



# The **RADIOGRAM**

When All Else Fails ~ Amateur Radio Works

~ Official Newsletter of the Portage County Amateur Radio Service, Inc. ~

**PCARS - the 2018 Hamvention® Club of The Year**

May 2019 - Volume 14 Number 5

## **HAMVENTION®**

### **2019**

### **Xenia, Ohio**



## **Gearing Up For Field Day 2019**



## **PCARS K8BF**

*The Club that puts the FUN in Ham Radio!*

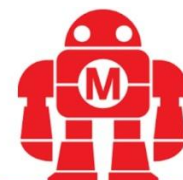


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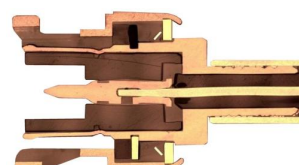
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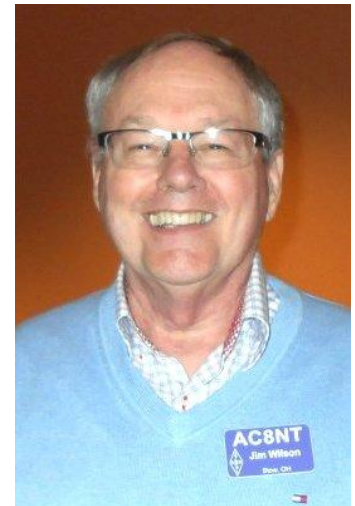


Kent State Mini  
Maker Faire



## *From the President*

**Jim, AC8NT**  
PCARS President



PCARS made a great showing at the Kent State Mini Maker Faire (complete story to follow). The crowd was great and we met a lot of new potential hams. We also met some teachers that were interested in just how ham radio could be used in their programs. We will be working with them this summer to see what can be done to get ham radio into their classes. This also means using Carole Perry's expertise in this area. We will really enjoy working with her again.

### **Boy Scouts**

A few of us are now Chartered Merit Badge Advisors. We will be working this summer with scout troops helping scouts get electronics, electricity and radio merit badges. We now have enough trained that we can take part and even hold these events. To help with this effort you need to complete some training and a background check. Nothing hard, but it needs to be done. If you are interested in helping with this great work, please contact me for more information at [jawilson@j3solutions.com](mailto:jawilson@j3solutions.com).

### **Our Monthly Meetings and Hamvention®**

Thanks to Jack Gerbs, WB8SCT the General Chair for 2019-2020 Hamvention® who gave a great presentation on the work required to pull off this event. He reminded us it is all done by volunteers that work all year on this project. If you missed the presentation you can view it on line. Check out Nick's AC8QG section.

Our May meeting will feature Jim Storms talking about the Youth DX Adventure program. This is something our club supports and is a great experience for young hams. Please plan to attend and hear all about this great program.

Don't forget Hamvention® starting Friday May 17<sup>th</sup>. For some of us this is our must attend event of the year. As a reminder, for the last day of Hamvention® Sunday May 19<sup>th</sup> they will not be charging admission. For free you get to tour the floor and get some great deals in the flea market. Come join the fun at this year's Hamvention.

### **Antenna Day-Field Day**

This year we will be testing our setup for Field Day on Saturday May 11<sup>th</sup>. If you are interested in helping with this test or interested in taking part in Field Day please contact the station captains or Tony, WA8AR. We are putting a lot of effort into winning this year, so please consider helping. Tony will have more on this later. We will also be using FT8 in contest mode for Field Day. If you want to know more about this contest mode, plan to attend the Digital SIG on May 7<sup>th</sup>. Rick, K8CAV will be demonstrating how it will work.

### **Contests, Contests, Contests**

We are going to take part in the Florida and New England QSO parties. The Florida will be history by the time you read this, but New England will be held the weekend of May 4<sup>th</sup>. Contact Chuck, W8PT if you are interested. If you know someone that is curious about ham radio, you might want to bring them to a contest just to visit our club site and see what contesting is all about.

### **Personal Project- "Go Box"**

I am building my second "Go Box". This has been interesting. What I will have in the next week is a mobile station that can do everything I do in my home shack. That includes working 40 meters and up including VHF and UHF; working all the digital modes; and being able to use my new rotors to track and use satellites from anywhere. This will make demonstrations including Maker Faires much easier and will allow

me to get more involved in emergency training. I think we all need some form of “Go Box”. Even if it contains just all the things necessary to use your handheld effectively (extra batteries, maybe solar charger, digital interface etc.) You never know when it will come in handy. I should also remind everyone they should have a family and personal “Go Kit” in case you need to quickly get out of harm’s way. And if you have these kits, you need to periodically check them to make sure everything is working and ready to go. I had a friend that found out bananas don’t keep well in a closed up “Amo” can in his trunk. You missed a real treat when he opened up 4 months later.

### Parting Comments

Please try to attend Hamvention® and PCARS Antenna Day. These are great events where we all have serious good times. Get your antennas fixed up and make contacts. Weather is better, so let’s have some fun with our hobby. Also remember we are always trying to get more people interested in ham radio. Invite friends to meetings and have them visit the club site.

## From the Vice President

**Nick, AC8QG**  
PCARS Vice President



Spring is in full swing and summer is around the corner! We have a lot of things going on this year, so hang on to your hat, there’s more fun coming!

Thanks to everybody who came out for our April meeting! Even though Michael Kalter, W8CI could not join us, his last-minute substitute, Jack Gerbs, WB8SCT, was awesome! Skype seemed to work pretty well, too. I think it was also the most engaged Q & A I’ve seen with PCARS.

Dayton Hamvention is coming up pretty quick, and it sounds like PCARS will be well represented this year. I know I’m looking forward to going for the first time ever. I know my kids are looking forward to the experience as well. I hope we see a lot of you there.

### Upcoming Monthly Meetings

Big, big thank you to Jack Gerbs, WB8SCT for stepping in at the last minute and delivering a wonderful presentation and Q & A session. If you were unable to join us, you can still view the Skype recording online (<https://1drv.ms/v/s!AtVpAAoKijUjVJtKVQfTgSbJ6uC>).

This month, we welcome Jim Storms, AB8YK to talk about **Youth DX Adventures**. It should be another interesting look into the exciting opportunities that amateur radio enables. Cut the grass early so you can come out and enjoy some time with your fellow club members!.

May: Jim Storms, AB8YK is speaking about Youth DX Adventures.

June: Hal Turley, W8HC will talk about his experience with DXpeditions

July: Frank Tompkins, W8EZT “Finding the Fox - The Art and Science of Amateur Radio Direction Finding”

August: Jim Wilson, AC8NT - Antenna analysis

September: Ryan Shackelford - Director of the Portage County EMA

As always, if you have any suggestions for a meeting topic, or if you are interested in giving a presentation please let me know. We’re always looking for new and interesting topics! Thank you to all the people that helped fill this list!

