



PCARA Update



Volume 23, Issue 7 Peekskill/Cortlandt Amateur Radio Association Inc. July 2022

Fresh fields

We started June off with a **ZOOM presentation** by Masa JR1AQN on his adventures at the 2022 Dayton Amateur Radio Association Hamvention® in Xenia, OH on Wednesday June 8, 2022. There were ten members in attendance and a report with pictures can be found in this month's edition of the *PCARA Update*. Thank you for sharing your experience with us Masa!

Another well attended **PCARA Breakfast** was held on Saturday June 11, 2022, at 9:00 a.m. at the Downing Park Pavilion in Yorktown Heights, NY.



Well-attended PCARA Breakfast on Saturday June 11.

There were twelve members present including Mike N2HTT who brought along a Xiegu X6100 HF Transceiver with a custom 3D-printed carrying frame of his own design and manufacture. The Xiegu X6100 is quite a nice and neat compact SDR HF/50 MHz full featured multimode transceiver. Please see the report on the Xiegu's custom frame in this month's *Update*!

Now on to the *pièce de résistance* for June 2022. PCARA participated in the **2022 ARRL Field Day** activities on the weekend of June 25-26, 2022, from George Washington Elementary School at 3634 Lexington Avenue in Mohegan Lake, NY. This was the first year at the site because our usual location of Water Panas High School had major ongoing renovations to the field west of the school and was hosting graduation ceremonies the same weekend. Lakeland Central School District graciously allowed us use of George Washington Elementary School in its stead.



PCARA's Field Day 2022 at George Washington Elementary School featured beam antennas and a 30 ft canopy.

There were plenty of trees for our HF dipole antennas (G5RV and 40m wire beam) and abundant space for our HF (10m / 15m / 20m) and VHF (6m) beams. Other firsts for this year were a huge 30-foot tent/canopy courtesy of David KD2EVI, and a portable restroom — both of which vastly improved the quality of the experience. We had 38 people attend over the span of the two days, 24 licensed amateurs and 14 visitors. Setup and teardown went relatively well since we had so many members to help. On the morning of Sunday June 26, a **PCARA VE Test Session** was held that resulted in one new Technician! A **VERY BIG THANK YOU** to our members who worked together as a team to make it all happen! **PCARAMAZING!** Please see the full report on 2022 ARRL Field Day in this month's *PCARA Update*. Continued on page 2 ⇨

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Just a reminder that there will be no formal PCARA Membership Meetings for this July and August. Don't despair, the PCARA Breakfasts will continue! The next **PCARA Breakfast** is Saturday July 9, 2022 at 9:00 a.m. at the Downing Park Pavilion in Yorktown Heights, NY. I look forward to seeing each of you there.

- 73 de Greg, KB2CQE

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Net night

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

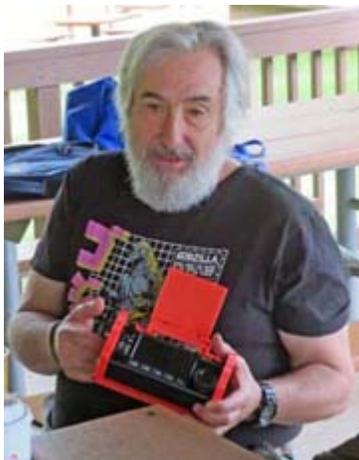
Join the roundtable to find out what members have been doing or join the Old Goats with net control Karl N2KZ for news and neighborly information.

3D for Breakfast

PCARA Update for March 2022 p8 described how Lew KD2IBT brought his IC-705 transceiver to breakfast at Uncle Giuseppe's, along with a 3D-printed carry frame supplied by "HamGear 3D".

HamGear 3D is run by our very own Mike N2HTT.

For the June 11 PCARA breakfast at Downing Park, Mike N2HTT brought along the latest addition to his range of products. The "X-6100 Protective Frame" is an add-on for Xiegu's Chinese-manufactured X6100 trans-



Mike N2HTT brought his Xiegu X6100 with protective frame to PCARA Breakfast.

ceiver.

The Xiegu X6100, available from dealers such as RadioOddity for \$649, is a multimode portable SDR transceiver covering 160 to 6 meters with up to 10 watts output. The tiny transceiver has a 4" color screen, built-in ATU, built-in 3Ah lithium battery and weighs only 2 lb. It has an internal soundcard adapter, accessible via USB port for digital modes — and an I/Q signal output for use with third party SDR software.



Xiegu X6100 self-contained 10 watt HF and 6m SDR transceiver with color display, automatic antenna tuner and high capacity battery.

The HamGear 3D protective frame is shipped as an easy-to-assemble kit, requiring only hand tools for assembly. The frame provides a convenient way to transport the rig while protecting front panel and controls. A permanently mounted flip-up screen-cover functions as a sunshade as well as providing screen protection. The cover can be personalized with a 3D-printed call sign. When the transceiver is set up for operation, the frame allows use of the built-in tilt legs of the X6100.



HamGear 3D protective frame for X6100.

Details of these 3D printed frames are available from <https://hamgear3d.com/> and from the Etsy site at <https://www.etsy.com/shop/HamGear3d>.

Another item that Mike brought to breakfast was a small carry bag from G4Free with separate pockets suitable for a portable HF transceiver, multiband wire antenna, external lithium-ion battery and battery charger. The G4Free Tactical EDC Sling Bag Pack weighs 1.7lb and is available from Amazon at: <https://www.amazon.com/dp/B07JW95BW3>.



The G4Free Tactical EDC Sling Bag is 10½" tall.

Adventures in DXing

- N2KZ

20 Meter Magic

Amateur radio is a highly personal hobby. Each and every contact and conversation is a new adventure. You never know when true magic will appear... but when it does... fascination abounds. The most memorable stories come from the unexpected. Let me share with you one of my very best!

Possibly the most satisfying antenna I have ever launched was a 20 meter dipole above my front lawn. I managed to find a good home for it. Scaling between a convenient and familiar chimney I knew too well and an accompanying 'Y' in the branches of a hospitable tree about 35 feet away, all of its energy beamed exactly east-west from a height just over 20 feet. Wait a minute... That's just over a quarter wavelength. Brilliant. Perfect. Efficient!

It proved itself so well. I didn't need more than 250 milliwatts — just a quarter of one watt — to find fun. My Small Wonder Labs 'Rock-Mite' QRPp milliwatt transceiver loved that antenna. Its big brother, a SW+20 transceiver, with an overpowering one watt, seemed invincible. If I could hear it, I could work it — at least most of the time.

