PCARA Update

Volume 20, Issue 9 Peekskill/Cortlandt Amateur Radio Association Inc. September 2019

Cool times coming

To the sound of Cicadas, I am aware of the approaching end of Summer and cooler days of Autumn. Another year's vacation with its adventures are committed and entrusted to memory with thoughts turning to the approaching Holiday season. So, now it's time to get back to amateur radio!

We had a few things going on over the Summer Break. On Saturday July 20, 2019 we had a turnout of 14 folks for the **PCARA Breakfast** at 9:00 a.m. at Turco's in Yorktown Heights, NY. The breakfast was followed by a **PCARA VE Test Session** at the John C. Hart Memorial Library in Shrub Oak, NY. At the end of the session there was one new Technician, two new Generals, one upgrade to General, and one new Extra who took all three exams in one session — from none to done! Thanks to all the VEs and to Mike W2IG for coordinating the session. *[Report p 8 -Ed.]*

Another enjoyable **PCARA Breakfast** was held on Saturday August 17, 2019 at our favorite location of Turco's with about a dozen members in attendance. We were joined by Masa Maeda JR1AQN, who visited us during our Field Day activities at Walter Panas High School in Cortlandt Manor, NY. Masa writes a monthly column entitled "*Grass Roots Series from US*" in *CQ ham radio Japan*, and in his September 2019 article he showcased PCARA's Field Day activities. On behalf of the membership of PCARA, I would like to thank Masa for including us in his article. We must be doing something right because Masa has become a member of PCARA. Please join with me in welcoming Masa!

The next scheduled **PCARA Breakfast** will take place at 9:00 a.m. on September 21, 2019 at Turco's in Yorktown Heights, NY. Coincidently, the next bi-monthly **PCARA VE Test Session** will take place at 11:00 a.m. on the same date at the John C. Hart Memorial Library in Shrub Oak, NY. It's hard to believe that it's already been a year since we started the current series of bi-monthly VE test sessions. Please consider joining us for breakfast and if you know of anyone interested in taking an exam, let them know.

Our next scheduled **PCARA Foxhunt** will be held on Saturday September 28, 2019 at 3:00 p.m. Check-in will be at 2:30 p.m. at the Beach Shopping Center in Peekskill, NY. This will be the third Foxhunt in a row in which Mike N2EAB has played the Fox, since he hadn't been found the previous two times. Please come out and help us to finally find this Fox! Following the hunt, we will meet at a location of the Fox's choosing. Spread the word.

A sunny Sunday at the Candlewood ARA Western CT Hamfest on August 25. L to R: Greg KB2CQE, Joe WA2MCR, Mike KD2PYS and frequent fox Mike N2EAB.

Please add these coming events to your calendar:

- Saturday October 12, 2019 – Bergen Amateur Radio Association (BARA) Fall Hamfest, Township of Washington, NJ.
- Sunday October 20, 2019 – 39th Annual Harry Chapin Memorial Run Against Hunger, Croton-Harmon High School, Croton-on-Hudson, NY.

Our next regularly scheduled Membership Meeting is on Sunday September 8, 2019 at 3:00 p.m., at New York – Presbyterian / Hudson Valley Hospital in Cortlandt Manor, NY. I look forward to seeing each of you there. - 73 de Greg, KB2CQE

Contents

Adventures in DXing

- N2KZ

Don't Deny Digital

"To every thing there is a season, and a time to every purpose under heaven." (Ecclesiastes 3:1)

"The Only Thing That Is Constant Is Change." (Greek philosopher – Heraclitus)

"Why did you have to cut my co-ax cables?" (Karl Zuk – N2KZ)

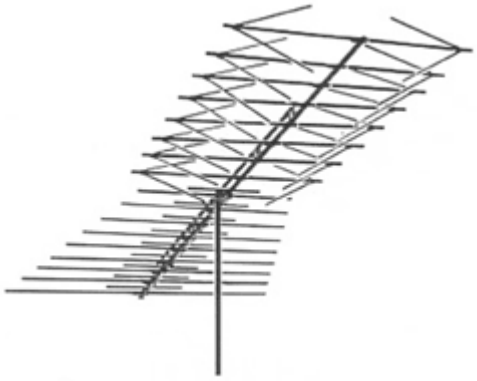
There are many defining moments in life and I had one this summer. My family ventures back annually to our cottage in mid-Michigan for more times of frolic and fun. Over this past winter, I spent many hours negotiating updated Internet and television service for our cottage. The new service was installed in May without my presence and without my spirit.

Karl's old cables (top) and missing pre-amp power supplies.

The technicians from xFinity did a very professional job. They even ran the access cable underground so nothing new was flying towards our residence. Ah, but then the realization — the horror! They cut back my old cables! They removed my pre-amplifiers' phantom power supplies. I lost all connectivity to my over-the-air antenna farm. I became crestfallen with resignment. Karl, my friend, all things eventually become obsolete. All things must change.

Around 1988, eager to please my then to-be father-in-law, I installed a complex antenna farm in our attic to bring in *some* TV for his viewing. Our home is about 60 or more miles from the closest television transmitters and civilization. Grabbing distant TV signals out of the air required the best hardware and planning possible.

As I found it, the existing TV antenna system was *interesting*. Inside a beautifully constructed high-ceiling attic I found a VHF-only array that had been broken in half to become bi-directional. One half was pointed southwest and one half was pointed northwest. I can't say I had seen this idea before. It did make some sense. The two strongest stations were in two opposite directions. Why install two antennas when one would do?



Channel Master 3617B VHF antenna.

My first move was obvious. I repaired the original antenna with a couple of fix-it braces from the local hardware store. Move two: I ordered a Channel Master Crossfire 3617B VHF antenna and a Channel Master 4228A 8-bay UHF bowtie antenna. These were my choices for the most powerful and appropriate antennas I could mount in the attic. One of my brother-in-laws picked them up from a local Channel Master dealer and brought them up for installation along with a couple of five foot masts and accessory hardware.

Channel Master 4228A UHF TV antenna.

Channel Master 8-Bay UHF antenna (left) and original Winegard antenna mounted in Michigan attic. [N2KZ pics]

PCARA Board

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Net night

Peekskill/Cortlandt Amateur Radio Association holds a weekly net on the 146.67 MHz W2NYW repeater on Thursdays at 8:00 p.m. Join net control Karl, N2KZ for news and neighborly information.

Channel Master pre-amps were added for maximum gain.

Mounting the Crossfire was an interesting pursuit. This "*Deepest Fringe SUPER Color CROSSFIRE*" measured 194½ inches long, had a double-support boom and weighed a ton! My wife and I struggled to get this behemoth mounted in our concealed environment. I can't imagine what it would be like on a pitched rooftop or tower.

Channel Master Crossfire antenna mounted in Karl's attic.

I brought a TV set up to the attic to align the Crossfire towards Bay City, the home of WNEM Channel 5. I was looking for every possible dB I could find! I turned on the set and immediately saw pictures. Victory! After it was on for a couple of minutes, it occurred to me that I was watching a TV station in Milwaukee, Wisconsin! *Deepest Fringe* indeed! More fine tuning brought in Channel 5 WNEM in Bay City just over 60 miles away to the southwest.

I also remounted and re-directed the original Winegard antenna that had been broken in half to reach out to Channel 11 WBKB in Alpena, Michigan. This was a high VHF station about 53 miles away. The path was mostly over the waters of Lake Huron.

Depending on passing weather and the perils of tropospheric propagation, both Channel 5 and Channel 11 would sometimes come and go as they pleased. WNEM 5 and WBKB 11 were both CBS affiliates. Years later, before the advent of digital TV, WBKB Alpena adopted an interesting format. They would air CBS programming until the network was done and then run recordings of Fox network prime time shows overnight.

TV transmitter locations in Michigan and Wisconsin in relation to Port Austin, MI.

