PCARA Update

Volume 26, Issue 9 Peekskill/Cortlandt Amateur Radio Association Inc. September 2025

Back from break - KB2CQE

Things have been quiet since ARRL Field Day 2025 (June 28-29), but that doesn't mean there hasn't been anything going on. We've had a couple of our famous **PCARA Breakfasts** at Uncle Giuseppe's Marketplace in Yorktown Heights on Saturday July 19 and Saturday August 16. Both were well attended, we almost ran out of the outdoor tables! The August breakfast was followed by a VE Test Session at Putnam Valley Library. [See report on page 2. *-Ed.*]

An adventure was had by several PCARA members on Sunday July 13, 2025, who traveled to the **Sussex County Amateur Radio Club Hamfest** and **ARRL Hudson Division Convention** at the Sussex County Fairgrounds in Augusta, NJ. Among those adventurers was yours truly, who happened to win a door prize — a copy of *Nifty E-Z Guide to EchoLink Operation* by Bernie Lafreniere, N6FN. This was not the first time that a PCARA member has won a prize at Sussex, several years ago Malcolm NM9J won a DMR HT.

The Field Day report in July's newsletter pointed out problems of our older radios and older computers. Just to mention that there have been generous equipment donations to PCARA from some of our members. Of note is an Acer computer from Charles N2SO that will be used for future PCARA/W2NYW operating events. Also, a Yaesu HF transceiver and other equipment graciously gifted by Ray W2CH. Gentlemen, on behalf of the membership of PCARA, **thank you!**

We have several members who came to the rescue of the W2NYW 2 meter repeater suffering from a case of severe insensitivity in mid-August. Through the efforts of Bob N2CBH, Karl N2KZ, Rich WZ2P and Malcolm NM9J, both antenna and feedline were replaced in short order. True dedication. **Thank you!** Eventually, a permanent replacement may be needed. [See report on page 6. *-Ed.*]

Members were outside for PCARA's August 16 breakfast, at Uncle Giuseppe's in Yorktown.

Greg KB2CQE (right) with Bob NQ1R at the Sussex County ARC Hamfest and ARRL Hudson Division Convention.

Please mark your calendars with these upcoming events:

- Saturday September 6: **PCARA Membership Meeting** at 10:15 a.m., Putnam Valley Free Library, 30 Oscawana Lake Road, Putnam Valley, NY.
- Saturday September 6: **PCARA VE Test Session** at 11:30 a.m., Putnam Valley

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Free Library, 30 Oscawana Lake Road, Putnam Valley, NY. Laurel VEC, candidates please contact Lou KD2ITZ (radiocassetta‘at’gmail.com).

- Sunday September 14: **Mount Beacon Amateur Radio Club** (MBARC) **Fall Hamfest.** Doors open 8:00 a.m., Knights of Columbus Hall, 339 NY Route 82, Hopewell Junction, NY. For more information, please visit http://wr2abb.org/home/.
- Saturday September 20, 2025: **PCARA Breakfast** at 9:00 a.m., Uncle Giuseppe’s Marketplace, 327 Downing Drive, Yorktown Heights, NY.

Further ahead:

- Saturday October 4th: PCARA Membership meeting at Putnam Valley Library with guest speaker ARRL Hudson Division Director **Ed Wilson N2XDD** — followed by ARRL VEC test session.
- Saturday October 18th: New York QSO Party.
- Sunday October 19th: Harry Chapin Memorial Walk / Run Against Hunger, Croton-Harmon High School, Croton-on-Hudson, NY. The 10K Race will take a different course because of closure of Quaker Bridge for repair.

I look forward to seeing each of you on Saturday September 6, 2025 at the PCARA Membership Meeting.

- 73 de Greg, KB2CQE

PCARA Board

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Net night

Peekskill/Cortlandt Amateur Radio Association holds a roundtable net on Tuesday evenings at 8:00 p.m. and a directed ‘Old Goats’ net on Thursday evenings at 8:00 p.m. Both events take place on the 146.67 MHz W2NYW repeater, offset -0.600, PL 156.7 Hz.

Join the roundtable to find out what members have been doing or join the Old Goats with net control Karl N2KZ for news and neighborly information.

VE Test Session August

PCARA’s most recent Volunteer Examiner test session took place on Saturday August 16 at Putnam Valley Library. This session followed PCARA’s August 16 Breakfast at Uncle Giuseppe’s in Yorktown.

There were three candidates for the session, which took place in the library’s smaller meeting room. Robert Acosta and Mary Ellen Acosta of Mahopac, NY both passed the Element 2 test and qualified for Technician. They were granted new call signs by the FCC on August 19 as follows: Mary Ellen Acosta – **KE2GNZ;** Robert Acosta – **KE2GOF.** Robert and Mary Ellen subsequently joined PCARA with a family membership. **Welcome!**

Tim Mangano KC2LTP of Marlboro NY had attended a previous PCARA test session at Putnam Valley Library in March 2025. On August 16, Tim passed Element 4 and upgraded from General to Extra. Tim was also making an address change to Tempe, Arizona. His new 7-land call sign **AJ7GK** was allocated by the FCC on August 18, 2025.

August 16 Test Session at Putnam Valley Library.

This was a Laurel VEC Test Session (no test fee). Session Manager Lou KD2ITZ had scheduled the event, with Team Lead Rob AD2CT administering tests from within ExamTools on his notebook PC. Rob also uploaded the results to Laurel VEC. Joe W2BCC had once again brought along 10-inch tablet PCs for use by the candidates. The other volunteer examiners were Ken W1YJ and NM9J. Joe WA2MCR observed the session.

PCARA’s next Laurel VEC Test Session is scheduled for Saturday September 6 at 11:30 a.m., after the monthly meeting at Putnam Valley Library. Candidates should contact Lou using radiocassetta‘at’gmail.com.

There will be a subsequent session on Saturday October 4 at Putnam Valley Library. This will be an ARRL VEC Test Session with $15.00 test fee.

Adventures in DXing
- N2KZ

Tag! You're It!

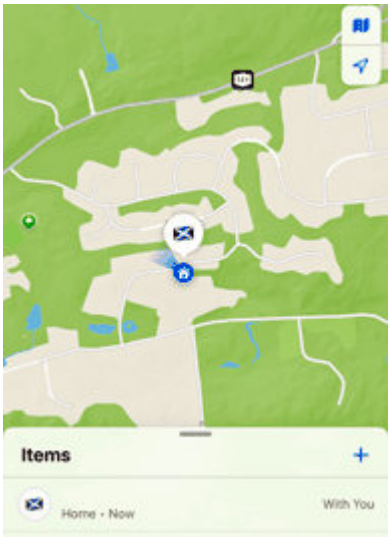
Quiz: What has three transmitters and three antennas and is the size of a quarter — ready to operate up to ten years with a simple built-in battery? It exists just to tell you its location. Can you name it? It's an **Apple AirTag**! If you have one... you can find virtually anything!

The concept is simple: Apple AirTags are small discs that continually send out signals saying 'Here I Am!' How you use them — and — what you track with them is limited only by your imagination. Attach an AirTag to the essential items in your life and you'll never spend countless minutes, hours or even days trying to find them. Just consult your Apple *Find My* application and — bingo! — you'll know exactly where it is. It's a miracle in the palm of your hand!

Apple AirTag — a miracle in the palm of your hand. [N2KZ pic.]

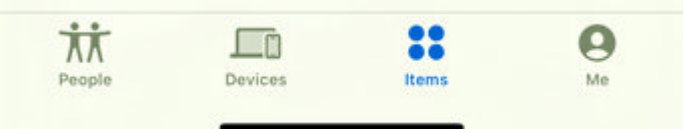
Apple AirTags were first introduced on April 30, 2021 as an inexpensive consumer RFID unit working in concert with Apple's well-established *Find My* app. **R**adio **F**requency **ID**entification devices were originally introduced decades ago as a convenient commercial tracking device for inventory management and control. Apple has continually updated and improved the AirTag system since its introduction four years ago. Apple's AirTag is currently the most complex advanced rendition of this technology. With long battery life and a robust triband transmission system, it leads the pack in consumer RFID technology.

