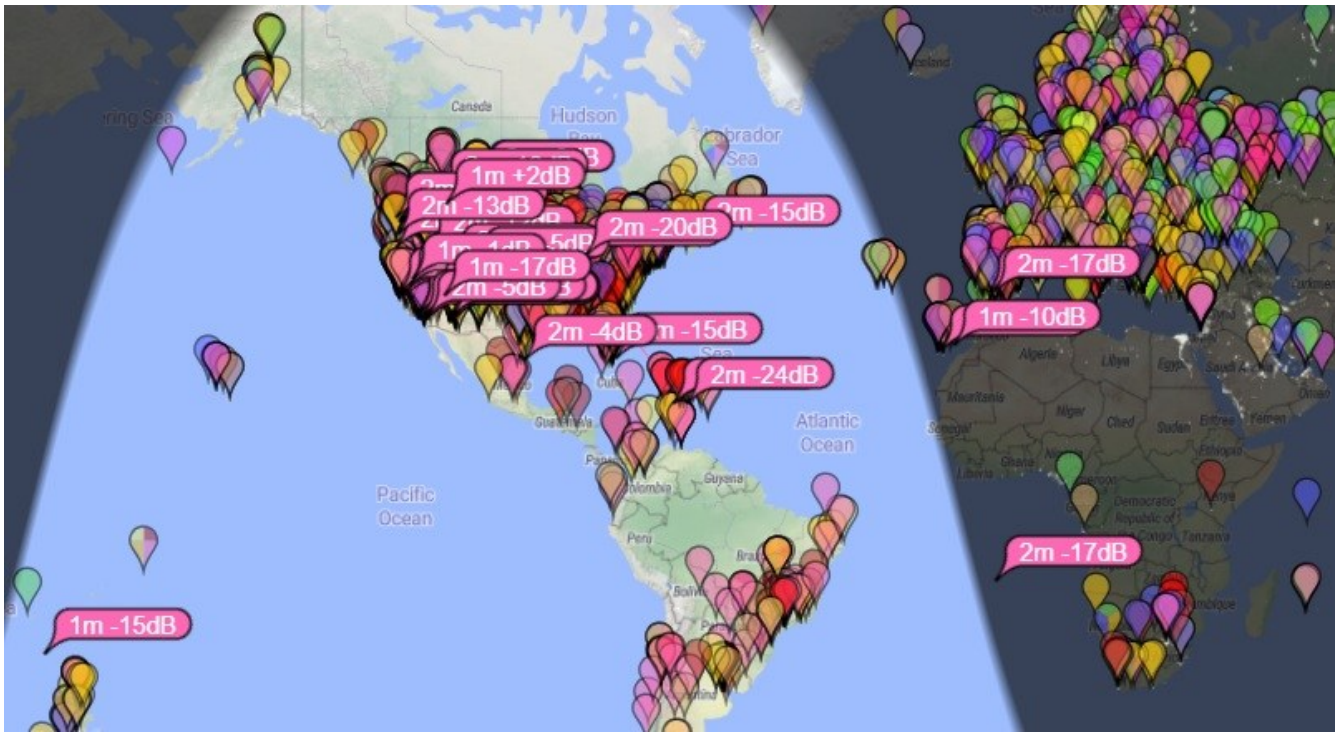
So, I Made a Small Magnetic Loop Antenna
Kerry Tatlow, KD9MAP

I first tested the antenna with my NanoVNA to see if, and at what frequencies, I could get it to resonate. I started with the cap set to max. The SWR chart looked AWFUL; it didn't want to resonate anywhere in particular. Then I set the NanoVNA display to autorefresh, and started tuning the cap while watching the live chart. Briefly I saw a sharp SWR dip in the graph near my target frequency. By tuning around VERY minutely and carefully, I got resonance where I wanted it. Here the cap was near minimum.



I hooked up the antenna to my Flex, and started calling CQ at 3 watts, then 7 watts. The first match was at 1.3:1 SWR. Nobody came back to me in 5 calls. I looked at the spotter map, and hooray! I was getting spotted!

So, I Made a Small Magnetic Loop Antenna
Kerry Tatlow, KD9MAP



At 15W, I started making the first contacts. (The Kp index was around 4, so conditions were less than perfect.) I eventually got brave enough to crank up to 45W. In that first session, I ended up making 37 contacts in 9 countries, including a couple of new grid squares. I even got pounced by JA1JAN, a Japanese station I've worked before. Between QSOs, I moved the antenna around the house, and checked the tuning every time I moved it, and was surprised to see that it stayed in-tune and in-match pretty well despite the jostling and my makeshift construction.