The last member of the antenna farm was a Channel Master 4228B 8-bay bow tie aimed at Ubly, Michigan 27 miles due south of our home. There you will still find a nice tower south of town that became home of Delta College's PBS outlet WUCX-TV, Channel 35, a satellite of their main station Channel 19 WUCM.

Extra Added Feature!

This hot-rod powerful TV antenna farm did not go to waste. With nearly zero local stations to interfere with DX, the world of distant TV skip was mine! Analog TV summertime tropospheric skip would bring in stations from Upper Michigan, Ontario, Ohio, Indiana, Illinois and beyond.

The E-skip possibilities were endless. The narrow beam of the Crossfire antenna would often produce signals from Texas, most of the Midwest and even nice reaches to places like Wyoming. I even saw NTV Newfoundland once or twice. It was a lot of fun.

Karl's Magnavox mini-analog TV is shown receiving CBC's SRC network from Windsor, Ontario in Summer 2008.

Canadian DX was even more fun seeing independent networks like MCTV, CTV and the CBC from everywhere you could imagine. I received some of these stations after digital transition but they were harder to catch. Analog skip is much more forgiving for DXers hundreds of miles away.

I really loved analog TV skip. Many Canadian stations remained analog long after the official digital transition in the United States on June 12, 2009. Although the Canadian broadcasters continued broadcasting with analog TV transmitters for years after, eventually most all of them have now left the air entirely.

Canada has much less population density. Powerful stations with tall towers were expensive to run. Most people had eventually resorted to satellite or cable TV to broaden the amount of channels available. Over-the-air analog television no longer made financial sense. The transmitters have been put down. The circuit breakers are off. The era has ended!

Back to Reality

With only three local stations to watch (and two from the same network — CBS) our viewing choices were quite limited. We needed a new solution to watch TV. If I remember correctly, one day in 1999, my brother-in-law Kevin and I drove down to Bad Axe (the local

county seat and 'big town') and bought a DirecTV installation kit. For everyone else in our family over-the-air TV became history. But... I maintained my TV antenna farm for DXing purposes!

After the digital transition, the Ubly channel 35 PBS transmitter was discontinued and went dark and the main PBS station was moved just east of Bay City. We could still pick it up! Unfortunately, the digital transition completely obliterated WNEM 5 reception when they moved to UHF Channel 22. After the recent repacking, WNEM is now on Channel 30 and out of our reach. Digital channel WBKB 11 from Alpena would only lock-in occasionally. A new generation of digital TV broadcasting had begun!

Fast Forward

We now live in the year 2019. Television and radio have become obsolete forms of media. Even appliances to watch media are now called 'flat screens' instead of 'televisions.' Most screens have 'smart' features that directly interface with the Internet usually by Wi-Fi. Outdated media players and cable converters still connect by Bluetooth or via HDMI cables. Most everybody streams video over the Internet. Push-on RCA connectors are forgotten, old technology. Antenna 'F' connectors are rarely used. The terms 'RCA' and 'F' are now reminders of legacy connections from the past.

"Flat Screens" on display.

RCA to F adapters.

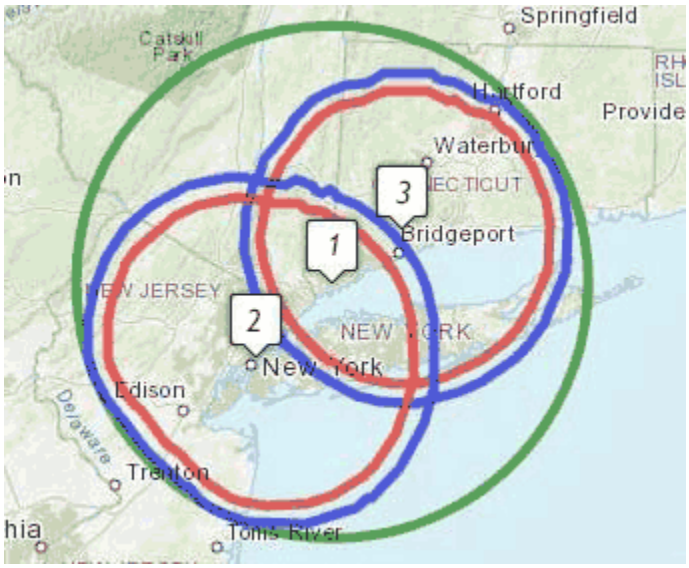
Even our current methods of distributing digital over-the-air television are being replaced with new technology. We have just survived the majority of channel swaps necessary to condense television spectrum allocations by 'repacking.' This reorganization will allow more high tech devices to use precious UHF air space. Television used to occupy channels 2 through 83. Now the TV allocation stops at channel 36. Channels 38 through 83 have now been re-allocated to new digital data services. (Channel 37 is reserved for radio astronomy.) On the horizon is yet another new generation of 'broadcasting' called ATSC 3.0 where today's digital TV stations will eventually re-emerge as DTS outlets.

Distributed **T**ransmission **S**ystem stations will act as continually agile, over-the-air transmission space to be used as desired by broadcasters. They can use all 6 MHz of channel space for a 4K or 8K ultra-high definition broadcast — or — transmit a multitude of standard definition stations — or use it as a source of raw data to support applications or anything else you can think of. 'TV channels' will simply become 'pipes' for assignable and agile digital data.

TV Channel	from MHz	to MHz	Description
2	54	60	Low VHF TV
6	82	88	Low VHF TV
7	174	180	High VHF TV
13	210	216	High VHF TV
14	470	476	UHF T-band land mobile
20	506	512	UHF T-band land mobile
21	512	518	UHF TV Band
36	602	608	UHF TV Band
37	608	614	Radio astronomy
38	614	620	Now wireless broadband
68	794	800	Now wireless broadband

TV channel frequencies after spectrum auctions and repacking. (T-band land mobile allocation is for metropolitan areas only and subject to give-back.)

For added stability, DTS stations will be allowed to use multiple transmitters to create a network across their service area. This would fill in all the spots that could otherwise not be reached. Hopefully, multiple transmitters would also usurp the perils of long distance fading and multiplex. For example, Connecticut Public Television has been granted one of the first DTS construction permits. Two DTS transmitters will illuminate their coverage area to provide solid data to CPTV viewers.



WEDW will reach up to 73 miles — green circle — from Stamford, CT ①, using two separate DTS transmitters, both on RF Channel 21 and located at ② the Empire State Building and ③ Trumbull, CT. [After rabbitears.info]

A Whole New World

The entire world of communication is now completely Internet reliant. Just this morning, instead of using good old-fashioned over-the-air two-meter FM to check into a local Michigan ham net, I reverted to operating via **Echolink** for the first time ever. I confess that I now watch most of my 'television' on my phone and PC on-demand and from all over the world via the Internet. I can see programs from Ireland, England, France, Sweden, Canada and much more at a moment's notice in perfect high definition.

Internet distribution has also opened boundless new avenues in the world of 'public access.' Back in the late 1980s and early 1990s, I used to host a weekly television show originating from a storefront in Croton-on-Hudson, New York on Hudson Valley Cablevision Channel 26. Any form of local community TV was a breakthrough! Now anyone can launch onto YouTube or endless amounts of other sites to distribute their works worldwide with little equipment or effort. The same is true for written text journalism or creative writing. What an amazing world this has become!

Radio follows the same course. DXing over-the-air radio signals now are only for serious amateur radio operators or for rare instances that remain out of reach of the Internet or GPS or remote SDRs. Aircraft and ships may still turn to HF for long distance communication but they will probably try satellite telephony first. Sadly, (at least to this writer,) even CW is succumbing to digital modes like the in-vogue FT8. You know, I think this digital stuff might eventually catch on!

Recently, I was trying to improve the FM reception of a modest little stereo by adding an antenna. Upon screwing in the F connector, I was deluged with all sorts of digital noise. I thought I had tuned to a self-inflicted woodpecker jammer. I traced the noise to the GFCI outlet that was providing power to the stereo. The inundation of noise from LED light bulbs, noisy flat screens, light dimmers and all sorts of modern innovations provides great incentive persuading me to switch to Internet radio permanently. Tremendous amounts of RF noise and interference have dismissed all chances of distant reception (or any reception!)