If you like radio direction-finding foxhunts, you will love the clever *Find My* application that can track AirTags. It can tell you where people, computers and phones are, too. Your phone's graphical user interface does not just list a text address or co-ordinates. *Find My* always includes a nifty concise color map complete with individual icons to show you where all your AirTags are. You can discover their general location — and — help you find them physically as quickly as you can get there! Are you looking for them inside a building or something that isn't flat? The map user interface even has a 3D option providing even more accuracy.



Apple "Find My" map. [N2KZ pics.]

All Apple computer and phone devices include working copies of *Find My* as an integral part of their operating systems. Trackable items are found in four *Find My* folders: *People - Devices - Items* and *Me*!



Four tabs are available in Apple's "Find My" app.

The *People* folder shows the current positions of all your registered friends wherever they are on the planet. (It actually tracks people's iPhones after they give you permission.) *Devices* maps the location of *all* the Apple laptops, iPads, and iPhones that belong to *you*. *Items* lists all of your Apple AirTags and shows you where they were last seen. Finally, if you don't know where *you* are... *Me* can show you on a map! (How metaphysical... now you can find yourself!)

Make a Connection

AirTags can be found in two ways. From a distance, you can use them to discover the location of items or people remotely — literally any place in the world! An AirTag in a pocket, a piece of luggage, in a car or attached to your key ring or wallet or purse can be tracked and recovered, easing your anxiety and easing your day! You really did leave your handbag at the library. Your posted package really is in Cleveland, headed for your parents in Seattle. What is lost is now found!

AirTags can also be used quite locally. Think of all the things you routinely misplace around your house. Indeed, attach one to your keys. Put one in your wallet. Use double-sided tape to fix to your forever-missing remote control. Attach one to your dog's collar. You are only limited by your imagination!

Discoveries From a Distance

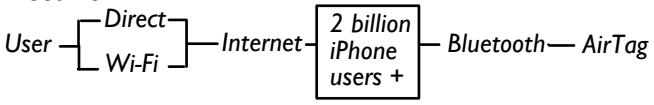
Just how does this system work? Again, there is a remote and local method. Remote viewing requires quite a few steps. A user looks at their *Find My* app on a laptop, iPhone or iPad to see where an AirTag might be. Your devices running *Find My* can be connected to the Internet directly — or — probably by WiFi.

"Find My" icon.

When locating AirTags far away, *Find My* utilizes the Internet creating long distance two-way handshakes between users and AirTags. The Apple *Find My* server system keeps track of where all reporting items were last seen from all over the world. Your device queries this system's database to discover your AirTag's latest reported location.

At the other end of the connection... how do the AirTags talk to the Internet? AirTags talk back and forth to very local and/or passer-by Bluetooth devices to make their end of the connection reporting to the *Find My* Internet server. There are over 2 billion iPhones and many more other devices around the world that connect to the Internet — and — run Bluetooth. AirTag signals piggyback via random Bluetooth users to make that last mile of connection. Agile and fascinating!

Distant



Wireless connection between a user running the "Find My" app and a distant AirTag device.

Herein lies the clever yet tentative nature of the AirTag system. There are a couple of caveats to be aware of. The *Find My* AirTag system *does not update in real time*. *Find My* shows you where and when the AirTag was *last pinged by a Bluetooth connection.* AirTags periodically send 'discover me' attention messages looking for a hookup. Consider it like a QRP DXer constantly sending CQ. Eventually, someone will hear you! In some ways, the technology is primitive and simplistic. You must admit, it is clever and it gets the job done! Report received: Your AirTag is at the bank branch in Somers! The more pings your AirTag can achieve, the more accurate its location can be rendered on the *Find My* map.

Local Tag Hunting

Find My is straightforward at close range. If you are within direct Bluetooth range, all you need to do is look at your *Find My* application to find your device. In the *Find My* app, go to Items, click the name of your AirTag, then click 'Find nearby' — and you will be in local mode. You are beginning an entertaining and high-tech tag hunt!

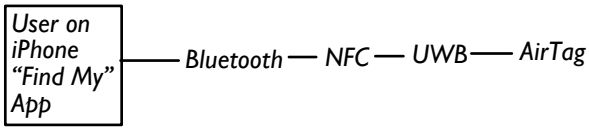
Making Magic

Three RF technologies work in concert to make your local tracking as efficient and up-to-date as possible. The backbone is the familiar and reliable Bluetooth on **2.4 GHz**. Apple uses an updated version called BLE (Bluetooth Low Energy) to optimize battery life.

Next is another well-used technology: NFC (**N**ear-**f**ield **c**ommunication.) You use NFC when you tap your credit card to make a purchase or use it to verify your identity. NFC also has a peer-to-peer mode utilized for communication between devices to literally say "are you nearby?" or "who are you?" This is the voice of the AirTag allowing conversations back and forth via the Bluetooth connection. Look for NFC data bursts on **13.56 MHz**.

Finally, there is the high tech — broadband bandwidth — UWB (**U**ltra-**w**ide**b**and) operating way up there at **6.5** and **8 GHz**. When you get ultra-close to your AirTag, UWB will guide you in every step of the way — very much like the glidepath signals planes use to gracefully land.

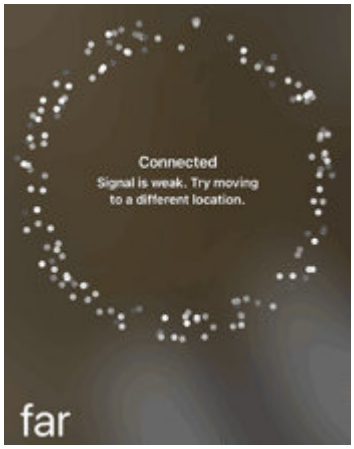
Local



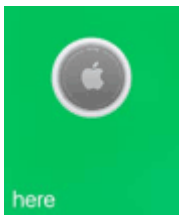
Wireless connections between a user running the "Find My" app and local AirTag device.

I See You!

Look at your *Find My* map and head toward your AirTag. When you enter the range of its Bluetooth signal, your *Find My* app offers an encouraging on-screen message: "Connected. Signal is weak. Try moving to a different location", complete with a circular graphic that looks like a twirling star constellation. Get closer and a new graphic appears with a direction arrow. "5 feet to your right!" followed by a countdown in feet — and — left/right direction cues as you get closer and finally a bright green declaration of '**here**.' Do you see it yet?



"Connected. Signal is weak. Try moving to a different location."



But wait! Maybe it is under a rug or behind a couch cushion but you can't see it. If you are '**here**' — within a few inches of the AirTag — and still can't find it physically, use the *Find My* app to command the AirTag to annunciate with a spritely tone. Let your ears do the walking. There it is! UWB technology found your AirTag. Added feature: You can pull the same trick with Apple AirPod Bluetooth earbuds! AirPods show up as *Find My* assets — and they are capable of making an audible chirp just like an AirTag.

Tiny Disc Appreciation

Apple AirTags are miraculous. It is hard to conceive all the electronics and technology forged into these tiny discs. The majority of the disc size houses a common CR2032 lithium battery. (This is the same flat and circular type used in watches, remote controls and Tamagotchis.) All the support electronics and three antennas are squeezed in around the battery's perimeter.

CR2032 lithium batteries.

Changing the battery is simple. The stainless steel back twists off by turning it counter-clockwise. The battery is easy to pop out and replace. The AirTag's base looks like ceramic but is actually a high density white plastic. People have tried to destroy AirTags as a challenge and it isn't easy. They have survived being run over by a car!

Strays

Should someone else find an unknown tag, it is possible to identify it. Just tap the white side of the tag to the top of an Apple NFC device like an iPhone. You'll receive a return notification telling you the found device's serial number and the owner's 'return-to-me' information — cell phone number, etc. It is a good idea to also keep a log of the serial numbers for your AirTags for future reference and identity checks. If you want to return an AirTag to factory settings and a fresh configuration, pop the battery in and out of the tag five times. The AirTag should report as a new tag waiting for initiation and configuration just like new.

