# PCARA Update

Volume 26, Issue 6 Peekskill/Cortlandt Amateur Radio Association Inc. June 2025

## Merry May brings busy June

May was an active month. Orange County Amateur Radio Club made a club table available for PCARA at its annual Hamfest on May 4. The drive to Mountainville was an adventure thanks to heavy mist and narrowing roadworks at the point where Route 9W rises to 1200 feet alongside Storm King Mountain. David KD2EVI and NM9J set-up the club table and continued selling items from Henry KB2VJP (SK). The weather stayed dry, attracting a good number of visitors.

*David KD2EVI arranges items for sale from the PCARA club table on May 4 at the Orange County Amateur Radio Club Hamfest.*

On Saturday May 10, PCARA celebrated its 25th (Silver) Anniversary with an outdoor party at Franklin D. Roosevelt State Park in Yorktown. There was a Special Event station listed in *QST*, POTA activation, lunch and a presentation on mobile antennas by Jay NE2Q. The weather was warm and sunny. Thanks to David KD2EVI for making the arrangements. See the full report on page 5.

May also means Dayton Hamvention®. Bob N2CBH made the annual pilgrimage and brought back pictures from this major event, taking place on May 16-18. Read Bob's report, starting on page 14.

Saturday May 24 saw another PCARA Breakfast at Uncle Giuseppe's in Yorktown. Despite the damp, start to Memorial Day weekend, nine members enjoyed breakfast.

*Members and friends enjoyed themselves at PCARA's Silver Anniversary celebration in FDR State Park on May 10.*

There are several events scheduled for June, all leading up to the major outdoor activity of the summer — **ARRL Field Day** over the weekend of June 28-29. Joe WA2MCR has obtained permission from Lakeland Central School District to operate once again from George Washington Elementary School on Lexington Avenue in Mohegan Lake. There should be a planning meeting shortly before Field Day.


Please make a note of the following items for your diary.

*Continued on page 2* ⇨

## Contents

*Jay NE2Q demonstrates a directional antenna during the 25th Anniversary celebrations. [Pic: Ulla N2IOJ]*

- Saturday June 7, PCARA **Membership meeting** at 10:15 a.m., Putnam Valley Free Library, Putnam Valley, NY.
- Saturday June 7, PCARA Laurel **VE Test Session** at 11:30 a.m., Putnam Valley Free Library, 30 Oscawana Lake Road, Putnam Valley NY. Candidates should contact Lou KD2ITZ using radiocassetta‘at’gmail.com
- Saturday June 21, PCARA **Breakfast**, 9:00 a.m., Uncle Giuseppe’s Marketplace, Yorktown.
- **Field Day planning** meeting, date/time to be announced – watch the Google group.
- Saturday June 28 – Sunday June 29, **ARRL Field Day**, George Washington Elementary School, 3634 Lexington Ave, Mohegan Lake, NY.

Reminder — our next scheduled PCARA membership meeting is at 10:15 a.m. on Saturday June 7 at the Putnam Valley Library in Putnam Valley, NY.

# PCARA Board

President:
Greg Appleyard, KB2CQE; kb2cqe ‘at’ arrl.net
Vice President:
Bob Tarsio, N2CBH; bob ‘at’ broadcast-devices.com
Secretary:
Lou Cassetta, KD2ITZ; radiocassetta ‘at’ gmail.com
Treasurer:
David Fredsall KD2EVI; joanndavidss88 ‘at’ verizon.net
Director:
Mike Dvorozniak, W2IG
*Vice President Emeritus: Joe Calabrese, WA2MCR.*

# 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.

# Dues reminder - KD2EVI

I just want to remind those members who have not renewed their membership that dues for the 2025-2026 membership year (which runs June to May) may now be paid by sending a check to our PO Box: PCARA, P.O. Box 146, Crompond, NY 10517

The dues schedule remains unchanged from prior years:

- Full Membership ($25.00/year)
- Associate Membership ($15.00/year)
- Student Membership (Free)
- Senior Membership (65 yrs and older - $10.00/yr)
- Family Membership ($30.00/year)
- Family Membership (65 yrs and older - $20.00/yr)

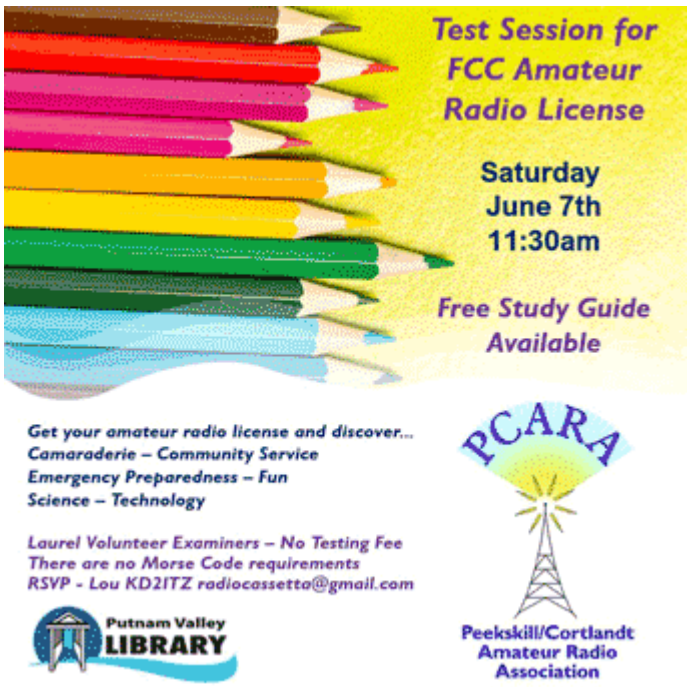
I want to thank those who have already renewed their PCARA membership. I will be sending another email reminder before our next meeting which will be held June 7 at the Putnam Valley Library. I will also accept cash and checks at the meeting.

Thank you for your continued support of our club.

- David, KD2EVI, Treasurer

# VE Test Session

PCARA’s next VE test session will take place at 11:30 a.m. on Saturday June 7th, following the June membership meeting. Location will be at the Putnam Valley Free Library, 30 Oscawana Lake Road, Putnam Valley, NY. This will be a Laurel VEC Test Session — with no test fee. Candidates must contact Lou KD2ITZ by 11:30 a.m. on Friday June 6th using e-mail to: radiocassetta‘at’gmail.com or register online using: https://exam.tools/reg/6830e22fb323e56e676466fd.




*Graphic courtesy of Lou KD2ITZ.*

# Adventures in DXing
**- N2KZ**

**Push The Button!**

You think you have seen it all? The entire world uses AM/MW radios... But how about adding six switch-selected crystal controlled shortwave frequencies to receive nationwide financial programs and horse race results? What does 3 - 6 - 9 mean? You'll have to go to Japan to see for yourself! If you are looking for something completely different — here it is.

The economy is on everyone's mind. Many of us anxiously watch America's top three stock indices: The Dow Jones, The S&P 500 and NASDAQ. The Tokyo Stock Exchange provides the earliest prognostication of each day's financial activity. Early rising financiers wake up and immediately scour the possible indicators seen from Japan. Will the world's markets echo these early trends on the TSE floor?

Nothing stops the passion of stock traders. Up-to-the-microsecond trading information is essential to their success and survival. In America, the two leaders of financial news are CNBC and Bloomberg. In Japan, there is a near monopoly. The fulcrum of financial activity is a conglomerate known as **Nikkei**.

Every aspect of Japanese finance is documented by this one company. Nikkei publishes the world's largest financial newspaper The *Nihon Keizai Shimbu*n. Television business news is seen daily on Nikkei CNBC. Nikkei also operates popular **TV Tokyo** and is a purveyor of books, magazines, digital data, advertising and maintains corporate offices worldwide.

