

# *PVRC Newsletter*

## *November 2021*

**Newsletter Editor:** John K3TN [jpescatore@aol.com](mailto:jpescatore@aol.com)

**Website:** <http://www.pvrc.org>

**Meeting Info:** <http://www.pvrc.org/chapters.htm>

**Facebook:** <https://www.facebook.com/groups/PotomacValleyRadioClub/>

### **President's Letter – Dan K2YWE**

#### **PVRC Perpetual Trophies**

PVRC perpetual trophy trophies recognize performance and serve to promote higher levels of participation and excellence on behalf of our PVRC. The latest recipients are:

Downtown DC Lunch Group - 2020 K2LP, largest growth in SS logs

The Over-the-Hill-Bunch – 2020 W4MYA, most improved SS scores

North of the Potomac – 2020 Battle of the Potomac, highest SS scores

W3IP – 2020-2021 Top Gun, highest total VHF contest scores

Well Done to all the recipients! The trophies will soon be distributed.

#### **President's Leadership Awards**

Congratulations and my sincere appreciation to the following PVRC members who are recipients of the 2021 PVRC President's Leadership Award.

#### **Jack Ference W3KX and Diane Ference KE3TT**

Jack and Diane have been assisted fellow PVRC members in the repair and maintenance of their member-owned "rocket launcher" towers, keeping them both functional and safe. In addition to providing physical assistance, Jack and Diane managed the manufacture, procurement, and distribution of needed parts that are no longer available.

#### **Mark Sihlanick N2QT**

Mark has provided more than eleven years of effective leadership of the SW Virginia and then Central VA Chapter and continues to do so. He has kept the chapter active by organizing events, providing advice, promoting contest participation, and arranging and giving presentations in his chapter and other meetings.

#### **Ike Lawton W3IKE**

Ike reconditions and distributes donated equipment on behalf of PVRC for the benefit of new amateurs and budding contesters as well as the PVRC Scholarship program. An important element of Ike's service to the PVRC community is removing and cataloging equipment at the request of PVRC SK estates. Ike recently accepted management responsibility for a new loaner program that will use a donated transceiver and ancillary equipment.

### **Eric Rosenberg W3DQ**

Eric has served as the PVRC email reflector administrator for many years. The reflector is critical to maintaining the cohesiveness of PVRC. Eric provides assistance to members having difficulty with reflector subscriptions as well as helping new members to join it. He keeps an eye on the reflector from the sidelines and on rare occasions has stepped in to help keep the reflector from going off the rails.

### **Jim Nitzberg WX3B**

Jim has a long history of service to PVRC. He recently stepped down from his role as Northwest Chapter chair in which he provided excellent leadership for many years. On a broader scope, Jim continues to provide mentorship at his station and elsewhere within the club, and will no doubt continue to accept ad hoc organizing and cheerleading roles.

### **Frank Donovan W3LPL**

Frank needs no introduction and his contributions to PVRC are both significant and many. Last year Frank's efforts led to the establishment of the Potomac Valley Radio Club ARRL Scholarship program and the solicitation of significant funding to kick it off. Frank is the PVRC liaison to the ARRL Foundation Scholarship Program.

### **Election Update**

Nominations will close on October 31 as previously advertised. Look to the reflector and Website News for the list of nominees. A schedule of the remaining steps in the election process appears below.

Oct 31 - Nominations Close

Oct 31 - Voter list is frozen

Nov 15 - Ballots are emailed to voters

Dec 15 - Balloting Closes

Dec 17 – Results Announced

### **2005 ARRL June VHF contest gavel passed forward**

We all mourn the recent passing of our valued member W3EKT. Ed was the original recipient of the 2005 ARRL June VHF Contest club competition gavel. True to Ed's generous nature, it was his wish that the gavel be passed on to a deserving PVRC member.

It gives me great pleasure to announce that the 2005 ARRL June VHF Contest club competition gavel is being awarded to **Art K4FTO** in recognition of his significant contribution to that PVRC victory. Congratulations to Art!

### **We're Ramping Up!**

The contest season is coming into its most active period with more than half of the current season's 5M contests happening in the next four months. I look forward to the period in anticipation of the joy that it will bring.

For the past several years, the contest community has been contributing to an expansion of remote operation that is becoming a significant part of the contest environment and perhaps amateur radio in general. The numbers of remote single and multi-op radiosport efforts are on the rise as technical improvements contribute making the remote experience smoother and closer to "being there." Still, I suspect that most of us will be operating from our home stations, perhaps with something new as part of our individual improvement programs.

At home or remote, "keep on keeping on." Let's make this a banner season for PVRC.