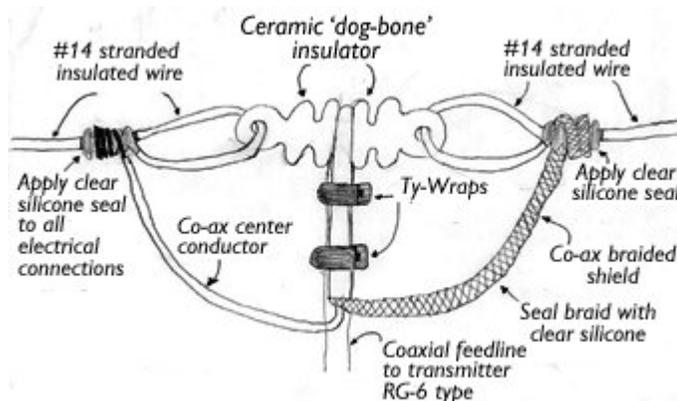
The End?

Consider how I must have felt when, 22 years later, in its old age, this same antenna flashed over, mid-QSO, and started to literally short out and take me off the air. Here I am, enjoying a nice contact with someone in Bay Roberts, Newfoundland when death occurred. Larry, VO1FOG, had every right to wonder what was going on!

I walked outside to perform a post mortem. When I dropped the antenna down for inspection, I saw my miracle had decayed into a massive goeey silicone-seal mess. What was once clear cured insulating and weatherproofing elastomer was now a black charred conducting putty acting as a dead short. An amateur radio tragedy right before your eyes!

This was during the last days of October 2021 and weather was getting sour and cold. Procrastination took hold and 20 meter operating went on hold until spring. After long consideration and thought, I found my moment of catharsis. Untying one knot brought my worn-out friend back down to earth. The antenna was down. It was time for my friend to retire.

I had already built its successor. Using a fine piece of discarded Belden 1694A in violet, this RG-6 type cable was perfect for the chore: A 75 ohm coaxial cable intended to carry HD-SDI broadband video signals with a loss of less than 1 dB per 100 feet at 25 MHz. The tightly knit stranded wire braid made it durable and



Center insulator of Karl's new 20 meter dipole.

impervious. It provided nearly perfect conveyance of every milliwatt I would transmit. The chosen antenna element wire was a lightweight 14 gauge stranded designed for flexible household construction purposes. Three dog bone type ceramic insulators completed the design.



20 meter dipole fed with RG-6 type 75 Ω cable. [N2KZ pic.]

I launched it into the sky for a trial or two and trimmed it for resonance centered at 14.060 MHz — a QRP CW watering hole. The result was a nice match from the bottom of 20 meters way up into the USB voice frequencies should I ever need its coverage. Could I wait to try it out? Not for very long!

My Reverse Beacon Network results were impressive. A quick afternoon checkout proved my signals were going around the world! I was heard in Germany,

dx	freq	cg/dx	snr	speed	time
DL1HW5	14060.0	CW CQ	7 dB	15 wpm	2151z 29 Apr
OK1HRA	14059.9	CW CQ	7 dB	15 wpm	2151z 29 Apr
VE7CC	14060.0	CW CQ	2 dB	14 wpm	2151z 29 Apr
F8DGY	14060.0	CW CQ	17 dB	15 wpm	2150z 29 Apr
KP2RUM	14060.0	CW CQ	24 dB	15 wpm	2150z 29 Apr
AC0C-2	14060.0	CW CQ	24 dB	15 wpm	2150z 29 Apr
S5SA	14060.0	CW CQ	12 dB	15 wpm	2150z 29 Apr
K9TM-4	14060.0	CW CQ	19 dB	15 wpm	2150z 29 Apr
EA5WU	14060.0	CW CQ	5 dB	15 wpm	2150z 29 Apr
K07SS	14060.0	CW CQ	17 dB	15 wpm	2150z 29 Apr
AC0C-1	14060.0	CW CQ	28 dB	15 wpm	2150z 29 Apr
VE6JY	14060.0	CW CQ	26 dB	15 wpm	2150z 29 Apr

Czech Republic, British Columbia, south of Paris, the Virgin Islands, Slovenia, Spain, Kansas, Arizona and Alberta. *Dipole II - the sequel* was working FB. Not bad! Not bad! Let's give it a try!

Behold! A Miracle!

A few nights later, divine forces must have broken my slumber for a reason. Without any warning, I found myself wide awake at 2 a.m. Where else would I go but a few steps into my office and onto the air? I was pleased but not really surprised that I heard voices from New Zealand and Australia at the top end of 20 meters. Relatively strong they were so I decided to tune down to the digital and CW part of the band.

The silence was disappointing. I heard not one signal to chase. The clock was now past 0300. I listened and listened some more eyeing my spectrum display for additional clues. After several minutes of very careful listening with almost pleading desire, I heard a wisp of a signal calling CQ. This was not a usual North American callsign. One character at a time, my seasoned ears optimized for weak CW slowly discovered its identity! V K 4 B Z. It was an Aussie! Could he hear me?

I sent an insistent and prayerful reply filled with purpose and intent. My fist crafted each letter slowly and carefully. V K 4 B Z D E N 2 K Z N 2 K Z N 2 K Z. Over and over again my call sign went out at a much lower speed giving it as much distinction and clarity as possible. Oh! There was the longest pause and then a reply! QRZ QRZ QRZ AGN AGN DE VK4BZ. Did he *really* hear me?

This volley went back and forth a couple of times. Comprehension of my call sign was not going to be easy. Finally, my pleas and prayers were heard! The transcontinental propagation on 20 meters lifted and both our signals became true and readable. It was indeed John Saunders, VK4BZ, near Brisbane, Australia giving me an RST 419 report. I was thrilled and amazed! My meek signal traveled 9646 miles — 15,524 kilometers — to grid square QC62lq in the state of Queensland about 15 miles — 24 kilometers north of Brisbane. Wish granted! Miracles come true!



John, VK4BZ.

After a proper, albeit basic, on-air handshake, (and a lot of persistence and patience,) John and I both breathed a sigh of relief. Here I was with my spartan dipole at just 100 watts at 540 feet above sea level beaming east-west using only my Ameco straight key to make the journey. John was using 100 watts with a multi-band doublet hidden in his garden. He lives in a community that frowns upon unsightly antennas. The

meek had become masters! It was approaching dusk at John's QTH — just after 5 p.m. in Queensland. I bet he was smiling at dinner!

Down Under and Within Reach

This was only the second time I had reached Australia. My very first QSO was with ace contester, Ian Williams, VK3MO, in Kyneton, Victoria, Australia near Melbourne on May 29, 2020 on 40 meter CW. Under the burden of relentless requests and expensive postage and printing costs, Ian no longer sends out QSL cards. I resolved that my achievement would have to reside within!

Maybe Australia could be added to my countries list yet! I immediately e-mailed John a thank you and QSL request hoping for the best. Thankfully, John shared my enthusiasm:

Dear Karl:

Once again, it was really great to have the QSO with you, despite under such difficult conditions.

I really do love CW and have been doing it since I was a teenager. It's one of those things which doesn't leave you, though the speed does drop if I haven't been on the air with it for a while.