My casual radio listening is nearly all digital. I was cruising through miles and miles of planting fields in Central Michigan yesterday listening to WNYC-FM New York via an Internet stream in uninterrupted perfect stereo through a fine sophisticated audio system in my car. Noise and fading no longer invade 'broadcast' transmission. This is the new world in which we live.

Traditional shortwave receivers are obsolete, too. Using software defined radios via the Internet, you can listen in to thousands of on-line SDRs with just a few clicks on your phone or PC. Your virtual radio can receive signals from locations all over the world. Amazing!

N2KZ/M traveling through the wide open spaces of Central Michigan, listening to WNYC-FM via the Internet.

Fond Memories

I will always remember my very first encounters with shortwave radio. Around 1960 I was listening to hams using AM on 40 meters via my uncle's Grundig Majestic radio. I will never forget all the hours I spent with my Hallicrafters S-120 bringing me the world with just four tubes and some wire. These new experiences with digital media are no less spectacular and memorable. How amazing to hear everything from everywhere so clearly and so reliably on demand anywhere you go!

Goodbye Analog

I can only wonder where future changes might take us. How will news and sports coverage progress? How will fantastic amounts of media be managed and accessed? How long will someone out there respond to my feeble milliwatt QRP CW calls of CQ! CQ! Wait! I even send straight key CW via the CWCom app. Digital now rules the world!

Still, it is so unnatural and strange to me. Can I give up wire antennas, the static and the fading, the harsh static salads I loved to hear on 80 and 160 meters? Can I become accustomed to not pulling call signs out of severe fading and QRM? I guess I have no choice. Get used to it! The year 2020 will be with us soon. I can remember thinking it will never be 1960. How old are you, Karl? I am going to go back to my cave and write a sentimental song about yesterday. When I am done, I will head for my straight key. You can't stop me, kid! What an amazing world in which we live!

Until next month, 73s and dit dit de N2KZ - The *OLD* goat!

Field Day beam – KD2ITZ

Because the 40 meter band is active for 24 hours, even during the current solar minimum, it is valuable on Field Day. PCARA's 2019 Field Day saw an increase in 40 meter contacts, thanks to the efficacy of a new beam antenna and an enthusiastic strategy of dedicating an entire station to this band. A total of 410 QSO's were logged on 40. This represents 52% of all HF contacts; significantly more than the two previous years, which were both around 45%.

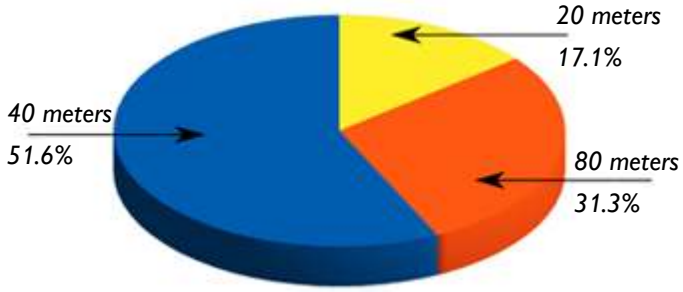


Fig 1. PCARA Field Day QSOs 2019. Most HF activity was on 40 meters.

The 40 meter antenna was designed by Jay NE2Q. His strategy maximized forward gain to the west, while avoiding obstacles to possible baseball games. On Field Day morning, Charles N2SO, Mike N2EAB, and several assistants hoisted a catenary rope running north-south between the light poles along the third base line. One end of each of the parallel elements was suspended from the catenary. The other ends were secured by ropes that were tied to ground stakes south of the baseball field. The driven element measured 65.5 feet. A 68-foot reflector was located 30 feet behind it (east) and a 65-foot director was 23 feet in front of the driven element.

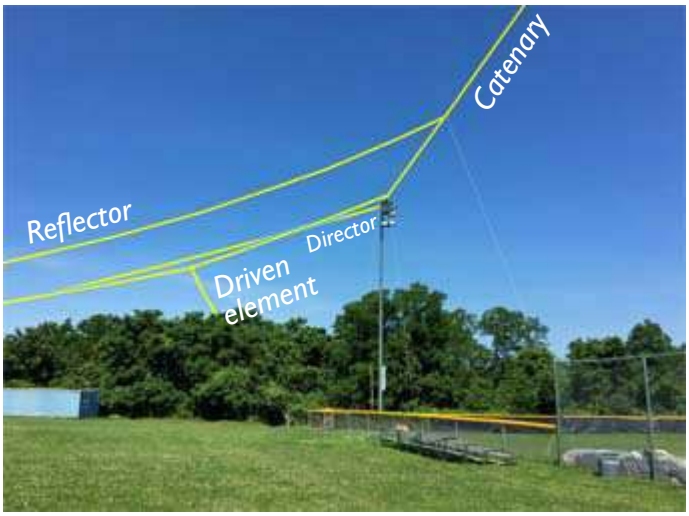


Fig 2. Wire beam antenna erected at the 2019 Field Day site. Wires and support ropes emphasized. [KD2ITZ pic.]

Construction of the wire beam started on April 2, 2019 at the PCARA Antenna Workshop. At that time, the driven element and the reflector were built with 14 AWG uninsulated stranded copper wire.

PCARA members begin constructing the 40 meter wire beam during Antenna Workshop at the Cortlandt CUE room.

Joe WA2MCR later added a coax feedpoint and performed initial testing at his home station. When assembled on the Field Day site, the two-element beam's lowest SWR reading was 1.04:1 at 7.020 MHz, measured on Jay's RigExpert AA-54. The third element, the director, was then added by Jay and Tom K2UQT, using 19 AWG insulated steel wire. Resonance was around 7.100 MHz, with impedance of 23Ω and SWR of 2.1:1. The feedline was 100 feet of RG-58 coaxial cable.

Jay had modeled this design extensively using EZNEC software. The two-element beam was predicted to have 8dBi of forward gain and front-to-back ratio (FBR) of 7.3dB at 7.14 MHz. The addition of the third element boosted these figures to: 9.2dBi of gain and FBR of 31.4dB.

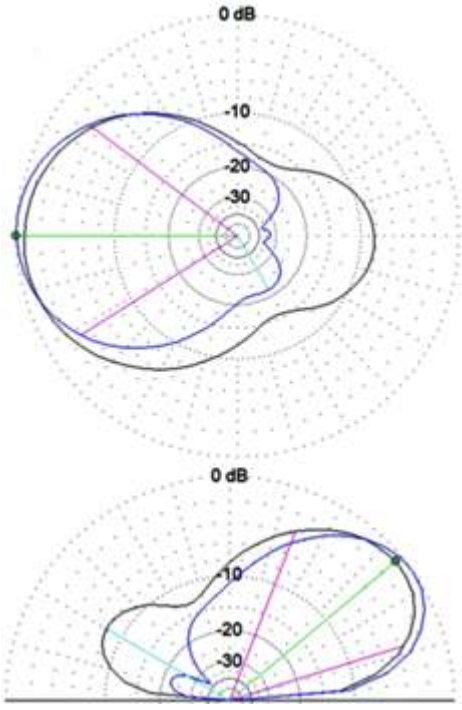


Fig 3. Azimuth (top) and elevation patterns (below) for wire beam antennas at 7.14 MHz as modeled by Jay NE2Q. Black trace is for 2-element beam with 8dBi gain, blue trace is for 3-element beam with 9.2dBi gain (including ground reflections) and improved F/B.

Operators soon learned that the antenna had strong coverage to the West, as expected. Ohio, Michigan, and Ontario were the three most fre-

quently contacted locations on 40 meters. Compared to the previous year, there were about 37% more contacts to Ohio, 78% more to Michigan, and 350% more to Ontario.