I just can't believe how easy this was to build and use! It works at least as well as a $50 hamstick, and cost me less than that to make. How and WHY did it work right t*he first time* I tried it? :P

Down the line, I might want to try loops of different diameters and thicknesses. A reduction gear drive for the cap would be nice, since the tuning is razor-sharp. Maybe I'll add a remote control stepper motor to drive the capacitor shaft. For now I'm just going to concentrate on *operating the heck out of* what little I've already built, while conditions are so amazingly favorable on this band. Oh, and I'll keep my eyes peeled for more dirt-cheap capacitor bargains!

So, I Made a Small Magnetic Loop Antenna
Kerry Tatlow, KD9MAP

References

https://www.66pacific.com/calculators/small-transmitting-loop-antenna-calculator.aspx

Where I started.

https://webclass.org/k5ijb/antennas/Small-magnetic-loops-FAQ.htm by W2BRI.
Simple and useful.

https://webclass.org/k5ijb/antennas/Small-magnetic-loop-theory.htm by ZL4NJ.
Very straightforward and helpful, with a batch of good links.

ARRL Antenna Compendium vol 3 1985. "Loop Antennas: The Facts, Not the Fiction" by G4XVF.
The theory clearly explained!

Kraus and Marhefka Antennas for All Applications 1997.
It's all MSEE-level theory, but Table 6-3 has some formulas that might interest. You really don't want to know how they're derived, but he shows you all the gory details anyway; take curl of curl, anyone?

Mandelman Dependence of Electrically Small Transmitting Loop Antenna Performance on Cross-Sectional Shape of Conductor 12 JUL 2021.
This theoretical analysis boils down to: A flat conductor should work as efficiently as a tubular one, if its width is 3.17X the diameter of the tubular alternative, and it will have maybe 20% better bandwidth. If he's actually tested this, he does not say.

Miron Small Antenna Design 2006.
I haven't found this yet and wish I could.

Skrivervik and Zurcher Electrically Small Antenna Design.
This one is for SHF and has little to do with loops, but does discuss the general engineering tradeoffs.

ARRL Amateur Radio Handbook 2014.
I have only the 2014 edition. Section 21.7 covers quads and deltas, but not SMLs as far as I can see.

ARRL Antenna Handbook 1974.
I have only the 1974 edition, which does not mention SMLs at all, as far as I can tell.

73 DE KD9MAP

Don't Need No Stinkin' Radials—Dave Gauger, W9CJS

You've seen the ads "NO RADIALS NEEDED" … so have we all, but is it true?

A lot of Hams have made a lot of radio contacts using vertical antennas … some with … some without radials. Do they work? Sure they work, but the question is, could they work better? … yes, much better in most cases.

A horizontal halfwave, center fed dipole is probably the most popular of all wire antennas. In essence if the half wave is fed in the center, then the ends have opposite polarity and work, balancing each other.

It's true, one can stand a half wave dipole on it's end making it a vertical half wave but in many cases the owner wants to work 40m or perhaps 80m and vertical half waves on those frequencies would get pretty high. Still, the fact remains that a vertical half wave, center fed does not require radials but radials can make small improvements in the antenna's performance.

Enter the trapped vertical… or inductively loaded vertical … or stub decoupled vertical. Do they need radials … answer is definitely yes. Yet, these are the most common antennas whose makers often deny the need for radials.

WHY RADIALS?

Both halves of a center fed dipole work together providing RF current return by the symmetry of the arrangement. When one uses a quarter wave, where is the other half of the balancing act? None to be seen …

A vertical antenna without radials can be compared to stepping from an un-tethered boat onto the dock. Both are all wet.

How then do they work? Most often these antennas rely on the coax feeder to act as a counterpoise, but this is inefficient at best and also distorts the antenna directional pattern.

Commercial radio stations strive for maximum radiation efficiency to secure a large footprint of coverage. The FCC weighs in by requiring commercial licencees to use a radial field with their vertical antennas. See quote below from FCC regulations.

LII Electronic Code of Federal Regulations Title 47 – Telecommunication Chapter 1 – FCC commission sub-chapter C – Broadcast Radio Services Part 73 – Radio Broadcast Services Subpart A-AM Broadcast Stations

"CFR 73.189 – "At the present development of the art, it is considered that where a vertical radiator is employed with its base on the ground, the ground system should consist of buried radial wires at least one-fourth wave length long. There should be as many of these radials evenly spaced as practicable and in no event less than 90.