The QSO we were able to have proves my point to many other operators — when all else fails, CW will get through... eventually! Mind you with digital transmission that will get through eventually too, but I want to make the QSO not let my computer do it for me while I'm out of the room making a coffee.

My QSL card ain't much but the QSO with you prompted me to make up a new one and print them. So, on the fly, they're what I put together. I've thrown in one of my SOTA cards which are a much nicer design!

73 Karl and look forward to catching you on the air when the band is more favourable.

(signed) John Saunders, VK4BZ, 22 May 2022



Oh! Happy Day!

Yes, Both John and I enjoy CW on the lower part of HF bands and operating on battery power in the field. Quite an Elmer too, John's YouTube videos have accumulated over 100,000 views! Here's the link: <https://www.youtube.com/channel/UCGvyooBnLzY4zjFsKAEG-fg/videos>.

"I have been getting involved with SOTA - Summits On The Air and with park activations. I love to get out and about in the fresh air and if I combine this with radio, well,

the stage is set for a perfect day. I use the KX3 with an Alex loop antenna, a multi-band dipole on a squid pole...or when that fails, I use the squid pole as a vertical." See alexloop.com for fascinating details!

John enjoys caravanning with his Kedron Compact 16 foot trailer.

"My wife and I are doing a little "grey nomading" and have a caravan, a Kedron Compact 16 footer. In the past I took my Elecraft KX3 and put a doublet high up in the trees. It worked a treat and surprised me just what 10 watts can do. Getting the antenna up is now much easier — I use a shanghai and some fishing line! I'll have to do a video on that one... Now I use a squid pole vertical off the



Portable magnetic loop antenna for 40 to 10 meters developed by Alex, PY1AHD.



Kedron Compact caravan (trailer).

back of the caravan (and yes — there is a video on that one!) and am surprised how well that works too, but with the van I have access to heaps of DC power, so can now use the Icom 7300 and run 100 watts. That's a great little rig too - I love the band scope during contesting."

Icom should be John's middle name! He owns several Icom HF transceivers: IC-736, IC-7610, IC-7100 and an IC-7300. For VHF and UHF you'll find him on an IC-910. "Yeah, I like my Icom gear! The antennas vary with a multi-band doublet on HF and an assortment of VHF /UHF antennas depending on whether it is 6m season or if I'm chasing sats. After years of being bare-foot (or QRP) I have finally decided to get more power and go QRO. The Amp is an Ameritron ALS 600 but I recently also acquired an SPE 1K-FA."



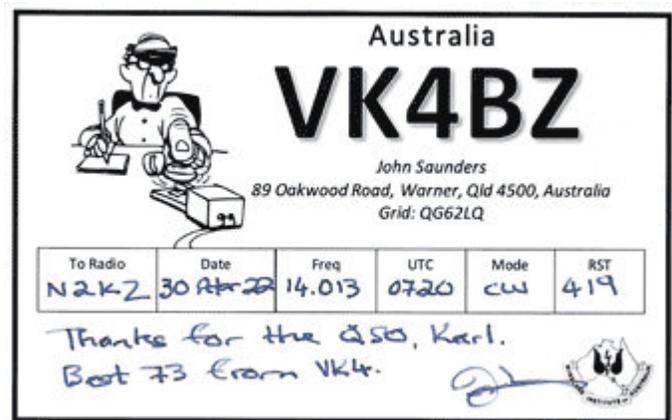
SPE Expert 1K-FA 1kW linear amplifier.

First licensed in 1980, John is an enthusiastic amateur with a fascinating history: 17 years' experience as a secondary school teacher, a former Assembly of God pastor and an Education Officer for the Aus-

tralian Defence Department. John is currently a minister in the Uniting Church of Australia and works as an Army Chaplain for the Department of Defence. "I had a stint overseas in Afghanistan a couple of years ago looking after my boys and girls in uniform... and loved it so much, I went back in 2019. In 2020-21 I went to Fiji with cyclone relief and met some really wonderful people in Vanua Levu. Been in the Army for 24 years now; where did the time go?"

At Last!

Just a few weeks later, I received an e-mail from John alerting me that his QSL had been posted and was on its way! Imagine the thrill of — at long last — receiving my first Australian amateur radio QSL. My advice to all: Adventure is out there! It's waiting for you! Get on the air and discover your own miracles!



"I'll catch up with you pounding the brass on the low end of the band or in the long silences on 50 MHz or now from the top of a good Aussie mountain or in some remote outback township. Ham radio doesn't always go over the best at home with antennas and stuff around, but I tell my wife it could be worse, I could be into automotive restoration and she could have the yard full of car bodies and machinery..."

Many thanks, John! Our QSO was my finest moment of my amateur career! I appreciate your friendship and kindness!

Have a wonderful summer! 73 ES DIT DIT DE N2KZ "The Old Goat"



Zoom to Dayton

On Wednesday evening June 8, Masa JR1AQN gave a slide-show presentation to PCARA members describing his recent visit to the Dayton Amateur Radio Association Hamvention®, which took place over May 20-22 at the Greene County Fairgrounds in Xenia, Ohio.



Masa JR1AQN's Zoom presentation on June 8.

With ten members watching, Masa explained how the 2022 Hamvention followed a gap of three years since the previous 2019 event. Three days was insufficient time to see everything — though there was a free app available for smartphones and tablets to aid navigation, showing location of vendors and who was visiting. Official attendance at Hamvention 2022 was 31,367, slightly down on 2019 according to Chairman Rick Allnutt, WS8G, who still considered it not bad for a pandemic recovery year.



Dayton Hamvention attendance in 2022 was only slightly down on 2019. [JR1AQN pic.]

Masa attended several forums including “Parks on the Air” plus “COVID 19 and the Ham” — with Dr Peter Marks AB3XC, director of the Center for Biologics Evaluation and Research (CBER) at the Food and Drug Administration. Dr. Marks was involved in FDA’s “Operation Warp Speed” to combat COVID-19, leading the team that reviewed and approved vaccines and intravenous therapeutics.



Dr. Peter Marks AB3XC.

With the exception of Kenwood, all AB3XC.

the major manufacturers of amateur radio equipment were represented at DARA’s Hamvention. While new equipment was somewhat limited, Icom was showing a prototype of its “Icom SHF Project”. The project aims to develop a transceiver for the 2.4 GHz and 5.6 GHz amateur bands. The RF module, mounted at the top of a mast or tower would have a power-over-Ethernet LAN connection to a separate SHF-P1 controller, based on the design of the IC-705.



Icom SHF-P1 controller (left) will be linked by Ethernet cable to a masthead RF module, with separate connections for 2.4 GHz, 5.6 GHz and GPS antennas.

Icom was also showing its upcoming IC-PW2 1 kW linear amplifier for HF and 50 MHz.



Icom IC-PW2 amplifier for 160 - 6 meters has a separate touch-screen controller (left). The amplifier can produce 500W output on 120V AC or 1 kW output on 240V AC.