## Schedule of Events

On the calendar for upcoming meetings and activities are:

- May 6<sup>th</sup> - Board Meeting at the club site - 7 pm
- May 11<sup>th</sup> - Antenna Day - Field Day Operational Dry Run - 9 am
- May 13<sup>th</sup> - PCARS Meeting at the American Legion in Kent - 7 pm
- May 17<sup>th</sup>-19<sup>th</sup> - Hamvention® 2019 in Xenia, Ohio
- June 1<sup>st</sup> - VE Testing at the club site in Ravenna - 10 am
- June 3<sup>rd</sup> - Board Meeting at the club site - 7 pm
- June 10<sup>th</sup> - PCARS Meeting at the American Legion in Kent - 7 pm
- June 22-23 - FIELD DAY
- June 22<sup>nd</sup> - VE Testing at the Field Day Site - 4 pm

### Special Interest Groups (SIGs) - Every Month at the Club Site in Ravenna - 7:00 pm

- |                 |   |                |                                     |
|-----------------|---|----------------|-------------------------------------|
| First Tuesday   | - | Digital        | - Moderator: Rick, K8CAV            |
| Second Tuesday  | - | QRP/CW         | - Moderator: Terry, KB8AMZ          |
| Third Tuesday   | - | Antenna        | - <i>May meeting is CANCELLED</i>   |
| Fourth Tuesday  | - | DX & Contest   | - Moderator: Chuck, W8PT            |
| Fifth Tuesday   | - | Linux for Hams | - Moderator: Terry, KB8AMZ          |
| Fourth Thursday | - | Net Night      | - <b>at the club site - 6:30 pm</b> |



## Hamvention® 2019 - Be There!



**Tom, KB8UZZ**

Hamvention® is important stuff that you have to plan ahead for. Okay - Here I go again on my yearly article about going to the Hamvention®. Yes, it takes more than a few hours to get there, yes I know you're busy.... **BUT** .... Just think of it, hams from around the world can only *dream* about going to Hamvention®, and for us, it's practically in our back yard.

Even if you only go for one day - **GO!!!!** Even if you don't spend any money - **GO!!!!** Visit all the dealers, see what's new and what's coming out soon. **GO!!!!** check out the great ARRL display area and meet some of the ARRL HQ personnel. There are plenty of *free* forums. **GO!!!!** just to be there and walk around seeing all the ham gear and hams from around the world is worth the trip.

Who knows, you just may bump into a foreign ham that you made a DX contact with. The outdoor flea market is really something to see - jammed packed with just about everything you can imagine. This is one heck of a flea market. Chances are you will never see a larger one! Many bargains to be had, and don't hesitate to haggle the price a bit lower.

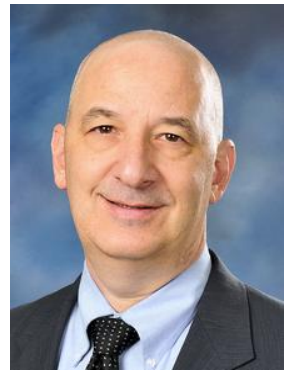
Take a camera and take pictures of everything and everybody!

So, check it out - Friday the 17<sup>th</sup>, Saturday the 18<sup>th</sup> and Sunday the 19<sup>th</sup> in May - the **ONLY** place to be is at the Hamvention®.



## Hamvention Opening Gates to All on Sunday

**Jack, WB8SCT**  
Hamvention® General Chair



Hamvention® has announced that it will open the gates to all, without charge, on Sunday, May 19, the final day of the annual gathering at Greene County Fairgrounds and Expo Center in Xenia, Ohio. Hamvention 2019 General Chair Jack Gerbs, WB8SCT, said the idea is to encourage the curious to see what attracts some 30,000 visitors to Hamvention each spring.

"This will make it a little easier and cheaper for someone with just a little interest in Hamvention to see what all the excitement is about," Gerbs said.

In addition to the features and equipment that attract radio amateurs, non-ham visitors will get to see vendors selling a variety of other electronic equipment, including computers and accessories, security devices, networking supplies, tools, and other items of interest to the general public. Those visiting the flea market area may be surprised at what's available, often at a small fraction of its original cost.

Gerbs pointed out that Sunday is Hamvention's lightest traffic day, making it convenient for anyone who just wants check out what's there. Hamvention will be open on Sunday from 9 AM until 1 PM.

Greene County Sheriff Gene Fischer, KX8GCS, has arranged to make text alerts possible again this year

for those wanting up-to-the-minute mobile phone alerts regarding weather, traffic, parking, and other useful information affecting the event. Text "Hamvention19" to 888777 to sign up. Those who signed up for the text alerts in 2018 already are registered for this year's event.

The text alerts supplement the Hamvention talk-in station that has operated for many years on the Dayton Amateur Radio Association (DARA) 146.94 repeater (123.0 Hz tone) to give directions and other assistance.



## Mentoring the Next Generation

***"Mentoring the Next Generation" is Hamvention and ARRL 2019 National Convention Theme***



With an eye toward helping new and inexperienced hams enjoy the full range of activities that Amateur Radio has to offer, **Hamvention®** and the ARRL 2019 National Convention will embrace the theme of "Mentoring the Next Generation." Hamvention hosts the National Convention May 17 – 19 at the Greene County Fairgrounds and Expo Center in Xenia, Ohio. This will mark the third year for Hamvention at its new venue. A contingent of ARRL staff and member-volunteers will join forces to make available many ARRL exhibits and resources to Hamvention visitors. The centerpiece of ARRL's participation will be ARRL EXPO in Building 2. An extensive roster of **exhibits and activities** will also educate and entertain.

Instructors from the ARRL Teachers Institute for Wireless Technology will be on hand to bring wireless and electronics theory to life in hands-on demonstrations and lessons. They'll also touch on satellite communications, microcontrollers, and the fundamentals of robotics. At a Sunday morning forum (10:30 AM – 11:30 AM in Room 2) called "Discovering Radio Communications," presenters for the Teachers Institute will highlight a variety of instructional experiences and ideas.

As part of its mentoring focus, ARRL has invited members of the Nashua (New Hampshire) Area Radio Society to Hamvention and ARRL EXPO to share the club's effective and well-developed outreach program. The ARRL Special Service Club, which boasts more than 200 members and is being recognized as the 2019 Hamvention Club of the Year, caters to radio amateurs of all interests and experience levels. NARS will host an interactive exhibit that may serve as a model for other radio clubs to emulate as well as a Friday midday forum, "ARRL Spotlight on Radio Clubs and Mentoring" (11:50 AM – 1:05 PM) in Room 3. Club members will discuss their activities and approach to building membership and club participation.

ARRL-sponsored forums will include the always-entertaining ARRL Laboratory Manager Ed Hare, W1RFI, who will present "The ARRL Lab: Trials, Tribulations and (Tall?) Tales," on Friday morning (9:15 AM – 10:30 AM) in Room 3. Hare has promised to share with Hamvention visitors the inside information about what goes on in the ARRL Lab, including a few tales you'll never read about in the pages of *QST*.

ARRL Great Lakes Director Dale Williams, WA8EFK, will moderate the popular ARRL Forum on Saturday (12 PM – 1:15 PM) in Room 3.

On hand to discuss "ARRL's New Volunteer Monitor Program and the FCC" will be Riley Hollingsworth, K4ZDH, a familiar face to many Hamvention visitors from his days with the FCC. Hollingsworth is heading up the development of this new program using guidelines provided by the FCC and his years of experience working in the FCC Enforcement Bureau. Among other things, he'll talk about the importance of helping each other to maintain high standards on the air, issuing "good operator" notices to recognize exemplary behavior, and of course, deterring poor operating practices. This forum is set for Sunday morning (9:15 AM – 10:15 PM) in Room 2.

On Saturday afternoon, ARRL's new CEO Howard Michel, WB2ITX, will speak on "Engaging Today's Radio Amateur" (1:30 PM – 2:30 PM) in Room 3. Michel says, "Ham radio shouldn't abandon the old guardians of the hobby, but at the same time, it needs to have new things that appeal to people who have different interests and different passions." Other ARRL-sponsored forum topics will include a panel discussion on ARRL public service communications, moderated by Rob Macedo, KD1CY, on Friday afternoon, (2:25 PM – 3:40 PM) in Room 3. The ARRL Collegiate Amateur Radio Initiative (**CARI**) forum, moderated by brothers Andy, KK4LWR, and Tony Milluzzi, KD8RTT, will cater to university students and those supporting campus radio clubs on Saturday afternoon (4 PM – 5 PM) in Room 3.