If you are on-the-go in Japan, a clever and unique Nikkei system can deliver business news directly to custom handheld radios. Reception is unlike any you have seen before. These financial broadcasts arrive via **HF shortwave radio** — and — in many cases are tuned via **crystal control**. No touchy hand tuning is required. How do they do that?

Decades ago, Japanese designers were looking for a method to reach financiers all across Japan effectively and economically. It would be costly to build a nationwide network of regular AM or FM broadcast stations to cover all of the over 2,000 mile long Japanese archipelago. There had to be a better way!

Why not HF shortwave? Private Canadian broadcasters utilized stations on the 49 meter band to cover the vast and wide open spaces of their provinces beginning in the 1930s. We American East Coast listeners might remember logging dominant stations like CFCX 6005 Montreal and CHNX 6130 Halifax all through the 20th century. Toronto's Newstalk CFRX is still on the air daily on 6070 kHz!

Old technology can still be very useful. Nikkei Radio 1 was originally established in 1954 and its sister station Nikkei Radio 2 was added in 1963. The original company name of the shortwave system was called **Nihon Shortwave Broadcasting** and the name stuck. Today, people still call it '**NSB**' or simply 'Nikkei Radio.'

NSB's main 50 kilowatt transmitter facility for both Nikkei 1 and 2 on 49 meters is just across Tokyo Bay in nearby Chiba-Nagara. A 10 kilowatt auxiliary site for Nikkei 1 on 75 meters can be found in Nemuro on Hokkaido Prefecture on the far northern tip of Japan. All transmitting antennas are positioned for bi-directional coverage bearing northeast / southwest to serve the entire country. Radio Nikkei's headquarters are located at Kotohira Tower, Minato, Tokyo.

*Location of the Nihon Shortwave Broadcasting TX sites.*

**3 - 6 - 9**

From a technical perspective, NSB's system was simple and sweet. One big problem: Tuning into shortwave radio was difficult and impractical and certainly not portable! More innovation was needed! It is as easy as 3 - 6 - 9 !

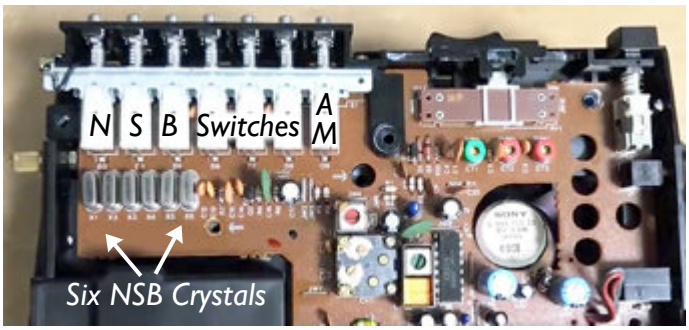
**Nikkei 1** is allocated to **3925, 6055** and 9595 kHz.
**Nikkei 2** is allocated to 3945, **6155** and 9760 kHz.
(Note: 3945, 9595 and 9760 kHz are currently not used.)

Japanese designers proved to be very inventive. Are you looking to instantly tune in a frequency? Use crystal control! From the beginning in the late 1950s onward, Japan was the world's leader in portable transistor radios. Dominant manufacturers like National Panasonic and Sony began marketing specialty radios exclusively for Japanese consumption. Remember: these radios don't use frequency synthesis. It's all mechanical and analog technology. Just press the button! You'll hear Nikkei on **3**, **6** or **9**.

*Sony ICR-N2 short-wave-only receiver for NSB1 and NSB2.*

If you are familiar with the NSB Nikkei Radio system, you can identify these radios in a blink. People outside of Japan might be completely confused when they see push button or slider switches designated 3 - 6 - 9. Open these radios and examine their printed circuit boards. You'll see the six shortwave crystals. Aha! (Be aware: try listening far away from Japan and you might hear nothing but static.)

*Sony ICR-N3 MW/NSB 2-band receiver.*



*Inside a Sony ICR-N3 MW/NSB receiver. Note the bank of six quartz crystals, selected by push buttons above.*

**Can You Hear Me Now?**

Ace DXer Tony Pavick in Hope, British Columbia, Canada shares his listening:

"Radio Nikkei 1 on 6055 kHz is a fairly easy catch at 1100 UT most mornings for me on the west coast of Canada, with 3925 kHz less so. They tend to be a full-service program with discussion and feature programs. Music there is mostly adult contemporary with occasional tracks from American artists of the 70s and 80s. All in all a nice listen even if you don't speak Japanese.

"Radio Nikkei 2 seems to be geared to a younger audience and has more music of a contemporary nature with a lot of J-pop. 6115 kHz also makes it to me on the west coast almost daily, and far less often 3945."

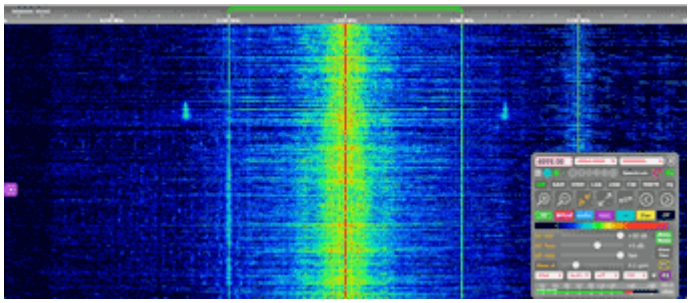
The Tokyo Stock Market is open for trading weekdays between 8:00 p.m. and 2:00 a.m., (with a lunch break of 12:30 a.m. to 1:30 a.m.) New York time.

**Where To Listen**

Take a look at Nikkei Radio's lively program schedule page at: https://www.radionikkei.jp. You can listen into Nikkei Radio, but you have to be creative. If you just happen to be in Japan, you can reach it via a site similar to our popular TuneIn application called *Radiko*. Unfortunately, it is in Japanese and it is geo-locked for their domestic use only.

*Radio Nikkei site https://www.radionikkei.jp. [N2KZ pic.]*

I enjoyed continually solid reception here in New York via the JA5FP Kiwi SDR located near the main Nikkei transmission site in Chiba, Japan at: http://ja5fp2.proxy.kiwisdr.com:8073. Both 6055 and 6155 kHz provided good audio without QSB. I don't understand Japanese but the programming was very interesting to hear and had first-class production values. Nice listening!


*Reception of NSB broadcasting on 6.055 MHz, using JA5FP Kiwi SDR located at Chiba, Japan. [N2KZ pic.]*

I have been a radio enthusiast since birth — over 70 years — and I have never seen an AM/MW radio that had a crystal sidecar like these Japanese NSB models! It reminds me of the old Bearcat scanners from 50 or more years ago that had piano keys and flashing LED lights on them. Nikkei radios are true head-scratchers! Every day you learn something new! All great fun!

Don't forget to tune to our PCARA weekly nets! The Roundtable Net meets every Tuesday at 8:00 p.m. and our Old Goat's Net meets on Thursday nights at 8:00 p.m. Your voice would be most welcomed! Look for us at 146.670 MHz -600 kHz offset and use a 156.7 PL.

73 de N2KZ 'The Old Goat.'

# PCARA 25th Anniversary celebration

PCARA's 25th / Silver Anniversary celebration took place on Saturday May 10th, 2025 at Franklin D. Roosevelt State Park in Yorktown Heights, NY. Although PCARA was originally incorporated as a non-profit community service organization on **April 19, 2000**, 25th Anniversary celebrations were paused until mid-May in the hope of better weather — and better weather is what we experienced.

David KD2EVI had reserved space in FDR State Park at the picnic shelter adjacent to Parking Lot 3. Despite rain on the previous two days, Saturday began with partial cloud cover, breezes and a mild temperature of 60°F. Just around the corner at Parking Lot 4, BluePath Service Dogs were holding their annual Walkathon and their vehicles were already overflowing into our Parking Lot 3.