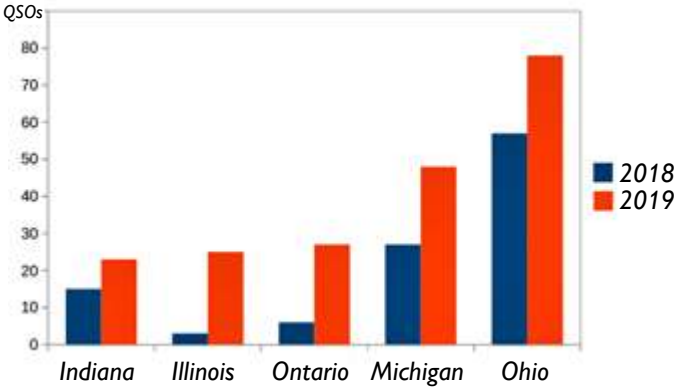
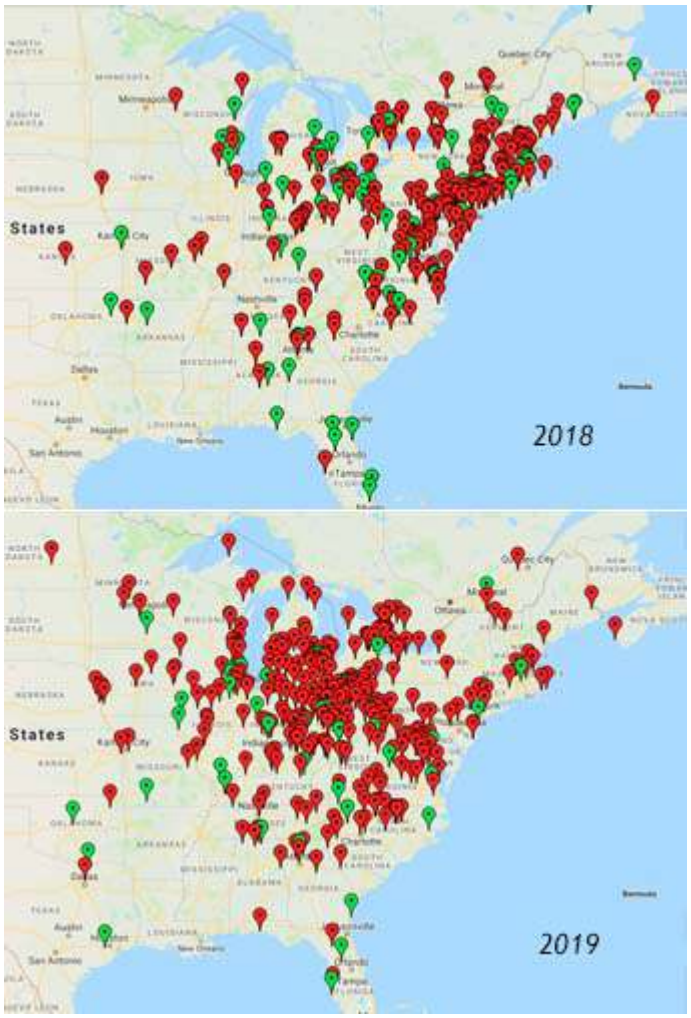


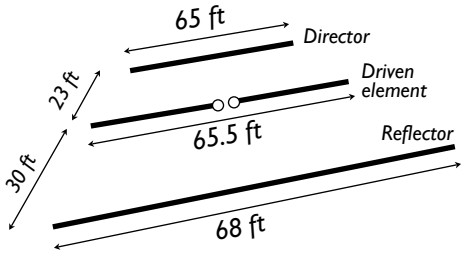
Fig 4. Bar chart shows 40 meter Field Day contacts with midwest states/Canada in 2018 (blue) and 2019 (red).

Readers of the July *PCARA Update* may have already seen the distribution pattern of 40 meter QSO's projected on a map of the 48 states. Whereas the 2018 station made two contacts to Europe, the other side of the Atlantic was not reached with the 2019 array. Instead, the antenna had a null pointed toward the stormy ocean waters — optimizing best reception of North American Field Day stations and reducing atmospheric noise.



Distribution of 40 meter Field Day contacts using multi-band dipole in 2018 (top) compared with 40 meter wire beam in 2019. Red pin = phone, green pin = CW QSO. [Analysis courtesy Lou KD2ITZ and qsomap.org software.]

When Jay added the director to the array, he included a disconnect point 13 feet from the end of the wire. This clever design allowed the element to become "invisible" in case of malfunction. It was calculated that the individual lengths of detached wires would not interfere with the pattern of the two-element beam. During a period of CW operation there was concern that the FT-1000MP automatic tuner was having difficulty matching the impedance of the three-element array. The wire was disconnected and the antenna performed well with only the two other elements. The director was later connected again and the station ran all three elements for the rest of the event. Although it is unclear why the mismatch occurred, the ability to quickly disconnect the element was a useful feature.



Dimensions of the 3-element sloping wire beam, viewed from behind the reflector.

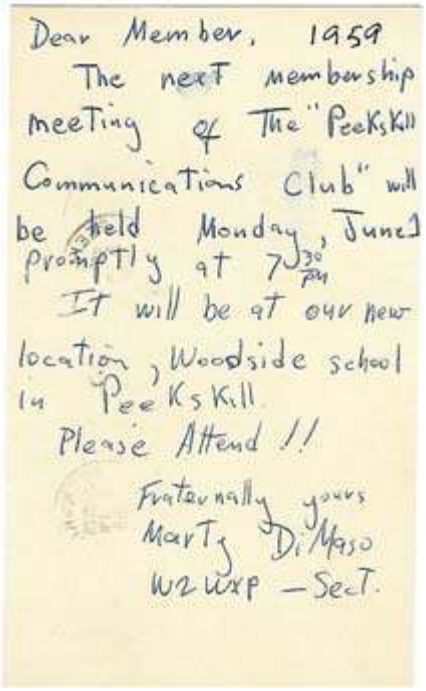
Several improvements to the beam's design are possible. Jay suggested addition of an impedance transformer at the feedpoint, such as a gamma match, to improve the SWR. Additionally there was no choke or balun on the driven element. While common mode currents on the coax may adversely affect the directional antenna pattern, there was concern about adding weight to the suspended wire. More weight would pull down the element and disturb the symmetry of the array. These changes in geometry may affect the antenna performance. Other ways to reduce weight should also be considered. A thinner wire could be used instead of 14 AWG elements. Plastic insulators can replace ceramic. Lightweight 300Ω or 450Ω wire may be substituted for coaxial feedline.

The new antenna proved to be a success at many levels. With strong coverage to the west and minimal QRN from the ocean, it made operating 40 meters a pleasure. Even with the time to construct the additional element, the installation was readily accomplished before the start of the event. The build also allows the opportunity to review principles of antenna design and software modeling. Perhaps the paradigm can be applied to other bands in subsequent Field Days. It may also inspire some of our readers to try a similar beam at their own stations.

- Lou KD2ITZ

Preceding PCARA - NA2M

The postal card shown here should be of interest. It was the notification for the June 1st 1959 membership meeting of the **Peekskill Communications Club**. The meeting location was the Woodside School in Peekskill.



Bill NA2M's postal card from 60 years ago.

Marty DiMaso, W2WXP was the club secretary. He was also the Civil Defense Radio Officer of the Town of Cortlandt. I was the Assistant Radio Officer. Marty was a dear friend. My late wife Irene and I attended the weddings of all of his three sons. I hired his youngest son in 1973 when I was the Employment Manager for New York Telephone in Manhattan. He is now retired! Marty is in his 90's and living in Florida.

There was another local club in the 60's. It was the **Taconic Amateur Radio Club**. We met in the Chase Bank in Yorktown Heights. We had one Field Day event at the old St. Elizabeth Church grounds on the hill opposite the Beach Shopping Center. That location is now developed as Society Hill with many homes.

The first club in Peekskill was the **Peekskill Radio Club**. There is only one surviving member of that club that I know of, Ed Benkis, W2HTI. He lived on Locust Avenue and is now in North Carolina. He is a senior member, as I am, of the North Jersey DX Association. Ed is a top DXer and was always one of last standing DXers at the DX Dinner at the Dayton Harnvention.