An **ARRL Wouff Hong Ceremony** will take place Saturday at 9 PM at the Marriott at the University of Dayton (Tradewinds Pavilion), sponsored by the ARRL Ohio Section. The traditional Wouff Hong ceremony is steeped in mystery and represents a tradition that goes back to the early days of ARRL history. Register online. A limited number of remaining seats may be available from the ARRL Field Organization Volunteers booth during the convention (ARRL EXPO in Building 2).

The Wouff Hong is a fictional tool used to "punish" Amateur Radio operators who demonstrate poor operating practices. According to legend, ARRL Co-Founder Hiram Percy Maxim, 1AW, under the pseudonym "The Old Man," unveiled the Wouff Hong just as radio amateurs were getting back on the air after World War I, early in 1919. The "specimen of a real live Wouff Hong" he wrote about in *QST* was presented to the ARRL Board, which voted that it be framed and hung in the office of the Secretary of the League. The artifact remains on display at ARRL Headquarters today, a constant reminder to radio amateurs to be mindful of operating etiquette.



2019 Forums Overall Schedule																
FRIDAY May 17, 2019						SATURDAY May 18, 2019					SUNDAY May 19, 2019					
	Room 1	Room 2	Room 3	Room 4	Room 5	Room 1	Room 2	Room 3	Room 4	Room 5	Room 1	Room 2	Room 3	Room 4		
9:15 AM																
9:30 AM	TAPR Scott Cowling WA2DFI 9:15-10:35	Remote Access to your Amateur Radio Station Mark Aaker K6UFO 9:15-10:15	The ARRL Lab: Trials, Tribulations and (Tail?) Tales 9:15-10:30	SHARES HF EMCOMM Ross Merlin WA2WDT 9:15-10:15	Parks on the Air Julie Martin K8VOX 9:15-10:30	Ham Nation Bob Heil K9EID 9:15-10:15	2018 Youth Forum Carole Perry WB2MGP 9:15-12:00	Foxhunt / ARDF Dick Arnet WB4SUV 9:15-10:40	HamSCI Nathaniel Frizzell W2NAF 9:15-10:30	Summits on the Air Keith Schlottman KR7RK 9:15-10:15	WWV Matt Deutch N0RGT 9:15-10:15	ARRL's New Volunteer Monitoring Program and the FCC 9:15-10:15	Tornado Alert Mickey Lee 9:15-10:15	Fasttrack Ham Michael Burnette 9:15-10:15		
9:45 AM						Heil Sound Workshop Bob Heil K9EID 10:15-11:15										
10:00 AM																
10:15 AM																
10:30 AM																
10:45 AM																
11:00 AM	APRS Bob Bruninga WB4APR 10:45-11:50	Mars Paul English 10:25-11:25	RTTY Contesting Ed Muns W0YK 10:40-11:40	Instructor's Forum Carole Perry WB2MGP 10:30-11:30	Collins Radio David Knepper W3ST 10:45-11:45			Frank Beafore WS8B 10:50-11:50	Fast Scan ATV Art Towles W8RMC 10:40-11:50	Kenwood Equipment Jan Servaites N8CBX 10:30-11:30	Power and Energy for the Ham Bob Bruninga WB4APR 10:30-11:30	Discovering Radio Communications 10:30-11:30	Principles of Amateur Radio Leadership Rick Allnut & Mike Kalter 10:30-11:30	Digital Mobile Radio John Burningham W2XAB 10:30-11:30		
11:15 AM																
11:30 AM																
11:45 AM																
12:00 PM																
12:15 PM																
12:30 PM	Homeland Security John Peterson 12:00-1:50	D-Star Robin Cutshaw AA4RC 11:35-1:00	ARRL Member Forum 11:50-1:05	Kit Building Joe Elsenberg K0NEB 11:45-12:45	Balloon Sat Bill Brown WB8ELK 12:00-1:30	DX Forum Jay Slough K4ZLE 11:25-1:50	AMSAT Joseph Spier K6WAO 12:10-1:40	ARRL Member Forum 12:00-1:15	VHF-UHF- Microwave Tony Emanuele WA8RJF 12:30- 1:30	Saturn Bill Feist WB88ZH 11:45-1:00						
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3:00pm	Antenna Forum Tim Duffy K3LR 2:00-5:00	National Weather Service Brandon Peloquin 1:10-2:30	ARISS Rosalie White K1STO 1:15-2:15	Techniques of Best Operators Mitch Stern W1SJ 1:00-2:15	Using KiCad Barry Buelow W0IY 1:45-2:45	Contesting Doug Grant K1DG 2:00-3:50	AREDN Andre Hansen K6AH 1:50-3:20	Engaging Today's Radio Amateur 1:30-2:30	QCWA Ken Oelke VE6AFO 1:40-2:40	Lightning and Grounding Ronald Cohen K3ZKO 1:15-2:15						
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## ARRL Rolls Back Rate Hike for Outgoing QSLs

**ARRL has rolled back Outgoing QSL Bureau rates to 2011 levels.**

Effective May 15, 2019, the new rates will be: \$2 for 10 or fewer cards in one envelope; \$3 for 11 - 20 cards in one envelope, or 75 cents per ounce for packages with 21 or more cards. For example, a package containing 1.5 pounds of cards -- 24 ounces, or about 225 cards -- will cost \$18. There are **no** transaction service fees.

Any cards received before May 15 will be charged the current rate. There will be no adjustments for cards received before May 15. More information is on the ARRL website.



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[www.arrl.org](http://www.arrl.org)



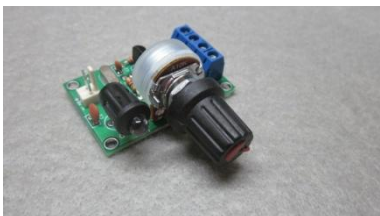
*Jim, AC8NT*



This month I have two simple projects using two more easy to find modules that can provide useful gear for your shack; and don't require a lot of money.

### Fox Hunting Attenuator

A few weeks back we had a build day where 18 participants built tape measure two meter Yagi antennas. Most planned to use these for fox hunting. For those of you that don't know about fox hunting, it is basically an Easter egg hunt where the egg contains a transmitter and is hid really well. A handheld and portable antenna are all you need to take part in one of these fun events. One big problem with fox hunting is that when you get close to the fox, the signal is so strong that the directionality of your antenna is significantly reduced. What you need is an attenuator that can be used to reduce the strength of the signal.



One of the best solutions is an injection attenuator. These devices mix a local oscillator with the signal coming from the antenna. The mixer produces two signals that are equal to the received signal plus or minus the injected signal. The amplitude of these generated frequencies is proportional to the amplitude of the injected signal. As you vary the amplitude of the injected frequency you can create significant attenuation. The module I have chosen can create attenuation of up to 100 db.

The module was designed and is sold as a completely assembled circuit board by KC9ON for about \$8. It can be found at <https://kc9on.com/product/fox-hunt-offset-attenuator/>. This module mixes a 4 MHz signal with the received 2 meter antenna output. It is powered by a 9V battery. The board is about 2x2 inches and takes about an hour to mount in a housing and connect up. You simply set your handheld to a frequency that is either 4 MHz above or below the frequency of the fox to use the attenuator function.

I tried this myself and found it works great. He has much more information at his website on the operation of the module. You can find his article at <http://kc9on.com/ham-radio/fox-hunting/>. If you are interested in fox hunting and have a two meter handheld, you can easily build the antenna and implement this attenuator for under \$35. If you would like to purchase a ready to use fox transmitter, I recommend you purchase one of the RigExpert Red Fox 144 ARDF Beacons. These operate for hours on a small button cell and come ready to use. They can be purchased for about \$31 from our friends at **DX Engineering**.

