Mahoning Valley Amateur Radio Association Voice Coil

May 2025 | mvara.w8qly@gmail.com | The Voice Coil - Volume 25-5

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Treasurer	Nancy Brett KD8QNY

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Webmaster	Rich Slutz KB8GAE
Newsletter	Dave Brett KD8NZF
VE	Mark Haverstock K8MSH

President's Corner

We looked into the cost of the tape measure antennas to build for this month, and it looks like we're going to put it on hold for right now. Were not killing the project but putting it on hold for now. We will be doing some more research on the project and doing it sometime soon.
In the meantime, we have another event coming up and that's field day. In just over two months we will need your help. Friday June 27th, we will be out at the Metroparks Farm putting up antennas and I can't impress how much it would help if you could come out and help. Saturday we will be setting up and getting on the air and we could always use a good operator for even an hour. If not, Dean puts on a pretty good spread on Saturday evening, come on out and grab a burger with us. Scott, KE4UHC

Upcoming MVARA Events

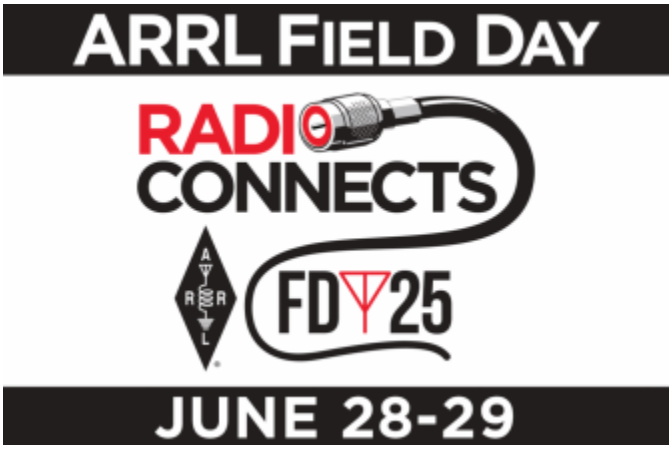
Date	Event	Location
May 8, 2025	**MVARA Meeting**	**Boardman**
May 24, 2025	**MVARA Boot Camp**	**Poland**

May Club Program

Our program for the May club meeting is a planning session for our 2025 Field Day on June 16-18. Some of the basic decisions have been made – for instance we know we will be running 8A again this year. But there are many more to be handled.

Joe N8SEJ is tied up at work this year and could not take the role of Field Day Chair. Rich KB8GAE jumped in and will be our FD Chair for 2025.

While we are talking about Field Day, let's talk about Aggregation. When the Pandemic hit, one of the changes ARRL made to the Field Day rules was to allow Hams that work Field Day from home to pledge their contacts to their local club. This is known as aggregation and has remained in the rules with some refinement. The basics are if you work Field Day from home, you will use your own call sign and report of your contacts under your call sign, but you can enter MVARA on the report and we will also receive credit for your contacts. It's a win-win.



Mahoning County ARES Update

Amateur Radio Emergency Services (ARES) Members are making great progress with their new ARES Task Books. We now have 30 Members at the EMA Qualification Level of training. That is a 50% increase from our Canfield Fair deployment late summer of last year. It's amazing how members are taking to the self-paced ARES Task Book. If you're already a Mahoning County ARES Member you should have received a March 3rd email outlining the steps to get your own ARES Task Book. If you can't find the email, just let us know at mahoning.ares@gmail.com and we'll resend it to you. If you're not yet a member of Mahoning County ARES you can find an application form at the County ARES Web Site, www.mahoning-ares.org under the "Membership" tab at the top of the page. All County Amateur Radio Operators interested in emergency communications are encouraged to join. There is no cost or fee involved, just lots of great opportunities.