That's all I have for now. I hope I didn't bore you with my ramblings.

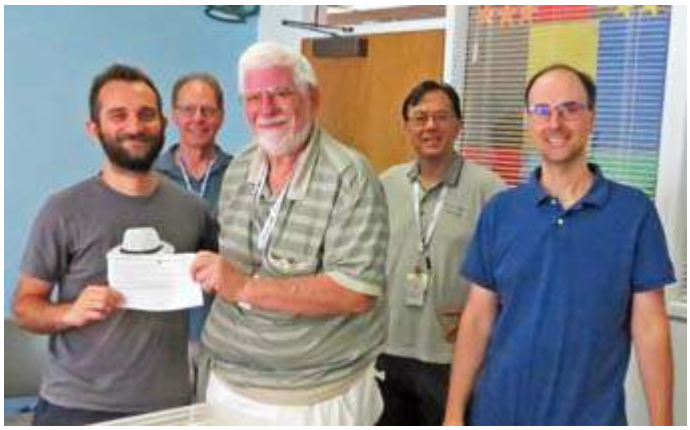
- 73 de Bill NA2M

VE Test Session July 20, 2019

On Saturday July 20, PCARA's Volunteer Examiner Team were once again providing Amateur Radio tests at the John C. Hart Memorial Library in Shrub Oak. Compared to the previous test session in May, there was a much better turnout, with Team Liaison Mike W2IG reporting that several candidates had contacted him already. As the session started, an "Excessive Heat Warning" was in effect with temperatures around 90°F in the parking lot, but fortunately the Children's Reading Room remained cool and calm.

Five candidates arrived to take part in the V.E. Session — at the end we had one new Technician, two new Generals, one upgrade to General and one brand new Extra.

Congratulations to Thomas Ambrosio KD2SKW (Tech), Peter Colarusso KD2SKX (Gen), Nick Merriam ex-K0COZ, now KD2SKY (Gen), Charles Suslowicz KD2RQS (Gen) and Brendan Adamson AC2ZI. Brendan came in without any amateur radio license and passed all three tests — Technician, General and Extra — at the same sitting. Well done!



Brendan, (now AC2ZI - left), receives his CSCE from Stan WA2NRV during the July 20 VE Test Session. Also pictured are VEs Verle W2VJ, Ken W1YJ and Lou KD2ITZ.

Nick was first licensed as K0COZ in the 1950s, but let his license lapse, so welcome back! (And what a great, new call sign, **KD2SKY**.)

Thanks to all the Volunteer Examiners who took part in the session including PCARA's Team Liaison **Mike W2IG**, Ken W1YJ, Lou KD2ITZ, Larry AC2QH, Richard N1GIL, Thomas KD2JUH, Verle W2VJ, Stan WA2NRV and NM9J. Non-VEs who assisted included Joe WA2MCR and Greg KB2CQE.

PCARA's next VE Session is scheduled for Saturday September 21st at 11:00 a.m., after the PCARA Breakfast. Candidates are requested to contact Mike W2IG beforehand using: w2igg'at'yahoo.com.

Big in Japan

At the PCARA Breakfast on Saturday August 17th, Masa W2/JR1AQN advised us that the September 2019 edition of *CQ ham radio* was being published that same day in Japan. (See: https://ham.cqpub.co.jp/) The September issue includes Masa's report on EmComm vehicles seen at Dayton Hamvention® *and* on ARRL Field Day. Readers will recall that Masa paid a visit to the PCARA Field Day site during setup on Saturday June 22, took photos and talked to members about their Field Day experiences.

Here is a short extract from Masa's report, translated from the original Japanese by Masa himself.

"I arrived at the venue, Walter Panas High School at 10:00 a.m., but it was in the midst of setting up. Lou (KD2ITZ) was approaching while smiling. While shaking hands: "Are you JR1AQN? I heard you could come from Joe. Welcome to Field Day!" Lou showed me the antennas and radios that were under construction. One antenna is a 6 meter 3 element Yagi and rotator. A G5RV antenna for HF was stretched between the poles for night lighting in the baseball stadium, and a two-element sloper antenna for 40 meters was the main challenge this time. This antenna was devised by members based on an idea from ARRL's magazine *QST*, and theoretically has a gain of about 8 dB. The beam was aimed almost due west. Since Field Day QSOs are overwhelmingly in the United States, this is likely to be a powerful weapon!"

One of six pages from Masa, JR1AQN's article in 'CQ ham radio', Sept 2019.

Masa JR1AQN (left) meets Lovji N2CKD and Lou KD2ITZ at PCARA's Field Day site on June 22, 2019.

Masa's article was illustrated with nine pictures taken at PCARA Field Day, including shots of Joe WA2MCR, Lou KD2ITZ, generator and solar power sources, the 6 meter station, 6 meter antenna and the 40 meter wire beam antenna during construction.

Isle of Man memories

– NA2M

[In PCARA Update *for July 2019, your editor reminisced about the Spring 1969 GD6UW DXpedition to the* ***Isle of Man****, prefix* ***GD****. Bill, NA2M wrote as follows.]*

I read your story about your expedition to the Isle of Man with interest. It reminded me of my two friends with connections to the IOM.

John Churchill, GD3MBC (SK) was at my shack as you can see in 1987. He was a dear friend of Buddy Robins, GD0AVF (SK). We used to meet regularly on 15 meter SSB back in 1987. The day I took the snap of John, the three of us drove up to ARRL HQ for a visit.

The Isle of Man's John Churchill GD3MBC visits the NA2M shack in 1987.

The other photo is of Gary, G0ENW and Buddy, GD0AVF. Gary was frequently on 15 meter SSB with us. Gary and his wife Sandy spent a week with me about four years ago. I took them for a visit to the United States Military Academy at West Point.

L to R: Gary G0ENW and Buddy GD0AVF, also known as EA8BUC and W2KN. *[Pics by NA2M]*

Buddy (Harold) had a summer home in Peel, IOM and we would meet on 15 meters when conditions permitted. His New York home was in Riverdale, Bronx NY. He also had a QTH in the Canary Islands (EA8) where he was licensed as EA8BUC.

Peel is on the west coast of the Isle of Man, located between Ireland and Great Britain, in the middle of the Irish Sea.

Buddy was in the sweater business and would visit China to arrange for the import of sweaters. I was fortunate to work him on his visit to two cities in China. He was thrilled to work the USA from there. Buddy was visited every year by G4HQ and I would join them for lunch on those occasions.

Well, I hope I didn't bore you about my IOM friends.

- 73, Bill, NA2M

[Buddy Robins' U.S. callsign W2KN has subsequently been reissued as a Vanity Call. *-Ed.*]

Grand Marshal N2EQM

Bill NA2M draws our attention to an article in *Yorktown News* dated August 15th. There it is revealed that the Grand Marshal for Yorktown's Feast of San Gennaro in 2019 will be Town Justice **Sal Lagonia**, **N2EQM**. The Feast of San Gennaro runs from Wednesday September 11th to Sunday September 15th, 2019 and is a re-creation of the original Little Italy feast, with a statue of Saint Gennaro paraded along Commerce Street, Yorktown.

Sal Lagonia N2EQM.

Sal Lagonia has his Law Office on Crompond Road in Yorktown. He is an experienced Aviation and Business Lawyer and serves as an Aviation Analyst for Fox News. He is an active pilot and aircraft owner as well as a long time musician. See: http://www.lagonialaw.com/home.html

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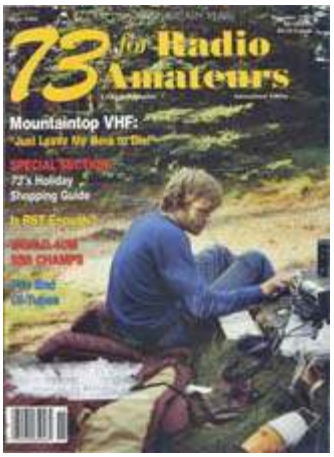
According to *73 Magazine* for November 1985, radio amateurs in Westchester County were scrambled into action by Sal N2EQM, then Director of Emergency Services for the Westchester Civil Air Patrol, after he received word that an ELT (Emergency Locator Transmitter) had been activated.