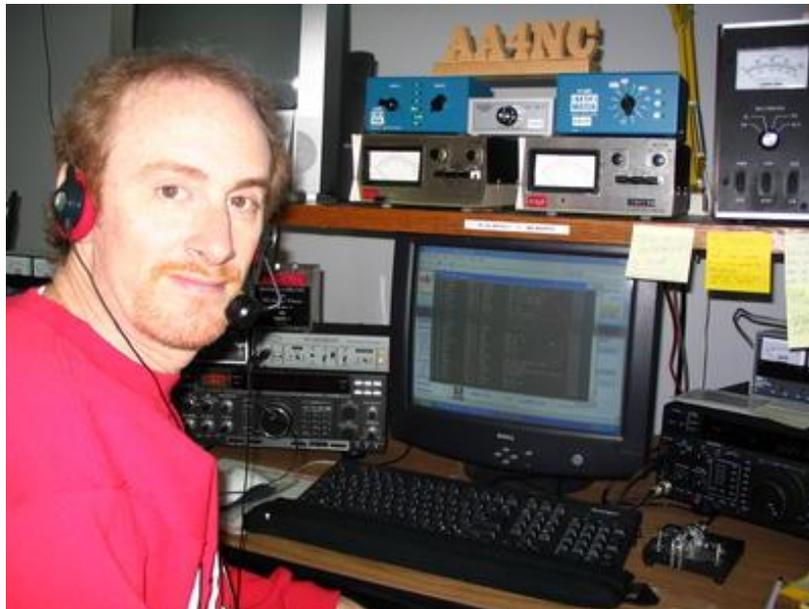
Will AA4NC SK



W4PA, N0AX, AA4NC and N6AN playing at the closing ceremonies at WRTC 2018 (photo by Nate N4YDU)

On Thursday October 21, a plane piloted by PVRCer Will Roberts AA4NC crashed on takeoff, killing Will and another adult and injuring two child passengers. PVRCers are mourning the loss of a friend, mentor and highly skilled contester.

A memorial service for Will Saturday, November 6, at 3:00 at Roseboro First Baptist Church in Roseboro (NC). It will be followed by a Celebration of Will at Railroad Street Restaurant at 4:00.



## A Fun Visit to Northern Italy – Jim N3JT

After a two-year delay Nina and I went on an OAT (Overseas Adventure Travel) 3-week tour of northern Italy in early September 2021 with 13 other travelers, focusing on the regions of Tuscany, Umbria and Emilia Romagna. We used this company before because the groups are limited to 15 people (14 in our group) and they do some unusual things. For example, we visited places where world-famous culinary products are made, such as Parmigiano-Reggiano cheese, Modena balsamic vinegar, goat pecorino cheese, culatello (a kind of prosciutto), unique chocolates, wineries, etc. We even visited Carrara, where marble is still mined for statues, and we went on a truffle hunt where they use dogs, because dogs won't eat the truffles). (Yes, I gained 2 kilos during the trip.)

But included on the itinerary were periods of free time so we could visit small museums on our own or just wander the old cities we visited. Speaking of cities, we were in Bologna, Ravenna, Parma, Lucca, Tavarnelle Val di Pesa, Florence (half a day), Siena, Perugia, Chianti, Carrara, Montepulciano, Spello, Spoleto, Pitigliano, Sorano, Sovana, Terni, Assisi and Rome (half a day). Somewhere in there we spent two nights at a lovely resort hotel overlooking the mountains.



The ladder to I4VEQ's shack



Nina enjoying Jim's operating

A shot of a da Vinci photo at the Farnese Art Museum in Parma





In advance of our departure for Italy, I made arrangements to visit with 4 ham radio friends, using those “free time periods.” The first, Claudio, I4VEQ, was in Bologna. He was kind enough to come to our hotel and take us to the club station IR4Q, atop a mountain overlooking the city. Getting to the shack required climbing a ladder astride the small road leading to the hilltop. I operated for a short time using the stacked monobanders and a K4.

Claudio is involved with the arrangements for the 2023 WRTC that will be conducted from his region, so it was great fun to chat with him about the plans. Through him we visited the fantastic Marconi Museum that features a large array of items that spawned radio as we know it.



Some days later we met up with Emil, I5EFO and his XYL, Marcella, near Lucca. Emil has some 200 olive trees and gave us two large containers of his olive oil from last year's harvest. This year's crop of olives was a disaster due to drought. I operated much of a 13z CWT session from his QTH using his quad antenna. His shack made me feel at home because it really does look like a shack!





A week later we were greeted at our hotel in Pienza by Andy, IK5VLL. He took us to Pitigliano where we saw Little Jerusalem, Etruscan catacombs in Sorano and of course Andy's shack. From there I operated another 13z CWT session though conditions were somewhat less than ideal. We had a great day together.



Then, when we were in Spoleto we had the great pleasure of meeting Marco, IK0YVV. We spent the afternoon with him, chatting about business, ham radio and seemingly everything else!

Note: Traveling in Italy is relatively safe. You must have proof of COVID inoculation before entering any museum or church, and a mask must be worn anywhere there are other people indoors, like in hotel lobbies, restaurants (except when actually eating), etc. In addition, you must get a COVID test prior to boarding any flight to or from Italy and show that negative test result at check-in.

Ham radio is unique in its potential for having "brothers" virtually anywhere in the world. It was especially meaningful to meet the guys in Italy I have worked so many times on the air. Now, when we have QSOs I have memories of our eyeball meetings, as do they. That makes the QSOs even more special.

### Central VA Chapter N4NCC Tower Removal – Mark N2QT

Several PVRC Central VA chapter members helped take down Mike N4NCC's (sk) antenna and tower on October 13<sup>th</sup>.