Don't Need No Stinkin' Radials—Dave Gauger, W9CJS

Quote from ARRL article … ***"There Is No Such Thing as a Free Lunch"***

"It is possible to design a vertical antenna that doesn't use radials. But unless the antenna in question is a vertical dipole, you still need a pathway for the RF currents to return to the antenna. This means radials. Without radials, a vertical antenna can still radiate, but not very well. Steer clear of any vertical antenna that claims great performance without radials"

Finally, a quote from a DX Engineering publication.

"How many radials do I need for my ground mounted vertical antenna?

"We recommend 30 radials, each wire about ¼ wavelength long on the lowest frequency of operation. Adding more radials, up to 60 total, will produce a noticeable improvement."

So have I made my case? Radials are needed …. But Hey! Wait a minute. How about the HF 40m Hustler whip on my car. In this case the metal of the car provides a 'sort of ' ground plane, though not very effective. Such antennas suffer significantly on 40m and down, with efficiencies in the low teens, says the literature. Still, "Anything works."

I witnessed an experiment by David Poole, AD9DP who contended that elevated radials multiply their effect, and do so very significantly. He published an article in ARRL but thus far I've been unable to find it in the ARRL archives.

What I did find was a study in the ARRL publication **"Small Antennas for Small Spaces"** and I quote from pg 40, a study by Rudy Severns, N6LF

"Four radials 8 feet above ground were just as effective as 120 radials buried"

and more …

"Four elevated radials at 4 feet are about equal to 64 radials laying on the ground"

The significant efficiency of elevated radials explains why a 2 meter whip on the roof or tower, with four quarter wave radials at the base, is so effective.

For POTA use Dave Larsen N9ZXL and I borrowed an Alpha dual-band vertical from John Mori N8TA. In the instructions it suggests that two radials minimum should be extended and supported by temporary posts driven into the ground, thus elevating the radials. Our results were surprisingly good although we were running QRP at 5 watts.

So, yes, a ground mounted vertical can perform very well, even exceptionally well if fitted with an adequate radial system.

"There ain't no free lunch."

Dave Gauger … (still vertical tho aging.)

Starved Rock Country Marathon

We are looking for RARA members and friends interested in working this event. If you are interested please reach out to Matt W3MBX (815-222-5959) or Scott, kb9vrw@gmail.com

In anticipation of providing amateur radio communications at the Starved Rock Country Marathon on Saturday May 10, 2025 we have come up with what we think is a novel idea. We'd like to introduce Public Service Event communications to those that may have never participated in something of this nature previously. What we'd like to do is get groups or clubs to cover an assigned rest/aid station with members from their own area. This is a low stress event, as few as 2 amateurs could cover an assignment but why not bring a carload and get those new people involved? The race generally starts at about 07:00 a.m. and is wrapped up around 15:00 (though early stations may close before noon). The start/finish line is in Ottawa, IL and the course follows the Illinois River into and through Starved Rock State Park. HT's can handle some of the communications, but a mobile rig and an external antenna is recommended but 30' masts certainly are not needed. Please consider signing up as a club to cover one of the aid stations. (Depending upon response, an amateur that has worked this event in the past will be assigned at your station with you).

Registration:
https://docs.google.com/forms/d/e/1FAIpQLSfPISbGTbpB_0DLJ7AxOIyaPN1PcoviVu9q8gHcM2V9fP7SWw/viewform?usp=sharing

Hope to see you on the registration list. There will be communications and training taking place in advance, but don't hesitate to reach out if you have any questions. Parking will not be an issue at the assignments and Ottawa offers many restaurants and coffee shops for your "After Event" refreshments. The map below is the historical route used but subject to fine tuning. Full marathon starts/ends in Ottawa while the 1/2 starts in Starved Rock State Park and finishes in Ottawa. For further information please reach out to: KA9WRZ@ARRL.NET Please talk this up at your breakfasts and meetings. Spring will be in the air!

Map below is from previous years, but route will be similar or the same.

DX Happenings

Callsign: **6Y7EI.**
Dates: March 13 to 24, 2025.
Team: DJ9RR, EI2II, EI2JD, EI4GZB, EI4HH, EI4L, EI5GM, EI6FM, EI8JB, EI3IXB, EI9FBB, EI9HQ, OZ1IKY.
Bands: 160-6m.
Modes: Various

After their VK9XU Christmas Island DXpedition, look for same team to be active from Cocos Keeling Island as **VK9CU** during March 4-11, 2025.