Sal dispatched a CAP airplane equipped with direction-finding gear which narrowed the search to the area around one town. Two cars armed with DF receivers and radio amateurs were sent out. One was manned by Dwight Smith N2FMC, and the second carried Bob and Sarah Wilson, N2DVQ and N2EYX. The two mobiles kept in touch on two meters. The ELT was located inside a building — it had been aboard a helicopter that made a rough landing and then the unit was brought inside by the pilot, thinking this action would deactivate it.

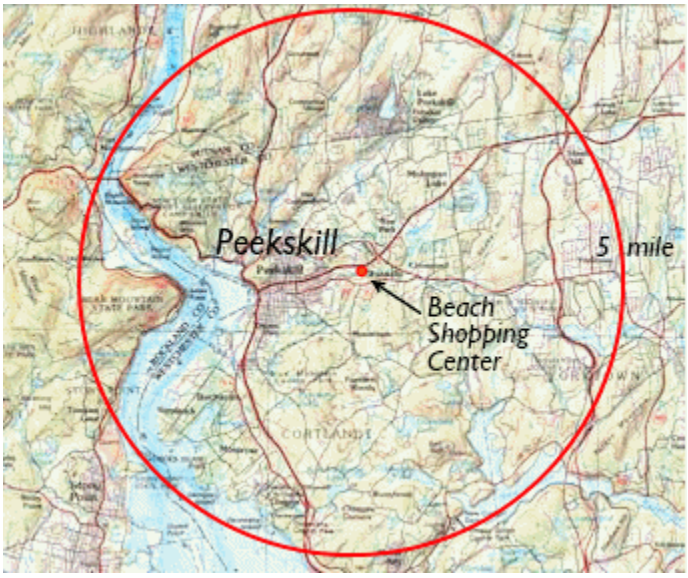
Artex helicopter ELT, transmits on 121.5, 243.0 and 406 MHz.

Bob N2CBH has covered the operation of ELTs (which use 406 MHz for satellite communication plus 121.5 MHz for ground homing) and other radio aids for aircraft in his article "Aviation Systems", *PCARA Update*, April 2014, page 12.

PCARA Foxhunt Rules

Saturday September 28, 2019

1. Transmission: FM simplex on 146.565 MHz, horizontally polarized.
2. Transmissions start at 3:00 p.m. for 5 minutes, followed by 5 minutes off. Second transmission commences at 3:10 p.m. 3 minutes on, 7 minutes off. The fox will not move during this time. This cycle repeats at 10 minute intervals until the last transmission ends at 4:30 p.m. when the fox will announce its location.
3. The opening transmission will include a time check for watch synchronization.
4. All contestants who wish to be eligible for a prize must book in at the **Beach Shopping Center parking lot***, in Peekskill before the start. Contestants will count as one team if more than one person occupies a car. (i.e. if three in a car, they don't get first, second and third prize.)
   * on the far west side of the Shopping Center, near Jo-Ann/CVS.
5. No contestant is allowed to move his/her car until the end of the first transmission, so take your time with the first bearing and make it a good one. The transmission will be audible from the start without a super-sensitive receiver.
6. Radio silence will be maintained by all contestants on all frequencies from the first to the last transmission.
7. No excess mileage penalty will be incurred but all contestants are reminded at all times to stay within the law and observe speed limits, parking restrictions etc.
8. The fox will be hidden not more than 5 miles from the start. The location of the fox will not be on property which is inaccessible by car.
9. Upon a contestant finding the fox, please do not shout or in any way give the location away to other contestants. Report your name/callsign to the fox and retire to the place of refreshment immediately. This will ensure that other contestants do not discover the fox because a group of people is hanging around nearby. It is requested that you maintain radio silence even though the fox has been found and the fact that you have found the fox should not be revealed to anyone until the place of refreshment has been reached.



The fox will be hidden within 5 miles (red circle) of the starting point at the Beach Shopping Center.

10. The first competitor to locate the fox and positively identify him/her will be presented with a certificate. This competitor will be invited to assume the role of fox for the next foxhunt event.
11. Competitors should convene from 4:30 p.m. at the place of refreshment, which will be announced on-air by the fox.

Rules adapted from Bury Radio Society Fox Hunt – Malcolm, NM9J

Last time...

Flashback to the Spring Foxhunt of May 11, 2019 when Mike N2EAB was hidden away alongside the Doctors' Offices at Cortlandt Medical Center, off Route 202.

Sony ICF-P26 Radio –

Quick Review - N2KZ

Handheld pocket-sized AM/FM radios have come a long way since they were first offered in the 1960s. Gone are the familiar 9 volt batteries with snaps that powered everything back then. Portable radios now can be incredibly light and compact and efficient. Some units even have digital displays and multiple station memories. What will they think of next?

The Sony ICF-P26 is an inexpensive pocket radio released in 2015. Simply put, it does everything you might expect... and more. Maybe the most remarkable thing about this offering is its availability. Portable radios are becoming harder and harder to find! For the occasional user or as an everyday convenience it fulfills your needs with grace and style.

The Sony ICF-P26 AM/FM radio has a black enclosure, sized 4¹¹⁄₁₆" × 2¾" × 1½". [N2KZ pic.]

The ICF-P26 comes in an understated no-frills attractive black cabinet that you can hold in your palm. A handy wrist strap is included. It has its own speaker so you don't need headphones or ear buds to listen to it. How about that?

The Sony ICF-P26 portable radio receiver is not too expensive.

You will be surprised when you see how much it has to offer. Fitted with two AA alkaline batteries, Sony claims it will play for over 100 hours. It will accept both two and three-conductor mini phone jack earphones. Use high quality headphones and you will delight in the full bodied response you'll hear. I listened to WSM 650 AM from Nashville and was very impressed with its sound. By the way, the Sony ICF-P26 is monophonic. You won't hear stereo on AM or FM.

Handy LED indicators accompany the analog slide rule tuner dial. The green LED indicates power and the red one glows when you are nicely tuned into a station. It varies when you listen to a fading DX station like a visual VU meter.

The tuner itself may amaze you. The AM section is quite sensitive and selective, picking up stations far and near. The FM side requires raising the little built in whip antenna for all but the strongest stations. Tuning weak signals on the FM side may be a little touchy due to hand capacitance like you might expect holding an FM radio in a plastic case. Please note that this tuner is all-analog. There is no digital display or memories. The ICF-P26 has a continuous manual tuner just like in the good old days!

The most funky design feature is the somewhat awkward OFF/AM/FM power and band switch. One would expect that the radio would turn off when the volume is all the way off. The two rotary controls on the ICF-P26 are for volume and tuning only. You have to push the slide switch all the way down to turn the radio off. Fingering this flush-to-cabinet slide switch is the only downside of this otherwise nice radio.

TUNE control and FM/AM/OFF slide-switch are on the right-hand side of the radio.

If you don't own a basic portable radio, or simply would like a new modern set for casual use, the Sony ICF-P26 might be a good choice. It gets the job done with very little complexity. List price is $19.95. Nice job, Sony!

- Karl, N2KZ

Battery care

Maintain your potential

Battery-powered items abound in the shack and around the home — but they do require periodic maintenance for reliable operation. Technology keeps moving on and it might be worthwhile updating your preventive maintenance schedule.