Fox hunting is a great way to introduce kids and adults to radio technology. It requires no license to locate the fox and building the antenna and attenuator system shows newcomers how hams are real "Makers". If you want more information on this part of our sport, come to our July monthly meeting on July 8<sup>th</sup>. Frank Tompkins W8EZT will be giving a presentation on this topic.

### Microphone Preamp

I have a great studio headset that has served me well in many applications including ham radio. However it has a dynamic microphone and I often need an electret output. I could change out the microphone element. In my case this would be the real pain of carefully ungluing the old element and gluing in the new element and I would lose the dynamic element if I needed it in the future.

One of the easiest ways to fix this situation is to insert a preamp between the dynamic element and the output. A simple switch could bypass the preamp if I needed a dynamic output. I found a little board on eBay for about \$8 that would do just what I needed. The board uses the AD828 preamp chip



that I have used many times before and is complete with all the necessary support components. I powered the board from the rig's microphone support of 11V and housed it in a small pill bottle. The project took about an hour and I now have a very flexible headset that can be used for many different applications. This is a quick and cheap solution for those of you that have both Yaesu and ICOM gear in your shack. You can find this module by searching eBay for "AD828 stereo dynamic microphone preamplifier".

If you need more information on either of these projects you can contact me at [jawilson@j3solutions.com](mailto:jawilson@j3solutions.com). Have fun and build something!!

## VOA Expanded Hours during Hamvention®



The National Voice of America Museum of Broadcasting, a short drive from Hamvention®, announces expanded hours for Hamvention weekend.

The Museum is located at the site of the former Voice of America Bethany Relay Station in West Chester, between Dayton and Cincinnati, just off the I-75 Tylersville Road exit.

From 1944 thru 1994, six of the most powerful shortwave transmitters in the world broadcast to listeners seeking truth in Europe, Africa and South America from the Bethany Station. Every week millions heard programs in 50 different languages beamed globally from this hilltop.

Those attending the 2019 Dayton Hamvention® will have ample opportunities to visit. The Museum is located about 35 minutes from the main convention activities. A booth for the museum and WC8VOA is located in space #1910 in building 1 at Hamvention®.

The Ham Shack for WC8VOA will be open, as well as some unique exhibits such as the comprehensive collection of Drake Amateur Radio gear, the remaining Collins 250,000 watt transmitter, the 1960's VOA Master Control room, the Powel Crosley Jr. Exhibit, and an exhibit about the US Coast Guard Cutter "Courier" a cold war era floating radio transmission facility that relayed VOA Bethany broadcasts to the Middle East and Soviet Union.

The VOA Museum is open every Saturday and Sunday from 1-4 pm.

Special hours for Hamvention® Attendees are: Thursday, May 16th from 4 to 9 pm. Friday, May 17th from 4 to 9 pm Saturday, May 18th from 1 to 9 pm and Sunday, May 19th from 1 to 5 pm Admission is just a five dollar donation.



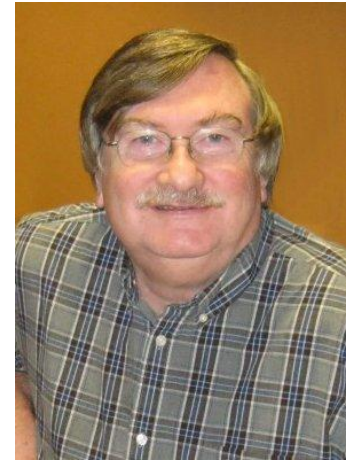
In addition this year, the museum has a special offer for new donors visiting during Hamvention® on Saturday, May 18th only. From 6:30 to 9 pm, new Museum donors of at least \$45 will receive: Free general admission to the Museum A guided tour of the Museum's Crosley Collection A tour of the historic WLW transmitter site featuring the Crosley 500 kw WLW transmitter. This tour will be conducted by internationally known broadcast veterans Jay Adrick, K8CJY and Geoff Mendenhall, W8GNM. Transportation from the Museum to the WLW transmitter site and back is included.

Space is limited on the WLW transmitter tour, and reservations are required. To sign up, visit [voamuseum.org](http://voamuseum.org).

More information about the museum and the special WLW transmitter tour option is available at [www.voamuseum.org](http://www.voamuseum.org)

## Putting the “Radio” in Radio Shack

**Mark, K8MSH**



They were the “McDonalds of electronics” and the “Walmart of high tech”. In 1968 they moved into my corner of the world - the north suburbs of Pittsburgh - opening what was to become one of more than 7,300 company and franchise stores worldwide. It didn’t matter that there was an already established Lafayette Radio less than a mile away - or an Olson’s on the other side of town. There couldn’t be enough radio stores for my ham/hobbyist friends and me.



My friend Dave and I popped into the new store and filled out applications for part-time sales. After all, we were licensed hams and probably more than qualified. After a quick talk with the manager though, reality set in. He pointed to a file folder full of applications on the counter. “I’ve got several applicants who are studying electrical engineering and a couple who have experience in electronics and appliance sales. We’ll keep you applications on file.” Didn’t look like we were going to make the cut—this time.

### In the Beginning

Radio Shack started in 1921 as a one-store retail and mail-order operation in downtown Boston run by brothers Theodore and Milton Deutschmann. They chose the name Radio Shack, a term used to describe small wooden shelters that housed a ship’s radio equipment. And the name was quite appropriate, since their target customers were ships’ radio officers as well as ham radio operators. Even today, ham operators refer to their radio rooms as shacks—though most are considerably more sophisticated and comfortable than their predecessors.

Most of the gear sold at the first store was Army surplus, but later expanded to cutting edge electronics for hobbyists and consumers. When the company printed its first catalog in 1939, it had already entered the high-fidelity music market. By the late 1940s, it had become a leading distributor of electronic parts and equipment to do-it-yourselfers and industrial clients. In the 1950’s Radio Shack first introduced its own private label products under the Realistic brand name. The first of these were an FM tuner which retailed at \$39.95, an AM tuner at \$29.95, and a matching amplifier at \$29.95.

Take a look at the online photo album, which includes some pictures of Radio Shack and its early stores in New England:

[http://www.radioshackcatalogs.com/catalogs\\_extra/history\\_stores/](http://www.radioshackcatalogs.com/catalogs_extra/history_stores/)



Over the years, Radio Shack grew its mail order business and expanded its retail base to nine stores in the northeast. But in 1961, business took a turn for the worst. They reported a loss of nearly \$840 thousand on net sales of about \$17 million. This was primarily due to a failed revolving credit program they introduced. They apparently knew how to merchandise, but not how to successfully collect money.



By 1962, were losing almost \$200,000 a month and owed more than \$7 million to local financial institutions. The now debt-ridden company began searching for possible buyers, including competitors Allied Radio and Lafayette Electronics—but no one was interested. (Ironically, Tandy Corporation/Radio Shack bought Allied Radio and Allied Electronics in 1970.)

Charles Tandy, a Texas businessman and head of the Tandy Leather Company eventually bought the nearly bankrupt company in 1963 for \$300,000

But the turnaround wasn't immediate, and there were some major changes to be made before Radio Shack could begin its ambitious expansion program.

Contrary to popular belief, Radio Shack wasn't just an electronics store. When it was under the control of the Deutschmann family, you could find housewares, sporting goods, toys, tires, go-carts, tires and shavers at its main Commonwealth Avenue store in Boston. However, Tandy wanted Radio Shack to be a specialty retailer—not to be everything to everybody. “We want to be a specialist in electronics, specializing in the do-it-yourself field, the guy that’s gonna put up his own antenna, the guy that’s going to fix his own telephone, the guy that’s gonna fix his own hi-fi,” said Tandy. “We want those pieces and parts.”