- Team: DF4GV, DJ9RR, DL2AMD, VK6SJ, VK6CQ, DL2AWG.
- Bands: 160-6m. QRV 24/7
- Modes: CW, SSB, RTTY, FT8/FT4 (F/H).
- Gear: Flex Radios 6600 and 8600, Yaesu FTDX-10, Icom IC7300; amplifiers: 4 x Flex Radio PGXL, roWaves PA1000+ and SPE Expert 1.3K
- Antennas: Hexbeam 20-6m; DX-Commander 40-10m; Rhombic 17/12m; vertical 160/80m; J-Pole 30m
- QSL via Club Log, bureau or direct to DL2AWG.
- Lotw: 3 months after the DXpedition.

Links to Amateur Resources

WA7BNM Contest Calendar. This site provides detailed in formation about amateur radio contests throughout the world, including their scheduled dates/times, rules summaries, log submission information and links to the official rules as published by the contest sponsors.
WA7BNM Contest Calendar: Home

DX-World | The World's Biggest and Best DX News Service for DXers and IOTA enthusiasts

The Reverse Beacon Network
The Reverse Beacon Network is a revolutionary new idea. Instead of beacons actively transmitting signals, the RBN is a network of stations listening to the bands and reporting what stations they hear, when and how well.
Welcome! - Reverse Beacon Network

NCDXF/IARU International Beacon Project
The Northern California DX Foundation NCDXF, in cooperation with the IARU, constructed and operates a worldwide network of high-frequency radio beacons on 14.100, 18.110, 21.150, 24.930, and 28.200 megaHertz. These beacons help both amateur and commercial high-frequency radio users assess the current condition of the ionosphere. The entire system is designed, built and operated by volunteers at no cost except for the actual price of hardware components, shipping costs, and so on.
International Beacon Project Locations and Information (ncdxf.org)

Parks on the Air
Parks on the Air (POTA) is an international radiosport award program that encourages licensed amateur radio operators to visit and operate portable equipment in parks and public lands. Operators can be activators, who set up stations in parks, or hunters, who contact activators from other locations[2]. The program aims to promote emergency awareness and communications from national/federal and state/provincial level parks.

For information:
Parks on the Air | POTA | Parks program for amateur radio.

For Spotting Activators
Parks on the Air | POTA

Links to Amateur Resources

Study resources are numerous and available in a variety of formats. This is a listing of some of the more popular. The list includes websites, books, online study, and YouTube. With neither an electronic nor strong math background, the Fast Track books were perfect for me. I (KD9YUM) used them exclusively for my technician study and for my general study, I also used HamStudy.org. Some are free, others range in price – but there is something for everyone. Key to study is to find what works for you, make sure the resource you use is based on the current question pool, find out when exams are offered and pick a date to aim for, and study consistently for at least an hour a day. Ham radio is a lifelong learning hobby, don't get discouraged by thinking you need to learn in all in a month!

TECHNICIAN Class (Element 2) Pool is effective July 1, 2022 and is valid until June 30, 2026.

GENERAL Class (Element 3) Pool is effective July 1, 2023 and is valid until June 30, 2027.

EXTRA Class (Element 4) Pool is effective July 1, 2024 and is ONLY valid until June 30, 2028.

ARRL Exam Review - Provides study materials and practice exams for all levels of amateur radio licenses. ARRL Exam Review for Ham Radio™

HamStudy.org - Offers free practice exams and study guides for the FCC amateur radio exams. HamStudy.org: Cutting edge amateur radio study tools

QRZ.com Practice Tests - Provides practice exams for the FCC amateur radio exams. Practice Amateur Radio Exams by QRZ Ham Radio

** Hamradioprep.com** – A multimedia course using the science of learning to engage all learning styles through video, audio, text, and practice exercise. https://hamradioprep.com/

The ARRL Ham Radio License Manual - Published by the ARRL, these books are a comprehensive guide to all levels of amateur radio licensing. The link will take you to the Technician License manual with the others listed at the bottom of the page. https://home.arrl.org/action/Store/Product-Details/productId/2003373064

Gordon West's Technician Class Study Manual - A popular study guide for the FCC Technician class license exam https://home.arrl.org/action/Store/Product-Details/productId/2015951493

The Fast Track to Your Technician Class Ham Radio License - A concise study guide for the FCC Technician class license exam. [The Fast Track to Your Technician Class Ham Radio License](Amazon.com: The Fast Track to Your Technician Class Ham Radio License: Covers All FCC Technician Class Exam Questions July 1, 2022 Through June 30, 2026 (Audible Audio Edition): Michael Burnette, Kerry Burnette, Michael Burnette, Michael Burnette: Books)