**Silver setup**

Picnic Area 3B was waterlogged from the previous rain, with water running freely down the path to the parking lot. Visitors picked their way carefully to the shelter where we hoisted PCARA signs. The next task was to raise the antenna between nearby trees. The only launcher available was a 'Weaver' arborist throw — successfully flung over tree branches by Mike N2EAB. The antenna was a ZS6BKW multi-band dipole (computer-optimized G5RV.)

*Mike N2EAB prepares to launch one of the antenna supports.*

David KD2EVI had brought along the Yaesu FT-450D transceiver donated to PCARA after Henry KB2VJP became a silent key in April 2023. This was connected to the ZS6BKW antenna through an MFJ-949E antenna tuner. Power was provided by a Samlex 12V DC supply and an EcoFlow RIVER 2 Pro portable power supply belonging to Ray, W2CH.

We had some initial problems tuning the antenna and with FT-450D settings for DSP filter width and shift left over from Field Day. There was also a problem with high radio noise throughout the event, partly fixed with the FT-450D's noise blanker. The inverter in the EcoFlow portable power supply may have been the cause.

*Joe WA2MCR begins operation from the Special Event station. L to R: EcoFlow portable power supply, Samlex 12V supply, MFJ-949E, Yaesu FT-450D and logging computer.*

Franklin D. Roosevelt State Park is already listed by "Parks on the Air" with reference number US-2056, so we had decided that PCARA's silver Special Event station should take part in a POTA "club activation". Your editor organized a POTA account for club call **W2NYW** and created an activation for the event on the POTA web site. Meanwhile Joe WA2MCR had set up an entry for PCARA on ARRL's Special Event listing that included the POTA activation.

In order to log POTA contacts, I had a copy of N3FJP's 'Amateur Contact Log' software installed on a notebook computer and registered for call sign **W2NYW**. The current version of N3FJP software is supplied with a template for POTA operation so that required fields are logged and exported. Once the radio equipment was operating successfully, several operators and loggers were involved with making contacts, mostly on 40 meter SSB. Thanks to everyone involved,

*Scott KE2CNS at the logging computer while Nic KD2SKY makes contacts from Special Event/POTA station W2NYW.*

including Nic KD2SKY, Joe WA2MCR, Scott KE2CNS, Bob N2CBH and Lou KD2ITZ.

**Silver sustenance**

As lunchtime approached, David KD2EVI and Elliot (Jennifer KE2AGN's son) made a run to Sansotta Brothers' Deli in Cortlandt Manor to collect items pre-ordered from the menu. They came back with a fine collection of sandwiches, wraps, salad and cookies. Jim KD2WSU provided the water and soda. By then, some 20+ members and friends had arrived on-site and settled down at picnic tables to enjoy lunch in the warm sunshine (70°F).

*Members and friends enjoy lunch in the warm sunshine at FDR State Park.*

**Canine company**

Several participants in the BluePath Service Dogs Walkathon stopped by to inquire about PCARA's celebrations, including BluePath board member Jonathan Nettelfield with his hound Dylan — and Michael Flaherty KD2PYS with Chester and Sophie. Jared KD2HXZ had brought his own dog Zeke along for a walk in the park and for a visit to PCARA's Anniversary event.

*Mike N2EAB with K9 friend Chester and Michael Flaherty KD2PYS with Sophie.*

**Directional demo**

After lunch, operation of the Special Event station continued while Jay NE2Q gathered a crowd for his demonstration of a novel antenna technique. Following a suggestion from Rich WZ2P, Jay showed the effect on field strength of adding a vertical reflector behind a quarter-wave antenna for 146 MHz mounted on his vehicle roof. This may become the subject of a future magazine article.

*Members gather around Jay NE2Q's vehicle for a demonstration of how to make a mobile antenna directional.*

**Silver shutdown**

Conditions on the HF bands in early May were not very good. OK1HH reported that: "Ionospheric shortwave propagation conditions were mostly poor to below average. The main culprit was not the slightly lower level of solar radiation, but was mainly the solar wind." (http://ok1hh.nagano.cz/)

HF conditions on May 10 were so poor that by 3:15 p.m. the Special Event station was having trouble finding *any* new contacts on 40 meters. Lou KD2ITZ worked one station on 10 meters, then we decided it was time to close down. The antenna was dropped, the radio equipment packed away and the site cleared by 3:45 p.m.

Thanks to everyone who came along to PCARA's 25th / Silver Anniversary celebration, including: Joe WA2MCR, Nic KD2SKY, John KC1VPP, Jasper NK2Y, Lou KD2ITZ, David, KD2EVI, Scott KE2CNS, Mike N2EAB, Ray W2CH & Marylyn KC2NKU, Jennifer KE2AGN and Elliot, John KE2DTY, Jared KD2HXZ, Bob N2CBH and Diane KB2SFV, Mike N2HTT, Verle W2VJ, Ken W1YJ, Mike KD2PYS, Jay NE2Q and NM9J. (Apologies if anyone is missing from this list.)

The log file from the Special Event station was submitted to POTA on May 11, with 51 contacts accepted, including nine Park-to-Park contacts. Special Event certificates and QSL cards are available — contact NM9J or send an SASE to PCARA, PO Box 146, Crompond, NY 10517.

- NM9J

# Gustav William ("Bill") Hellman, NA2M (SK)

We regretfully report the passing of Bill Hellman – NA2M – on April 27, 2025 in Fort Myers, Florida. You might recall Bill by his former callsigns — W2UD and W2PQZ. If anyone could qualify as a grand old ham and long-time historian, it had to be Bill.

Bill attended PCARA meetings before he moved to Fort Myers and was well known by our local amateur radio community for more than 70 years. He was an active member in precursor clubs of long ago: the Peekskill Radio Club (our area's first ham radio club), the Peekskill Communications Club (1959), the Putnam County Amateur Radio Association and the Taconic Amateur Radio Club that met in Yorktown Heights in the 1960s.

The world of electronics happily filled Bill's life. In the 1970s, Bill professionally was an Employment Manager for New York Telephone in Manhattan. Bill served as a senior member and past president of the North Jersey DX Association. He was part and parcel to the NJDXA's QSL Bureau managing the letters 'S' and 'K.' Other favorite clubs were ARRL's "A-1 Operators Club" and "The Order of Boiled Owls of New York" (https://obony.org/) a well-known contesting and DX club here in the lower Hudson Valley. He was a busy man!


*Bill Hellman (on the left) at an earlier 'PCARA' event. On the right is Chris Vinson, W2GJJ (SK).*

PCARA's Jay Kolinsky, NE2Q, fondly remembers joining Bill (as W2PQZ) and mutual friend, Marty Di Maso, W2WXP, regularly chatting away on 75 meters for years and years. "Two great guys who loved ham radio."

Bill always had fascinating stories to share. This may have been Bill's greatest hit from 1957 — 68 years ago: (taken from *PCARA Update*, October 2018) –

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**'61 years since Sputnik**


At the September meeting, Bill Hellman NA2M brought along an unusual QSL card. Bill had heard signals from the first artificial Earth satellite — Sputnik, launched from the Soviet Union on October 4, 1957.