Masa went on to describe the booths of many other vendors, with most of the indoor spaces full. The weather was pleasant during the day so the outdoor flea market and EmComm vehicle displays stayed dry. Unfortunately, Masa’s return flight from Dayton to La Guardia was canceled, so he had an 11 hour road journey back to Briarcliff Manor with Bouvet Island DX-peditioner Adrian KO8SCA.

Masa — thanks for the great tour of Hamvention 2022.

- NM9J

13 Colonies Special Event - K2WPM

July 1 - 8, 2022

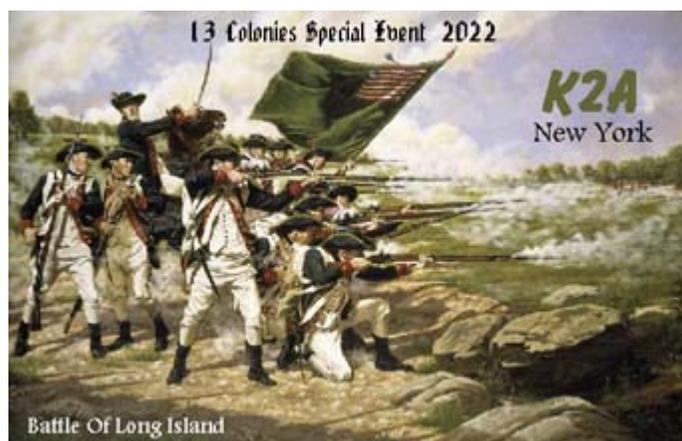
One of the most popular events in ham radio is the 13 Colonies Special Event, which is scheduled to be conducted from July 1 at 1300 UTC (9:00 a.m. EDT) to July 8 at 0400 UTC (midnight July 7, local time) — seven fun-filled days of ham radio for those who activate the 13 Colonies, and for the thousands of hunters who seek to contact as many “colonies” as possible. Last year, the sponsor reported a total of more than 253,000 QSOs made during the event.

Actually, there will be 16 stations activating, K2A through K2M representing the 13 original colonies, plus WM3PEN (Philadelphia), GB13COL (United Kingdom) and TM13COL (France). The states’ respective call signs are:

K2A New York	K2B Virginia
K2C Rhode Island	K2D Connecticut
K2E Delaware	K2F Maryland
K2G Georgia	K2H Massachusetts
K2I New Jersey	K2J North Carolina
K2K New Hampshire	K2L South Carolina
K2M Pennsylvania	

Like so many ham contests and events, this one is modeled on the “fox and hounds” concept. The activators are the foxes and the hunters are the hounds. But in this case, the foxes want to be caught... by as many hounds as possible! It’s a great way for the non-contester to work some pile-ups, and go for that “clean sweep” — making contacts with all the colonies.

Each year, the event has a theme; this year, it’s “Land Battles of the Revolution.” Each colony will feature a QSL card depicting a land battle that occurred within their colony. Many hams enjoy collecting these cards. Here’s the New York card being used this year.



QSL card issued for contacts with K2A, the Special Event station for New York State.

As noted, if one gets all the colonies, you may request a “clean sweep” endorsed certificate from the event’s sponsor, Ken Villone, KU2US, with a \$5.00 donation to cover printing and postage. Ken’s QRZ page has more details. Or go to the 13 Colonies web page at <http://www.13colonies.us>. For a truly beautiful wall project, get a “clean sweep” certificate and surround it with QSL cards from all 16 of the activating stations.



Sample certificate for the 2022 13 Colonies Special Event.

The event has become somewhat of a contest among the states; last year was my first year as coordinator for K2B – Virginia. The prior year, K2B had come in a distant last-place among the then-15 colonies and bonus stations, with about 5,000 contacts. Our state’s honor, on the line! So I assembled 25 of the best operators all around the state, and set up schedules to assure we had a presence on all the bands and modes, most of that week. The result was over 19,000 contacts and very near the first place station, which had 21,000. Those creeps from North Carolina. Just kidding, K2J!

Don’t worry, the exchange is pretty minimal. Signal report and your QTH is sufficient. When I activate, however, I like to add little tidbits of Virginia’s place in the early days of our country. It’s casual, and lots of fun. Hope to catch you on the air!

- 73 de David, K2WPM

Mercury IIS – Erratum

David K2WPM reports that his description of the Mercury IIS linear amplifier in the June 2022 edition of the *PCARA Update* contained a typographic error.

On page 10 David wrote: “The amplifier will tolerate an SWR up to about 1.2:1” The sentence should have read: “The amplifier will tolerate an SWR up to about 2.3 to 1”.

More about Four

RSGB review

A recent article in the Radio Society of Great Britain's journal *RadCom* reminded me of the benefits of the U.K.

4 meter band.

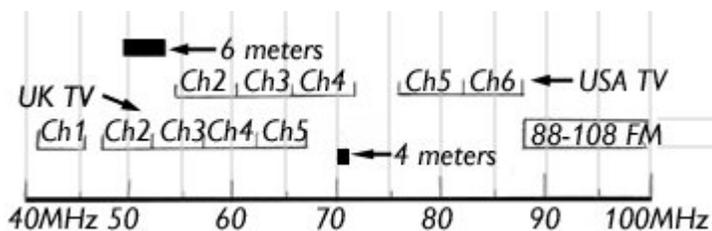
The May 2022 *RadCom* includes a review of the "Anytone AT-779 70MHz" FM mobile transceiver by Tim, GW4VXE.



I've written about the U.K. 4 meter band in previous issues of *PCARA Update* — see "Anyone for 4 metres?", September 2013 pp 5-9 and "Blueberry Pye", February 2017 pp 8-11.

Four lore

After World War II the U.K. television broadcasting spectrum was extended, filling the frequency range 41.5 – 66.75 MHz, channels 1 – 5. As a result radio amateurs lost access to their old 5 meter band, around 56 – 60 MHz. The USA's 6 meter band (50 – 54 MHz) was another no-go area as it now overlapped UK TV channel 2. The Radio Society of Great Britain argued that radio amateurs had lost a great deal when they gave up their lowest VHF band to television and would like something in return. As a result, in 1956 the 4 meter band was allocated to U.K. radio amateurs by the Post Office, covering 70.2 – 70.4 MHz. The allocation was subsequently widened to 70.025 – 70.7 MHz while I was in the U.K. and now stands at 70.025 – 70.5 MHz.



Alignment of the 4 meter and 6 meter amateur bands with TV channels and FM broadcasting in the U.K. and U.S.A.