(L) Dave N3AC up on the tower

(R) It's all safely down and ready to serve others! NN4RB, NJ4Q, N3AC, W4WWQ, N4IW, K4YCR, KC4D

### CQ WW Contests Will Now Have a Youth Category

The new Youth category for the CQ World Wide DX Contest will debut October 30 – 31 with the phone weekend. The category covers contesters age 25 years old or younger and applies to both the phone and CW weekends (CW, November 27 – 28).

International Amateur Radio Union (IARU) Region 2 (the Americas) is one of several organizations sponsoring plaques for the top young scorers. In Region 2, plaques will be awarded to the top Youth score in each CQ WW event in North America and South America — four in all.

Youth plaques are sponsored by other entities for participants from all continents in both events. *(From ARRL News)*

**Mix Matters – Jack W1WEF**

*(from the YCCC Scuttlebutt, with permission)*

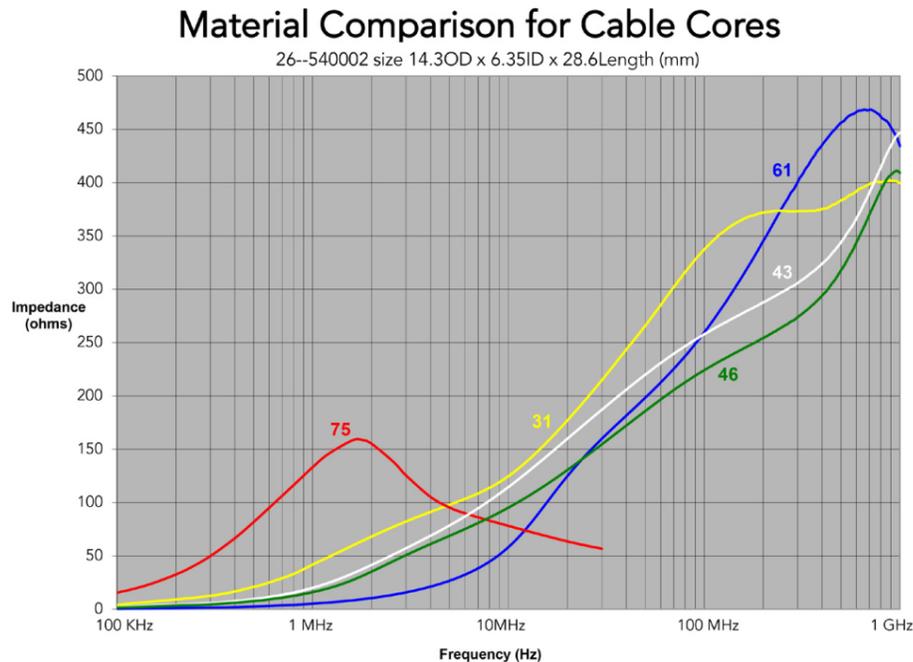
When we move back and forth to and from our summer QTH on Cape Cod we cancel one cable service and join the other. We have been doing this for about 40 years but this year for the first time we had a lot of “cable box” failures in CT. I had to replace the box 6 times because of hard failures. Actually, a couple of the replacements were because the “new” box I was given didn't work right off the bat.

After six boxes, my wife happened to be watching TV when I got on 160M and I immediately wiped out any cable reception. This time I quit right away and a “reset” brought the box back after 15 minutes. Later, I decided to try 160 again and all it took was one “dit” to wipe it out. I can't say for certain if the hard failures were caused by my operating on 160, but that band was the only one that caused a problem.

I had a couple large ferrite cores in my collection and tried winding as many turns as I could with the RG6 feeding the cable box, around both cores of unknown mix. Neither core made any difference...one “dit” was all it took to knock out the TV.

Thanks to W1HIS for a suggestion using three 77 mix cores and to W1VLF at ARRL for the attached chart, it was obvious that I had to use a 77 mix. I ordered **one** core online (postage cost more than the core) and also purchased a more flexible RG6 which allowed me to wrap the turns more tightly on the core. I managed to get ten turns on the core with the flexible RG6 and did the “dit test”. The 77 core made all the difference in the world and I can now send as many dits as I like. Hi! No more TVI.

Note that the impedance of the choke goes up as the square of the number of turns, so ten turns is 100 times better than one.



## PVRC 160 Meter DXCC Standings – Frank W3LPL

Below are the 160M DXCC totals for PVRC members, transcribed from the ARRL [DXCC data](#) as of the 20<sup>th</sup> of each month or so. Thanks to Frank for the data each month to make this a regular feature. Please report any omissions or errors to [Frank](#).