Speaking of opportunities, Mahoning County ARES will be taking part in the All Ohio NVIS Day, Saturday April 26th from 9 am to 4 pm at the Harry Mechel Recreation Area on the East shore of Lake Milton State Park. It's a great location to enjoy Amateur Radio and Ohio NVIS Day is great experience for emergency communications. The Ohio Section Website says this about Ohio NVIS Day: April 26th marks another significant event in the Ohio Section, the Ohio NVIS Antenna Day. As you are aware, this day presents an opportunity for enthusiasts to gather and evaluate their antenna configurations. Kicking off at 10:00 AM, this event is not a formal competition. Its primary objective is to simultaneously engage multiple counties in Ohio, testing their antennas and facilitating communications among them. We anticipate that this gathering will provide an enjoyable platform for camaraderie, experimentation, and testing within our beloved hobby. Join Mahoning County ARES Saturday April 26th at Lake Milton State Park for the Ohio NVIS Day.

We'd like to recognize the following Mahoning County ARES Members who have achieved our EMA Qualification Level of training and preparation.

Bill Beck, KE8ZBQ	Michael Noble , W8XLR
Richard Bouvia, KT3GOD	David Perry, KE8YJX
Dave Brett, KD8NZF	Danielle Perry, KE8YMU
Nancy Brett, KD8QNY	Peter Proch, KC4HRT
Darrin Cannon, N8DMC	Alan Scannell, KE8ADY
Dean DeMain, W8YSU	Dave Scannell, KE8UWV
Rob Dunham, KE8OKO	Rich Schmidt, KD8TXH
Allison Dunham, KE8SKL	Richard Slutz, KB8GAE
Brendan Higgins, KE0T	Don Smiley, N8YJ
Robert Johnson, KB8DLO	Frank Sole, WB8YHD
Steve Jones, KF8BFJ	Ralph Streb, K8TCP
Bob Kramer, KE8HHH	Sarah Streb, KE8VSU
John Morris, WM8B	David TouVelle, KF8BFD
Mark Munroe, W4ZIP	Tim White, KE8TOI
Edward Newsome, KE8NSW	

Our thanks to all Mahoning County ARES members for their efforts on behalf of our communities.