At the outset, Radio Shack continued to sell some ham products and marine radios. But over the years they began to disappear from the catalogs. Tandy saw the future of radio sales in CB radios. “The number of hams in the United States today may be half a million,” Tandy noted. “The number of CB radio users in the United States is, like, 20 million.” He believed that hams who bought rigs would likely keep them for a long time, and not generate much repeat business, but CBERs would be likely to buy a new radio when they changed cars.

Radio Shack's largest growth happened from the 1970s to the early 1990s. In mid-1980, I again found myself filling out an application—this time at a district office in Northeast Ohio for a part-time sales position to supplement my still modest teaching income. I was hired to work in a plaza store, stuck between an upscale dress shop and National Record Mart.

## Breaker, Breaker

CB radios in 1970s-era films such as *Smokey and the Bandit*, *Convoy*, and television shows like *Movin' On* and *The Dukes of Hazzard* bolstered the appeal of CB radio. Popular novelty songs such as C.W. McCall's *Convoy* helped establish CB radio as a nationwide craze in the USA in the mid- to late-1970s. Mobile CB radios were still the accessory of choice for truckers, road warriors, and families on vacation.

[illegible]

At Radio Shack, there were a variety of models—which by that time had shrunk from boat-anchor size to compact units filled with all 23 channels. 1976 sales topped half a billion dollars. When the 40 channel band plan was introduced, Radio Shack sold the first of these units in January 1977.



Walkie talkies were perennial favorites, especially among kids, hunters, and workers that required portable communications over short distances. These pint-sized radios rode the crest of the CB wave and came in a variety of sizes and designs, from the single channel 100mw Space Patrol to 40-channel 5w units like the TRC-212. The smaller “toy” units eventually migrated to the 49MHz band, including the Micro Space Patrol which did a cameo appearance in the movie *Back to the Future 2*.

Though sales tapered off as CB mania faded, Radio Shack still remained a major player in the market for years to come. Models like the TRC-458 and TRC-449 had gained a solid reputation for their performance and reliability.

### Monitoring the Action

Monitor receivers have been around for a long time in some shape or form. If you look on the dials of radio receivers from the 1930s, you’ll see markings for the police band just above the AM band. In 1930, for example, Chicago police installed their own transmitters around the city and dispatched calls to their own squads as well as to some suburban squads on 1712 Kilocycles.

When police and fire moved to the VHF/UHF bands, monitor receivers became widely available as portable and plug-in home units. The only downside was that you could only listen to a single frequency at a time. These could be found among the radios available at Radio Shack. The Monitoradio DR-200 was one early dual bander that appeared in their 1953 catalog. Another was the Patrolman series of tuneable portables, such as the Patrolman 5 that covered VHF/UHF, as well as AM and FM.



The first scanners—radios that could monitor multiple frequencies—were crystal controlled, like most two-way radios of that era. You had to buy a separate crystal for each frequency, at a cost of \$5 or more each. Most listeners were cost-conscious and bought just enough crystals to scan their local police and fire departments. Radio Shack’s Pro-10 with 8-channel VHF/UHF capabilities was a typical example of these. Radio Shack stores stocked both crystals for local frequencies and regional frequency books—and continued to be a headquarters for scanner enthusiasts.

As technology advanced, so did the scanners. No longer “rock bound,” they were easily programmable for just about any frequency within their receiving range (with the exception of lockouts on cellular phone reception) and supported hundreds of memory channels. They also became more portable, with handheld models that could be easily carried anywhere—in the car, at the airport, or at the auto races.

Though scanners carried the Realistic brand, over the years they were generally custom manufactured for Radio Shack by either Uniden or GRE. The GRE models are now produced by Whistler, and the Radio Shack and Uniden/Bearcat brand models now are displayed side by side on the shelves and in the online catalog. Again, the Shack is going back to its roots selling both house brands and national brands. Representative of its current line is the PRO-652, a digital trunking full-coverage base scanner—manufactured by Whistler.

### Tuning in the World

Shortwave receivers date back to the beginnings of Radio Shack history. At the Boston store, you could find brand names like RME, Halcrafters, Hammarlund, National, Normende and others. This continued until shortly after the Tandy corporation entered the picture. The first of the Realistic brand tabletop shortwave receivers, DX-75, hit the catalog in

1967. In 1967 GRE became the OEM supplier for solid-state Realistic Model DX-150 and DX-160 receivers under the Realistic brand.

Radio Shack also sold shortwave accessories, such as shortwave listener guides, headphones and wire antenna kits for a number of years. They even dabbled in shortwave radio kits, including the Globe Patrol and the Science Fair AM shortwave radio kit.

Today, Radio Shack is back to selling mostly non-house brands, such as Grundig and Sangean. All are portable now or pocket sized, aimed toward the consumer and casual listener. No more desktop units for the “serious” short wave listeners.

### Ham Makes a Comeback

In the 1950s and 1960s, you could buy products from all the big names in amateur radio including Collins, Hallicrafters, Gonset, Hammarlund, and Johnson at the original Radio Shack stores.

Though Radio Shack was essentially out of the ham radio business by 1966, they still sold ham related items, such as code practice sets, coaxial cable, and amateur radio books. Other than buying parts for radio projects, amateur radio operators had to turn to other retailers like AES, Universal Radio, Ham Radio Outlet, and others.

In 1989, ham radios reappeared in stores under the Radio Shack brand, which interestingly, coincided with the formation of the Tandy Radio Amateur Radio Club. “With the number of hams we believe work for the company, we could easily become the largest ham club in the US,” said Bob Miller, AA5FL, vice president of Consumer Merchandising. He and Bud McClure, K5IUO, senior director of Tandy Consumer Services, were the driving forces behind the new club—and perhaps the revival of the ham products as well. The club announcement appeared in the September 1989 *Intercom*, Radio Shack’s company newsletter.



The comeback began with the HTX-100 10 meter SSB/CW transceiver. It was a basic 25 watt radio without a lot of bells and whistles, but it gained a solid reputation for being a reliable and inexpensive transceiver. It was a variant of the Uniden HR-2510—the key difference is that the HR-2510 also has LSB and FM modes.



This initial offering was followed by a line of VHF and UHF transceivers, including such models as the HTX-202 handheld and HTX-242 mobile. A total of fourteen products were introduced over the next few years, including the HTA-20 VHF amplifier and the HTX-10, the successor to the HTX-100. The product line catered primarily to the new no-code technician licensees. However, almost all hams were happy to see the comeback of ham rigs at their local Radio Shacks.

Again, product manufacturing was farmed out to other entities. The HTX-202 and HTX-404 were rumored to have been made by Standard and loosely based on the Icom IC-02 and IC-04 designs. Another account suggests that they were instead made by Maxon in South Korea, who later manufactured the Shack’s GMRS and FRS transceivers.

### Parts is Parts

Any discussion of Radio Shack wouldn’t be complete without mentioning parts. One of the characteristics of the stores during the 70s and 80s was a fairly-well stocked parts section which generally took up a significant part of the store. Charles Tandy wanted to appeal to the do-it-yourself crowd, as well as those looking for plug-and-play solutions.

Hobbyists could often find the parts they needed—or a suitable substitute—for electronics and radio projects. Homeowners supply themselves with the components they needed to wire a home stereo, set up a CB antenna, or even wire extra cable outlets. Radio Shack even did promotions like the “Super Color Special Antenna” right before football season to encourage do-it-yourselfers to replace their old outdoor TV Yagi antennas—before cable and satellite became mainstream.

Though thousands of little parts were a pain to stock and count at inventory time, profit margins on these items topped those of most every other product in the store. One well-known example was the “Lifetime Tube.”