In the early days, operation on 4 meters was mostly crystal-controlled using amplitude modulation. A popular frequency was 70.260 MHz, obtained from a fixed oscillator stage using a war-surplus FT-243 crystal on 7806 kHz and multiplying the output by 9 with two tripler stages. Equipment of the mid-1960s might be home-brew, usually with a combination of separate transmitter and receiver/converter. Also popular was

ex-government equipment such as the B44 or R220 and ex-commercial mobile transceivers such as the Pye Reporter and Ranger. They were all based on vacuum tube technology, until the private mobile radio Pye Cambridge came along with its transistorized receiver and high voltage inverter.

Some PMR equipment re-purposed for 4 meters operates on FM rather than AM. The 4 meter FM calling frequency is 70.450 MHz. Harold G3LWK and I had a pair of Ultra Electronics portable FM transceivers that worked well with a quarter wave whip.

In the late 1960s and early 1970s, single sideband operation became popular for contests and DXing. Radio amateurs with an existing HF transceiver could add a home-built transverter, which would mix an SSB signal from the 28 MHz band with a 42 MHz oscillator to produce an upper sideband transmission in the 70 MHz band. On receive, the process was reversed, mixing the incoming 70 MHz signals with 42 MHz to produce a low-level output in the 10 meter band. Horizontal polarization was generally used for long-distance operation, with vertical polarization for mobile and portable stations.

Since the early days when 4 meters was a purely U.K. band, many other countries in Europe and Africa have added allocations at 70 MHz. There is a list on the Wikipedia page, https://en.wikipedia.org/wiki/4-meter_band.

Tiny transceiver

The review of the Anytone AT-779 70 MHz by Tim Kirby GW4VXE appeared in *RadCom* for May 2022, pp 62-63. The transceiver is a tiny unit, only 1¼" w × 4" d × 1" high. Features include 199 memory channels, CTCSS or DCS, PC-programmable with scan functions.



The Anytone AT-779 70 MHz mobile FM transceiver.

Specifications from the brochure are as follows:

Frequency Range:	66 – 88 MHz
Number of Channels:	199
Power Output:	15W / 10W / 5W
Sensitivity (12dBm SINDA)	≤0.25µV (wide) ≤0.35µV (narrow)
Channel Spacing:	25 kHz (wide), 12.5 kHz (narrow)
Modulation:	16K0F3E (wide) 11K0F3E (narrow)
Phase-locked Step:	2.5, 5, 6.25, 10, 12.5, 20, 25, 30, 50 kHz

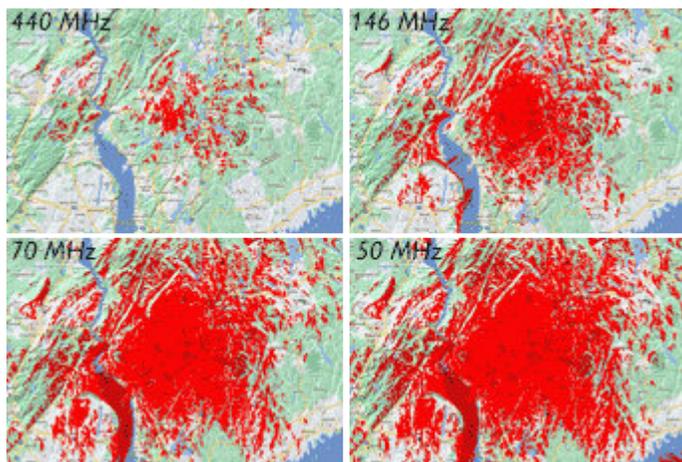
Like other Anytone equipment, this appears to be an FM transceiver designed for the Private Mobile Radio service *outside* the Americas, which also happens to cover a non-American amateur band.

An interesting part of GW4VXE's review is the section describing his on-the-air experiences. Tim operated mobile with a quarter-wave vertical mounted on the vehicle and was surprised by the excellent coverage for mobile to mobile (7 miles) and for fixed station to mobile over undulating terrain (20+ miles). Here is a brief quote:

"I found that 70 MHz FM does a remarkable job of covering areas that 144 or 430 MHz FM would struggle with, given a similar power level and antenna."

This experience echoes my own findings 40 years ago when I was operating as G3VNO/mobile on 4 meter AM simplex with a quarter wave Finglas antenna on my VW Beetle. Simplex coverage on 70 MHz was significantly better than on 2 meters and much better than on 440 MHz.

For a local version of this comparison, take a look at the predicted coverage on 440, 144, 70 and 50 MHz from BOCES-Yorktown as calculated by RadioMobile software (<http://www.ve2dbe.com/english1.html>).



Comparison of mobile coverage from BOCES-Tech Center Yorktown on 440, 146, 70 and 50 MHz as predicted by RadioMobile software.

Of course, convenience must also figure into these comparisons — gain antennas for mobiles are practical on 440 and 144 MHz, but ungainly to impossible on the lower frequency bands. A quarter wave whip for 70 MHz is around 41 inches long and around 56 inches for 50 MHz. Higher noise levels on the lower frequency bands will also affect coverage.

Low band for land

U.K. organizations that required wide area radio coverage over hilly terrain made good use of low VHF allocations in the 68-88 MHz band. One example was the Automobile Association, equivalent to the U.S.

AAA. The Automobile Association had its own staff of patrolmen riding vans or motorbike/sidecars that were dispatched to assist stranded motorists — provided they were members.

I became aware of the AA's mobile network when Harold G3LWK asked me to help one of their patrolmen who lived nearby. The AA's vehicles and remote offices were equipped with mobile transceivers such as the Pye Ranger and Pye Cambridge transmitting on 72 MHz AM. The request that came through was to set up a monitor receiver so the patrolman could continue listening out for calls directed to his own patrol vehicle while taking a work break at home.



Automobile Association's patrol vehicles were radio-equipped. .

Four meters in the USA

When the USA's digital television switchover took place, all main stations had to transition to digital by July 2009. Most stations operating with analog signals in the 54 – 82 MHz low band made the move to a digital channel on UHF. This triggered some hope in the amateur fraternity for an amateur allocation in the 70 MHz region.

Glen Zook K9STH submitted a petition to the FCC in 2010 to allocate a 70 MHz band for U.S. amateurs. See: <https://forums.qrz.com/index.php?threads/fcc-petition-for-4-meter-band.234707/> (Requires login). The FCC did not receive the request until May 2013, and then turned it down in September 2014 stating that there were three full-power TV stations, 110 low-power TV stations and translators, and six Class A TV stations still occupying U.S. channel 4 (66 - 72 MHz).

A check on the FCC's database reveals a similar situation today for TV channel 4, with a large number of low power stations and translators, plus several full-power digital TV stations on-air including KBEH Garden Grove CA, WNGH-TV Chatsworth GA, WHBF-TV Rock Island IL, WTLW Lima OH and WQED Pittsburgh PA. A full list is available at: <https://transition.fcc.gov/fcc-bin/tvq?state=&call=&arn=&city=&chan=04&cha2=04&serv=&type=0-&facid=&list=1&dist=&dlat2=&mflat2=&slat2=&dlon2=&mllon2=&slon2=-&size=9>

This is in contrast with Europe where practically all TV broadcasting in Band I has closed down because of problems with long range Sporadic-E interference and impulsive noise upsetting digital TV reception. In Europe, these low-VHF frequencies continue to be used for mobile radio and studio-to-transmitter links.