Your ARES Leadership Team

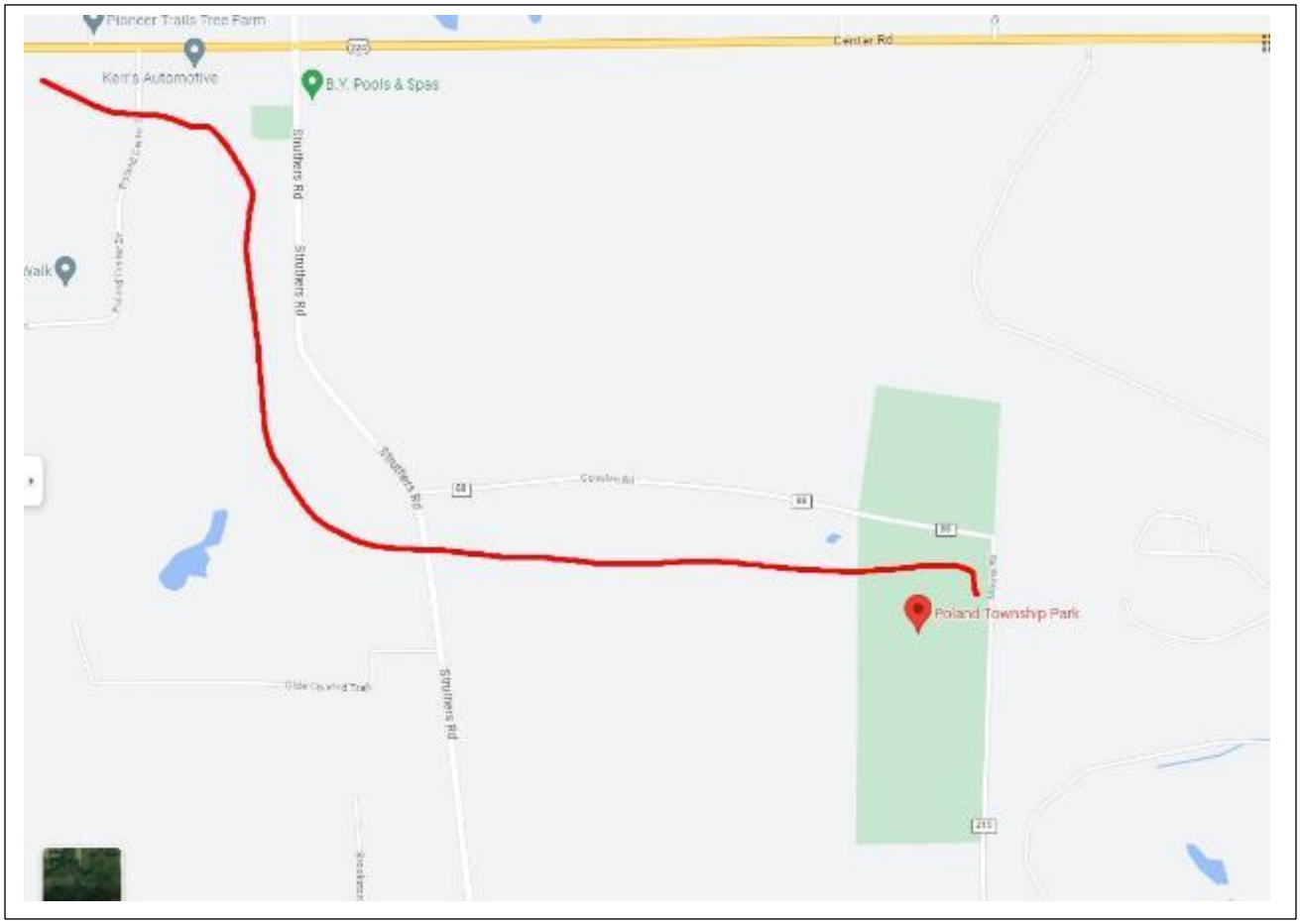
MVARA Ham Boot Camp 2025

Mark your calendars for May 24, 10:00am to 1:00pm, Poland Township Park, for the Third Annual MVARA Boot Camp.

The idea of a boot camp is to help newly licensed folks figure out what to do now that they have their license. We are taking it a little further to include activities to interest new Techs, new Generals, and all Hams.

This will be a hands-on event. We currently plan to talk about the areas listed below, but this is more of a show and tell event and focused on whatever you want to see:

- Portable Operations
- Repeaters & Nets
- CW
- POTA
- Antennas
- HF Stations
- Digital Stations (FT-8, DMR, Fusion)
- HT Challenge



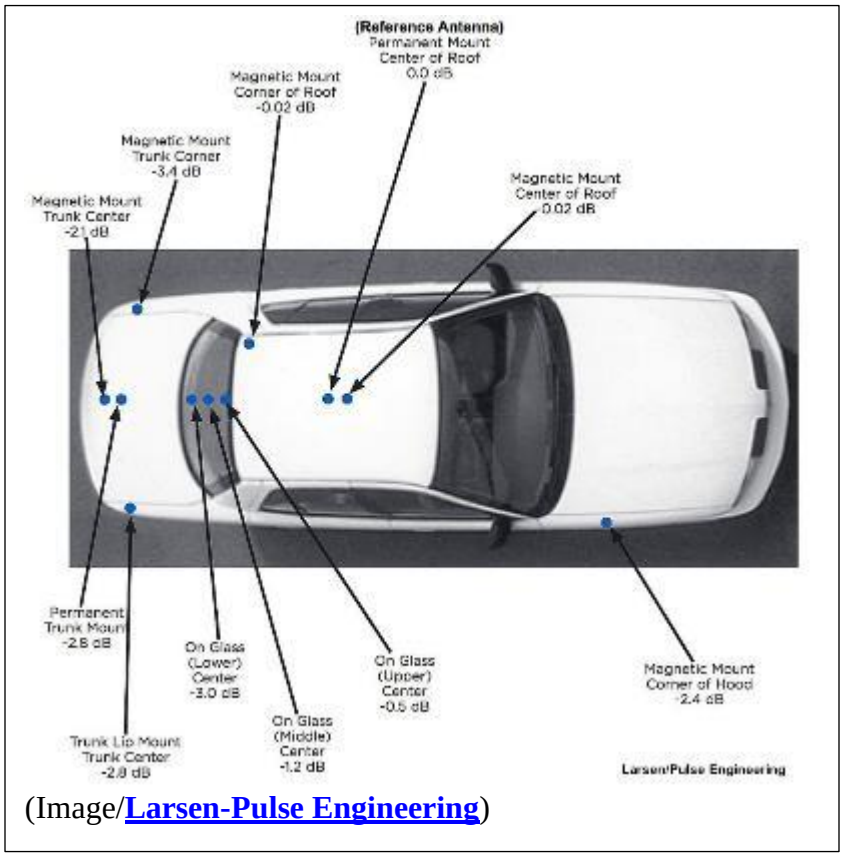
Ham Radio Tech: Ground Planes, Gains, and Automobiles—Insights on Mounting Mobile Antennas on Your Vehicle