Your Apple AirTag's identity can be shared with a total of five people. This can be very handy when several people are looking for the same car keys! Another reason to make you smile: AirTags do not require long-term subscription fees. When you purchase an AirTag, it is yours to use freely for the life of the unit.

What do you call it? To initialize a brand new AirTag is easy. Pull out the plastic wrapper that protects the disc and the battery activates. Touch the AirTag to your phone for a welcome message. You will be asked to give it a name and/or an icon. Both will then be seen on the *Find My* app for your convenience. You can change the name and icon whenever you like. It couldn't be simpler!

Remember that AirTags can help you find just about anything you can stick them to. Stick one to your electric or acoustic guitars, your camera bag or even attach one to your baby's clothing. You never, ever want to lose your baby! People use them to track cars, tractors, bicycles, water bottles, tennis bags, umbrellas and just about anything that can move or hide from you. Now, if they could only figure out how to mount an AirTag to a pair of glasses! Listen for the words you long to hear: "Honey! I found it!" Thank you, AirTag.

Finally, for a fascinating deep dive into the workings and design of Apple AirTags please visit: https://adamcatley.com/AirTag.html. You will not believe all the technology Apple can squeeze into a little disc... and all it can do! You could spend a lot of time pondering this page! Congratulations to author Adam Catley for all of his astounding reverse engineering!

Enjoy your September! 73s and dit dit de N2KZ.

De minimis for hams

De minimis is a Latin phrase meaning "about the smallest things" — i.e. something too small or unimportant to worry about. If you are ordering equipment from abroad, then it may be time to start worrying!

The USA's *de minimis* exemption was established in 1938, allowing low-value packages to enter the country duty-free. In 2016, the *de minimis* import threshold was raised to $800 to facilitate trade and save on enforcement costs. This led to a huge growth in online purchases of consumer goods and apparel from suppliers in China such as Temu and Shein. Vendors in other countries also took advantage of the exemption.

President Trump and predecessor President Biden criticized the policy as harmful to USA businesses while facilitating the import of illegal goods. In April 2025, President Trump signed an Executive Order ending the *de minimis* exemption for all products from China on May 2. Congress passed a bill to end the exemption for **all** countries in 2027 but President Trump then signed another order moving the date forward to August 29, 2025. The rule does not affect gifts valued under $100.

Postal services around the world paused deliveries to the USA while rules were clarified and systems updated. Ray W2CH was caught in this trap after ordering an FA-VA6 Vector Antenna Analyzer from the FunkAmateur online shop in Germany, https://www.box73.de/, where goods could no longer be shipped. Advice for now is to order from a U.S. vendor where available.

2 meter repeater repair

Trouble on the hill

The last major change to PCARA's 2 meter repeater took place in February 2024 when the previous equipment — based on Kendecom receiver, Motorola transmitter and separate controller — failed with zero RF output. At that point, Bob N2CBH installed a Motorola VHF MTR3000 repeater. This new unit has performed well throughout hot and cold weather, with just an occasional crackle on weak signals. See *PCARA Update* for March 2024, p6 for a full history of the "2 meter repeater".

Motorola MTR-3000 repeater.

During the week of August 17, 2025 as the summer weather cooled off, there was a significant degradation in performance. The repeater would only operate with the strongest of signals, as demonstrated during the August 19 Roundtable Net. The subsequent Old Goats Net had to transfer to the KB2CQE UHF repeater on 449.925 MHz.

On August 21, Bob N2CBH took the repeater off-air so he could remove the Decibel Bandpass/Reject duplexer for evaluation. On Bob's test bench the duplexer proved to be working satisfactorily. Back at the repeater site, Bob and Karl N2KZ established a temporary 5/8λ antenna and found no de-sense problems. Suspicion was falling on the RFS 220-2N Super Stationmaster antenna that was originally installed at the Putnam Valley repeater site in September 2008, then transferred to the current site in December 2012.

Decibel Bandpass/Reject duplexer. [N2KZ pic.]

By coincidence, the history of the Super Stationmaster is described in another article in this month's newsletter. (See 'What's in a white stick?') In brief, the RFS/Commander 220-2N is a coaxial-collinear antenna design containing cross-connected half-wave sections of coaxial conductors, housed in a heavy-duty fiberglass shroud, 16.8 ft high. The radiation pattern is omnidirectional with gain of 5 dBd (decibels relative to a half-wave dipole), concentrated on the horizon.

RFS 220-2N

On August 23, Bob returned to the repeater site with tools and test equipment. His first check employed a digital signal generator equipped with a Communications Specialists CTCSS encoder to inject a weak signal into the repeater's receiver while transmitting into dummy load. Result — the receiver was adequately sensitive with no de-sense from the transmitter. VSWR of the Super Stationmaster antenna was also satisfactory when checked.

Bob N2CBH checks operation of the 2 meter repeater using RF test equipment on the table.

Antenna change

Bob N2CBH had brought along the Sinclair SD212 2-bay dipole antenna, donated around 2002 by Robert N2GDY. This antenna had been used previously at the repeater site from November 2002 to April 2006 after the tower-mounted dual-band collinear failed. Bob had also made up a new feeder consisting of 40 feet of LMR-400 coaxial cable with N-type connectors. The Sinclair antenna was substituted and a test carried out with Karl N2KZ. While Karl's signal from 11 miles away was not strong, reception was consistent with no de-sense. Strong suspicion now fell on the Super Stationmaster antenna having some kind of internal failure that was generating broadband RF noise when excited with the 40-50 watt transmit signal on 146.670 MHz. Bob suspects a welded joint inside the Stationmaster

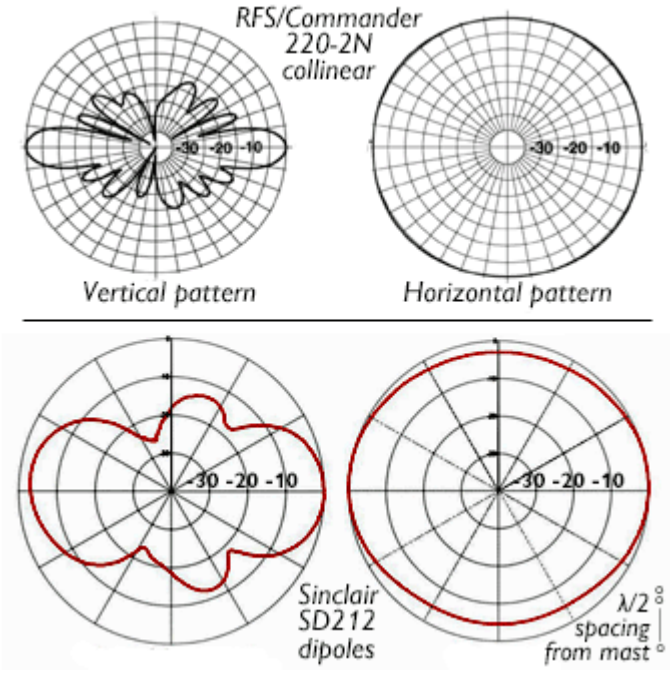
Sinclair SD212 2-bay exposed dipole antenna.

antenna may have cracked.

Bob N2CBH and Rich WZ2P made installation of the Sinclair SD212 2-bay dipole antenna more permanent and raised its height. It is not quite as high as the Super Stationmaster and the dipoles are currently 'pointed' southeast of the support mast.

Rich WZ2P and Bob N2CBH install the Sinclair 2-bay exposed dipole antenna.

The dipole-to-mast distance for the SD212 is one half wavelength, resulting in a bi-directional horizontal pattern with highest gain (5 dBd) to the northeast and southwest. The vertical pattern has a beamwidth of 34°, wider than the 18° vertical beamwidth of the Super Stationmaster. This may provide better fill-in at locations below the height of the repeater site.



Top: RFS/Commander Super Stationmaster with omnidirectional horizontal pattern (vertical beamwidth 18°). Below: Sinclair SD212 2-bay exposed dipoles with bi-directional pattern (vertical beamwidth 34°).

Please check performance of the repeater on its 'new' antenna. Is coverage better or worse for you? Pass on your experiences as they may affect the group's decision on a future antenna.