In the days when tube radios and TVs were still fixtures in most households, Radio Shack stores generally had one or more tube testers and did a relatively profitable business in tubes. Tandy had arranged an exclusive deal with Raytheon in nearby Cambridge, MA, to supply tubes under the Realistic name. The selling point—if the tube ever went bad, you could return it to any Radio Shack for a free replacement. In the beginning, customers were a bit skeptical.



“They’d bring a tube back and we’d replace it, and they’d ask, ‘What are you gonna do with that tube, resell it?’” says Kenneth L. Gregson, one of the first members of Tandy’s management team. “We’d laugh and say, ‘No.’ ‘I kept a hammer under the counter and I’d say, ‘Can I have the box that tube I just sold you came in?’ They’d give me the box and I’d put the old tube in the box and lay it on the counter. Then I’d hand them the hammer and say, ‘Would you please smash that old tube for me?’ That kind of led them to believe that we were serious about what we were saying.”

In reality, there was nothing special about these tubes. Odds were, any US manufactured radio tube at that time would last for years anyway. But it was a sales gimmick adding the warranty—people would rather have you guarantee something and make good on it. And it helped bolster the Realistic brand.

Today’s parts wall has morphed into a collection of four sets of drawers that take up a little more than nine square feet of retail store space. Inside the drawers, you’ll find

compact bags, instead of the bulky blister packs. The essentials are covered: popular values of electronic components, jacks, bulbs, clips, connectors and the like. Things that can’t be found in-store can often be ordered from the website, though the shipping may end up costing more than a handful of small parts. An order of \$50 or more gets you free shipping—provided you have a long shopping list.

### Back to the Future

Lagging sales is not a new problem. The company appears to have been suffering an identity crisis since the 1990's, trying different paths to achieve commercial success in a cutthroat world of electronic retailing. Yet they still maintain a sense of humor. Radio Shack scored a hit with their 2014 Super Bowl by poking fun at their reputation for being less than cutting-edge. John Ratzenberger as Cheers’ Cliff Clavin, 1984 Olympics star Mary Lou Retton, Chuckie, Hulk Hogan, ALF, Erik Estrada as Ponch from CHiPs, the California Raisins, Q\*Bert and other icons of the 1980s ransack an outdated RadioShack, then escape in a silver DeLorean.

“That’s the firm’s dilemma in a nutshell: The fact that you evoke warm, nostalgic feelings is not a plus when you’re trying to sell the latest in consumer electronics,” says Harry McCracken of *Time* magazine. “The Super Bowl commercial is a logical attempt to confront this uncomfortable truth head-on — but we’ll know that Radio Shack has entered a new era when stepping into a typical store no longer feels like entering a Wayback Machine.”

They’re currently struggling, with the closing of more 1000 stores slated for the near future--but I’d still to see the Shack move into the black. It was their TRS-80 that introduced me to home computers back in 1978. Every year, I eagerly looked forward to the publication of the Radio Shack catalog. And like many boomers, I’m also a former card-carrying member of the Radio Shack Battery Club.

Those of us that remember Radio Shack in its heyday still long for walls of electronic parts, decent communications gear and employees that can speak electronics. Those of us from the 80's are calling—we want our store back. But that may not be a Realistic course of action (pun intended). Radio Shack needs to recruit a modern version of Charles Tandy who can help them find their niche in the modern world—and perhaps field a few items in the retail lineup to keep the old radio guys happy as well.



# Solar Cycle 25 - Below Average Prediction



**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



## Solar experts predict the Sun's activity in Solar Cycle 25 to be below average, similar to Solar Cycle 24

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**April 5, 2019** - Scientists charged with predicting the Sun's activity for the next 11-year solar cycle say that it's likely to be weak, much like the current one. The current solar cycle, Cycle 24, is declining and predicted to reach solar minimum - the period when the Sun is least active - late in 2019 or 2020.

Solar Cycle 25 Prediction Panel experts said Solar Cycle 25 may have a slow start, but is anticipated to peak with solar maximum occurring between 2023 and 2026, and a sunspot range of 95 to 130. This is well below the average number of sunspots, which typically ranges from 140 to 220 sunspots per solar cycle. The panel has high confidence that the coming cycle should break the trend of weakening solar activity seen over the past four cycles.

"We expect Solar Cycle 25 will be very similar to Cycle 24: another fairly weak cycle, preceded by a long, deep minimum," said panel co-chair Lisa Upton, Ph.D., solar physicist with Space Systems Research Corp. "The expectation that Cycle 25 will be comparable in size to Cycle 24 means that the steady decline in solar cycle amplitude, seen from cycles 21-24, has come to an end and that there is no indication that we are currently approaching a Maunder-type minimum in solar activity."

The solar cycle prediction gives a rough idea of the frequency of [space weather](#) storms of all types, from [radio blackouts](#) to [geomagnetic storms](#) and [solar radiation storms](#). It is used by many industries to gauge the potential impact of space weather in the coming years. Space weather can affect power grids, critical military, airline, and shipping communications, satellites and Global Positioning System (GPS) signals, and can even threaten astronauts by exposure to harmful radiation doses.

Solar Cycle 24 reached its maximum - the period when the Sun is most active - in April 2014 with a peak average of 82 sunspots. The Sun's Northern Hemisphere led the sunspot cycle, peaking over two years ahead of the Southern Hemisphere sunspot peak.

### Solar cycle forecasting is a new science

While daily weather forecasts are the most widely used type of scientific information in the U.S., solar forecasting is relatively new. Given that the Sun takes 11 years to complete one solar cycle, this is only the fourth time a solar cycle prediction has been issued by U.S. scientists. The first panel convened in 1989 for Cycle 22.

For Solar Cycle 25, the panel hopes for the first time to predict the presence, amplitude, and timing of any differences between the northern and southern hemispheres on the Sun, known as Hemispheric Asymmetry. Later this year, the Panel will release an official Sunspot Number curve which shows the predicted number of sunspots during any given year and any expected asymmetry. The panel will also look into the possibility of providing a Solar Flare Probability Forecast.

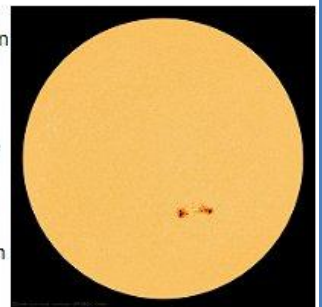
"While we are not predicting a particularly active Solar Cycle 25, violent eruptions from the sun can occur at any time," said Doug Biesecker, Ph.D., panel co-chair and a solar physicist at NOAA's Space Weather Prediction Center.

An example of this occurred on [July 23, 2012](#) when a powerful coronal mass ejection (CME) eruption missed the Earth but enveloped [NASA's STEREO-A satellite](#). A [2013 study](#) estimated that the U.S. would have suffered between \$600 billion and \$2.6 trillion in damages, particularly to electrical infrastructure, such as power grid, if this CME had been directed toward Earth. The strength of the 2012 eruption was comparable to the famous 1859 Carrington event that caused widespread damage to telegraph stations around the world and produced aurora displays as far south as the Caribbean.

The Solar Cycle Prediction Panel forecasts the number of sunspots expected for solar maximum, along with the timing of the peak and minimum solar activity levels for the cycle. It is comprised of scientists representing NOAA, NASA, the International Space Environment Services, and other U.S. and international scientists. The outlook was presented on April 5 at the [2019 NOAA Space Weather Workshop](#) in Boulder, Colo.

For the latest space weather forecast, visit <https://www.swpc.noaa.gov/>

For more information, please contact NOAA Communications [Theo Stein](#), 303-497-0163 and [Maureen O'Leary](#), 301-427-9000



Sunspots observed on the Sun August 24, 2015. NASA



Powerful eruption from the surface of the sun captured on May 1, 2013. NASA



## PCARS VE Test Sessions

**Tom, KB8UUZ**  
PCARS VE Team Liaison



PCARS VE sessions are scheduled for 10:00 am on the first Saturday of every even numbered month at the PCARS club site in Ravenna.