by Mark Haverstock, K8MSH (originally appeared in *On All Bands*, March 2025)

The best mobile antenna money can buy isn't any better than the ground plane it is mounted over. Remember the basic dipole—it needs two elements to be complete. Your vertical element is one, the body of your vehicle is the other, functionally similar to the radials used on a ground-mounted vertical or the user's body when holding an HT.

In very simple terms, a ground plane is a mass of conductive material such as steel or aluminum right below your antennas—in this case, your vehicle. This ground plane is required for certain types of antennas such as a 1/4 wave mobile antenna, and it reflects the RF energy into the sky to complete a portion of a radiated signal.

HF: More is Better. A vehicle will actually provide a good ground plane for permanent or VHF/ UHF magnetic-mount antennas with a typical three- to four-inch base. The antenna placement diagram (below) shows only 0.02 dB difference between a mag mount and permanent mount antenna.



(Image/Larsen-Pulse Engineering)

But for HF antennas, it's a different story. With HF, using a vehicle roof for the ground plane is problematic simply because it's too small. For an effective ground plane, ideally you want at least a quarter wavelength in the desired direction. With a big SUV you might get up to three feet of ground plane, which won't quite make a quarter wavelength on 15m, 20m, or anything longer. And the three feet is stretching it, putting the antenna at one end of the roof. It's not really an issue on 2m because it can easily fit within about a 19-inch radius on almost any vehicle roof.

If you want to use any of the HF bands when mobile, you'll want to extend your ground plane as much as possible. Bonding trunk lids, hoods, tailgates, and other parts to the rest of the vehicle body will help improve the antenna match, along with other benefits. First is noise abatement—bonding minimizes the leakage of RFI into and out of the various bolted on parts of the vehicle. It is not uncommon to see a drop in noise levels once they're properly grounded.

Depending on the vehicle, there can be several dozen other places where ground straps will provide a benefit. These include, but are not limited to, bumpers, suspension parts, rear axles, tailgates, virtually any bolted-on piece of hardware. Engines are also overlooked because most of them have visible ground straps. They're for DC, of course, so adding wider ground straps can help minimize ignition noise.

The Hole Truth

Mounting an antenna on a car or truck requires planning. You need to see how the locations will affect radiation patterns and possible losses. Check the image above for data on dB losses based on antenna placement.

We know the best place for the antenna is the center of the roof, mounted directly to the metal. In locations other than top and center, the radiation pattern will be affected to some degree. For example, if you have an antenna on the right side of a vehicle, the pattern will skew to the left to some degree—across the car body. If it's not mounted at the highest point on the vehicle, parts of the vehicle higher than the antenna can block part of the signal.

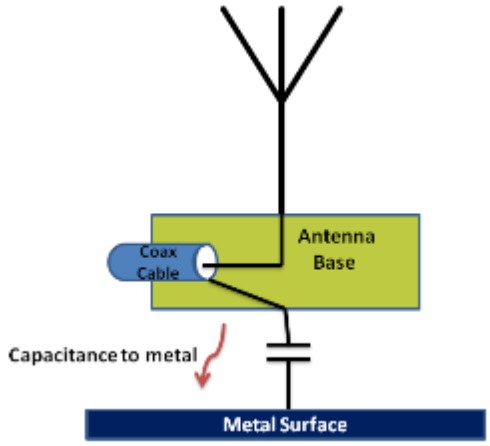
But some folks can't bring themselves to drill a hole, especially in a brand-new car. Some are driving lease vehicles and believe they may be assessed for the damage. Others feel that it affects the car's trade-in value. Then there's the spouse/significant other's opinion: "You're not gonna put that on our car." That's why there is such **a variety of alternative mobile antenna mounts** for the hatchback, trunk lip, luggage rack, mirror, and fender. You can avoid poking holes in the roof, but there's still a great likelihood you'll need to scrape off some paint and tighten some set screws into bare metal. Fortunately, it will be hidden.