Sealed lead acid batteries

Lead acid batteries are still in use for standby power — as well as for starting a vehicle engine. Perhaps you have Verizon Fios phone service? That beige box on the wall probably contains a battery-back-up unit (BBU) with a 12 volt sealed lead acid battery. The BBU keeps the Optical Network Terminal (ONT) supplied during a power outage, maintaining voice service for a few hours. The battery is kept charged through the power supply, but it will eventually fail and sound an alarm. Replacements for the 12V 7.2Ah battery are available from Verizon or suppliers such as Interstate Batteries, Home Depot or Lowe's. Remember to recycle the old battery with the vendor. (Note — some Fios installations employ a "PowerReserve" unit containing 12 D-cell batteries.)

Verizon Fios box contains a sealed lead acid battery (arrowed) for battery back-up in the event of a 120V AC power failure.

UPS delivers

Another place where you might find a lead acid battery is inside the uninterruptible power supply (UPS) for your desktop computer or network equipment. The battery is kept charged whenever 120V AC power is present, but it will eventually fail and need replacement. If you own a spare UPS — like the one I have for Field Day — battery life is shortened if not kept charged. That's another item to add to your maintenance list — plug in the UPS for a few hours every couple of months.

APC Back-UPS CS500 as used for the PCARA Field Day network.

Sealed lead-acid batteries are also featured in portable power supplies for jump-starting a vehicle, running an air compressor or charging phones through a USB connector. Don't leave these power supplies alone for too long or the 12 volt battery will self-discharge. Put them on your monthly list for a top-up by connecting to an external charger or 120V AC, as appropriate.

Schumaker portable power supply contains a 12 volt sealed lead-acid battery.

Remote controls

How many remote controls do you have around your home? I stopped counting at ten. Some are used every day, while others are seldom touched. The problem is — they all contain batteries. AAA alkaline cells are the most popular size but you might also come across AA cells or a coin-sized lithium battery. Remote controls have been growing smarter, and some (like Roku) contain a microphone for voice commands and a headphone jack for private listening. Car 'key' fobs for keyless ignition vehicles also act as a wireless remote control.

It should be pretty clear when a remote control battery is depleted — the remote stops working. But for seldom-used remote controls, the batteries can self-discharge then leak electrolyte and corrode the electrical contacts.

*What you **don't** want to see inside a remote control. The AA batteries have discharged and leaked electrolyte.*

If you *know* that a remote will not be used for a while — for example if the equipment is going into storage — take the batteries *out* and store them in a small plastic bag for future use. For other remotes that are left lying around on the coffee table, just check the battery compartment every few months. Inspect for signs of physical corrosion, bulging or leaking.

If you do come across a corroded connector, take out the alkaline batteries, remove any powdery residue

and dry out any liquid with paper towel, clean surface corrosion on the contacts with an old toothbrush, then use Deoxit™ contact cleaner to neutralize remaining leakage and leave a protective coat on the metal surfaces.

Clocks and cameras

Modern wall clocks are powered by an AA or AAA battery — whether the mechanism is controlled by a quartz oscillator or synchronized with WWVB on 60 kHz. Clocks usually give a pretty good indication when their battery voltage falls — they slow down or stop ticking altogether. Clocks with an LCD display may lose contrast, fading from dark gray to a lighter segment color.

You may come across a clock with a SmartSet® or Intelli-Time® type of circuit. Although normally powered by AC mains or customer-supplied battery, these clocks are set to the correct time in the factory, then timing is maintained during shipping and storage by a low power quartz-crystal oscillator. Power for this standby clock is provided by a lithium coin cell before deployment and during power outages.

Emerson SmartSet® Clock maintains time while power is disconnected and adjusts itself for Daylight Saving Time.

Clocks powered by 120V AC are often synchronized to the 60 Hz powerline frequency, which has very good *long-term* stability.

A lithium coin cell can last up to ten years with minimal current draw, but will eventually need replacing. Make a note of which way the coin cell fits before you remove it. The favorite size is **CR2032**, (20 mm diameter, 3.2 mm height) so it is worth keeping a few of these in stock.

CR2032 coin cells are based on a lithium metal anode and manganese dioxide cathode.

I have a Canon camera with its own backup clock. The date/time stamp is maintained by a small lithium coin cell, even while the main batteries are being changed. When the lithium cell eventually failed I had to enter date and time every time the camera was powered up.

The Canon camera needed a **CR1220** coin cell, which is a difficult size to find. Not so long ago, the best place to purchase an unusual-size battery was Radio Shack… but those days are gone. I found the CR1220 on sale at Walgreens. More common sizes such as the CR2032 are available in local supermarkets.

Canon SX-130 camera has a CR1220 coin cell (arrowed) to maintain the date/time.

Radio memories and weather stations

If you have a radio receiver of a 'certain age' — when memory presets were just coming into use — you may find that memories are maintained by a lithium coin cell or by AA batteries. This subject was covered in "Memory loss and a super solution", *PCARA Update*, March 2014 p. 7. If memory backup is provided by AA batteries, then I have an additional suggestion nowadays… replace the alkaline AA cells by **lithium AA** cells, such as Energizer® Ultimate Lithium™. These products have a **20 year** shelf life with low leakage and will outlast alkaline cells by at least two times in most applications.

Energizer Ultimate® Lithium™ AA batteries are guaranteed not to leak and have a 20 year shelf life. Terminal voltage is compatible with 1.5V AA alkaline cells.

Lithium AA batteries have a different chemistry from coin cells with their 3 volt terminal voltage. The coin cell has a metallic lithium anode and manganese dioxide cathode, with a lithium salt dissolved in organic solvent as electrolyte.

The lithium AA (and AAA) cell has a lower voltage compatible with 1.5 volt AA batteries by using a cathode consisting of **iron disulfide** (FeS_2) on an aluminum substrate, with an anode of lithium metal. The

electrolyte is a combination of lithium salt with an organic solvent (e.g. 1,2-dimethoxyethane or 1,3-dioxolane), while the electrodes are separated by a microporous polyolefin membrane, for example polyethylene. Construction is in the form of a spiral with the two long, thin electrodes and separator all rolled together to form a jellyroll shape.

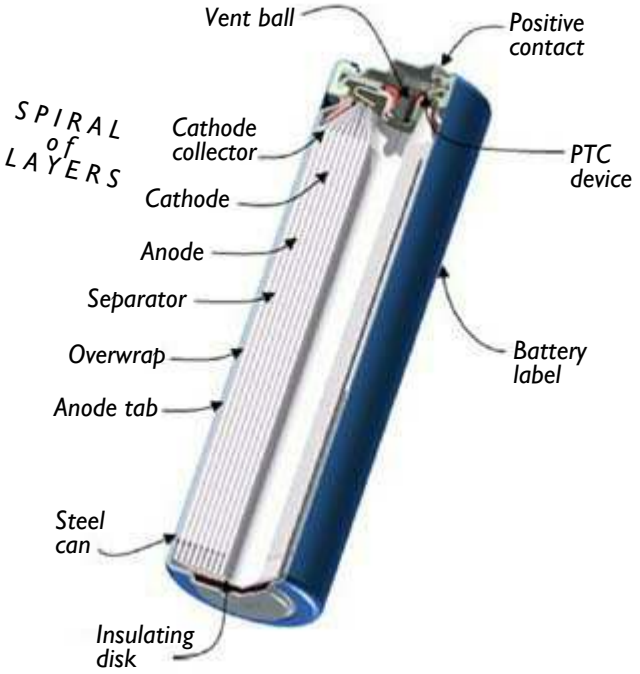
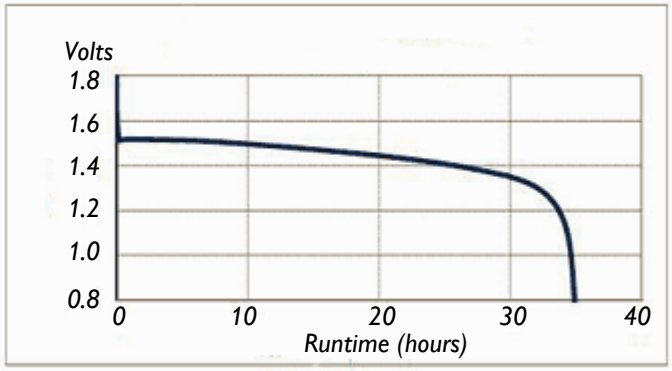


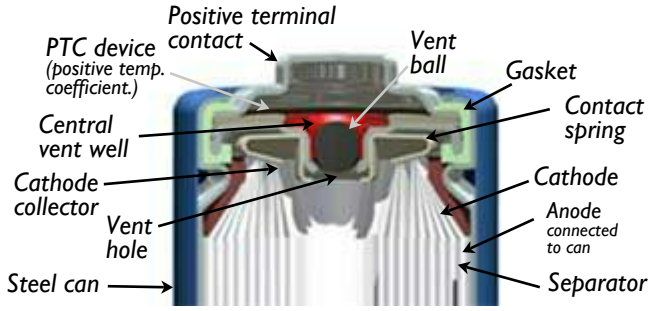
Diagram of an Energizer AA-size primary lithium battery based on $LiFeS_2$ chemistry. The anode is made of lithium metal, the cathode consists of iron disulfide on an aluminum foil substrate. Electrolyte is a solution of lithium salts in an organic solvent. [After Energizer Brands.]