- NM9J

New York QSO Party

On August 26, Joe WA2MCR received a plaque from the New York QSO Party for W2NYW's "Multi-One – High Power" entry in the October 2024 event. The plaque was sponsored by Doug Stewart, N2BEG of Honeoye Falls, NY.

Joe WA2MCR with NY QSO Party plaque.

As reported in *PCARA Update* for May 2025:

There were two entries from PCARA members. Joe WA2MCR was operating from his basement shack using the club's W2NYW call sign. Joe had skipped PCARA Breakfast to be ready at the QSO Party's 10:00 a.m. start time. I paid several visits to Joe's basement shack during the contest and added CW and SSB contacts to the score. See the November 2024 *PCARA Update* for details. The other member making an individual entry was Scott KE2CNS.

To quote the NYQP report: "In the High Power Multi-Single category, WA2MCR and NM9J returned to activate W2NYW from the Peekskill/ Cortlandt ARA club station in Westchester County and won the category with a 51k score, more than twice their 2023 entry. Nice job!"

The 2025 New York QSO Party takes place on Saturday October 18th, from 10:00 a.m. Eastern. Details are available at the QSO Party's web site: https://nyqp.org/wordpress/. Joe WA2MCR indicated that he will host the Club entry this year, with PCARA members welcome to operate from his sun room. -NM9J

What's in a white stick?

Mystery antenna

In the United Kingdom, radio amateurs refer to a vertical antenna enclosed in a white plastic tube as a **"white stick" aerial**. Commercial antennas employ a tube made of **FRP** to contain the radiating element. FRP is **f**iber-**r**einforced **p**lastic — *aka* fiberglass. For radio use, FRP has glass fibers encased in epoxy resin, similar to the material used in glass epoxy circuit boards. Home-built antennas for amateur radio might employ a plastic tube made of rigid polyvinyl chloride (PVC) intended for plumbing (Schedule 40), or for drains, wastes and vents (DWV).

Bob N2CBH and Rich WZ2P install a VHF gain antenna at the W2NYW repeater site in 2012.

This type of antenna is seen on premises that make use of VHF/UHF mobile radiotelephones such as police, fire and ambulance stations, town halls, hospitals, and hilltop tower sites with antennas for multiple services. You may see similar antennas on the homes of radio amateurs.

There are good reasons for hiding radiating elements inside a white, plastic tube. Metal conductors are protected from the weather, staying dry and reducing corrosion. The plastic tube stops water, snow or ice from accumulating directly on antenna elements, maintaining a low VSWR. The insulating tube also protects against electrical noise when static rain or ice would strike bare metal elements.

This style of vertical antenna only requires a single mounting point at the base. If the radiating elements are made of thin wire or metal rod, the rigid plastic tube holds the antenna straight up, even when the wind is blowing.

The plastic tube is sometimes called a **radome**, from the use of an RF-transparent plastic cover for radar dishes mounted on the ground, on ships and on airplanes. A further advantage of the radome is that it prevents observation of the antenna direction under the dome — potentially useful information for an enemy surveying a communications intercept site!

Radome. [NASA]

Low-gain mystery

Although the white plastic tube hides the actual construction, low-gain white-stick antennas are often based on a **vertical dipole**. A standard half-wave dipole, center-fed with coax, would *not* be suitable as the feeder has to be led away from the center of the antenna at right-angles. Instead, the design employs a λ/2 **sleeve antenna**, with the coaxial cable feeder rising up through the middle of the sleeve.

Sleeve dipole antenna in FDR State Park.

One method of construction for a sleeve dipole employs a metal tube (brass, aluminum) for the sleeve and wire or rod (copper, brass) for the vertical element, all contained inside the fiberglass tube. Another method employs all-coaxial cable inside the fiberglass tube, with the center conductor of the coax exposed for the top element and a length of braid pushed back over the coaxial cable feeder for the sleeve.

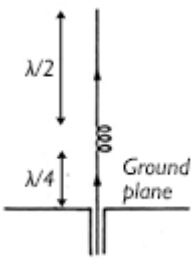
Sleeve dipole in fiberglass tube.

If a length of braid is pushed back over the coaxial cable, the cable's outer plastic jacket has to act as a dielectric. Standard coaxial cables such as RG-58 or RG-8 have jackets made of flexible PVC — not the best choice for a low-loss RF insulator. A better option would be coaxial cable with a polyethylene jacket such as Times LMR-300, LMR-400 or an FEP jacket such as RG-316.

Some short, white stick antennas are advertised as having wider-bandwidth than a standard dipole, with the added advantage of a DC short-circuit across the feeder. This 'grounded' construction employs a *folded* vertical conductor above the sleeve. The design is known as a "folded monopole", with the folded element cut somewhat shorter than a physical quarter-wave for resonance.

Folded monopole.

Sleeve antennas still have a tendency to couple RF energy onto the outside of the coaxial feeder's outer conductor, distorting the polar diagram. This must be counteracted with a choke — perhaps several turns of coaxial cable below the antenna, one or more clamp-on ferrite chokes, or an additional metal sleeve, possibly with ground-plane elements attached.



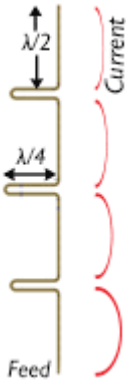
For a medium amount of gain (3 dBd), it is possible to arrange a half wave element stacked above and operated in-phase with a quarter wave element. A phasing coil between the two elements provides the correct phasing.

High-gain mystery.

The white-stick antennas that stand out are housed in long plastic tubes with advertised gains of 5 dBd or more. There are several ways to achieve this, but the most popular design is based on the **coaxial-collinear** array. This type of antenna is employed at the KB2CQE/R repeater and (until Aug 23) at W2NYW/R.

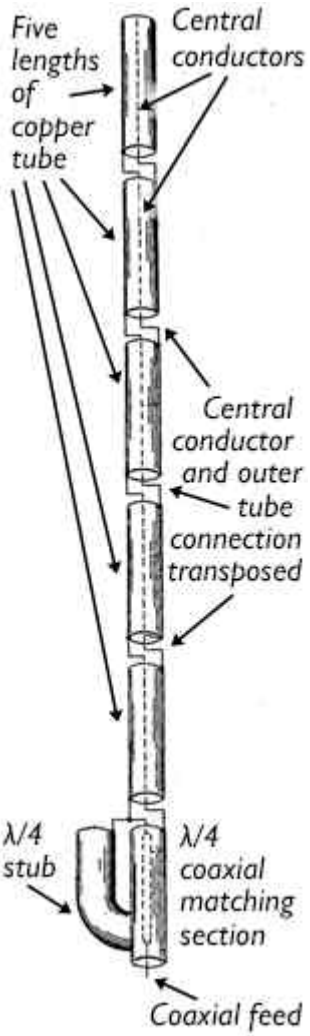
Alan Blumlein.

One of the earliest descriptions of the coaxial-collinear array is by English electronic engineer Alan D. Blumlein (1903-1942). In patent GB 452,791 (1935) and USP 2,115,761 (1936) "Directional Wireless Aerial System" assigned to EMI, Alan Blumlein begins with a collinear array consisting of vertical half-wave elements in-line, one above the other, connected by folded half-wave auxiliary elements. When this array is fed with RF energy at the lower end, a problem arises — radiation from the lower element reduces the RF current flowing into the element above, so the upper elements are less-effective radiators.



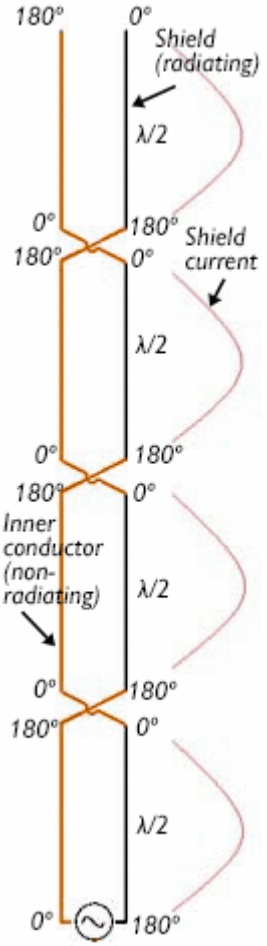
Alan Blumlein's solution was to replace the single wire radiators with **coaxial sections** of a half-wave conductor surrounded by a conducting tube, feeding a similar second coaxial section. The first coaxial section acts as both radiator (from the outer conductor) and as feeder for the next section. If there are more than two sections, this pattern repeats up the stack of coaxial tube sections.