An Attractive Alternative

I've heard some amateurs and CBers bash the use of magnetic-mount antennas. Concerns include them flying off the vehicle, scratching paint, and not providing a true connection to the conductive body of the vehicle. Yet they can work well in many situations and provide the bonus of putting the antenna in the best position without the need for a hole in the roof.

How well a magnetic mount works depends on proper usage and understanding. These mounts require a steel surface, typically the roof of a vehicle, to function effectively. The vehicle's roof acts as a ground plane, allowing for better signal reception and transmission.

One advantage of using a magnetic mount is ease of installation and removal, making it ideal for rental cars or vehicles where permanent mounts are not wanted.
Mag mounts operate by utilizing the metal surface beneath them to create capacitance. This capacitance acts as an electrical connection, which is important for antenna performance. The mount itself forms one side of a capacitor while the vehicle's roof constitutes the other side. Experts suggest that ground planes don't have to be physically connected to your antenna. Some hams advocate adding a wire instead of relying on just the coupling effect. In most cases this has little or no effect.



(Image/K8MSH)


Moonraker Turbo-38 Magnetic Mount
(Image/Moonraker)

The surface area of the magnetic mount plays an important role in its effectiveness. Larger mounts provide greater capacitance, allowing for better performance across various frequencies.
The **Moonraker Turbo-38** seven-inch diameter mount (see left) is a good example. You may have also seen their **triple magnet mounts.**

To enhance the performance of magnetic mounts, consider using accessories like magnetic mats for increased capacitance and line isolators (chokes) to prevent RF interference. Magnetic mats, such as the **Chelegance MAT-50**, can improve the performance of your mobile antenna by providing a larger surface area for capacitance. Line isolators prevent unwanted RF currents from affecting your SWR measurements and tuning your screwdriver antenna. Snap-on Mix 31 ferrites or a 240-31 toroid installed on the feedline near the antenna will take care of these issues and make tuning much easier.


(Image/K8MSH)

The MAT-50 from Chelegance adds more surface area for capacitance. A short tinned braid with a ring slips over a standard SO-239 connector on a mag mount or vehicle body mount, such as a **Diamond K-400 Series Trunk/Hatchback Mount**.

Tricks & Tips for Mag Mounts

Magnetic antennas are generally efficient, but you need to do a few things to get best performance. First and most important, clean the mounting area and the bottom of the magnet mount. Dirt, metal filings, and other crud can accumulate, causing damage to the paint and poor contact with

the vehicle. Always check the feed cable for damage–and poor connections if you can get access to the inside without damaging the antenna.

Got aluminum? I have a friend who owns an Airstream trailer—it's an awesome ground plane, but mag mounts obviously won't attach. Stick-on steel disks are available to attach magnetic antenna mounts to aluminum bodies. Aluminum is a very good conductor and will couple capacitively.

Got fiberglass? You can create a ground plane under the fiberglass, but it's an involved process and beyond the scope of this article. A better solution would be to use the steel disk mentioned above, along with a ½ wave antenna such as he **Larsen NMO150C** or **Rugged Radios VHF-1/2W-SPR**.

The Plane Truth
If ground losses are high, it doesn't make much difference how good the antenna is because ground losses will be the largest factor in determining efficiency. If ground losses are low, the difference in efficiency between a poor antenna and a good one becomes very apparent. Comparing the signal strength of a 1/4 wave whip alone to one with a ground plane, signal strength may increase as much as 3 dB.

It pays to bond large surfaces like trunks, roofs, and hoods for better RF continuity.
All other things being equal, capacitors conduct better at higher frequencies and capacitance increases with the size of the plates. Applying this to a mag mount antenna installation, the following are generally true:

- Antennas for VHF/UHF will perform better than those for HF, especially on 20m and above.
- Antenna placement makes a difference.

For all antennas, it's the metal mass directly under the antenna, not what's alongside, that counts.