The output voltage of lithium AA cells is largely compatible with the 1.5V of an alkaline AA cell. A fresh lithium AA cell has a terminal voltage of 1.8V, falling to 1.4 – 1.7V under load.



Discharge curve for an AA-size lithium iron disulfide cell, discharged at 100 mA rate to a 0.9 volt cutoff. [Energizer]

There is a positive-temperature-coefficient device in series with the positive terminal contact which activates at ~85°C to protect against excessive discharge current. There is also a vent mechanism which comes into effect above 150°C to release excessive pressure.



Close-up of the top part of an Energizer AA-size lithium battery showing safety features — PTC device and vent ball.

One downside of lithium AA batteries is the *cost*, which can be roughly twice the cost of alkaline batteries when bought in bulk. The price difference is even greater for small quantities.

I have successfully replaced the two AA "memory" batteries in the Sony ICF-2010 LW/AM/FM short wave receiver with two lithium cells. These two AA cells maintain the clock and preset memories, while three D-cells power the main radio.

Sony ICF-2010 LW/MW/SW/FM receiver (top) has been fitted with two lithium AA cells in the battery compartment to maintain clock and memory contents.

I have also used lithium AA cells in the outdoor component of a wireless weather station, which transmits temperature, humidity and sometimes wind speed/direction to an indoor display unit. In addition to their long life, the lithium AA cells have superior low temperature performance (down to -40°C) when compared with alkaline cells.

Weather station outdoor TX unit is powered by two lithium AA cells.

Although they are capable of continuous high current output up to 2.0A, I would not recommend lithium AA cells for frequently-used 'high power' devices such as cameras, transceivers and flash-

lights. Rechargeable nickel-metal hydride (NiMH) AA batteries are likely to be a more economical choice, paying back their initial cost after just a few charge cycles. Modern NiMH batteries such as Panasonic Eneloops™ have a much lower self-discharge rate than their predecessors thanks to an improved metal hydride alloy lattice. Eneloops can retain 70% of their capacity after 5 years in storage.

Some devices with AA–size batteries that are only used *very occasionally* may benefit from lithium-AAs rather than alkaline-types because of their long shelf life when there is no current drain. For example, a flashlight kept in the car for emergencies or an ARES transceiver with an old-style battery pack that takes four AA-cells could both be good candidates for AA-size lithium batteries.

One word of warning — these batteries contain metallic lithium and organic solvents, so they are more hazardous than a normal alkaline cell. Energizer Brands makes the following safety recommendations:

- Avoid potting or encapsulation as this obstructs the pressure relief vent. The vent is required to prevent excessive heat or pressure buildup if the battery is exposed to abusive conditions.
- Avoid charging as lithium iron disulfide batteries are not designed to be recharged.
- Use of pressure contact for batteries is recommended in the device compartment. If welded connections are needed, they should be made to the nickel-plated positive cap and the nickel-plated bottom using a capacitor discharge welder. Solder connections should be avoided because of the intense heat that needs to be applied to the battery.
- Battery labels insulate the battery to reduce the incidence of a potential direct short circuit or inadvertent charging. Battery compartment contacts and welded tab connections must not have sharp edges/burrs that could cut through the battery label especially adjacent to the positive terminal.
- Do not open battery, dispose of in fire, heat above 100°C (212°F), expose contents to water, recharge, install backwards, mix with used or other battery types. These conditions may cause personal injury.

For more information on battery chemistry see "Time to change that battery!", *PCARA Update*, August 2002, p 4.

- NM9J

Two Day Tech Class

The Dutchess County Department of Emergency Response with Mount Beacon Amateur Radio Club is offering a free **Two-Day Amateur Radio Licensing Class** to be held on Saturday and Sunday, October 5 - 6, 2019, 8:00 a.m. to 5:00 p.m., with FCC License Exam Session starting Sunday at 1:00 p.m.

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!

Location: Dutchess County Office of Emergency Management, 392 Creek Road (near Dutchess Community College), Poughkeepsie, NY 12601.

Class is open to all without age limit and is for the Technician Class License.

Pre-Registration is required!

The text is "ARRL Ham Radio License Manual 4th Edition" (ISBN 9781625950871), please obtain before the first class – available from Barnes & Noble or Amazon.

For pre-registration and other details call: William Baker (KC2LIX'at'arrl.net), 845-235-2048 or visit the ARRL Class Web Page.

FCC License Exams on Sunday at 1:00 p.m. are open to all, pre-registration is required. Contact Andrew Schmidt, W2BOS'at'arrl.net , 845-464-2676.

Peekskill / Cortlandt Amateur Radio Association

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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 the first Sunday of each month* at 3:00 p.m. in Dining Room B of NewYork-Presbyterian/Hudson Valley Hospital, Rt. 202, Cortlandt Manor, NY 10567. Drive round behind the main hospital building and enter from the rear (look for the oxygen tanks). Talk-in is available on the 146.67 repeater. *Apart from holidays and July/August break.

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

Sun Sep 8: PCARA meeting, NewYork-Presbyterian /Hudson Valley Hospital, 3:00 p.m.
Sat Sep 21: PCARA Breakfast, Turco's, Yorktown Hts. 9:00 a.m.
Sat Sep 21: PCARA V.E. Test Session, John C. Hart Memorial Library, Shrub Oak. 11:00 a.m.
Sat Sep 28: PCARA Fall Foxhunt, 2:30 for 3:00 p.m. start, Beach Shopping Center, Peekskill.

Hamfests

Sun Oct 6: Hall of Science ARC Hamfest, Queens NY , 9:00 a.m.
Sat Oct 12: Bergen ARA Fall Hamfest, Westwood Regional HS, 701 Ridgewood Rd., Township of Washington, NJ. 8:00 a.m.

VE Test Sessions

Sept 8: Yonkers ARC, Yonkers OEM, 789 Saw Mill River Rd, Yonkers NY. 12 noon. Pre-reg. Paul AC2T, (914) 237-5589.
Sept 12: WECA, Westchester Co Fire Trg Center, 4 Dana Rd., Valhalla, NY. 7:00 p.m. Contact S. Rothman, (914) 949-1463.
Sept 16: Columbia Univ ARC, 531 Studebaker Bldg, 622 W 132nd St, New York. 6:30 p.m., Alan Crosswell (212) 854-3754.
Sept 20: Orange County ARC, Munger Cottage, 183 Main Street, Cornwall NY. 6:00 p.m. Contact Joseph J. DeLorenzo (845) 534-3146.
Sept 21: PCARA, John C. Hart Memorial Library, 1130 E Main St., Shrub Oak, NY. 11:00 a.m. Contact Mike W2IG, (914) 488-9196.
Sept 28: PEARL, Mahopac Public Library, 668 Route 6, Meeting Rm 3rd Floor, Mahopac NY. 10:00 a.m. Contact Mike W2AG (845) 225-4650.

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