CALL	DXCC	CALL	DXCC	CALL	DXCC	CALL	DXCC
W8LRL	344	W3LL	218	K4RG	147	K3OSX	114
W4ZV	338	W0VTT	217	N3RC	146	K5RJ	114
W4DR	336	AB3CV	214	N3KK	144	N3MN	114
W3UR	321	W4NL	214	N4GG	144	N4DJ	113
W3LPL	316	W3YY	213	K3TN	143	K1KO	112
K4CIA	306	N4MM	212	WA2BCK	143	N4TL	112
K4ZW	302	K3WA	209	W3BW	141	W3MR	111
W4PK	287	W3GG	200	W2YE	138	KA4RRU	110
K3SX	285	K5RT	197	W3IP	138	N3HBX	110
N2QT	283	K3JT	193	W4VIC	138	NA1DX	110
K4SO	276	K4FJ	192	W4YV	138	K1BZ	108
KG4W	269	N4DB	192	N4PY	135	W4ZYT	108
K5VRX	256	K1GG	181	AA4NC	132	W3KB	107
W3DF	254	K2PLF	174	N3KS	129	K3WC	106
N3NT	250	W4FQT	172	N3RR	129	W2GPS	106
WB3AVN	245	N4XX	169	K5VIP	129	N4NW	105
KG7H	242	K4XD	167	K3XA	128	W3NRJ	105
WX4G	240	K3KY	166	W0YVA	127	W3TMZ	104
K1HTV	238	K3AJ	165	KM3V	123	W3EKT	102
K3SWZ	234	N3OC	164	N3MK	123	W4JVN	102
K4XL	232	N4QQ	163	W2GG	121	KE4S	101
W3KX	227	NR4M	155	K2BA	120	K3TZV	100
K5EK	226	N8II	153	W4PRO	120	KC4D	100
WS6X	221	W2RS	152	W4HZ	119	N3AF	100
K1AR	219	N3QE	150	N3UA	118	W4NF	100
N1LN	219	N5JB	149	N3ND	117		

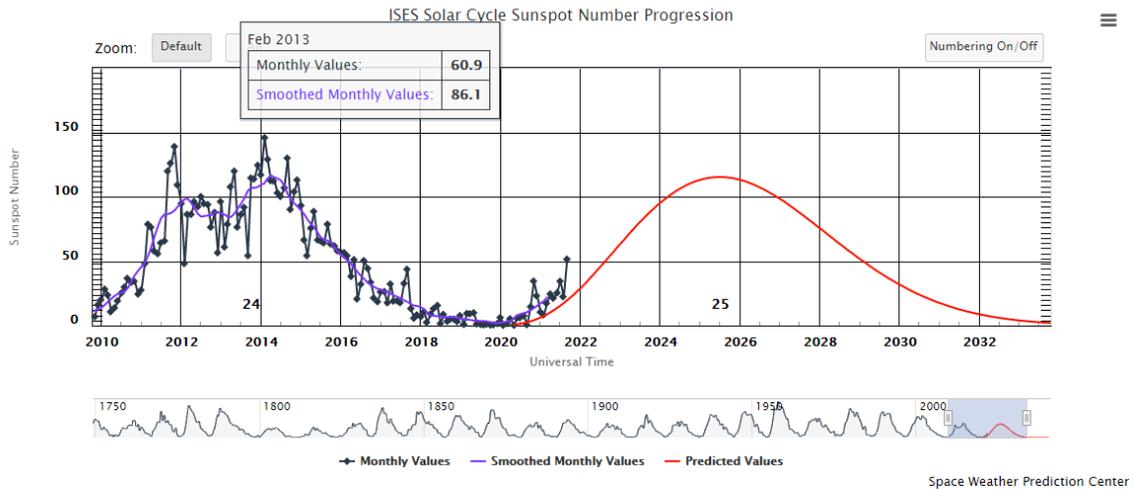
## Free K3RA General Class License Course on Zoom

Rol Anders K3RA will be giving a free weekly General Class license course on Zoom beginning Thursday, October 28 and running through Thursday, January 13 (9 sessions plus 3 weeks off for the holidays in November and December.) Sessions will start at 6:30 pm eastern time and run 3 hours. These are the classes sponsored by the National Electronics Museum that we have been holding for years. Please publicize this with anyone you know that you think would be interested. Those wishing to sign up should email Rol at [roland.anders@comcast.net](mailto:roland.anders@comcast.net).

## Solar Cycle 25 Progression

According to NOAA's [Space Weather Prediction Center](#), as of mid-October, the progression of solar cycle 25 is above predictions.

### SOLAR CYCLE PROGRESSION



[Spaceweather.com](#) reports “Solar Cycle 25 continues to overperform. Sunspot counts for Sept. 2021 were the highest in more than 5 years. And, for the 11th month in a row, the sunspot number has significantly exceeded the official forecast. ... The sun has a mind of its own, though. Higher-than-expected sunspot counts suggest a stronger cycle, with a peak occurring in late 2024 instead of mid-2025”

## NG7M Video Tutorials on RTTY and Much More

NG7M Playlists

20	12	4	16	3
Live Operating / CW / SSB / RTTY/ FT8/4 etc...	Tutorials	Morse Code / CW	NG7M's Station	RTTY Experiments
Max George	Max George	Max George	Max George	Max George
Updated today	Updated today	Updated 4 days ago	Updated 4 days ago	Updated 4 days ago
VIEW FULL PLAYLIST	VIEW FULL PLAYLIST	VIEW FULL PLAYLIST	VIEW FULL PLAYLIST	VIEW FULL PLAYLIST

Max NG7M has a YouTube [channel](#) with several playlists of informative videos related to RTTY contesting and other topics. For Elecraft K3/N1MM users in particular, he has a very detailed (and long) video with everything you need to know to setup and operate FSK RTTY – [here](#).