Fasttrackham.com (website is a companion to the Fast Track books and used for practice exams, teaching videos and more) Know your stuff. - The Fast Track to Your Ham Radio License % (fasttrackham.com)

Ham Radio Crash Course - A podcast that covers various topics related to amateur radio, including exam preparation. https://www.youtube.com/user/hoshnasi

This and That

From Paul Dean, WB9HGZ
If you were licensed in 2000 or before and are interested in the Quarter Century Wireless Association, they are currently offering a 90-day trail membership for $3. You can find details at the following link:
https://qcwa.org/pr, theyomo.pdf

If you are interested in becoming a weather spotter here are helpful links, including the training calendar.

Quad City Spotting Information and Calendar of Trainings. Note - Tuesday, March 18, 6:30pm is the Stephenson County training in Freeport.

https://www.weather.gov/dvn/spotters#becomeaspotter

Save the date!
Swap Fest— Sunday, May 18, 2025, 9am—noon
Rain or Shine.

Please note the new location!
Hononegah Forest Preserve (Site of last fall's RARA Family Picnic)
80 Hononegah Road, Rockton IL
No sponsor, No admission, No vendors, No VE testing!
Just a bunch of hams getting together to swap stuff and socialize.
Please direct questions to Larry Lisle, K9KZT
L.lisle@usa.net or 2 meter nets

New-Fangled Battery Tech by Kevin Puckett, N9EGF

Most likely, as hams, we all have had an intimate experience with a heavy, lead acid battery banging into our leg as we drag it down our basement stairs to run our shack during a power outage or out to a park somewhere for a field day event. As most of you know, with this onset of global warming, now referred to as "Climate Change", this phenomenon has also caused the density of lead to increase, meaning that batteries get heavier as the magnetic poles on our planet continue to migrate. (Tongue planted in cheek here).

OK, back to my serious face….
A term that is arising in technology circles today is "Solar Generator". They aren't really generators but they do harvest the sun's energy and transform it into electricity. They are better categorized as "Power Stations" and utilize newer battery chemistry with Lithium Iron Phosphate. They require no fuel and produce no emissions. The technology is changing rapidly in this arena and if you haven't kept up, you may be surprised at their capabilities today.

Lithium Iron Phosphate (LiFePO4)

Lithium Iron Phosphate (LiFePO4) batteries offer many advantages over lead acid.

- They provide 100% of their rated capacity, regardless of the rate of discharge. Lead-acid batteries typically provide less usable energy with higher rates of discharge. They are usually limited to 50% of the rated capacity to prevent diminished life.
- You can cycle them 3,500 times or more, compared to 300-500 cycles, from lead acid. 3500 cycles means that after 10 years of ***daily*** charging and discharging, a LiFePO4 battery will still retain 80% efficiency! For those of you following along here, by comparison, a lead acid battery would be exhausted in a year and a half at this rate!
- LifePO4 batteries are lighter than lead acid batteries, usually weighing about 30% less.
- They offer 2-3 times the capacity in the same amount of space.

Solar Generator (Power Station)

So much for the battery technology, let's get back to the "generators". These generators, or power stations have several features packed into a relatively light weight unit.

- Pure sine wave inverter means, clean 110VAC. (up to 2,500 watts)
- Built in solar charge controller.
- USB-A and USB-C, Power Delivery, high output ports to 140 watts.
- 12V outputs (Although some are limited to 10 amps)
- Some offer up to 2100W of solar input combined with 1600W AC for screaming-fast charging speeds. Get a full charge in only 36 minutes! Or stick with AC-only for a full charge in a speedy 1.3 hours! That's impressive!
- Pass through charging, meaning you can charge it while you use it. Lots of them offer powerful App control and monitoring.

This technology is kind of fun to follow as you can almost watch it evolve from day-to-day.

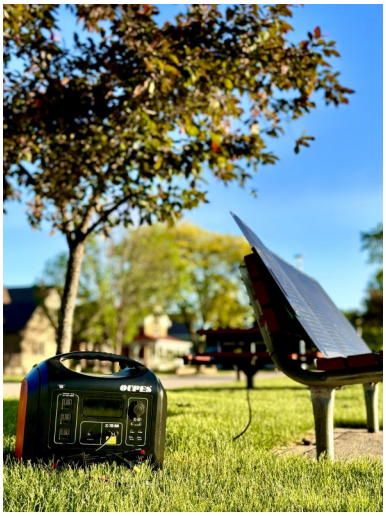
New-Fangled Battery Tech by Kevin Puckett, N9EGF

More possibilities are opened up using this light-weight, portable power for emergency back-up situations like running our fridge, freezer or furnace, not to mention that new Icom IC-7851 you are hiding from your spouse! Toss one in your car for easy, portable power that can be used anywhere and topped up with a folding solar panel.