Do You FT-8?

As mentioned earlier in this issue of the VC, Field Day is coming. On the digital side of things, FT-8 has taken over. Up until a few years ago you could expect to find activity with RTTY, PSK, and such, but that largely has dried up and all the action is focused on FT-8. Digital, like CW, generates double the points for each contact during Field Day, so it is an important component for us to do well. If you are up to speed on FT-8 we need your help. If you are not up to speed but are interested, we will be running a brief training session in May to prepare for FT-8 on Field Day.

Shhhh – Just WSPR

By Laurent ERRERA, Soerfm, CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=31863004

March 8th, 2014, Malaysia Airlines Flight 370 disappeared. To date there have been a few remnants of the aircraft washed up on Indian Ocean islands, but the bulk of the aircraft has not been found, and now Amateur Radio is helping try to reconstruct where it may have gone down.

WSPR, Weak Signal Propagation Reporter, is currently part of the WJST-X package created at Princeton by Joe Taylor, K1JT. WSPR is a program used to test the propagation paths of RF signals between amateur radio operators using a narrowband digital transmission protocol. The simple description is that WSPR is a large group of Amateurs that monitor WSPR transmissions all over the world. When they receive a properly decoded message, they automatically upload the message to the WSPR Database along with location information for the receiver. In practice, Amateurs send a WSPR message and then check the database to see where it was received, thereby getting a worldwide signal report to check their station performance.

The WSPR Database currently holds over 6 million records of these XMT/RCV connections. Now there is a group using the records in the database to help track the flight of MH-370 with the hope of locating the wreckage. The group refers to their technique as Post Processing the records. It was discovered long ago that Radio Waves reflected from large objects could be used to track them. RADAR stands for Radio Detection and Ranging. Now it has been discovered that anomalies in the WSPR signals are created when an Aircraft flies through the transmission. WSPRnet reports the Signal to Noise Ratio (SNR) referenced to a 2,500 Hz bandwidth of the received signal; typical values are -30 dB to +20 dB. WSPRnet also reports the received frequency; typical values are around the center frequency for the selected band. A temporary change in the SNR or received frequency by more than 0.75 of a standard deviation (SD) measured over a ±3 hour time period can be caused by an aircraft crossing the propagation path.

The group is searching the WSPR database to detect the anomalies and correlate them to the time frame of the flight. They have constructed a flight path from the research and recommended search areas not previously considered. You can find more information at these links:
https://www.mh370search.com/category/wspr/
https://www.mh370search.com/2024/02/15/wspr-aircraft-tracking/

Amateur License Refresher

It's probably been a while since you took your Amateur License exam. Here are a few sample questions from the current question pools just to keep those synapses firing.

Extra Pool

E2C01
What indicator is required to be used by US-licensed operators when operating a station via remote control and the remote transmitter is located in the US?
A. / followed by the USPS two-letter abbreviation for the state in which the remote station is located
B. /R# where # is the district of the remote station
C. / followed by the ARRL Section of the remote station
D. No additional indicator is required

E2C02
Which of the following file formats is used for exchanging amateur radio log data?
A. NEC
B. ARLD
C. ADIF
D. OCF

General Pool

G5C01
What causes a voltage to appear across the secondary winding of a transformer when an AC voltage source is connected across its primary winding?
A. Capacitive coupling
B. Displacement current coupling
C. Mutual inductance
D. Mutual capacitance

G5C02
What is the output voltage if an input signal is applied to the secondary winding of a 4:1 voltage step-down transformer instead of the primary winding?
A. The input voltage is multiplied by 4
B. The input voltage is divided by 4
C. Additional resistance must be added in series with the primary to prevent overload
D. Additional resistance must be added in parallel with the secondary to prevent overload

E2C01 (D)
E2C02 (C)
G5C01 (C)
G5C02 (A)

Meet Our New Members

We recently started this section to introduce our new members and it has been well received, so we will continue it in each edition of the Voice Coil. We asked new members to give us a little background information and what they would like to see at the club in 2025. If you are a recent member and we missed emailing you, please drop us a note at mvara.w8qly@gmail.com.

This month we are re-introducing Mike Malarky. Mike had been a member of MVARA for several years but had to step away. Before he left Mike was even our Secretary.