## Meet the PVRCer! – John K4HQB

**Your Call:** K4HQB

**First Year Licensed:** 1956

**Previous Calls:** None.

**QTH and PVRC Chapter:** Alexandria, Va.  
PVRC member of the Virginia Over the Hill  
Gang



**Favorite Contest and Why:** All my favorites involve CW. Topping the list is NAQP-CW. Its exchange is simple, and my modest station works well since the contests is limited to our continent. In the runner-up position are RAC's Canada Day (although I wish more Canadians would jump in), plus these contests with versions by ARRL and CQ: the VHF contests (well, at least when CW and SSB were used; FT8 QSOs are like working an ATM); their 160-meter contests (despite being forced by my small lot to use an 80m dipole); and the DX contests.

**Least Favorite Contest and Why:** At the bottom are the SSB contests mainly because they're tiring, and for me at least, QSOs are earned with difficulty (although I do appreciate the occasional "Hi, John! Go PVRC!"). But hugging the bottom is Sweepstakes, be it the CW or SSB version. I detest convoluted exchanges, and this old timer (the contest, not me—necessarily) requires too much effort. I still slog through it for PVRC, though.

**Favorite part of Ham Radio other than contesting:** DXing. I've loved that since I was a teenager and now have 300 entities confirmed, with ARRL stickers to prove it! I also enjoy piddling with antennas, but I no longer build equipment. Technology decades ago ran way out ahead of ham radio operators. I think the last homebrew device I built (ca. 1959) was a 160-meter transmitter (6L6 final, 25 watts input) with a final coil wound around a toilet paper tube. Worked great. My biggest failure was the infamous "7 mc beer can vertical" (QST, Nov. 1955), "failure" because the soldered-together cans fell apart every time I tried raising it.

**Favorite thing to do other than Ham Radio:** Performing in symphony orchestras (timpani) in McLean and D.C., especially with my cellist XYL (Sheila Wexler). I also enjoy photography, genealogy research, and checking out DX countries via cruising (especially on Viking).

**Anything else you'd like to say:** While growing up in a small South Carolina town I learned about PVRC from afar. QST's articles and photos had me in awe of such a huge, active club, so when Jim Talens N3JT encouraged me to join, I leapt at the chance. He guided me through the membership process, and by May 2013, I was "in." My hat's still off to Jim. PVRC has proven equal to its reputation, a well-managed organization of friendly, talented, supportive hams who excel at contesting and generously share tips with those of less experience. May PVRC also help keep CW alive in ham radio.

**Membership News – Tim N3QE**

PVRC did not add any new members in the latest reporting period.

Chapter leaders please remember to complete the [Meeting Attendance Report](#).  
Members can check and update their roster details via the [Roster Lookup](#).

**Upcoming Contests – from [WA7BNM](#)**

November 2021	
+ ARRL Sweepstakes Contest, CW	2100Z, Nov 6 to 0300Z, Nov 8
+ WAE DX Contest, RTTY	0000Z, Nov 13 to 2359Z, Nov 14
+ JIDX Phone Contest	0700Z, Nov 13 to 1300Z, Nov 14
+ OK/OM DX Contest, CW	1200Z, Nov 13 to 1200Z, Nov 14
+ ARRL Sweepstakes Contest, SSB	2100Z, Nov 20 to 0300Z, Nov 22
+ CQ Worldwide DX Contest, CW	0000Z, Nov 27 to 2400Z, Nov 28

**Editor’s Last Word – John K3TN**

Another Newsletter with another Silent Key notice – this one shocking and unexpected. Will AA4NC received many great testimonials on the PVRC reflector, CQ-CONTEST and DX forums. An online tribute to Will can be found [here](#). He will be missed.

Thanks to Nate N4YDU, Jim N3JT, Mark N2QT, John K4HQK and Frank W3LPL for contributions to this issue of the PVRC newsletter.

The quality and usefulness of the PVRC newsletter depends on contributions from members. If you have photos from club meetings, screen shots of new contest software, or brief writeups on station improvements or contest war stories, send them in any format to [jpscator@aol.com](mailto:jpscator@aol.com).



Will AA4NC (SK) at Dayton 2019 (K8CX photo collection)

### From the PVRC Treasurer – Jay W3MMM

PVRC has chosen not to implement an annual dues requirement. We depend on the generosity of all our club members to finance our annual budget. In addition, active PVRC members are expected to participate and submit logs for at least two PVRC Club Competition contests per year.

When contemplating your donation to PVRC, each member should consider the benefit you are receiving from PVRC and its many opportunities for your personal growth in our wonderful hobby, then donate accordingly.

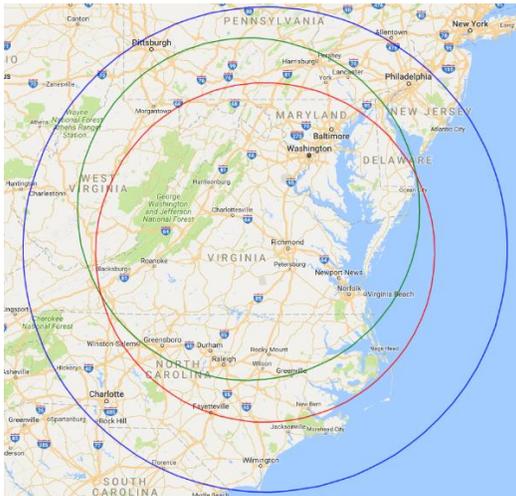
Direct donations to PVRC via Credit Card or PayPal may be made by clicking this "Donate" button and clicking the next Donate button that appears on your screen:



**Donations to PVRC are not tax deductible**

### Eyeball QSO Directions

The latest info on local club meetings and get togethers will always be sent out on the [PVRC reflector](#) and posted on the PVRC [web site](#).