I've used one of these units with a portable solar panel to run an HF and 2m rig at field day the past couple of years. We ran all day and barely dented the power station's capacity. It even served as a phone charging station!

YouTube Rabbit Hole

Lastly, as hams, I know you've found yourself crawling out of a YouTube rabbit hole at 3am that you fell into the previous evening. One guy that I've followed there does some pretty good reviews and testing various power stations and solar panels.
Look him up: HOBOTECH.



Upcoming Exams

Looking to upgrade or know someone looking for a testing location?
More information available at ARRL.org
Click here for link to VE Teams offering Online Exam Sessions
MUST HAVE FRN AHEAD OF EXAM

- **03/15/2025 | Janesville WI 53545-3024**

  Sponsor: Wisconsin Area VEs (WAVE)
  Location: Saint John Lutheran Church
  Time: 1:00 PM (Walk-ins allowed) **Learn More**

- **03/16/2025 | Dixon IL 61021**

  Sponsor: Sterling Rock Falls ARS
  Location: Sauk Valley Community College
  Time: 9:00 AM (Walk-ins allowed) **Learn More**

- **03/29/2025 | Milwaukee WI 53223-4736**

  Sponsor: MRAC VEC, INC
  Location: Ham Radio Outlet
  Time: 9:30 AM (Walk-ins allowed) **Learn More**

- **04/05/2025 | Freeport IL 61032-4116**

  Sponsor: Stateline Amateur Radio Club
  Location: Freeport Public Library
  Time: 12:30 PM (Walk-ins allowed) **Learn More**

- **04/05/2025 | Madison WI 53715-2143**

  Sponsor: Four Lakes ARC
  Location: Univ of WI Space Place
  Time: 8:00 AM (Walk-ins allowed) **Learn More**

2025 Amateur Radio Public Service/Events Calendar (N. IL)

If you are interested in volunteering at one of the listed events, simply click on the web link for more details and the organizer email link to offer your assistance. Volunteer space may fill quickly for some events. Often, you don't need much more than a handy talkie (HT) to volunteer. That said, here's a list of items you may wish to consider having with you for volunteer events:

- *HT Equipment (radio, extra battery)*
- *Optional HT Equipment (external mic, earpiece, antenna better than stock)*
- *Info (organizer info, frequency plan, map, copy of your FCC license)*
- *Prep (load frequencies into memory, review instructions, plan departure/arrival time/parking)*
- *Clothing (layered outerwear, hat, sunglasses, water-proof gloves, yellow safety vest*)*
- *Other (water, sunscreen, snacks, cellphone, pen/paper)*

**Sometimes provided by sponsor*

Revised 2-23-25 → Send updates/additions to K9MSG@outlook.com

	DATE	NAME (web link)	TYPE	RADIO ORGANIZER (email link)	LOCATION	NOTES
1	Mar 18	Lilac Festival Parade	1.5mi parade	Mike Wilson (N0MO)	Lombard, IL	Check-in units, sequence departure, route monitoring
2	Mar 23	Bank of America Shamrock Shuffle	8K run, 1mi run, 2mi walk	Ham Radio Chicago	Chicago Loop, Grant Park	On-course, triage, command, etc. Register here.
3	May 4	MS Walk	1mi, 3mi walk	Schaumburg Amateur Radio Club	Itasca, IL	Monitor route
4	May 4	MS Walk	1mi, 3mi walk	Fox River Radio League (FRRL)	St Charles, IL	Monitor route
5	May 10	Starved Rock Country Marathon	26.2mi, 13.1mi, 5K run	Various	Ottawa, IL	GMRS too as backup
6	May 18	Darien Dash	5K &10K run, 1mi run/walk	DuPage Amateur Radio Club	Darien, IL	Supports community needs
7	May 26	Elmhurst Memorial Day Parade	Parade	William Draheim (WD9END)	Elmhurst, IL	Check-in units, sequence departure, route monitoring
8	Jun 1	Bank of America Chicago 13.1	13.1mi run	Ham Radio Chicago	West side of Chicago, IL	Starts/finishes in Garfield Park
9	Jun 7	MACC Fund Trek 100	24mi, 35mi, 62mi, 100mi bike	North Shore Amateur Radio Club	Waterloo, WI	Supports childhood cancer research. More details here.
10	Jun 29	Swedish Days Ride	12, 28, 51, 73, 103, 133mi bike	Randy Broadwell	Sandwich, IL	Sag, rover, command… supporting Easter Seals and Project Mobility
11	Jul 4	Hoffman Estates 4th of July Parade	Parade	Schaumburg Amateur Radio Club	Hoffman Estates, IL	Check-in units, sequence departure, route monitoring
12	Jul 4	Wheaton 4th of July Parade	Parade	Mike Wilson (N0MO)	Wheaton, IL	Check-in units, sequence departure, route monitoring
13	Jul 28	Schaumburg Triathlon	400m swim, 12.8m bike, 5K run	Schaumburg Amateur Radio Club	Schaumburg, IL	Route monitoring, etc.
14	Oct 10	Chicago Marathon	26.2K run	Ham Radio Chicago	Chicago, IL	Supports over 200 charities
15	Nov 2	Ohh LaLa Chocolate Half Marathon	5K, 10K, 13.1mi run, 1mi walk	Ham Radio Chicago	Geneva, IL	Benefits St. Jude Children's Research Hospital.
16	Nov 27	Grove Express	5K run	DuPage Amateur Radio Club	Downers Grove, IL	Supports youth education