The satellite was transmitting a simple "beep" "beep" CW signal on a frequency of 20.005 MHz, 5 kHz above standard frequency stations such as WWV. Bill sent a reception report to the USSR and received a return QSL card! The Russian wording on the card reads:

*"To participant in observations of the first in the world Soviet artificial earth satellite*

`- G.W.Hellman W2PQZ -`

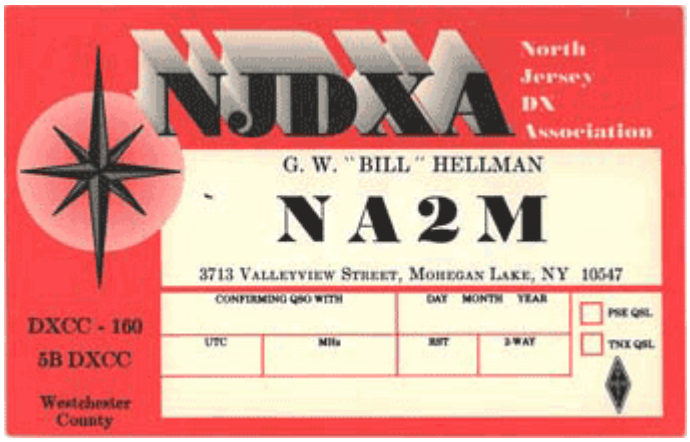
*Thank you for your report. Your observations are of scientific value and have been used by us in the analysis in accordance with the program of the International Geophysical Year. We hope to continue receiving your reports.*

*IGY Committee of the USSR."*

Sputnik carried two antennas, consisting of pairs of whips 7.9 and 9.5 feet long. They were used for the one watt vacuum tube transmitters, operating on 20.005 MHz and 40.002 MHz. Temperature and pressure conditions within the satellite were encoded in the length of the beep.'

– . . . – – . . . – – . . . –

Bill's radio reach was simply out of this world!

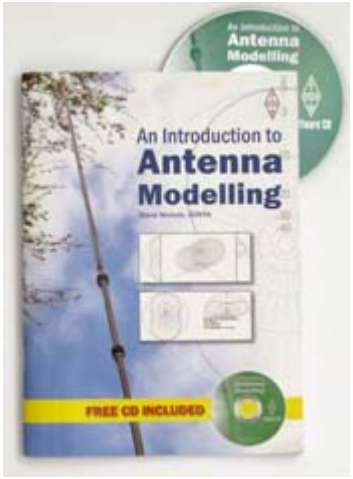



With Bill's passing, we sorrowfully accept the baton of our local amateur radio history. His enthusiasm and joy should serve as an inspiration for all of us who will shape our future. Now and then, remember his incredible life and carry his spirit farther into our future! Bill, you will be missed!

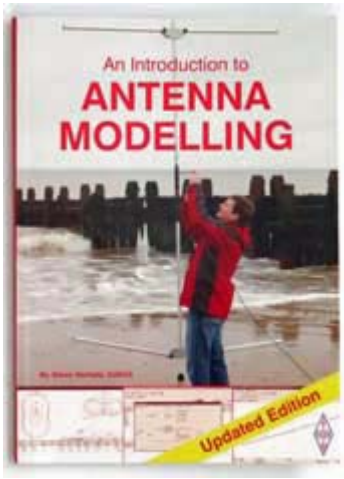
- Karl, N2KZ

# An Introduction to Antenna Modelling

**Updated Edition**




Ten years ago, in *PCARA Update* for June 2015, I reviewed a new book entitled "An Introduction to Antenna Modelling" by Steve Nichols, G0KYA. This book, first published in 2014 by the Radio Society of Great Britain, was priced at $19.95 from ARRL. There was an accompanying CD-ROM containing a copy of antenna modelling software **MMANA-GAL**, version 3.0.0.31, some example antenna files and a collection of other amateur radio software.



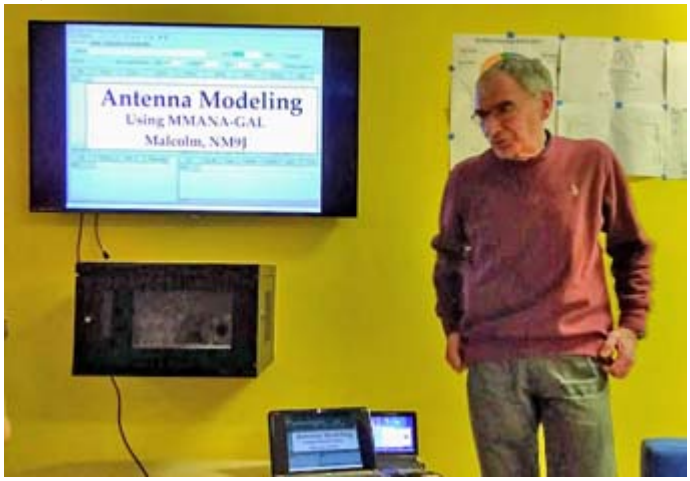

In the April 2025 issue of RSGB's journal *RadCom* there was an advertisement for the **2nd Edition** of "An Introduction to Antenna Modelling". I placed an order at the RSGB Shop (https://www.rsgbshop.org/) and the book arrived a week later. The cost from RSGB is £11.99 plus shipping. A Kindle Edition is available from Amazon for $15.99.

### MMANA-GAL

The free software, **MMANA-GAL**, was originally written by Japanese radio amateur Makoto Mori, JE3HHT, and partly named from his initials (**MM An**tenna **A**nalyzer). The "**GAL**" part of the name refers to **Al**ex Schewelew DL1PBD and Igor **G**ontcharenko DL2KQ who developed the code further and added more language support.

The software is based on the "Numerical Electromagnetics Code (NEC-2), developed in FORTRAN during the 1970s by Gerald Burke and Andrew Poggio at the Lawrence Livermore Laboratory in California. It takes an antenna definition file that defines the beginning and ending of each wire element in terms of *x*, *y* and *z* coordinates, calculates the current in short segments of each wire, then sums their combined effects on the radiated electromagnetic field.

I described my own experience with installing and using MMANA-GAL in the article "A novel model", *PCARA Update*, June 2015 pp 6-9. (Contact the newsletter editor for a copy.) I also made a presentation on the software during a PCARA meeting at Cortlandt Town Center's CUE Room in April 2019. This included a live demonstration of MMANA-GAL, modeling the two-element wire beam designed by Jay NE2Q for Field Day.




*Antenna workshop at Cortlandt Town Center in April 2019 featured a presentation on antenna modeling. [N2CKD pic.]*

### Second edition

The new edition of "An Introduction to Antenna Modelling" was published in 2025, following release of version **3.5** of MMANA-GAL in 2022. The new book is slightly larger — 82 pages compared to 74 pages before — and it is 'perfect bound', meaning the pages are glued together at the spine rather than stapled, so it will no longer lie flat.

There is **no** CD-ROM included. This seems reasonable — you would be hard pressed to find a modern desktop or notebook PC that still has a built-in CD-ROM drive. Instead, readers are guided to the following web site to download the free version of MMANA-GAL 3.5: http://gal-ana.de/basicmm/en/ . Additional antenna definition files previously included on the CD-ROM can now be downloaded from the RSGB web site at: http://www.rsgb.org/booksextra .

### New software version

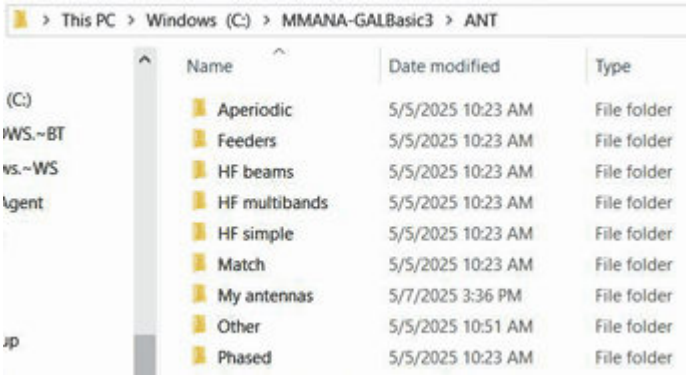
The new version 3.5 of MMANA-GAL has several improvements over the previous version 3.0 including colored 3D far field plots and increased limits for the number of wires (600) and segments (10,000).