For maximum radiation in the horizontal plane, the half wave radiators must all be operating in-phase. The voltage at the lower end of the first outer tube should be negative at the same time as the voltage at the upper end of the tube is positive. This pattern should be repeated for the next tube up and so on. Since the coaxial feeders are arranged to be one half electrical wavelength long, there is a phase reversal over the length of each tube. So, by cross-connecting the inner and outer conductors at each junction between coaxial sections, the desired phasing (+/– voltage, 0°/180° current) is obtained.



Alan Blumlein's 1935 coaxial collinear design from USP 2,115,761.

Alan Blumlein recognized that the base of the antenna would require impedance matching to the feeder cable — he used a quarter-wave coaxial transformer — and current flow on the outer sheath of the actual feeder should be avoided to prevent distortion of the array's polar diagram.



Current on the outer shield sections is kept in phase by transposing inner and outer conductors.

Enter the tube

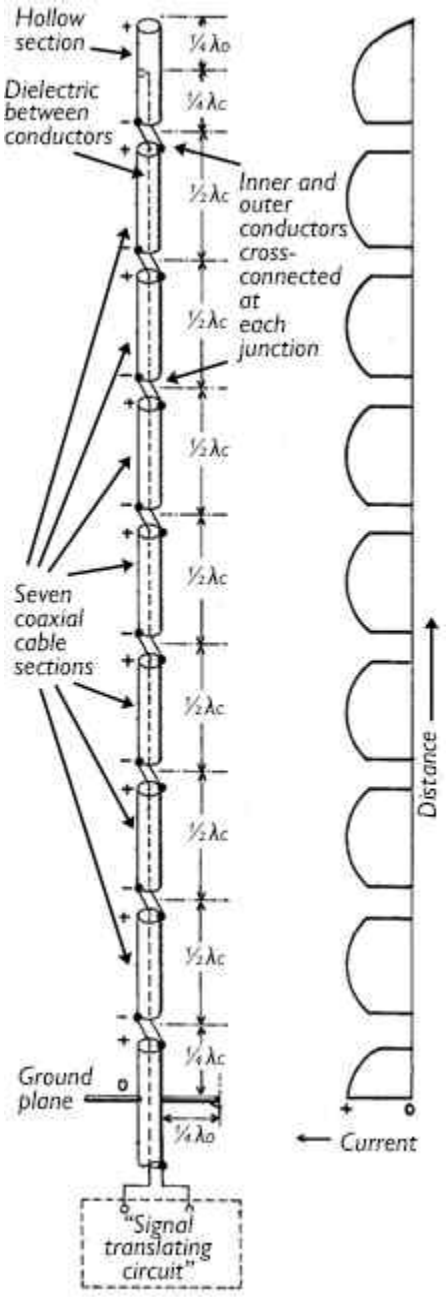
When Alan Blumlein wrote his patent application in 1935, rigid coaxial cables made of metal rods mounted inside metal tubing were just being introduced for long-distance-phone and television links. Polyethylene and epoxy resins were still in the laboratory, and flexible coaxial cable for RF transmission would have to wait until WW II.

By 1954, flexible coax and fiberglass tubing were available and radio engineer Harold A. Wheeler 3QK (1903-1996) was commissioned to design a vertical antenna with gain for Communication Products Company Inc. of Marlboro NJ. His article, "A vertical antenna made of transposed sections of coaxial cable" (IRE Convention Record, Vol 4 Part 1, 1956 pp 160-164) describes a vertically-polarized antenna with a series of **solid dielectric** coaxial cable sections. The inner and outer conductors of the cables are transposed at each junction as for the Blumlein design. Each section has an effective electrical length of one-half wavelength *in the solid dielectric* of the coaxial cable — so the radiating sections are all excited with the same polarity.

Harold Wheeler.

Initial patent applications in 1956 and 1959 were abandoned, then in 1960 Communication Products Co. applied for a further patent, authored by William B. Bryson and published in 1962 as USP 3,031,668, "Dielectric Loaded Colinear Vertical Dipole Antenna". This

patent contrasts the Blumlein design of half wave coaxial line sections using **air dielectric** with CommProd's newer design employing sections of coaxial cable with **solid dielectric** such as RG-8A/U. The cable lengths are cut for an electrical half-wave length inside the cable, allowing for velocity factor. In the case of RG-8 with polyethylene dielectric, the velocity factor is 0.66 and the length of each half-wave section has to be multiplied by 0.66. (For example, at 146 MHz a half wavelength of coax with air-dielectric — 39¾" long — would be reduced to 26¼" long when using solid polyethylene dielectric.) The result of substituting the coaxial insulation with a dielectric material other than air also reduces the overall antenna length. At the same time, current at the end of the outer surface of the coaxial cable sections starts at **half** the peak value rather than starting at zero.



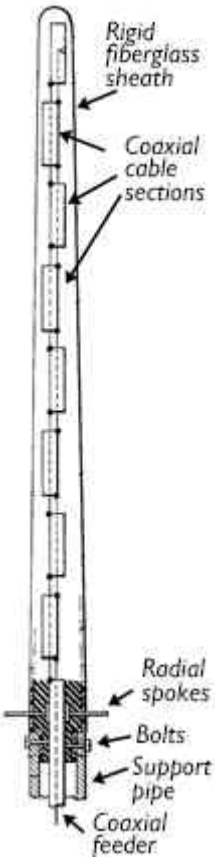
Communication Products Company's 1956-1960 design for a coaxial collinear antenna using coaxial cable sections with solid or foam dielectric insulation. [After USP 3,031,668]

The lengths of coaxial cable could be enclosed in a protective housing made of rigid dielectric material such as fiberglass. The patent states that removal of the coaxial cable's vinyl outer covering may be an aid to assembly inside the housing. The housing could be fully or partly filled with a low-dielectric-constant wax, encasing the lengths of cable.

When developed into commercial form, this antenna was sold as the Stationmaster and Super Stationmaster by Communication Products Company of Marlboro NJ. They subsequently became part of Phelps Dodge Communications Company. (Advertisements for the Super Stationmaster from the combined company appear at the end of ARRL *Handbooks* for 1968 and 1969, see below.) Phelps Dodge was acquired by Celwave, which was bought by Radio Frequency Systems (RFS). Stationmaster antennas are now made by Commander Technologies.

PCARA has an RFD 220-2N Super Stationmaster with 5.3 dBd gain for 2 meters and a Commander Technologies 1151-2N with 8 dBd gain for 440 MHz.

The coaxial-collinear antenna is difficult to model using low-cost software such as EZNEC or MMANA-GAL — which cannot handle coaxial lines. L.B. Cebik W4RNL (SK) provided a comparison of approaches in his article "Is COCO Your Cup of Tea?" (https://www.antenna2.net/cebik/content/vhf/coco.pdf). One conclusion is that the coaxial-collinear design is sensitive to the exact velocity factor of the coaxial cable, with small changes in velocity factor producing large changes in feed point impedance. Another conclusion is that the gain of a long, 9-section coaxial-collinear array (24½ ft long for 146.5 MHz) could be matched by a simple array of four half-wave vertical dipoles, fed in phase and spaced one wavelength apart. This may explain the continued popularity of 2-element and 4-element arrays of exposed folded dipoles as an alternative to the fiberglass Stationmaster design.



CommProd coaxial collinear antenna encased in fiberglass sheath. [After USP 3,031,668]

Advert for Communication Products Company, (Division of Phelps Dodge Electronics Corp) Super Stationmaster from ARRL Handbook 1969.

Lightweight mystery

Stationmaster antennas for commercial and amateur use are **expensive**. Current prices for the antennas used by PCARA are around $1400 - $1600 each! You could order similar-sized antennas made by Diamond (X510) or Comet (GP-9) for around $220… and those amateur models are **dual-band**, covering both 146 and 440 MHz. How can they do it for the price?