Hey everybody. I'm Mike, W8IWD. Certainly not new, (licensed 2019) but went sort of MIA for a while. Work, Military Duties, and life in general gets in the way sometimes. I really missed Radio and made it a point to jump back in.

HF is my biggest interest. I always have 2m on but work a lot of HF when I have the time. Really enjoy contests and giving POTA operators contacts. I would love to see more remote activities. I'm well set up for that. Not a huge talker lol. I do have a 2m in my truck at work and a Dually I finally got in my car. Will re-familiarize myself with learning everyone's call signs and get back on more. See you around and on the air. 73.

As a reminder the club has several HF radios/power supplies that are available for short-term use by members. The intent is to let new General License holders get their feet wet on HF before they invest in their own HF radio.

Upcoming Contests and QSO Parties

Dave Fairbanks N8NB

Contests: Source is contestcalendar.com

May 2025

+ Walk for the Bacon QRP Contest	0000Z-0100Z, May 1 and 0200Z-0300Z, May 2
+ 10-10 Int. Spring Contest, CW	0001Z, May 3 to 2359Z, May 4
+ SBMS 2.3 GHz and Up Contest and Club Challenge	0600 local, May 3 to 2359 local, May 4
+ Microwave Spring Sprint	0800-1400 local, May 3
+ F9AA Cup, PSK	1200Z, May 3 to 1200Z, May 4
+ 7th Call Area QSO Party	1300Z, May 3 to 0700Z, May 4
+ Indiana QSO Party	1500Z, May 3 to 0300Z, May 4
+ Delaware QSO Party	1700Z, May 3 to 2359Z, May 4
+ New England QSO Party	2000Z, May 3 to 0500Z, May 4 and 1300Z-2400Z, May 4
+ ARS Spartan Sprint	0100Z-0300Z, May 6
+ VHF-UHF FT8 Activity Contest	1700Z-2100Z, May 7
+ FISTS Saturday Sprint	0000Z-2359Z, May 10
+ SKCC Weekend Sprintathon	1200Z, May 10 to 2400Z, May 11
+ VOLTA WW RTTY Contest	1200Z, May 10 to 1200Z, May 11
+ Canadian Prairies QSO Party	1700Z, May 10 to 0300Z, May 11
+ 50 MHz Spring Sprint	2300Z, May 10 to 0300Z, May 11
+ 4 States QRP Group Second Sunday Sprint	0000Z-0200Z, May 12
+ RSGB 80m Club Championship, SSB	1900Z-2030Z, May 12
+ VHF-UHF FT8 Activity Contest	1700Z-2100Z, May 14
+ Walk for the Bacon QRP Contest	0000Z-0100Z, May 15 and 0200Z-0300Z, May 16
+ Feld Hell Sprint	1200Z-1600Z, May 17
+ Arkansas QSO Party	1400Z, May 17 to 0200Z, May 18
+ FISTS Sunday Sprint	0000Z-2359Z, May 18
+ Run for the Bacon QRP Contest	2300Z, May 18 to 0100Z, May 19
+ RSGB FT4 Contest	1900Z-2100Z, May 19
+ VHF-UHF FT8 Activity Contest	1700Z-2100Z, May 21
+ NAQCC CW Sprint	0030Z-0230Z, May 22
+ CQ WW WPX Contest, CW	0000Z, May 24 to 2359Z, May 25
+ QRP ARCI Hootowl Sprint	0000Z-0100Z, May 26
+ QCX Challenge	1300Z-1400Z, May 26
+ QCX Challenge	1900Z-2000Z, May 26
+ QCX Challenge	0300Z-0400Z, May 27
+ SKCC Sprint	0000Z-0200Z, May 28
+ QRP Minimal Art Session	1400Z-2200Z, May 29
+ RSGB 80m Club Championship, CW	1900Z-2030Z, May 29
+ PODXS 070 Club Three Day Weekend Contest	0000Z, May 30 to 2359Z, Jun 1
+ PVRC Reunion	2000Z-2300Z, May 30
+ Feld Hell Sprint	0000Z-2359Z, May 31
+ Russian WW MultiMode Contest	1200Z, May 31 to 1159Z, Jun 1