### Installation

I downloaded the current version of MMANA-GAL onto my notebook computer from web site http://gal-ana.de in the form of Winzip file, `mmanabasic35.zip` (3.3 MB). Unzipping creates an executable file: `mmbasic.exe`. When mmbasic.exe is executed, it cre-

ates a new folder under the root of C: drive, `C:\MMANAGALBasic3` (separate from the previous v3.0 installation). On first run, the program requests your call sign and name.

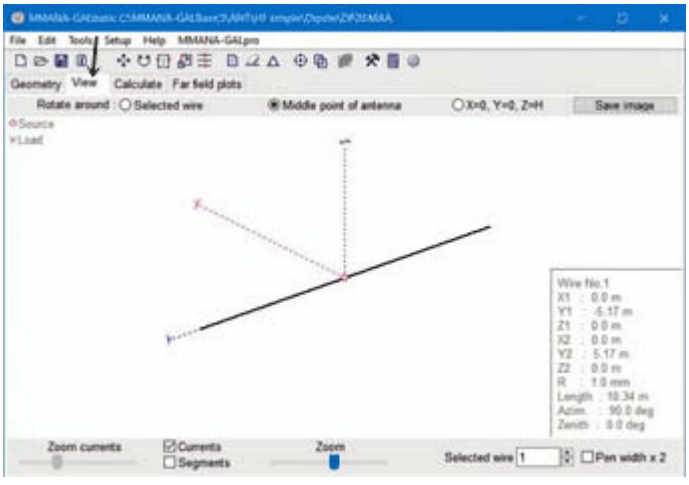
Under the program folder, the installation creates a folder `\ANT` containing various antenna definition files with extension `.maa`, for example: `Windom.maa`. These files are arranged in separate folders named "Aperiodic", "Feeders, "HF Beams" etc. I added a folder "My antennas" for my own designs and another folder named "Other" for the additional antenna definitions downloaded from RSGB's 'booksextra' web site.




*Antenna definition file folders created by the MMANA-GAL installation, to which I added "My Antennas" and "Other".*

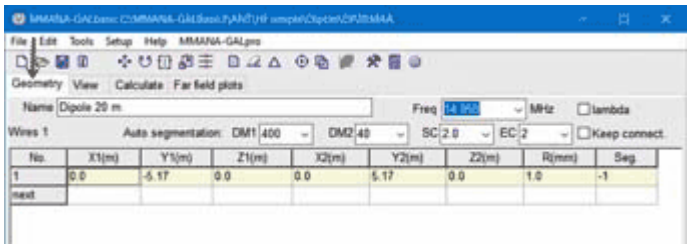
## In practice

To see what else might have changed, I repeated my assessment of the original edition of "An Introduction to Antenna Modelling". I opened the new book at Chapter 2 where Steve Nichols G0KYA leads you through the steps for modeling an existing antenna file. Loading the definition file `DP20.maa` initially shows the "View" tab for this 20 meter dipole.



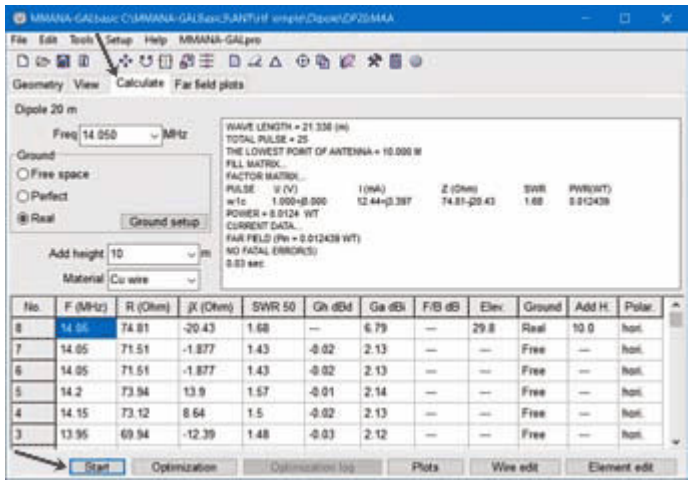
*MMANA-GAL "View" tab (arrowed) displays a view of the 20 meter dipole specified in definition file `DP20.maa`.*

The small red circle in the middle of the dipole indicates the feed point. Clicking on the "Geometry" tab displays the dimensions of the antenna elements in terms of *x*, *y*, *z* coordinates.



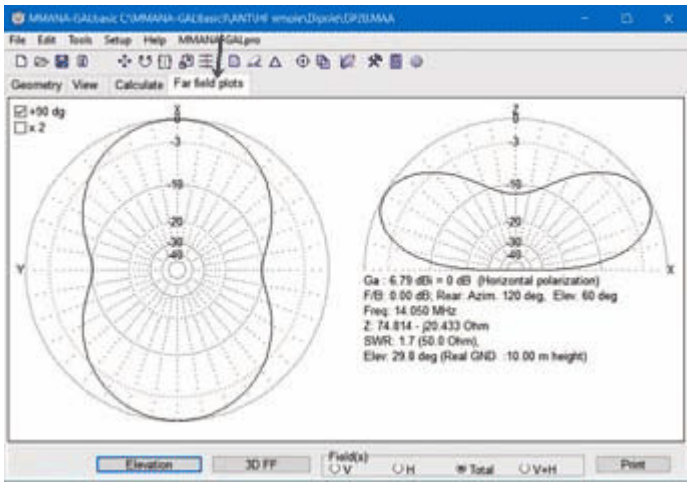
*"Geometry" tab shows dimensions of the wire element(s) specified in the antenna file. Units are meters.*

Selecting the "Calculate" tab, changing height to 10 meters above "Real" ground, selecting copper wire then clicking on "Start" calculates various parameters. The impedance at 14.050 MHz is 74.81 ohms resistive and $-j$ 20.43 ohms reactive. The SWR (at 50 ohms) is calculated to be 1.68:1.



*Under the "Calculate" tab, clicking on the "Start" button (arrowed) calculates the impedance, SWR, and gain.*

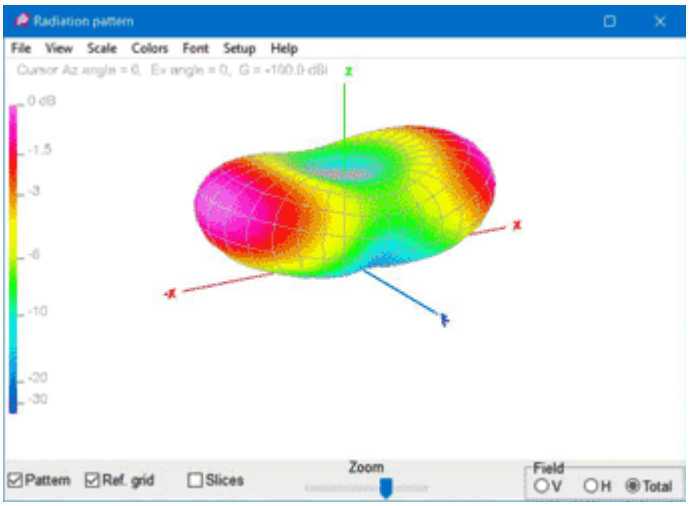
The "Far Field plots" tab will then display azimuth and elevation plots for the radiation pattern.