- NM9J

Field Day 2022

PCARA's entry in ARRL Field Day took place on June 25-26, 2022.



New location

Back in April, Joe WA2MCR had contacted Lakeland Central School District to check availability of our previous site at Walter Panas High School. The old, upper softball field was being converted into a parking lot alongside a new multipurpose field. Inaugural event for the recently completed field would be the school's graduation ceremony, scheduled for Saturday July 25 — so Walter Panas HS was unavailable.

As an alternative, Lakeland School District offered **George Washington Elementary School** in Mohegan Lake. After the May PCARA meeting, members paid a visit to the school to check suitability for Field Day. There is a large grassy field behind the school building, with trees around the edges and a fenced-off parking lot nearby.



Some additional differences from Walter Panas became apparent. Apart from the lack of lighting towers to act as antenna supports, there was no dugout, no 120 volt commercial power for lights and computers, no restroom and no outdoor tables and chairs for the VE. Test Session. Height above sea level is 467 feet compared with 560 feet for Walter Panas.

Joe submitted a request to the School District for the new location and obtained approval in early June. On the evening of Wednesday June 22, twelve PCARA members paid a second visit to the site to plan location of antennas, shelters and the mobile tower. David KD2EVI ordered a 'porta potty' for the weekend, and this would be located in the rear parking lot.

Preparations

In the weeks leading up to Field Day, Joe WA2MCR had been preparing antennas and other equipment. On Friday evening, June 24th, David KD2EVI, Mike N2EAB, Al K2DMV and NM9J loaded antennas, radios and other items into the rental van parked in Joe's driveway. One discovery was a slow leak in the van's rear tire, temporarily fixed with Al's portable inflator, powered by a lithium-ion battery.

The big day

At 9:00 a.m. on a bright, sunny Saturday morning, members began congregating behind George Washington Elementary School. Joe had arranged for the parking lot gate to be left open, where there was plenty of parking space available under shady trees.

Charles N2SO had brought along his CSV17, an updated pneumatic antenna launcher from Alan Biocca Engineering. It was augmented by a Ryobi cordless inflator, powered by a lithium-ion battery. This was more convenient than the previous arrangement which required a 120V powered compressor. Charles' aim with the launcher



Ryobi inflator.

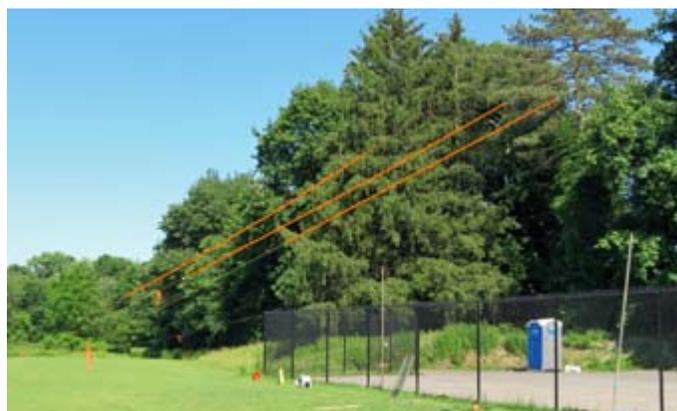


Charles N2SO launches a line over the trees near the parking lot.

was accurate and impressive, scoring first-time hits over the tallest trees alongside the parking lot. Meanwhile Mike N2EAB fired another line over a tall tree on the other side of the field.

Antennas aweigh

Once the ropes were pulled over trees, antenna erection could begin. The 40 meter wire beam designed by Jay NE2Q was laid out in the parking lot with a catenary rope suspending each of the three wire elements at one end. The driven element was fed with 450 ohm ladder line, while the lower ends of all three wires ran above the wire mesh fence down to suspension points staked in the grassy field. The result was a full size, sloping three-element Yagi beaming WSW.



3-element beam for 40 meters suspended from a catenary rope above the parking lot. (Wire elements emphasized.)

The G5RV wire antenna intended for 80 meter operation was stretched north-south across the main field between tall trees. One supporting rope became snagged on a tree branch so the height was not quite up to expectations. Adjustments were made later in the day.

The three element Yagi for 6 meters was raised along with its rotator on Mike W2IG's tripod mast without incident — unlike last year when the Yagi fell down and had to be repaired on-site.



Raising the 6 meter antenna on Mike W2IG's ex-military mast.

Tower time

Following its first outing with PCARA in 2021, Lou KD2ITZ towed the trailer with tilt-over tower to the site. The tower was set up



Raising of the three-element tri-band beam on the tilt-over tower.

near the rental van on a paved area adjacent to the rear parking lot. Joe's Hy-Gain TH3Jr tri-band beam was assembled on the ground then attached to the tower. When the tower sections had been rotated to a vertical position, alignment proved to be a problem, so

the tower and antenna were brought back down for further adjustments. On the third attempt to raise tower and beam, disaster struck. The boom clamp for the TH3Jr loosened and two elements came down, lightly grazing Al K2DMV (while leaving your Editor unscathed). The

tower raising team took a break to decide what to do, leaving one remaining element disconnected and alone in the air. By now, the 2:00 p.m.

start time had arrived so the twenty meter station began operation using the G5RV wire antenna.

Later in the afternoon, Rich WZ2P was inspired to suggest a simple repair for the TH3Jr.

Rich provided a short length of threaded pipe which was a snug fit inside the loose end of the boom, stiffening the aluminum tubing so it could withstand additional pressure as the boom clamp was tightened up.

The tri-band beam was re-assembled on the ground with the modified clamp, then attached once more to the rotating mast that passes through the nested tower sections. This time the tower was raised to vertical without further incident. The tower sections were not extended for safety reasons. Coaxial cable from the TH3Jr was attached to the station operating on 20 meters — with superior results compared to the G5RV.

SWR of the tri-band beam was satisfactory on 20 meters and 10 meters — but a match could not be found on 15 meters, possibly a result of the earlier fall.

Station shelter

The forecast for Field Day weekend was for fine weather, but with daytime temperatures near 90°F. The original plan was to place one station in the rental van, but this was abandoned in light of the forecast and a recent acquisition.

David KD2EVI had ordered a “10 ft × 30 ft Canopy Storage Shelter” which he set up in the field with assistance from Mike W2IG. The shelter, intended for outdoor dining parties and weddings, has a frame of powder-coated metal tubing, covered by a white polyethylene canopy. Six removable sidewalls with



One element was left up in the air after the boom of the tri-band beam fell apart.



Rich WZ2P inserted a length of threaded pipe (arrowed) into the boom at the point of separation.

transparent windows could be added to shield against wind and sun.