Diamond and Comet antennas are a lot less rugged than commercial-grade Stationmasters. Their fiberglass tubing is much thinner and of lower diameter than the professional-grade antennas. While Stationmasters are shipped fully assembled in one long fiberglass sheath, the Diamond X510 and Comet GP-9 can be shipped by UPS (max length 108"), with three separate fiberglass tubes, each containing a copper or brass conductor. The conductors have to be joined together using a brass fitting with set-screws, then the fiberglass tubes have to be connected using a joint coupling. The conductors are held in place in the center of each tube using pieces of polyurethane foam.

Comet GP-9 is shipped in three sections that have to be joined together.

This design has potential points of failure. Water could enter the fiberglass tube through the joint couplings and at the metal base, especially if the antenna is bending and blowing around in a storm. Moisture could then corrode the set-screwed brass fittings connecting the wire conductors. And if the polyurethane foam becomes wet, it could detune the antenna. The Operation Manual for the Comet GP-9M antenna recommends: "Please pay extra attention on Water-Proof works (sic) at each joint parts, by adhesive glue, self-melting tape and/or vinyl tape."

For these reasons, you might want to choose a shorter Diamond or Comet antenna that is supplied in a **single** fiberglass radome, such as the X50 or GP-3.

More problems — different radiators inside the fiberglass tube are **soldered** together and small, high voltage ceramic capacitors are soldered into place as part of the impedance matching networks. These are all points known to fail in amateur practice.

The NCG (NatComm Group) web site states — for the 16' 9" GP-9 antenna — "Although hundreds are in use in repeater systems, it was not designed for mountain-top installation where extremely high winds, ice and other extreme conditions exist. It performs best in low to mid elevation installations where the high gain radiation pattern is most effective."

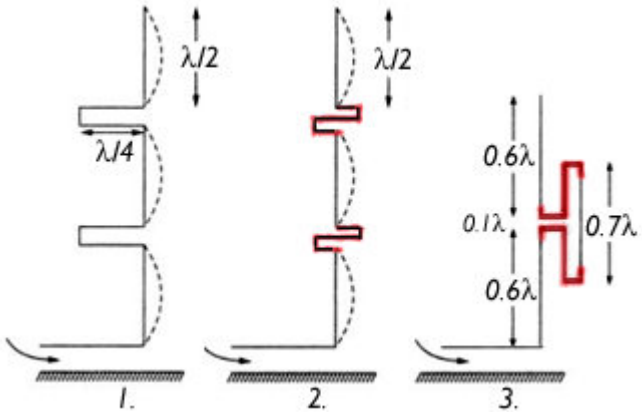
Why do Diamond/Comet not use the coaxial-collinear design in most of their fiberglass radomes? One reason may be that lengths of copper wire are cheaper than precisely-cut-and-soldered coaxial cable. Another reason is the need to provide a dual-band design. A clue comes from the catalog descriptions — the X510 and GP-9 are both described as three 5/8 waves on 146 MHz and eight 5/8 waves on 446 MHz.

Examination of the innards of a Comet GP-9 extracted from the fiberglass tube reveals several lengths of wire that are folded back on themselves. This is known as a "Folded Franklin" arrangement. (See *PCARA Update* for February 2015, pp 6-8 "Build a Folded Franklin".)

VHF (top) and UHF folded sections from a Comet GP-9. Black plastic clips hold folded sections. PU foam keeps wires centered.

C.S. Franklin (1879-1974) was a British radio engineer with the Marconi Company who explained in British Patent 242,342 how to increase the gain of a vertical antenna by suppressing radiation from alternate half waves, for example by folding the center half wave back on itself as a phasing stub, or quarter-wave shorted transmission line.

This horizontal phasing line could result in unwanted radiation, so instead of having the stubs sticking out from the antenna, they could be bent back and forth to suppress radiation, known as a meander line. Each meander line phasing section could then be rotated through 90 degrees so the wires were parallel to the vertical radiators. Any radiation from the meander section would then reinforce the wanted radiation from the vertical radiators. During the 1920's, the Marconi Company used large arrays of Franklin antennas for the Imperial Wireless Chain beam stations operating on short wave.



*Derivation of the Folded Franklin antenna. **1**. Conventional Franklin antenna has three vertical λ/2 wires, separated by two horizontal λ/4 phasing lines. **2**. The horizontal phasing lines are modified to non-radiating meander lines (red highlight). **3**. The meander lines (red tint) are rotated through 90° so they line up with the vertical λ/2 wires.*

Comet describes their folded sections as 'super linear converters'. The Comet catalog states: "COMET de-

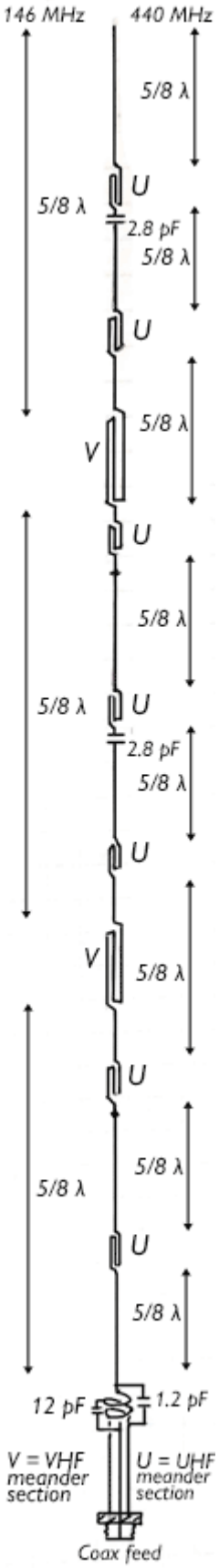
veloped the Super Linear Converter (SLC) to increase the actual gain of dual/tri-band antennas. A completely pre-formed phasing coil and phosphorous copper element eliminates additional components, and gain loss… The SLC is electrically very efficient, providing a low angle of radiation directly to the horizon, for maximum performance."

Examining the layout of a Comet GP-9 antenna, on 146 MHz, there are two separate VHF meander line phasing sections (***V***), each one changing the phase of the current fed to the next section up. This splits the vertical radiator into three lengths, all radiating in phase. On 446 MHz, there are seven shorter meander sections for UHF (***U***), splitting the wire into eight lengths, all radiating in phase. Two of the eight lengths are a little short and appear to have been lengthened with capacitive loading. There is an L-C matching network at the base of the array to produce a 50 ohm load at the antenna connector.

Note that radiation from the lower elements will reduce RF current flowing into the upper elements, so the upper elements will be less-effective radiators.

The Diamond X510 employs 8-turn and 64-turn coils in place of the Comet GP-9's meander line phasing sections.

You might be tempted to home-construct one of these antennas yourself, inside a length of PVC tubing, but the *RSGB VHF/UHF Handbook* warns that this type of structure is sensitive to capacitive loading by the housing and insulators. The radiation pattern is frequency sensitive and will squint up or down with frequency changes. Adjustments to optimize the radiation pattern and impedance are difficult without proper measuring facilities. If the various sections are not properly excited and phased, gain and radiation pattern can be badly affected.



Internal layout of a Comet GP-9 dual-band antenna.

- NM9J

Mt. Beacon License Class - W2BOS

The Dutchess County Department of Emergency Response and the Mt. Beacon Amateur Radio Club offer a free one-evening / two-day Amateur Radio License Test Review Seminar to be held on Friday evening and Saturday/Sunday 14 – 16 November 2025.

Friday: 6:00 p.m. to 9:00 p.m.; Saturday 8:00 a.m. to 4:00 p.m.; Sunday 8:00 a.m. to Noon.

FCC License Exam Session held starting Sunday at 1:00 p.m., Location: Dutchess County Department of Emergency Response, 392 Creek Road (near Dutchess Community College), Poughkeepsie, NY 12601 {GPS: 41.7465676,-73.8983243}

Why Amateur Radio?