*The "Far field plots" tab (arrowed) shows the azimuth pattern (as seen from above) and the elevation pattern (as seen from the side). These plots are at an antenna height of 10 meters above real ground.*

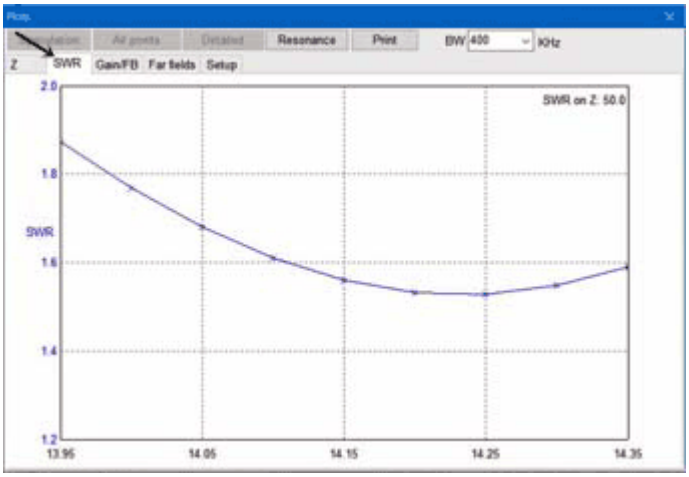
The "3DFF" button displays a 3D depiction of the radiation pattern which can be rotated on-screen using

the mouse to examine the model from any angle. In the previous version of MMANA-GAL, the 3D field was displayed in monochrome — and it frequently crashed the program on my computer. In the new version 3.5, the 3D far-field pattern is displayed **in color**, to depict relative gain (dB) in each direction. The 3D display now seems to be completely stable. See the sample plot below.




*Clicking the "3DFF" button results in this **3D Far Field** color pattern for the 20 meter dipole. Colors represent the relative gain (dB) in each direction. The pattern can be rotated in three dimensions by dragging with the mouse.*

Finally, I generated a plot of SWR against frequency by selecting Calculate → Start → Plots → SWR → Detailed.




*Plot of SWR against frequency for the 20 meter dipole specified in `DP20.maa`.*

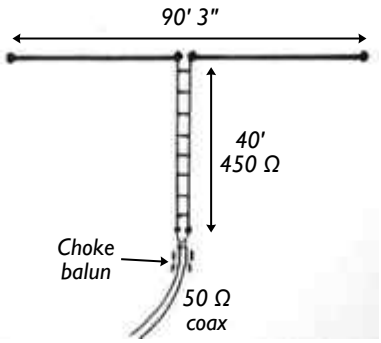
## More practice

I followed Steve Nichols' instructions in Chapter 3 to set up my *own* antenna definition file from scratch, entering *x*, *y*, and *z* coordinates for a 40 meter full-size horizontal loop. Antenna dimensions must be entered in **meters**, so you would need to convert any design that had been specified in feet and inches. The full-wave loop antenna has a relatively high feed-point impedance around 130 ohms resistive, so Steve shows how to raise the feed impedance from 50 to 200 ohms in MMANA-GAL, suitable for use with a 4:1 balun. He also encourages a check of performance on other amateur bands and concludes that the 40 meter loop with 4:1 balun has a reasonable SWR on the 40, 20, 15 and 10 meter bands.

In the next chapter, various advanced techniques are introduced, including optimization of the design for lowest SWR, use of 'loads' such as loading coils and traps, changing the ground characteristics and creating a multiband SWR vs frequency graph by exporting a .csv file.

## Wide frequency SWR run

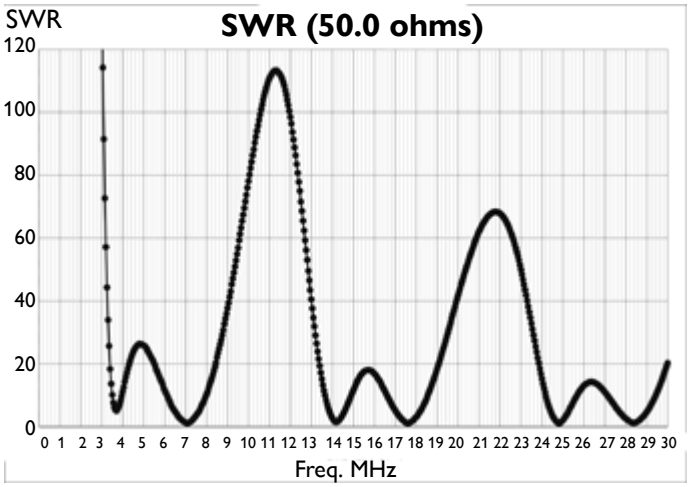
One of the antenna files downloaded from RSGB's site is named: `Optimised G5RV - ZS6BKW.maa`. This is an example of the ZS6BKW multiband dipole antenna, as used at PCARA's silver anniversary station on May 10.




*Version of the ZS6BKW multi-band dipole used at the Special Event station.*

I followed the instructions from Steve Nichols for MMANA-GAL to generate multiple sets of data for this antenna over the entire HF spectrum. My Windows 10 notebook computer took around 6 minutes to 'crunch the numbers' for 541 frequencies from 3 to 30 MHz. I opened the resulting `.csv` file in Microsoft Excel and saw a table of impedance values, SWR and gain figures for frequencies from 3.0 to 30 MHz in 50 kHz steps.

In order to visualize this data, I created an Excel XY scatter chart with smooth line and markers, representing the variation of SWR with frequency.



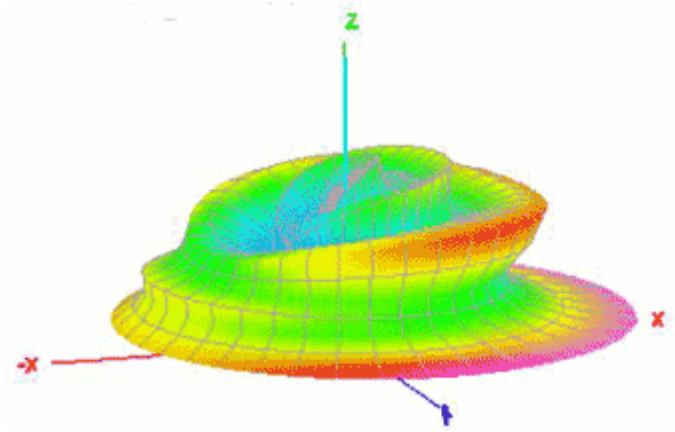

*SWR plot for the ZS6BKW multi-band dipole. Data generated by MMANA-GAL was charted in Microsoft Excel.*

Examination of the graph shows a good match for the ZS6BKW antenna on 7 MHz, 14 MHz, 18 MHz, 24.9 MHz and 28 MHz. There is a moderate SWR on 3.5 and 18.1 MHz (needing an ATU) but very high SWR on 10 MHz and 21 MHz.

### Additional antennas

There are three *new* antenna files supplied with the book's second edition — they are the DK7KQ 8-element Yagi for 6 meters, the multiband Cobweb antenna and the 2m / 70 cm J-Pole. The J-Pole has three vertical elements and could be home-brewed from copper tubing — or purchased as the Arrow OSJ 146/440 Open Stub J-Pole. (https://www.arrowantennas.com/osj/j-pole.html ). This antenna does *not* require a ground plane and has moderate gain with a low angle radiation lobe on both bands. See the 3D far field pattern below.

*2m / 70 cm J-Pole.*




*3D Far Field pattern for the 2m / 70cm Open Stub J-Pole operating on 440 MHz, 5 meters above real ground.*

### Conclusion

The wonderful thing about antenna modeling is that you can find out how an antenna will perform outdoors without purchasing any components, cutting copper wire, soldering connections, climbing roofs, suffering cuts and bruises, breaking insulators or getting wet. You can also discover how a new design will perform on multiple amateur bands — including frequencies that it was never intended for.

Steve Nichols' updated edition of "An Introduction to Antenna Modelling" will lead you gently through the steps of calculating antenna performance with the free software MMANA-GAL. Steve points out alternative software, including the pay-for MMANA-GAL PRO. He also suggests additional resources for antenna modelers. This new edition is **recommended**.