David KD2EVI and Mike W2IG set up the 30 ft canopy for the first time.

The canopy was light and airy, with plenty of space beneath, so a decision was made to house all three stations there. PCARA would once again be entering Field Day Class 2A, meaning a club entry with two HF stations operating simultaneously plus a free VHF station.

Three separate tables provided by Joe and Lou were set up under the shelter. One table housed the 40 meter station, with Joe's FT-1000MP transceiver connected to the 3-element wire beam through an MFJ-941E tuner and 4:1 high power balun from Lou. At the other end of the shelter, the second HF station had Joe's Icom IC-7410 transceiver with choice of the G5RV antenna or the TH3Jr beam. In between was a third table housing the 6 meter station, with Mike W2IG's Yaesu FT-857 transceiver connected to the 3-element Yagi, with remote control of the rotator.

Additional equipment

Each of the three stations had a logging computer using the latest version 6.6.3 of N3FJP's "ARRL Field Day Contest Log". Joe's notebook had been set up for communication with the IC-7410, but a computer glitch prevented the function keys from sending canned CW messages. All three computers were connected by wired/wireless network so all contacts were entered into a single database file with details viewable at any of the three stations.

Past Field Days were powered by Bob, N2CBH's Honda generator, but Bob was unavailable this year. David KD2EVI brought his Homelite 1700W inverter generator and this provided 120 volt AC power throughout the weekend. The fuel tank seemed to need rather frequent refills until we discovered that it was not be-



Homelite® generator.

ing fully filled with gasoline. Use of the generator for powering station equipment earned bonus points for emergency power.

Bandpass filters by W3NQN and Dunestar were in use to keep transmitter noise and strong signals from causing interference between the closely-spaced stations. Another item of equipment powered by lithium-ion battery was a Ryobi cordless fan, supplied by Mike W2IG to keep the 6 meter station cool.

Heated start

All three stations came on air near the 2:00 p.m. EDT start time. After working hard under the hot sun, it was a relief to take refuge in the shade of the 30 foot white shelter, with a gentle breeze blowing between the three operating positions. The temperature continued to rise during the afternoon, reaching 88°F. Whether it was caused by hot, exhausted operators or poor HF conditions on Saturday afternoon, the contact rate got off to a slow start. The 6 meter station was suffering from especially low activity, with only local stations audible. This might have been a result of lower site height compared with Walter Panas High School as well as a lack of extended propagation.

As the afternoon progressed, sunlight began to enter the canopy from the west side, warming up equipment and operators. Tables were moved and David began hanging sidewalls with hook and loop tape from the canopy frame to reduce solar radiation. Plastic windows in the sidewalls added a touch of luxury, allowing operators to glance outside and see immediately where the beam was pointing.



Pleasant operating conditions underneath the canopy on Saturday afternoon.

Power problems

Late on Saturday afternoon the notebook computer acting as file server went down — this was a result of its lithium-ion battery becoming exhausted. The cause was the uninterruptible power supply (UPS) for server and WiFi router becoming disconnected from 120V AC at the power strip. Thanks to Mike W2IG for spotting this!

Another incident occurred while David KD2EVI was taking site visitor Ed K2OHK back to his residence on the border between Cortlandt and Yorktown. The generator ran out of fuel, so had to be filled and re-started without David's assistance. After several attempts, the engine finally fired thanks to an expert pull on the starter cord by Lou. Later David explained that the Homelite choke has to be engaged even if the engine is hot.

The VHF station's logging computer was switched off overnight and nobody knew where the power switch was located to turn it back on again. The operators had to wait for NM9J to return on Sunday morning and point out the *labeled* power button on the *back* of the detachable display. Fortunately, activity on 6 meters was so light that there were no additional contacts to enter.

Cool night

After sunset, the temperature began to fall, eventually reaching 62°F around 4:00 a.m. Late night operators included Mike N2EAB, Mike KD2PYS, Rich WZ2P, Al K2DMV, Jared KD2HXZ and David KD2EVI.



Rich WZ2P (center) operates on Saturday night with Vincent KD2VAV logging and Mike N2EAB.

A small group stayed overnight, including Joe WA2MCR, Lou KD2ITZ, Vincent KD2VAV, and Jared KD2HXZ. Sidewalls were added to the east side of the canopy to keep warm and mask the sun when it eventually rose on Sunday morning. By 1:00 a.m., Joe WA2MCR was largely operating on his own while the others slept in tents. Between 8:30 p.m. and 7:45 a.m. 88 contacts were made on 80 meters and 110 contacts on 40 meters.

When your editor returned on Sunday morning, activity was still underway. The 80 meter station had switched back to 20 meters as the lower frequencies faded out. I settled down at the 40 meter station and made another bunch of CW contacts with propagation mostly westward to Ohio and beyond.

Visitors welcome

Karl N2KZ had publicized Field Day on the club's Facebook page and sent out a press release to seven local media outlets in mid-June. This resulted in at least two items

about PCARA Field Day being published in the *Examiner News* events column and in the June 24 *Journal News* "Best of the Weekend" listing.

Meanwhile Greg KB2CQE and

son Ben had prepared lawn signs guiding visitors into PCARA Field Day from Lexington Avenue. The club's vertical "flag" and roll-up vinyl sign were positioned close to the entry gate with the same intention.

As a result there were more visitors than usual. Lou arranged a sign-in sheet which indicated that a total of 38 people came to the site, including 24 licensed radio amateurs and 14 unlicensed visitors. We hope all were impressed by the different antennas and the intense radio operations taking place under the large shelter.

V.E. Test Session

Lou and Mike W2IG had scheduled an ARRL Volunteer Examiner test session for Sunday morning, June 26. One candidate who had been in contact with Mike arrived for a test — just days before the Technician

Pool is due to change on July 1st. Seated under shady trees in the parking lot, Toni Garcia of Yorktown Heights successfully passed the Technician test — congratulations! Thanks to our ARRL V.E. team Liaison Mike W2IG plus V.E.s Lou KD2ITZ, Verle W2VJ, Rob AD2CT and NM9J.

Ham Radio Enthusiasts Field Day, June 25

Ever wonder how you'd communicate if the internet and phone lines were down? This event, in Mohegan Lake, will feature dozens of local ham radio operators from the Peekskill Cortlandt Amateur Radio Association, who will be building and operating a complex radio station at the George Washington Elementary School at 3634 Lexington Ave, Mohegan Lake. At 2 p.m. hams from all over the country will launch on the air to contact as many other participants as possible. Field Day occurs across the country and combines public service, emergency preparedness, community outreach, and technical skills all in a single event. Field Day has been an annual event since 1933, and remains the most popular event in ham radio. For more info, go to pcara.org or its Facebook page facebook.com/pcararadio.

Item from the June 24 Journal News 'Best of the Weekend'.



V.E. Team members start the Sunday Field Day test session in a shady spot.