**Green: ARRL VHF Circle**  
175 mile radius  
Around 38.075N,  
78.171W

**Red: ARRL HF Circle**  
175 mile radius  
Around 37.43168N,  
77.858482W

**Blue: CQ HF Circle**  
250 mile radius  
Around 37.43168N,  
77.858482W



**Now a Word From Our Sponsors**

*PVRC doesn't ask for dues, but the Club does have expenses. You can also support the Club by buying from the firms listed who advertise in the newsletter!*



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ICO-IC-7610



ICO-IC-7300



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ICO-IC-7851



HPY-MBD-8F



HPY-AS-62

## Hamplus

Hamplus makes innovative RF and control switching components tailored to the Amateur Radio community. The Hamplus line includes rotator switches, smart control consoles, and antenna switches that can read data from the radio and memorize antenna selections. DX and contest stations worldwide depend on Hamplus for proven results. In an exclusive arrangement, North American operators can enjoy the same advantage by ordering Hamplus products through DX Engineering. Enter "Hamplus" at [DXEngineering.com](http://DXEngineering.com).

## Low Band Systems

Band Pass Filters and Multiplexers from Low Band Systems are high-quality, multi-stage filters that limit the RF band pass to a single band, effectively eliminating the harmonic and adjacent band issues multi-radio contesters experience when using dedicated monoband stations.



LBS-SIX2TWO-UHF



Filters are available for all popular HF bands. The new 200W CONTESTER system contains switchable filters for 160, 80, 40, 20, 15 and 10 meters in a single enclosure. Enter "LBS Band Pass" at [DXEngineering.com](http://DXEngineering.com).

## Noise Cancellation and Audio Enhancement Products



Noise Cancellation Products

## Enhancement Products

By harnessing cutting-edge digital signal processing technology, bhi noise cancellation and audio enhancement products make it easier for you to discern weak audio signals and increase your radio listening enjoyment. Choose from DSP and extension speakers, DSP devices, and the ParaPro EQ20 Parametric Equalizer, which allows you to adjust any part of the frequency range to customize receive audio to suit your own hearing. Enter "bhi" at [DXEngineering.com](http://DXEngineering.com).



BHD-EQ20



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DX Engineering's Amateur Radio Blog for New and Experienced Hams.



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9 am to 5 pm ET, Weekends

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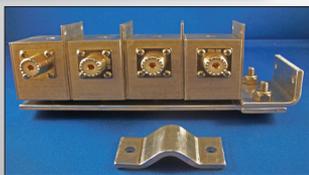
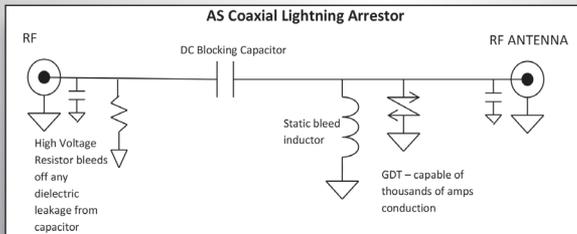
### Array Solutions Lightning Arrestors Coaxial, Ladder Line, Single wire, Control Line protection for Rotators, Switches, and Antenna Motors

AS-300 Series arrestors are known for their reliability and performance. They feature easy mounting to plates, ground rods with our stacking bracket and also a convenient screw lug. The stacking bracket can be used on plates as well to save precious room in arrestor enclosures.

- Available in SO-239, Type-N, and 7/16 DIN connectors
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- Models available for 3 kW, 5 kW, 10 kW and higher, details on website. Lower power available.
- FM low power broadcast model AS-303D FM
- Model AS-309H high-power single wire or ladder line arrestor, also DC block with static bleed
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AS-303U



### OM Power Amplifiers Sales and Service



### Switches for Six Antennas



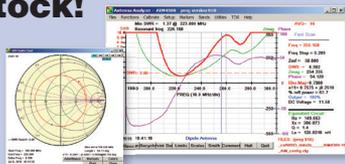
5kW - DC to 6m  
RATPAK – 1x6

Choice of Multiple Controllers  
SIXPAK – 2x6



### VNAuhf Back in Stock!

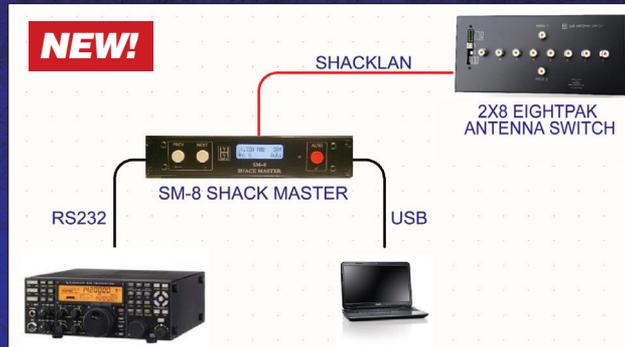
Vector Network Analyzer  
5 kHz -1.3 GHz \$1295



### Hamation Station Automation

Hamation remote and Local Station Control products allow you to automatically or manually select antennas, bandpass filters, and control accessories. Accessories can be StackMatches, Antenna switches, antenna phasing systems, SteppiR controller, turning radios on and off, etc. All of this can be done directly from the Ethernet as well!