DX Information
Dave Fairbanks N8NB

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Source is www.ng3k.com

May					
2025 May02	2025 May04	Isle of Man	GD NEW	LoTW	OPDX 20250423
2025 May02	2025 May18	Curacao	PJ2	eQSL	DXW.Net 20250410
2025 May04	2025 May26	Cape Verde Is	D4	M0OXO	TDDX 20250220
2025 May07	2025 May14	Guernsey	GU6EFW	ON6EF (B/d)	ON6EF 20250216
2025 May08	2025 May15	El Salvador	YS3 NEW	LoTW	DXW.Net 20250423
2025 May09	2025 May11	Guernsey	GU80LIB	LoTW	425DXN 20250315
2025 May13	2025 May18	Honduras	HR4 NEW	PY8WW OQRS	OPDX 20250424
2025 May16	2025 May29	Bonaire	PJ4M	LoTW	DXW.Net 20250415
2025 May20	2025 May27	Martinique	TO3E	LoTW	OPDX 20250409
2025 May20	2025 May30	Kosovo	Z6 NEW	OH2YL	DXW.Net 20250421
2025 May22	2025 May27	Aland Is	OH0ERF	OH0ERF	DL1TAM 20250414
2025 May22	2025 Jun01	Palau	T8	See Info	OPDX 20250228
2025 May26	2025 Jun08	French Polynesia	TX5U	LoTW	DXW.Net 20250417
2025 May27	2025 Jun02	Niue	E6RS	LoTW	DXW.Net 20250322
2025 May27	2025 Jun02	St Barthelemy	FJ	LoTW	DXW.Net 20250213

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Website: The MVARA is on the web at www.mvara.org. It is the place to go for club events, classes, newsletters, VE exams, swap and shop, repeaters, history, documents, and contact information.

24/7 Club Connection: The MVARA is on groups.io at https://groups.io/g/mvara. Members are invited to hang out with us there and discuss any ham related topic that interest them such as, Club Activities, Parks on the Air, Solar Cycle 25, EmComm, Special Event Stations, Contesting, Public Service, and Swap and Shop. There is video on our website at **https://mvara.org/videos.html** that shows how to use and join the 24/7 Club Connection.

The ***VOICE COIL*** is the monthly publication of the Mahoning Valley Amateur Radio Association, Inc. (MVARA) and is intended to present news, issues and opinions of interest to MVARA members and the Amateur Radio Community. We encourage contributions of articles, letters to the editor, etc. and welcome newsletter exchanges with other clubs from around the country and around the world. Permission is granted to reprint material contained herein as long as proper credit is given to this newsletter and the author. Ideas for and contributions to the VOICE COIL should be submitted to: **mvara.w8qly@gmail.com**

Submissions must be received **no later than the 24th** of the month prior to the month of issue, unless otherwise specified. **Submissions should be in MS Word format or ASCII text—no PDF, please!** Material received after the deadline will be used in the next month's VOICE COIL if it is still current and /or newsworthy.

Swap and Shop Policies
Swap and Shop listings are open to all licensed Mahoning Valley Hams--you don't need to be an MVARA member. You can include a picture for your listing. Please submit your list to mvara.w8qly@gmail.com for placement in both *Voice Coil* and website. MVARA assumes no responsibility for transactions made or inaccuracies in ads. You are responsible for checking your ad and notifying us of any corrections. Ads will run for two consecutive issues unless we are notified otherwise.

The Mahoning Valley Amateur Radio Association, Inc, meets the second Thursday of every month. Location and time are subject to change. Dues are $20.00 per year, $10.00 each for additional family members. Contact Nancy, nanceanne34@gmail.com for details.

The club call is **W8QLY**; equipment operated under this call includes a two-meter voice repeater at 146.745 (-600, 110.9 PL).

Club email: mvara.w8qly@gmail.com

MONDAY NIGHT NET operates every Monday at 9:00. PM on 146.745 MHz.
SKYWARN NET - On 146.745 MHz as weather warrants.
ARES NET- First and third Mondays of each month at 8:30 PM on 146.745 MHz; prior to the Monday Night Net.

Disclaimer
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