- NM9J

# Icom ID-880H installation update – KD2EVI

A few club members asked me about how the Icom ID-880H radio was performing in its new role as a mobile. In short, I am very pleased with it, to-date.

There have been a few modifications since the installation. [See *PCARA Update*, May 2025 -*Ed.*] I replaced the computer speaker I was using with a smaller and lighter Icom SP-22 speaker that I purchased used from Main Trading Company, https://mtcradio.com/. The Icom speaker is black, is less noticeable from outside the vehicle and sounds good. At the suggestion of NM9J, I have increased the microphone gain.

*Icom SP-22 is a small, 5 watt mobile speaker.*

What I did not explain in my first article follows. The antenna on the trunk lid is a Comet SBB-1 dual band, held by a Comet CP-5M adjustable lip mount, both previously used on my Subaru.

*Comet SBB-1 144/440 MHz mobile antenna is fastened to a Comet CP-5M adjustable lip mount. [KD2EVI pic.]*

The battery box is secured by bungee cords to a tie-down in the trunk and does not slide around when the car is driven. So far, I have not had to recharge the 12Ah battery or switch to the second battery. The 4.5Ah battery in the Go-Box usually had to be recharged after a week of use in local driving. I suspect the TYT TH-8600 has some amount of parasitic drain, but I have not tested for that.

If you are thinking of installing a VHF or VHF/UHF radio in your vehicle I can tell you it is not a very difficult job and think you will be happy with the results.

- 73 de David, KD2EVI

# W2CH mobile setup

At the end of 2024, Ray W2CH and Marylyn KC2NKU moved back to the Peekskill/Cortlandt area from Nashua, New Hampshire. Ray recently completed setting up amateur radio equipment in their Jeep Renegade SUV. He has provided several pictures of the installation.

**HF / 6 meter**

The HF radio installed in Ray's Jeep is a Yaesu FT-891. This is an HF/6m mobile transceiver with 100W output and detachable front panel. The transceiver body was originally located on the rear shelf behind the left rear passenger seat.

*The FT-891 body was originally installed on the shelf behind the rear passenger seat. [All pics - W2CH].*

Unfortunately, the radio broke free from the short RG-316 cable going to the antenna so that Ray had to solder a PL-259 connector back on to the cable.

Ray transferred the transceiver body to a new location under the front passenger seat. He had to extend the coaxial cable from the antenna mount using a new length of coax and a PL-258 barrel connector. Existing connections for power and audio were also re-routed.

*Repaired coaxial cable runs from the antenna on the rear hatch, alongside control cable to transceiver body, now relocated under the passenger seat.*

Power for the HF radio is provided by the vehicle's 12V battery. Ray had the power cable professionally installed four years ago by radio communication supplier Beltronics of Nashua, NH. This company is owned by Bernard N1IMO and Dorothy N1IMN. They have a second store in Framingham, MA and a network of linked amateur repeaters located around New Hampshire. See: https://n1imo-n1imn.us/ .

*Yaesu FT-891 HF/6m transceiver mounted under the front passenger seat.*

The FT-891 control head is mounted on the dash using two screws to hold the base plate, in front of the dash vents. Cables from the control head to the transceiver body run under carpets and seats.


*Yaesu FT-891 detachable front panel mounted on the dash in front of the air vents. The VHF/UHF FM transceiver in the background is fastened to the dash with Velcro®.*

The HF antenna is a Tarheel Little Pro - 6 to 80 meters. This is a screwdriver-style antenna with motorized base-loading coil and 32" whip.

The antenna is mounted on the rear hatch lip, using a Comet HD-5M universal lip mount. The location was originally in the center of the lip, but Ray has now moved the mount to the left to clear the license plate and rear-facing camera.


*The Tarheel Little Pro antenna mounted on the rear hatch.*

The remote-control switch for adjustment of the loading coil is fastened to the side of the center console with Velcro. The switch is wired to the 12V DC supply from the dash cigar outlet. This arrangement is not very convenient as the outlet is currently shared with the VHF/UHF transceiver and is dependent on the ignition switch. Ray may change this so the supply comes directly from the battery.

*Close-up of Comet trunk-lip mount for the Tarheel antenna.*

As an example of HF capabilities, Ray was able to work WB6RED in Arizona on 20 meters shortly after completing the installation.


*Tarheel antenna control switch.*

**VHF/UHF radio**

The Jeep Renegade has a separate VHF/UHF radio installation for simplex contacts and repeaters. Ray began by using his Yaesu FT-818 as a mobile radio but decided that the 6W power output was insufficient. He replaced the low-power HF/VHF/UHF transceiver with his Kenwood TM-D710GA 144/440 50W mobile FM transceiver. The control head is fastened to the dash with Velcro while the transceiver body is mounted under the driver's seat. Power is supplied from the cigar lighter outlet.


*Kenwood TM-D710GA dual-band FM transceiver prior to installation in the Jeep Renegade.*

*Body of the Kenwood TM-D710GA dual-band FM transceiver mounted under the driver's seat.*

The original antenna for VHF /UHF was a Pulse-Larsen KG2/70CXPL 144 / 440 MHz dual band on-glass model, mounted on the small window behind the main window of the left rear door.

The antenna for VHF/UHF has now been changed to a tri-band Diamond CR320A for 144, 220 and 440 MHz. This 37½" fold-over antenna is installed on a Diamond K400 mount on the right side of the rear hatch. See the picture alongside supplied by Ray, W2CH.

*VHF/UHF antenna on rear hatch.* *[All pics - W2CH].*

# More mobile installations

Mobile operation is a popular pursuit and there have been many articles in the *PCARA Update* newsletter describing radio and antenna installations in a variety of vehicles. (There are two more in this month's edition.) They may inspire you to improve your own mobile installation. For example…

- **How to mount a mobile** (Lido mounts) – N2CBH, *PCARA Update*, Nov 2009, pp 3-6
- **ATAS shrugged** (Yaesu ATAS-120A) – W2CH, Dec 2011, p 6.
- **Diamond HF mobile antenna** – W2CH, April 2012 p 9
- **Battery boosters** – W2CH, Sept 2012 pp 8-9
- **Adventures in DXing** (FT-1900 installation) – N2KZ, Oct 2012 pp 2-4
- **Antenna shoot out** (MFJ-1699T *vs* Moonraker MD-7400) – W2CH, Dec 2013 p 6.
- **Mobile radio installation creates new challenges** (FT-8800 in Subaru Forester) – N2CBH, Oct 2015, pp 4-7
- **A Power(pole) for good** – NM9J, Oct 2017, pp 11-17
- **TYT TH-8600 - Installation in Subaru Forester** – KD2EVI, Sept 2018 pp 7-8
- **Dual-band NMO-mount antenna installation –** KD2EVI, Sept 2020, pp 8-9
- **IC-2730A installation in 2015 Nissan Frontier** – KD2EVI, Sept 2021, pp 6-7
- **Go-Box Mk II** – KD2HXZ, Nov 2021, p 7
- **Mobile Power** – NM9J, May 2023 pp 17-19
- **Another Go-Box** – KD2EVI, Sept 2023, p 8
- **How to win a QSO Party** – K2WPM, Apr 2024, pp 8-9
- **Mobile Power memories** – NM9J, Jan 2025, pp 6-9
- **The $200 screwdriver antenna** – K2WPM, Feb 2025 pp 6-8
- **Icom ID-880H installation in Audi A3** – KD2EVI, May 2025, pp 11-12.

Copies of the newsletter that are not available online can be requested by e-mail to the Editor.

**Safety precautions** are essential in any mobile installation. Equipment must be securely mounted so that it cannot move during a sudden stop or (worse) in an accident. Transceivers, loudspeakers, microphones and detachable front panels must be kept well clear of explosive air bags. Connections to power sources must be fused close to the battery posts, whether connected to the vehicle battery or to a secondary battery. Wiring should be protected from passengers, pets and children.