- To assist your community in time of need when all else fails
- To promote good will around the world
- To have fun communicating with fellow hams!
- Morse Code knowledge is no longer a requirement!

The seminar is open to all without age limit and is for the entry level FCC Technician Class Amateur Radio License.

Obtain and study the text before the seminar: "ARRL Ham Radio License Manual 5th Edition" with FCC Technician class license questions, July 1, 2022 to June 30, 2026, (ISBN 978-1-62595-155-7).(https://home.arrl.org/action/Store/Product-Details/productId/2003373064) or through Amazon(https://www.amazon.com/ARRL-Ham-Radio-License-Manual-dp-1625951558/dp/1625951558/ref=dp_ob_title_bk).

This seminar will review all material and test questions for the FCC exam, but attendees are expected to study material ahead of time in the License Manual.

For class registration (cutoff date is October 24) and/or additional information: contact: Adam Nowik Jr. AE2AN at 845-849-3666 or AE2AN'at'aol.com.

FCC License Exams on Sunday 1:00 p.m:

Open to all hams, regardless of whether they took the class. A $15 FCC exam fee (cash or check) is due to take the test. Upon successful completion, a $35 FCC license fee will be charged directly by the FCC for all new licenses.

Open test session for those not in class to start at 10:00 a.m. Register through "hamstudy.org". Contact: Lynn Rightmyer KV2J at kv2j54'at'yahoo.com.

Northeast HamXposition, August 21-24 - KD2EVI

I once again attended the Northeast HamXposition™ held at the Best Western Royal Plaza Hotel in Marlborough, Massachussets. Also in attendance were PCARA members Rob AD2CT, his XYL Helen, Ray W2CH and Marylyn KC2NKU.

Rob AD2CT recording video at HamXpo 2025. [KD2EVI pics.]

The best part of the HamX™, to my way of thinking, are the seminars, which change each year. The only problem is that there could be ten seminars presented in each time slot, so deciding which to attend can be a challenge. A full list of the seminars and other activities can be found at the event's website: https://hamxposition.org/. I think the seminars are superior to those at HamCation® in Orlando, Florida, certainly easier to hear speakers in a hotel conference room, rather than a tent, and with a greater selection of topics. There is always a large flea market, including several clubs displaying their communications trailers.

Falmouth Amateur Radio Association 'Community Communications Support Vehicle'. (https://www.falara.org/)

The exhibit hall in the hotel had a number of commercial vendors including Quicksilver Radio.

I did not attend either of the banquets. The Best Western in Marlborough is a nice hotel (a cut above the Best Western I stayed at in Orlando, Florida when I went to HamCation earlier this year), a short distance from I-495, with a bar and restaurant open each evening, a very good free breakfast, and daily housekeeping has resumed. There are several restaurants within walking distance or a short drive from the hotel.

View inside Falmouth ARA Communications Support Vehicle in the flea market area. [KD2EVI pic.]

I arrived on Thursday afternoon and checked in to the hotel after visiting the nearby American Heritage Museum in Hudson, Masschusetts, with its collection of tanks and other armored vehicles ranging from WWI to the Gulf War, (https://www.americanheritagemuseum.org/).

Presentations

Friday was spent in the flea market area except for the 1:00 p.m. seminar given by Tom Witherspoon, K4SWL. Tom lives in the mountains of western North Carolina and he related his experiences during the aftermath of Hurricane/Tropical Storm Helene last year. His wife and two daughters are all licensed amateur radio operators and in addition to sharing HTs to neighbors to provide local emergency communication in their community, maintained a radio watch on the N2GE Mount Mitchell repeater for 12-14 hours daily.

Using the repeater, Tom was able to request a helicopter delivery of needed supplies to their community of about two dozen homes, besides relaying messages. He explained that his community is located on a narrow private road that rises over 1000' above a state highway. In his area, downed trees were the major problem, taking out power lines, damaging homes, and blocking roads. Lower down, flooding was an additional issue, with bridges and roads washed away. Fortunately, everyone in his local community worked together and had multiple skills. It took three days for them to open their road for vehicular traffic, hence the need for the helicopter.

He had no complaints about FEMA and had much praise for the volunteer organizations that arrived. Lessons learned included the need to be familiar with your gear. Other amateur radio operators had not programmed their HTs and that slowed their ability to communicate in the aftermath of the storm. Work gloves and other protective equipment were very useful. His home runs on solar power with battery back-up, so his family could keep their well and refrigerator

going in the absence of utility power by judicious use of their supply.

On Saturday morning Tom W4SWL also gave the keynote seminar. His daughters (now junior high school age?) are home-schooled and parents share resources and teaching duties. Tom has taught French and other subjects and offered to teach a course on amateur radio. After telling the other parents that scholarships are available to college students who hold ham licenses, the other parents agreed. All the young people got licensed, and one young person changed her Christmas present wishes to an Arduino instead of clothes after taking Tom's course.

The next seminar was given by Mike Corey KI1U of FEMA. He explained how the FEMA New England region organizes emergency communications, coordinates with state and local governments in an emergency, and the role of amateur radio. There is a monthly test on HF that amateur stations in New England are invited to join. W2CH and KC2NKU did not find this presentation of much interest, but having once had to set up and organized an EOC for Y2K, I found it enjoyable.

After lunch outside the hotel, I next attended Benjamin Jackson's, N1WBV, talk on AREDN, (Amateur Radio Emergency Digital Network). Using modified commercial equipment a large scale WiFi network can be set up. Most of the equipment is in the 2.4 and 5 GHz bands. Looking at the map on the https://www.aredn-mesh.org/ website, there are several dozen networks in the New England area, centered around Nashua, NH. None are listed in our area, the closest is in northern New Jersey, with some in the Syracuse, NY area. This is another tool to communicate in an emergency or otherwise, with greater range and bandwidth than Meshtastic.

The final seminar on Saturday was Stratscience 2025. This was presented by Max Kendall, W0MXX, a high-school-age ham, and other young hams. The New England Weather Balloon Society launches two to four balloons each year in conjunction with New England Sci Tech, https://nescitech.org/ .

New England Weather Balloon Society table in the hotel lobby. [KD2EVI pic.]

Interior of an amateur balloon. "Student Experiments. This payload is part of an educational program at New England Sci-Tech." [KD2EVI pic.]

Their emphasis is on STEM education for students. Due to the cost of helium, hydrogen is now used for their balloons. Most balloons come down in a few hours and are caught in trees.

Once again, I enjoyed my trip, learned some things and plan to return. I think it is well worth the three-hour drive, moderate hotel and meal expenses, and think other PCARA members would also find it of value in the future. - 73, David KD2EVI

HamX prize draw - W2CH

Here is a photo of the final HamXpo prize drawing, where Marylyn KC2NKU won the Radioddity GD-168 dual band DMR HT. There was a prize drawn for the Elecraft KH1 CW transceiver, complete kit worth about $1300.00 and a Kenwood D75 HT worth about $750.00. The two HF grand prizes, one being a Yaesu FT-891, were won by participants not present at the drawing. - Ray W2CH

My experience at the Northeast HamXposition™ - AD2CT

This year was the second time I attended the annual Northeast HamXposition™, which is now transitioning to the title HamX™, in Marlborough, MA (https://hamxposition.org). Having some familiarity with the convention, I decided that this year I would create video coverage of the conference. I was able to get footage not only of the Exhibit Hall and the outdoor flea market, but was also able to conduct eight interviews at the exhibit booths, two interviews with forum presenters, and one with an operator of the Twin State Radio Club communications vans. I'm currently in the process of editing all the footage. Joining me at HamX were fellow PCARA club members David KD2EVI, Ray W2CH, and Marilyn KC2NKU.

Rob AD2CT, David KD2EVI, Ray W2CH and Marilyn KC2NKU outside the Exhibit Hall at the 2025 Northeast HamXposition. [AD2CT pics.]

We also met up with a couple who we met last year at HamX, Dennis K1LGQ and Jean K1AVM.

Preparing for the Event

Knowing that I would be requesting interviews, I printed up business cards with the standard PCARA information on the front, and QR codes on the back linking to our Facebook page and YouTube channel.