Wiring are simple phone cables that daisy chain to all the devices. Wireless control is also available to your tower-located switches. Call us to learn how to set up simple or complex systems. Below is a simple basic system that can switch antennas as you change bands. We can interface to any radio CAT port, not just RS232.



A more complex system could be a SO2R contest station as shown.



### The Shared Apex Loop Array™!

Capture the whole band or the whole HF spectrum at once with the Shared Apex Loop Array 2nd Generation. Can be remote controlled over the internet or in your station. 8 directions of directivity.



The Shared Apex Loop Array™ is a revolutionary receiving antenna that will change the way that you listen to the radio! The patented design provides performance in a size and over a wide range of frequencies that will please both the rag-chewer and DXer alike.

Three models to choose from:

- AS-SAL-30 - optimized for VLF, BCB, 1.8-10 MHz
- AS-SAL-20 - optimized for BCB, and 1.8-30 MHz
- AS-SAL-12 - optimized for 3-30 MHz



### StackMatch

The original, not the imitations. For phasing 2, 3, 4 and even 6 antennas. Also it can be used to combine vertical and horizontal polarized antennas to diminish fading.



### PowerMaster II



RF Power and SWR meter. Couplers for 3 kW, 10 kW or higher available for HF/6 m. VHF and UHF couplers for 1.5 kW. You can connect up to 5 couplers to the display to monitor RF power on different TX lines.



[www.arrayolutions.com](http://www.arrayolutions.com)

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Check our Website for more new products!

Array Solutions' products are in use at top DX and Contest stations worldwide as well as commercial and governmental installations. We provide RF solutions to the DoD, FEMA, Emcomm, UN, WFO, FAA and the State Dept. for products and installation of antennas systems, antenna selection, filtering, switching and grounding. We also offer RF engineering and PE consulting services.



# HAM RADIO OUTLET®

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## HRO FLORIDA COMING SOON!



### IC-9700 | All Mode Tri-Band Transceiver

- VHF/UHF/1.2GHz • Direct Sampling Now Enters the VHF/UHF Arena • 4.3" Touch Screen Color TFT LCD • Real-Time, High-Speed Spectrum Scope & Waterfall Display • Smooth Satellite Operation



### IC-718 | HF Transceiver

- 160-10M\*\* • 100W • 12V operation • Simple to use • CW Keyer Built-in • One touch band switching • Direct frequency input • VOX Built-in • Band stacking register • IF shift • 101 memories



### ID-4100A | VHF/UHF Dual Band Digital Xcvr

- Compact, Detachable Controller for Flexible Installation • DV/FM Near Repeater Search Function • Apps for iOS™ and Android™ devices • Wireless Operation with VS-3 & UT-137 Bluetooth® Headset & Module • MicroSD Card Slot



### IC-7851 | HF/50MHz Transceiver

- 1.2kHz "Optimum" roofing filter • New local oscillator design • Improved phase noise • Improved spectrum scope • Dual scope function • Enhanced mouse operation for spectrum scope



### IC-705 | HF/50/144/430 MHz All Mode Transceiver

- RF Direct Sampling • Real-Time Spectrum Scope and Waterfall Display • Large Color Touch Screen • Supports QRP/QRPP • Bluetooth® and Wireless LAN Built-in



### IC-2300H | VHF FM Transceiver

- 65W RF Output Power • 4.5W Audio Output • MIL-STD 810 G Specifications • 207 alphanumeric Memory Channels • Built-in CTCSS/DTCS Encode/Decode • DMS



### IC-7300 | HF/50MHz Transceiver

- RF Direct Sampling System • New "IP+" Function • Class Leading RMDR and Phase Noise Characteristics • 15 Discrete Band-Pass Filters • Built-In Automatic Antenna Tuner



### IC-7100 | All Mode Transceiver

- HF/50/144/430/440 MHz Multi-band, Multi-mode, IF DSP • D-STAR DV Mode (Digital Voice + Data) • Intuitive Touch Screen Interface • Built-in RTTY Functions



### IC-V86 | VHF 7W HT

- 7W Output Power Plus New Antenna Provides 1.5 Times More Coverage • More Audio, 1500 mW Audio Output • IP54 & MIL-STD 810G—Rugged Design Against Dust & Water • 19 Hours of Long Lasting Battery Life • 200 Memory Channels, 1 Call Channel & 6 Scan Edges



### IC-7610 | HF/50 MHz All Mode Transceiver

- Large 7-inch color display with high resolution real-time spectrum scope and waterfall • Independent direct sampling receivers capable of receiving two bands/two modes simultaneously



### IC-2730A | VHF/UHF Dual Band Transceiver

- VHF/VHF, UHF/UHF simultaneous receive • 50 watts of output on VHF and UHF • Optional VS-3 Bluetooth® headset • Easy-to-See large white backlight LCD • Controller attachment to the main Unit



### ID-5100A Deluxe VHF/UHF Dual Band Digital Transceiver

- Analog FM/D-Star DV Mode • SD Card Slot for Voice & Data Storage • 50W Output on VHF/UHF Bands • Integrated GPS Receiver • AM Airband Dualwatch

WE'RE GOING BIG... AGAIN, FOR OUR 50<sup>TH</sup> ANNIVERSARY WITH THE  
**"50 Years Of Excellence" Giveaway #2!**

# Grand Prize

2021 Chevy Trailblazer and Icom Gear

2<sup>ND</sup> Place IC-7610    3<sup>RD</sup> Place IC-2730A    4<sup>TH</sup> Place \$50 GC



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\*\*Except 60M Band. \*\*\*Frequency coverage may vary. Refer to owner's manual for exact specs. The Icom logo is a registered trademark of Icom Inc. Toll-free including Hawaii, Alaska and Canada. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. Prices, specifications and descriptions subject to change without notice.