**June 1<sup>st</sup>, August 3<sup>rd</sup>, October 5<sup>th</sup>**

**Saturday, June 22<sup>nd</sup> at the Field Day site - 4 pm**

### What to Bring to the Testing Session

- \$15 is the current test fee. We prefer the exact amount in cash or a check made out to: **ARRL-VEC**
- A government photo ID (**driver's license or state ID card preferred**).
- Your Social Security Number or FCC Federal Registration Number. We are required to submit either your Social Security Number (SSN) or your FCC Federal Registration Number (FRN) with your application. If you are upgrading, your FRN is on your current Amateur Radio license.
- A pen (black ink) and pencil (we can loan you either or both)
- **If you already have an Amateur Radio license: One copy of any current (unexpired) amateur radio operator license issued to you.**
- If you've already passed a test: The original (**and one copy**) of any document that you will use to prove you've already passed a test element.



These documents may include:

- An unexpired Certificate of Successful Completion of Exam (CSCE) indicating the credit(s) earned indicating the credit(s) earned.
- Original and copy of a pre-March 21, 1987 Technician license (this provides credit for the Element 3 [General] exam) - you must be currently licensed to get this credit.

Expired License? **Original and a copy** of your expired Amateur Radio License - you must take and pass Element number 2 to re-instate your license.

Any Questions? Contact: [KB8UUZ@gmail.com](mailto:KB8UUZ@gmail.com)

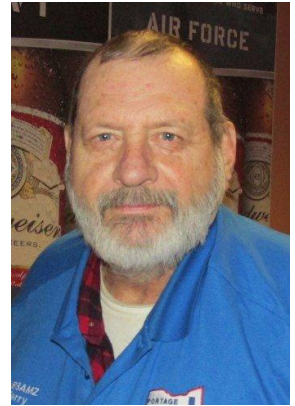


**General Class Element 3 Question Pool errata have been released.** The NCVEC Question Pool Committee has released the latest errata for the [2019 - 2023 General Element 3 question pool](#), which **goes into effect on July 1, 2019**. These changes are reflected in the new General Pool download file, dated March 15, 2019.



## Three Most Asked Question from Newbees

**Terry, KB8AMZ**



I should qualify the difference between New Hams (Newbees) and Veteran Hams. In my opinion, a person is a New Ham if they are licensed, never worked an HF contact using either phone or CW modes. A Veteran Ham is a person that is the opposite of the New Ham.

First question: What (transceiver) radio should I buy? Second question: What is the best antenna? Third question: I live in a Home owner's Association community, HOA. What should I use for an antenna? There is a simple answer to each of these questions. The answer to the first question is one that cost less than your house mortgage (or monthly rent payment) and car loan combined. Simply, a radio that you can afford. The answer to the second question is one that lets you communicate with persons that you want to communicate to/from. And, the answer to the third question is to move. Move to a housing area were you have no restrictions.

Although the simple answers may not be very practical they are simple solutions. I know New Hams that go out and buy New rather than Used equipment and buy certain transceivers because they look nice and have a lot of controls. They buy the radio, never read the manual to learn what all those controls do then complain because they can't contact anyone.

The New ham needs to find an Elmer that is willing to help him/her make a list of bands they want to work, whether they want to communicate by digital, CW, or phone, how much is in their budget. Do they need to buy an all band transceiver or could they still have fun purchasing a mono band transceiver. Could it be QRP rather than QRO or 100 watt output instead of 200 watt output?

The antenna, in my opinion, is the most important link of the communication chain. Having a resonate antenna with gain on receive is more desirable than the most expensive shiny aluminum monstrosity you could place atop a high, expensive tower. Your surrounding property, restrictions to what you can or cannot place in the air above your living quarters, attic space, etc. will determine whether you can have an antenna at your home. Even if these hang obstacles don't pertain to, you the antenna style and location you decide to it hang may not work properly due to soil, obstruction from buildings, etc. The antennas that suffice for your Elmer may not work well at your location. Sometimes experimenting is required.

Were you a ham when you moved into that HOA community? Was the location of your home determined by whether your RF propagation would work or not? Was your family's safety and well-being and issue for living in that type of community? Can you put of stealth antennas and cheat the HOA system's rules and still operate? If there is no way you can put up an antenna then you may have to operate remotely.

With the lightness of transceiver equipment, power source (battery), and easy to put antennas, working remotely is not as difficult as it was years ago. More hams are operating remotely at city parks, State Parks, schools, in fields with fishing poles for temporary masts. Changing your plan for method of operation may be something you might consider rather than working from the comforts of your home.

Being a member of PCARS or a guest you have the opportunity not afforded to other club's members. Our club has a working radio room. Everything you might have at home, except an amplifier.

The most important aspect of this club is the Elmer's that are available. A New Ham needs only to ask. Even if one Elmer says no there will be another that will say yes. To my knowledge there has been no report of an Elmer biting a New Ham so feel free to ask for help when selecting your first acquisition of equipment and/or help.

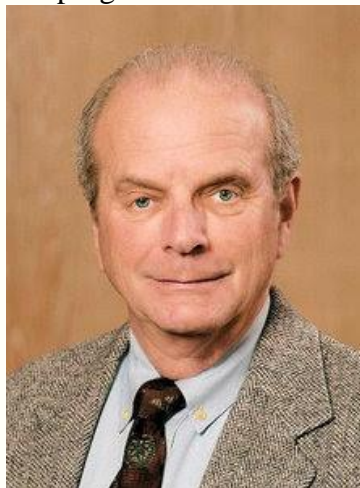
## Progress on the New Volunteer Monitor Program



*From the ARRL*

### ARRL and FCC Sign Memorandum to Implement New Volunteer Monitor Program

ARRL and the FCC have signed a *Memorandum of Understanding (MOU)* that paves the way to implement the new and enhanced Volunteer Monitor program. The memorandum establishes the Volunteer Monitors as a replacement for the Official Observers (OO) program. Current OOs have been encouraged to participate in the new program.



**Riley Hollingsworth,  
K4ZDH.**

"We are excited by the opportunity to codify our partnership with the FCC and to work together to achieve our mutual interests of protecting the integrity of our Amateur Radio bands," said ARRL President Rick Roderick, K5UR. "This *Memorandum of Understanding* will serve as the foundation for a new level of partnership on this very important issue."

ARRL has contracted with retired FCC special counsel and former Atlantic Division Vice Director Riley Hollingsworth, K4ZDH, to oversee the ARRL's role in the development and implementation of the Volunteer Monitor program.

Approved by the ARRL Board of Directors at its July 2018 meeting, the new Volunteer Monitor program is a formal agreement between the FCC and ARRL in which volunteers trained and vetted by the ARRL will monitor the airwaves and collect evidence that can be used both to correct misconduct or recognize exemplary on-air operation. Cases of flagrant violations will be referred to the FCC by the ARRL for action in accordance with FCC guidelines.

The intent of this program is to re-energize enforcement efforts in the Amateur Radio bands. It was proposed by the FCC in the wake of several FCC regional office closures and a reduction in field staff.

"Under this program, the FCC will give enforcement priority to cases developed by the Volunteer Monitor program, without the delay of ARRL having to refer cases through the FCC online complaint process," Hollingsworth said.

Hollingsworth has committed to FCC and ARRL officials to ensure the adequacy of training for the new positions, to review the quality and utility of Volunteer Monitor submissions to the FCC for enforcement actions, and to advocate for rapid disposition of cases appropriately submitted to the FCC.