Teardown

As 12 noon on Sunday approached, the temperature was heading above 90°F, the sun was beating

down making computer screens difficult to read and new contacts became hard to come by. Teardown began with the G5RV antenna, which was no longer needed and with the 6 meter station, where contacts had been thin all weekend. By 1:00 p.m. the scoring rate on HF had dropped so disassembly of the two HF stations began. The last contact was at 12:42 EDT on 10 meter SSB by Nic KD2SKY.

By 2:35 p.m. equipment had been packed up and vehicles were clear of the field. Joe drove the rental truck back to his driveway where a small team helped to unload radios and other equipment. Meanwhile Mike W2IG accompanied Lou home for uncoupling of the tower and unloading of Lou's truck. David KD2EVI took away the remaining equipment, including generator, cooler and 30 foot shelter, leaving behind the "CallAHead" portable toilet for pick-up on Monday.

Results

A total of 24 radio amateurs came to George Washington Elementary School to assist and operate during Field Day 2022. The QSO count reported by N3FJP's software was 104 CW contacts and 504 phone contacts.

Bonus points were claimed for copying the **W1AW Bulletin** (100 points), for **100% Emergency Power** (200 points, 2A), for **Media Publicity**, for a **Public Location**, a **Public Information Table** and for publicity via **Social Media**.

Vincent KD2VAV made a large number of contacts, earning an additional 20 bonus points for **Youth Participation**. More bonus points were earned by Greg's son Ben and by Jack Merriam, both operating under supervision. Results were submitted to ARRL using the web-based 'app' for an additional 50 bonus points.

Here is a summary of claimed points for PCARA Field Day 2022 (bold column) along with a comparison of scores from previous years and breakdowns of contact number by band and by operator.

Peekskill/Cortlandt ARA, W2NYW, Class 2A

	2002	2003	2004	2005	2007	2008	2009	2011	2012
QSO pts:	718	733	968	853	1019	1109	694	879	968
Power:	2 (<150W)								
Partcpts:	15	11	12	10	14	10	10	14	15
Tot scor:	2,096	2,328	2,996	2,798	2,906	3,460	2,746	2,602	2,920

	2013 (1A)	2014	2016	2017	2018	2019	2021	2022
QSO pts:	775	722	816	813	731	829	1366	712
Power:	2 (<150W)							
Participants:	14	16	19	22	22	29	25	24
Total score:	2040	2460	3018	2734	2886	2764	3662	2234

Breakdown by band, in order of number of QSOs:
 40 meters – 322 QSOs; 20 meters – 179 QSOs
 80 meters – 88 QSOs; 10 meters – 13 QSOs
 6 meters – 6 QSOs,

Breakdown by operator (top ten) in order of QSOs.:

Operator	QSOs	%	Operator	QSOs	%
WA2MCR	136	22	KD2ITZ	103	17
NM9J	96	16	KD2VAV	74	12
W2IG	53	9	N2EAB	42	7
KD2HXZ	27	4	WZ2P	23	4
KD2EVI	22	4	KD2PYS	19	3

Charles N2SO and Mike N2HTT operated their own separate stations during Field Day. Charles made 111 CW contacts on 20, 40 and 80 meters with 100 watts while Mike made 23 contacts with just 5 watts of natural power. Their scores will be added to our main "2A" entry when ARRL calculates the aggregate score for all stations affiliated with PCARA.

Thank you

PCARA's 2022 Field Day score was less than last year. Factors involved include the new location, propagation on Saturday, extreme heat during both days, and antenna problems with the TH3Jr. Several of PCARA's enthusiastic operators were overseas or out of state this year. On-site distractions included a family of turkeys parading by, Mylar balloons, fireworks and interest in Rob AD2CT's Xiegu X6100 set-up in a shady spot.

Despite setbacks, everyone had a good time. We would like to express thanks to all who contributed including Joe WA2MCR, Lou KD2ITZ, Vincent KD2VAV, Masa JR1AQN, Verle W2VJ, Al K2DMV, Mike KD2PYS with Sean, Mike N2EAB, Greg KB2CQE, Mike W2IG, David KD2EVI, Ed K2OHK, Ed KD2STB, Nic KD2SKY, Jim KD2WSU, Dave KA1DMA, Rich WZ2P, Charles N2SO, Frank KD2WPO, Clint KB2ZRJ, Rob AD2CT, Ken W1YJ, Ricardo KD2QCK and Jim WB2OCA.

The 40 meter wire beam antenna designed by NE2Q was a winner for a third year.

Final thoughts

The new location for PCARA Field Day brought a fresh set of challenges, most of which were successfully resolved. The 30 foot canopy provided by David KD2EVI was a great success, keeping all three stations together under one roof.

Some problems can be traced to old equipment and OMs who were out too long in the sun. Greg KB2CQE thought the club might invest in some newer items for 2023.

One notable difference from 2021 was the reduction in CW contacts. When everyone has been worked on phone there are always more points waiting to be earned on CW and digital.

Who knows where PCARA Field Day will be next year? If it's back to Walter Panas, there is a whole new multipurpose field layout to cope with. If we stay at George Washington Elementary, we now have a better understanding of what the site has to offer.

- NM9J

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>

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

Masks and Social Distancing may be required.

PCARA membership meetings are on summer break during July and August.

Sat July 9: PCARA Breakfast, 9:00 a.m., Downing Park Pavilion, Rt 202, Yorktown.

Hamfests

Check with organizers before leaving.

Sat July 9: Raritan Valley RC W2QW Hamfest, Piscataway High School, 110 Behmer Road, Piscataway. 8:00 a.m.

Sun July 17: Sussex County ARC Hamfest, Sussex County Fair Grounds, 37 Plains Road, Augusta, NJ. 8:00 a.m.

Sat July 23: NJ ARC Hamfest, InfoAge, 2201 Marconi Road, Wall Township, NJ.

Sat Aug 20: Ramapo Mountain ARC Hamfest, Christ the King Lutheran Church, 50 Erskine Road, Ringwood, NJ. 8:00 a.m.

VE Test Sessions

Check with the contact before leaving.

July 2, 9, 16, 23, 30: Westchester ARC, 4 Ledgewood Pl. Armonk, NY. 11 a.m. Must contact VE Paul Maytan ac2t'at'arrl.net, (914) 237-5589.

July 2, 9, 16, 23, 30: NYC-Westchester ARC, 43 Hart Ave, Yonkers NY. 12:00 noon. Must contact VE Lester Tirado k2ltm'at'aol.com.

July 14: WECA, Westchester Cnty Fire Trg Cntr, 4 Dana Rd, Valhalla NY. Must contact VE, robert.casino'at'verizon.net. 7:00 p.m.

July 15: Orange County ARC, Munger Cottage, 183 Main Street, Cornwall NY. 6:00 p.m. Must contact Joseph J. DeLorenzo, (845) 534-3146, w2bcc'at'arrl.net



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