# HAM RADIO OUTLET®

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### FTDX101MP | 200W HF/50MHz Transceiver

• Hybrid SDR Configuration • Unparalleled 70 dB Max. Attenuation VC-Tune • New Generation Scope Display 3DSS • ABI (Active Band Indicator) & MPVD (Multi-Purpose VFO Outer Dial) • PC Remote Control Software to Expand the Operating Range • Includes External Power With Matching Front Speaker



### FTDX10 | HF/50MHz 100 W SDR Transceiver

• Narrow Band and Direct Sampling SDR • Down Conversion, 9MHz IF Roofing Filters Produce Excellent Shape Factor • 5" Full-Color Touch Panel w/3D Spectrum Stream • High Speed Auto Antenna Tuner • Microphone Amplifier w/3-Stage Parametric Equalizer • Remote Operation w/optional LAN Unit (SCU-LAN10)



### FT-991A | HF/VHF/UHF All Mode Transceiver

Real-time Spectrum Scope with Automatic Scope Control • Multi-color waterfall display • State of the art 32-bit Digital Signal Processing System • 3kHz Roofing Filter for enhanced performance • 3.5 Inch Full Color TFT USB Capable • Internal Automatic Antenna Tuner • High Accuracy TCXO



### FTDX101D | HF + 6M Transceiver

• Narrow Band SDR & Direct Sampling SDR • Crystal Roofing Filters Phenomenal Multi-Signal Receiving Characteristics • Unparalleled - 70dB Maximum Attenuation VC-Tune • 15 Separate (HAM 10 + GEN 5) Powerful Band Pass Filters • New Generation Scope Displays 3-Dimensional Spectrum Stream



### FT-891 | HF+50 MHz All Mode Mobile Transceiver

Rugged Construction in an Ultra Compact Body • Stable 100 Watt Output with Efficient Dual Internal Fans • 32-Bit IF DSP Provides Effective and Optimized QRM Rejection • Large Dot Matrix LCD Display with Quick Spectrum Scope • USB Port Allows Connection to a PC with a Single Cable • CAT Control, PTT/RTTY Control



### FTM-300DR | C4FM/FM 144/430MHz Dual Band

• 50W Reliable Output Power • Real Dual Band Operation (V+V, U+U, V+U, U+V) • 2-inch High-Res Full Color TFT Display • Band Scope • Built-in Bluetooth • WiRES-X Portable Digital Node/Fixed Node with HRI-200



### FT-2980R | Heavy-Duty 80W 2M FM Transceiver

• Massive heatsink guarantees 80 watts of solid RF power • Loud 3 watts of audio output for noisy environments • Large 6 digit backlit LCD display for excellent visibility • 200 memory channels for serious users



### FT-818ND | HF/6M/2M/440 All Mode Portable Xcvr

• Ultra-Compact/Portable • Multi-Color Easy to See LCD • 208 Memory Channels/10 Memory Groups • Built-in Electronic Keyer • Internal Battery Operation Capability • Two Antenna Connectors • Built-in High Stability Oscillator ±0.5 ppm



### FTM-400XD | 2M/440 Mobile

• Color display-green, blue, orange, purple, gray • GPS/APRS • Packet 1200/9600 bd ready • Spectrum scope • Bluetooth • MicroSD slot • 500 memory per band



### FT-70DR C4FM/FM 144/430MHz Xcvr

• System Fusion Compatible • Large Front Speaker delivers 700 mW of Loud Audio Output • Automatic Mode Select detects C4FM or Fm Analog and Switches Accordingly • Huge 1,105 Channel Memory Capacity • External DC Jack for DC Supply and Battery Charging



### FT-3DR C4FM/FM 144/430 MHz Xcvr

• High Res Full-Color Touch Screen TFT LCD Display • Easy Hands-Free Operation w/Built-In Bluetooth Unit • Built-In High Precision GPS Antenna • 1200/9600bps APRS Data Communications • Simultaneous C4FM/C4FM Standby • Micro SD Card Slot



### FT-65R | 144/430 MHz Transceiver

Compact Commercial Grade Rugged Design • Large Front Speaker Delivers 1W of Powerful Clear Audio • 5 Watts of Reliable RF Power Within a compact Body • 3.5-Hour Rapid Charger Included • Large White LED Flashlight, Alarm and Quick Home Channel Access



### FT-60R | 2M/440 5W HT

• Wide receiver coverage • AM air band receive • 1000 memory channels w/alpha labels • Huge LCD display • Rugged die-cast, water resistant case • NOAA severe weather alert with alert scan



- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 9:30AM - 5:30PM
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