Nowadays, vehicle electrical supplies and safety systems are getting more and more complex. For an up-to-date guide to modern mobile installation see Alan K0BG's site: http://www.k0bg.com/, especially http://www.k0bg.com/install.html .

# Dayton 2025 - N2CBH

Here are my thoughts about the Dayton/Xenia Hamvention® 2025. After nearly thirty years of attending, I can tell you that there have been many changes over the years. From 1964, Hamvention was at the Hara Arena in Trottwood, Ohio and since 2017 at the Greene County Fairgrounds in nearby Xenia, Ohio. That's one change for the better. The Hara Arena was getting tired, with little upkeep over the years. Plagued by a longstanding family dispute over finances, very little money went into maintenance of the facility. Xenia's newer buildings and well-kept grounds are a welcome change.

Some things I have noticed over the years are changes at the **flea market** and at the **new equipment** exhibits. Some companies are now gone — most recently MFJ Enterprises along with their Cushcraft and Ameritron subsidiaries. Many others have also disappeared such as Amateur Electronic Supply, KDK, AEA, and countless other companies.

They have been replaced by new ventures, with some doing quite nicely, including Elecraft Inc. and Acom Ltd. Another new entry is a Canadian company called VE2DX Electronics Design Inc., offering digital interfaces for Icom radios, Bluetooth adapters for Yaesu radios and HDMI displays designed to work with Icom radios.

A company that has been attending for several years is Anytone distributor, **BridgeCom Systems** LLC.

*General crowd photo shows the court of buildings housing the new equipment vendors. [N2CBH pic.]*

They have an interesting business model, concentrating on digital communications, offering radios, hot-spots and pre-configured repeaters. They also offer tutorials on how to set up Anytone radios for DMR. They are tireless marketers, always offering packages and certainly growing, with more people on their booth this year.

Outside in the flea market there have been many changes. From a manufacturer's perspective, there are fewer surplus parts vendors. Thirty years ago, when I began attending Dayton, there were many parts liquidators in attendance with "new old stock" components from companies shutting US operations for a move to a lower-labor-cost country or closing down altogether. For a Dayton attendee it could be a bonanza event for picking up parts that could be used in amateur radio projects or in manufacturing.

Today it is a much different story. Not too much "new old stock" is available on the flea market tables. The good news? There are still plenty of connectors, adapters and older equipment that could be re-purposed or restored to operation. If you are setting up a shack for the first time, there are plenty of pre-owned rigs for sale along with tuners, cables, antenna supplies and power supplies. So, it is still a good place to find what you need, even if there aren't as many National HRO receivers as there used to be. (There were still one or two on display, so don't worry if an HRO is on your list of must-haves.)

Hits of the show? I would say there were two. One was the new **Yaesu FTX-1F** SDR transceiver which is an interesting new entry. The FTX-1 Field can be purchased as a QRP radio, aimed squarely at the Icom IC-705 but it has something that the Icom unit does not. It can be mated to a companion 100 watt PA to make it a full powered HF, 6m, 144, 440 radio for your shack. It supports CW, LSB, USB, AM, FM and C4FM modes and supports an optional antenna tuner and battery pack for complete portable operation with nothing else needed except your choice of antenna. Operations such as POTA (Parks on the Air) were inspiration for the added accessories to make this radio a portable QRP shack in a box.

You can purchase the **FTX-1optima** package which includes the FTX-1 plus 100 watt amplifier that simply plugs together for 100 watt operation on HF - to - 6 meters — and 50 watt operation on the VHF/UHF bands. Pricing for the radio is in the $1,499.00 range with the PA bringing the price tag to $1,899.00 for the complete Optima package. Yaesu indicated that this is a completely new offering and it is not intended to replace the FT-991A which has similar features. So, two great all-purpose radios from Yaesu!

The other standout for me was from Kenwood. The new **TM-D750A** tri-band mobile transceiver with APRS, covers 144, 220 and 440 MHz bands with dual band monitoring. It has a large color display which is detachable from the base unit for mobile installation. Unlike the FTX-1, this radio is not shipping — it is expected before year's end, with no pricing available yet. Other features include a built in TNC and digipeater operation.

Further information is sparse and in my humble opinion they brought this to this event prematurely. There isn't enough known about the radio to make a buying decision, but it leaves me wondering if it will ever go into production. If it does it looks to be a very good choice for analog and digital communications on the upper bands.

So much more could be seen at Hamvention and rather than go into detail, I suggest YouTube as a great source of videos of the inside new equipment and the flea market areas.


*Buyer examines loaded vertical antennas at one of the indoor booths. Small sign says "K4EWG - Built - 20m POTA Whip - $100". K4EWG is Peter Rhodes of Stockbridge GA while the large sign behind the booth is for Gemmagic International. [N2CBH pic.]*

Would I return to Dayton after so many trips? The answer is probably yes. I look forward to those days in the Midwest, not just for Hamvention but for the change of scenery, the people, the truck-stop food and excitement about what I might see there. So, if you have never been to Hamvention and you think you'd like to go — plan the trip. Many say it won't last forever — I am not sure about its demise as there were plenty of younger faces and new things to see. I think the future is bright. Besides, how else are you going to fill up your basement with a lot of junk?

73 de Bob, N2CBH

# Peekskill / Cortlandt Amateur Radio Association

**Mail:** PCARA, PO Box 146, Crompond, NY 10517
**E-Mail:** mail 'at' pcara.org
**Web site:** http://www.pcara.org
**PCARA on Facebook:** https://www.facebook.com/pcararadio
**YouTube Channel:** https://www.youtube.com/@peekskillcortlandtamateurr7670

***PCARA Update* Editor:** Malcolm Pritchard, NM9J
E-mail: NM9J 'at' arrl.net
*Newsletter contributions are always very welcome!*
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 Jun 7:** PCARA Monthly Meeting, 10:15 a.m., Putnam Valley Library, 30 Oscawana Lake Rd., Putnam Valley, NY.
**Sat Jun 7:** PCARA V.E. Test Session, 11:30 a.m., Putnam Valley Library, see below.
**Sat Jun 21:** PCARA Breakfast, 9:00 a.m., Uncle Giuseppe's, 380 Downing Dr, Yorktown Heights, NY.
**TBA:** Field Day planning meeting. Watch Google groups for date/time/location.
**Sat-Sun Jun 28-29:** ARRL Field Day, George Washington Elementary School, 3634 Lexington Ave., Mohegan Lake.

### Hamfests

**Check with organizers before leaving.**
**Sun Jun 8:** LIMARC Hamfest, 999 Stewart Avenue, Bethpage, NY. 8:45 a.m.
**Sat Jun 14:** Fair Lawn ARC Hamfest, Fair Lawn Memorial Pool, Morlot Ave & Essex Street, Fair Lawn, NJ.
**Sat Jun 21:** Raritan Valley RC Hamfest, Piscataway High School, 100 Behmer Road, Piscataway, NJ. 8:00 a.m.

### VE Test Sessions

**Check with the contact before leaving.**
**Jun 7:** PCARA, 11:30 a.m., Putnam Valley Library, 30 Oscawana Lake Rd., Putnam Valley NY. Must contact VE Lou KD2ITZ, radiocassetta'at'gmail.com.
**Jun 15:** WECA, Westch Cnty Fire Trg Center, 4 Dana Rd Valhalla NY. 7:00 p.m. Contact VE, rcasino48'at'gmail.com.
**Jun 16:** Orange County ARC, Munger Cottage, 40 Munger Dr., Cornwall NY. 6:00 p.m. Contact VE: joed99'at'verizon.net.

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Peekskill / Cortlandt Amateur Radio Association Inc.
PO Box 146
Crompond, NY 10517