2025 Midwest Hamfest Calendar

Assembled by K9MSG (2/12/25) – send updates to K9MSG@outlook.com

	DATE	NAME (web link)	TIME	SPONSOR (email link)	LOCATION	COST	TALK-IN	NOTES
1	Feb 1	Antique Radio Club Swap Meet	8am – 10am	Antique Radio Club of IL	570 S. Gary Ave, Carol Stream, IL	Free	NA	5x/yr, donation sale
2	Feb 22	Cabin Fever Hamfest	7am – 1pm	LaPorte County Amateur Radio Club (W9LY)	LaPorte County Fairgrounds, 2581 IN-2, LaPorte, IN	$8 adult, <12 free	146.97, 131.8pl	Food, door prizes, free pkng
3	Mar 16	Tri-County Amateur Radio Club Hamfest	8am – 1pm	Tri-County Amateur Radio Club (W9MQB)	Jefferson County Fair Park, Activity Ctr, Jefferson, WI	$10 door, $8 in adv	145.49	Food, beverages
4	Mar 16	Sterling Rock Falls Hamfest	8am – 1pm	Sterling Rock Falls Amateur Radio Society (W9MEP)	Sauk Valley Community College, 173 IL Rt2, Dixon, IL	$10 door, $8 in adv	146.850, 114.8pl	Rolls, drinks, free parking
5	Apr 5	Antique Radio Club Swap Meet	8am – 10am	Antique Radio Club of IL	570 S. Gary Ave, Carol Stream, IL	Free	NA	5x/yr, donation sale
6	Apr 26	Ozaukee Spring Swapfest	8am – 12pm	Ozaukee Radio Club (W9CQO)	W67N890 Washington Ave, Cedarburg, WI	$7 adult, <12 free	146.97, 127.3pl	Food, prizes, free WIFI
7	Apr 26	Madison Hamfest	8am – 12pm	Madison Area Repeater Assoc (MARA – W9HSY)	400 Mandt Parkway, Stoughton, WI	$10 door, $8 in adv	147.150 +600, 123pl	26K ft main hall, prizes, free park
8	May 4	DeKalb Hamfest	8am – 1pm	Kishwaukee Amateur Radio Club (WA9CJN)	Sandwich Fairgrounds, Sandwich, IL	$10 door, $8 in adv	146.730, 100pl	Prizes, camping
9	May 16-18	Hamvention	9-5pm F/S, 9-1pm Sun	Dayton Amateur Radio Association (W9BI)	Greene County Fair, 210 Fairground Rd, Xenia, OH	$30 adult, <12 free	146.94(-), 123.0pl	$26 before 3/1
10	May 31	Green Bay Hamfest	8am – 12pm	Green Bay Mike & Key Club (K9EAM)	120 S Henry St, Green Bay, WI	$5	147.120,107.2pl	Food, drawings
11	Jun 1	Starved Rock Hamfest	9am – 1pm	Starved Rock Radio Club (W9MKS)	Mendota Fairgrounds, 503 1st Ave, Mendota, IL	$10 door, $8 in adv	147.120(+), 103.5pl	Prizes
12	Jun 7	Antique Radio Club Swap Meet	8am – 10am	Antique Radio Club of IL	570 S. Gary Ave, Carol Stream, IL	Free	NA	5x/yr, donation sale
13	Jul 5	South Milwaukee Swapfest	7am – 3:30pm	South Milwaukee Amateur Radio Club (WI9SM)	9327 S. Shepard Ave, Oak Creek, WI	$5	149.910(-), 127.3pl	Food, beverages
14	Jul 20	KARS-Fest	8am –	Kankakee Area Radio Society (W9AZ)	Will Cnty Fairgrnds, 710 S. West St, Peotone, IL	$10 door, $8 in adv	146.94, 107.2pl	Indoor, outdoor
15	Aug 1-2	Antique Radio Club Radio Fest	6pm Fri, 7-3pm Sat	Antique Radio Club of IL	Medinah Shriners, 550 N Shriners Dr, Addison, IL	Free	NA	Indoor, outdoor, food, Fri auction
16	Aug 2	Elkhart East Hamfest	9am – 2pm	(multiple)	N. IN Event Ctr, 21565 Exec Pkwy, Elkhart, IN	$8 adult, <12 free	147.330(+), 131.8pl	Includes RV Hall of Fame admit.
17	Aug 3	Hamfesters Hamfest	8am –	Hamfesters Ham Radio Club (W9AA)	Will County Fairgrounds, Peotone, IL	$10 door, $8 adv, <12free	146.52	Flea mkt opens at 6am
18	Sept 19-20	HRO Milwaukee Superfest	Noon-5pm F, 9am-4pm S	Ham Radio Outlet's Milwaukee Store	5710 W. Good Hope Rd, Milwaukee, WI	Free	145.130, 127.3pl	Food, prizes, forums, manuf's
19	Sep 20-21	Midwest Superfest	7am – 5pm	Peoria Area Amateur Radio Club (W9UVI)	17189 IL-29, Chillicothe, IL	$10	147.075, 156.7pl	Prizes, camping
20	Sep 28	CFMC Radio Expo	8am – 3pm	Chicago FM Club (WA9ORC)	Boone Cty Fairgrounds, 8797 IL-76, Belvidere, IL	$10 door, $8 in adv	146.760, 107.2pl	Camping, 6am Flea Mkt
21	Oct 4	Antique Radio Club Swap Meet	8am – 10am	Antique Radio Club of IL	570 S. Gary Ave, Carol Stream, IL	Free	NA	5x/yr, donation sale
22	Nov 15-16	Fort Wayne Hamfest	9-4pm Sa, 9-2pm Su	Allen County Amateur Radio Technical Society (W9INX)	Allen County War Mem Coliseum, Ft Wayne, IN	$8 ($4 Sun) <12free	146.880(-)	Prizes, food, training, $8 park
23	Dec 6	Antique Radio Club Swap Meet	8am – 1am	Antique Radio Club of IL	570 S. Gary Ave, Carol Stream, IL	Free	NA	5x/yr, donation sale