Modified business card used at HamX. I also hand-wrote my name and call sign on the cards I gave to those who were interviewed. [AD2CT pic.]

I also packed my DJI Osmo Mobile 6 gimbal stabilizer for my iPhone (https://www.dji.com/downloads/products/osmo-mobile-6#doc), a couple of inexpensive lavalier mics, and a Meshtastic® node that I built a couple of weeks before the event. For those unfamiliar with Meshtastic, it's an open source, off-grid, long-range, decentralized mesh network that can be run on low-power devices.

Interviews

The table below shows the people I was able to interview at HamX, along with their call signs and either the company they represented or the forum they held. As a courtesy, I will be sending each one of them an edited version of their interview for them to review before uploading the final cut of the complete video. Note that Ed AB1XQ took me through both of his club's communication vans.

Name	Call Sign	Affiliation	Website
Mark Smith	N6MTS	Halibut Electronics	https://electronics.halibut.com/
Gino Morello	N2TBN	Veritium	https://www.veritiumhfclock.com/
Robert Higgins	KC2UPN	HamRadio 24/7	https://www.hamradio247.com/
Rockwell Schrock	WW1X	Remote Ham Radio	https://www.remotehamradio.com/
Seth Kendall	KC1PZY	New England Weather Balloon Society	https://nescitech.org/newbs
Charles Smith	KC1IKA	Smitty's Switches, Splitters, and Stuff	https://smittys-switches-splitters-and-stuff.square.site/
Matthew Vanderhoff	N3VAN	Reliance Antennas	www.relianceantennas.com
Pete Stoermer	N/A	Uni-Trend Technology US. Inc.	https://uni-trendus.com/
Bradshaw Lupton, Jr	K1TE	Forum: Build a $25 GPS Disciplined NTP Server	www.pirshared.org
Andy Stewart	KB1OIQ	Forum: Andy's Ham Radio Linux	https://sourceforge.net/projects/kb1oiq-andysham/
Ed Barney	AB1XQ	Club: Twin State Radio Club, Inc. - W1FN	https://w1fn.org/

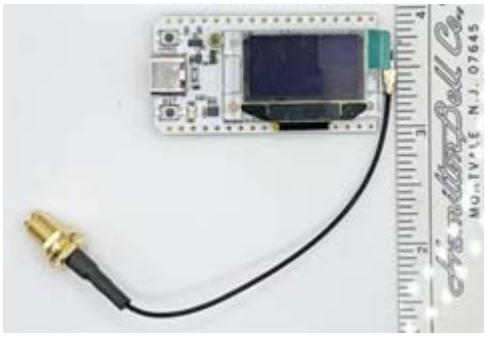
The Meshtastic Experience

I built my Meshtastic device based on YouTube videos by Josh KI6NAZ (https://www.youtube.com/watch?v=gH-K9fRuhfQ&t=683s), which showed how to flash software to the node; and Jason KM4ACK (https://www.youtube.com/watch?v=cUVBe1_gIjo&t=509s), which provided a parts list and how-to information for assembling the node. The completed view of the node and the inside works of the device can be seen in the pictures below. At final count, my device identified a total of 70 nodes either at the event or at a maximum of three node-hops away. There are a

The Meshtastic node used at HamX, with black belt clip and wrist strap.

variety of boards, antennas, and cases that can be used to create a node, but I followed Jason KM4ACK's video to assemble an inexpensive device that used a Heltec V3 board (https://heltec.org/project/wifi-lora-32-v3). The node is linked to a smartphone via Bluetooth, and the phone then provides a keyboard and screen to send text messages to the Meshtastic node, which then sends the data out on 915 MHz. Check out this website for more information: https://meshtastic.org.

Inside the node, showing the Heltec V3 board (reverse side), 3000 mAh battery, and antenna. [AD2CT pics.]



Heltec V3 board, with antenna feed line to female SMA connector. Screen protector (with green tab) still attached.

Communicating through Meshtastic gave me the first contact for a video interview: Charles Smith, the owner of Smitty's Switches, Splitters, and Stuff. Several Meshtastic users also got together in person on Friday night. All of us were surprised at the amount of Meshtastic activity at HamX. Most of us thought we'd be the only one at the event with a Meshtastic node, but it proved to be very popular. On Saturday night, some of us got together again. This time, the group included Ed N2XDD, Director of the ARRL Hudson Division, and his colleague Nicole AD2IM, who is on the Website and Calendar Team for the Hudson Division. Ed N2XDD stated that he looks forward to his visit to our club meeting on October 4, 2025, and that he enjoys making in-person visits to all the clubs in the Division. He showed us the first iteration of his mobile Meshtastic node, which is being held by Nicole AD2IM in the picture alongside. He promised that he would bring the next iteration of his mobile node to our club meeting.

Meshtastic users Rob AD2CT, Andy KB1OIQ, Ethan KC1WZI, "RJ" KB1RJS, and Howard KC1LWJ.

Meshtastic users "RJ" KB1RJS, Rob AD2CT, Nicole AD2IM, and Ed N2XDD. Inset: Ed's mobile Meshtastic node, which he attaches to the roof of his car with four magnets on the bottom of the project box. [AD2CT pic.]

Conclusion

I had a very busy time at HamX, conducting interviews, shooting video, and meeting other Meshtastic enthusiasts. I'm leaving the description of the forums I attended to the presenters themselves, to be covered in the video interviews. Assuming all reviews come back from those interviewed in a timely manner, I hope to have the final version of the HamX video uploaded to YouTube either by the time the next newsletter is published, or at the latest by the club meeting in October.

- Rob AD2CT

Peekskill / Cortlandt Amateur Radio Association

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YouTube Channel: https://www.youtube.com/@peekskillcortlandtamateurr7670

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Archive: http://nm9j.com/pcara/newslett.htm

PCARA Information

PCARA is a **Non-Profit Community Service Organization**. PCARA meetings take place every month (apart from July/August break). See http://www.pcara.org for current details.

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz
KB2CQE: 449.925MHz -5.0, PL 179.9Hz
N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sat Sep 6: PCARA Monthly Meeting, 10:15 a.m., Putnam Valley Library, 30 Oscawana Lake Rd., Putnam Valley, NY.
Sat Sep 6: PCARA V.E. Test Session, 11:30 a.m., Putnam Valley Library, see below.
Sat Sep 20: PCARA Breakfast, 9:00 a.m., Uncle Giuseppe's, 380 Downing Dr, Yorktown Heights, NY.

Hamfests

Check with organizers before leaving.
Sat Sep 6: Ocean Monmouth ARC Fall Hamfest, Spring Lake Hgts VFC, 700 Sixth Ave, Spring Lake, NJ. 7:30 a.m.
Sat Sept 13: WRAET Hamfest & Electronics Show, Wayne United Methodist Church, 99 Parish Drive, Wayne, NJ.
Sun Sep 14: Mt. Beacon ARC Fall Hamfest, Knights of Columbus Hall, 339 NY Rt 82, Hopewell Junction, NY. 8:00 a.m.
Sat Sep 20: Fair Lawn ARC Hamfest, Fair Lawn Memorial Park, 1st Street and Berdan Ave, Fair Lawn, NJ. (2nd rain date!)
Sat Sep 27: Garden State ARA Hamfest, MOESC Parking Lot, 100 Tornillo Way, Tinton Falls, NJ. 8:00 a.m.

VE Test Sessions

Check with the contact before leaving.
Sep 6: PCARA, 11:30 a.m., Putnam Valley Library, 30 Oscawana Lake Rd., Putnam Valley NY. Must contact VE Lou KD2ITZ, radiocassetta'at'gmail.com. Laurel VEC.
Sep 11: WECA, Westch Cnty Fire Trg Center, 4 Dana Rd Valhalla NY. 7:00 p.m. Contact VE, rcasino48'at'gmail.com.
Sep 14: Mt Beacon Hamfest, KoC Hall, Hopewell Jct. 9:00 a.m.
Sep 19: Orange County ARC, Munger Cottage, 40 Munger Dr., Cornwall NY. 6:00 p.m. Contact VE: joed99'at'verizon.net.

Peekskill / Cortlandt Amateur Radio Association Inc.
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