website: w9axd.org
email: w9axdrara@gmail.com

RARA Membership* Form
Dues are $25.00

(This is an editable PDF Form. Fill in the information with your keyboard, then save the PDF, and then attach it to an email to: w9axdrara@gmail.com. See below for mail in information and/or PayPal information)

Date: _____ *(mm/dd/yyyy)* **New Membership ____** **Renewal ____**

Name: _____ **Callsign:** _____

Street Address: _____

City: _____ **State:** _____ **ZIP:** _____

E-mail Address: _____

Phone - Home: _____ **Cell:** _____

Can we release your e-mail and phone number to members only? Yes _____ NO _____

Are you a member of the ARRL (American Radio Relay League)? Yes _____ NO _____

What things do you like to do with ham radio?

_____

What things do you want to do, but need more information to do so?

_____

Would you be available to make a presentation on some part of our hobby and what?

_____

Do you have any questions that we can help you with presently? If so, explain below.

_____

_____

Mail In: Please fill out all the information on the form and mail it with $25.00 to the following address:

Rockford Amateur Radio Association
P.O. Box 8465
Rockford, IL 61126

Make your check payable to: Rockford Amateur Radio Association.

For Internet application and payment:

To use PayPal, click on the link below. After clicking "Send" and then logging in, enter $25.00 in the "Dollar Amount", and click "Send", to complete your payment to RARA. Also, DON'T forget to email your completed form to: w9axdrara@gmail.com for your membership application. ***Thank you for your support!***

PayPal Link: PayPal

*Membership is based on approval of the RARA Board. The membership fee will be returned if you are not approved.

Rev. 3/10/2024