ARRL officials estimate that the first Volunteer Monitors will be in place and ready to begin their duties within 6 to 9 months.



**PCARS K8BF**  
*The Club that puts the FUN in Ham Radio!*



## Happy Birthday PCARS Members

PCARS members having a birthday in **May**:

<b>WA8UWV</b>	<b>Doug Mansor</b>	<b>KC8LJO</b>	<b>Mike Murray</b>
<b>WD8KGH</b>	<b>William Seckel</b>	<b>K8KSU</b>	<b>Melanie Hardman</b>
<b>K8BBE</b>	<b>Chuck Girt</b>	<b>K8NYM</b>	<b>Wes Ferrell</b>
<b>WA8YFL</b>	<b>Lloyd Brink</b>	<b>KE8HQB</b>	<b>Norman Weber Jr</b>
<b>WA8US</b>	<b>John Brock</b>	<b>W8EZT</b>	<b>Frank Tompkins</b>
<b>K8HTB</b>	<b>Joe Carron</b>	<b>WA8TSI</b>	<b>Rick Tenan</b>

## I Really Like This Club

**Terry, KB8AMZ**

Did I Tell You the Last Time We Spoke... I really like this club.

It took 6 years of convincing me to join. Every time Jim Aylward and my path's crossed he would try to sell me on joining the club. I could have been one of the charter members. Maybe. I told Jim every time 'he tried give me his pitch' that "I was clubbed out". I was tired of joining a club only to find that my idea of what I wanted to accomplish in this hobby was different from that particular club. There was no FUN.

Jim finally convinced me to at least come to a couple club functions. A club meeting and buildathon were my introductions. Each time I visited this club I left wanting to return because I was having fun. Six and one half years later this club is still providing the stimulus I desire. I have landed with a group that has enough like-minded souls with the same interests as I. I've ventured into new areas of the hobby that I may not have tried on my own like contesting and phone on HF.

This club has many members with diversified backgrounds but one common trait I've seen since joining is a propensity to have fun. This club has many activities. If a member only attends one activity per month that activity may be enough to satisfy their "fun meter".

I challenge any member to name one club within a 100 mile radius that has a function for it's members every Tuesday of the month.

Do you keep track of the new members that are joining this club? This month alone 20 members joined. We will have a problem if all current PCARS members show up for the next monthly meeting.

Don't be surprised when we next meet if I tell you, "I really like this club".



## Youth DX Adventure

**Tom, WB8LCD**

**David Kalter, KB8OCP, Youth DX Adventure**

Our May meeting (the week of Hamvention) will see PCARS member Jim Storms, AB8YK – coming over from the Dayton area to make a presentation on the **2019 YDXA** trip. The YDXA trip will be On-The-Air in Curacao from July 14 - July 19, operating from PJ2T.

This is an outstanding opportunity for new, young Ham Radio Operators to get the thrill of being DX. I can tell you from personal experience, the thrill will be there for them! PJ2T is an outstanding venue for a program like this.

Once again, PCARS will be making a donation to the YDXA in support of their program and the good it does for ALL Ham Radio Operators. I would like to suggest that for those of you who are able, a personal donation would certainly be appreciated and accepted. You could give that to Jim at our meeting or at Hamvention if you're attending. These donated funds make the trip something that any youth who meets the criteria and is selected can participate in, regardless of the financial ability of their family to pay for it. For some kids, I'm sure it could be the biggest adventure they ever get to participate in!

Kudos also to Geoff Howard, W0CG / PJ2DX, and the other members of the Caribbean Contesting Consortium for making the PJ2T station available to them. The last year has seen many major improvements at PJ2T and I'm sure it will provide some outstanding Ham Radio Fun for the members of the 2019 Youth DX Adventure.

PCARS is a Fantastic club. Our "outreach" takes us beyond our own membership and influences individual hams and the hobby in general in a positive way. Every one of our members can be proud of the organization that they belong to and support!

## PCARS Group IO

Members are reminded that PCARS has a Group IO site dedicated to PCARS information. It's a great site to sign up for and get on the mailing list for important PCARS information.

Check out the PCARS Group IO at: <https://groups.io/g/PCARS>

### ***Two things every member should do.***

1. Check the PCARS web site every day, maybe a couple of times a day to see new information that is posted.
2. Another thing to do is to join the PCARS Group IO. That's a great place to post message when you are looking for information or have a question about something. Try it - you just may like it!!



## Hamfest Calendar

**05/17-19/2019 - 2019 ARRL National Convention at Dayton Hamvention®** - Location: **Greene County Expo Center** - 120 Fairgrounds Road - Xenia, OH 45385 - Website: <http://hamvention.org> - Sponsor: Dayton Amateur Radio Association - Public Contact: Henry Ruminski, W8HJR - PO Box 964 Dayton, OH 45401 - Phone: 937-232-9272 - Email: [media@hamvention.org](mailto:media@hamvention.org)

**06/01/2019 - Breeze Shooters Amateur Radio Club** - Location: Big Butler Fairgrounds - 1127 New Castle Road - Prospect, PA 16052 - Website: <http://www.breezeshooters.org> - Sponsor: Breeze Shooters Amateur Radio Club - Public Contact: Cathy Heiles, KB3OYS - 134 Easley Road Pittsburgh, PA 15237 - Phone: 412-600-3846 - Email: [kb3oys@breezeshooters.org](mailto:kb3oys@breezeshooters.org)

**08/03/2019 - Columbus, Ohio Hamfest** - Location: Aladdin Shrine Center - 1801 Gateway Circle - Grove City, OH 43123 - Website: <http://www.columbushamfest.com> - Sponsor: Voice of Aladdin Amateur Radio Club - Public Contact: John Lehman, K8PJ - 7415 Hagerty Road Ashville, OH 43103 - Phone: 614-571-5179 - Email: [k8pj.john@gmail.com](mailto:k8pj.john@gmail.com)

**09/22/2019 - Cleveland Hamfest and Computer Show** - Location: Cuyahoga County Fairgrounds - 164 Eastland Road - Berea, OH 44017 - Website: <http://www.hac.org> - Sponsor: Hamfest Association of Cleveland - Public Contact: Glenn Williams, AF8C - 4134 Stoney Ridge Road Avon, OH 44011 - Phone: 440-934-5566 - Email: [af8c@arrl.net](mailto:af8c@arrl.net)

## PCARS Patches & Stickers



New PCARS logo patches (*iron on*) & stickers (stick on) are now available!! Put the patch on your hat, your shirt, your jacket and show off that PCARS logo!! The patch is about 3". The embroidery on the white patch is in Red, Black and Blue. Cost for a patch



is only \$2.00 each and can be obtained at any PCARS meeting. There are 2 types of stickers available - a 4" x 6" oval and a 3" x 10" bumper sticker. Stickers are \$1 each. Show your pride in PCARS - Wear a patch, use the stickers! See the club Treasurer: **Paul, KE8EGF** or e-mail him at: [phyland@neo.rr.com](mailto:phyland@neo.rr.com)



# PCARS K8BF

The Club that puts the FUN in Ham Radio!



## Swap-N-Shop

**FOR SALE: LDG Z-11 Pro II Auto-tuner.** \$110. I bought this new a few years ago, and used it a few times a year when running portable. I'm buying a Rig-specific tuner, so this won't be needed any longer.

Contact: John, KD8MQ email: [kd8mq1@gmail.com](mailto:kd8mq1@gmail.com) Phone: 330-936-5021 [08/02/19]

**FOR SALE: RigExpert AA-35ZOOM Antenna Analyzer,** .06 to 35 MHz, with USB cable, manual and carrying case. Like new, in factory box. \$195.00.

Contact Gary WD8ICX - Phone 330-863-2247 or email: [gmarks@neo.rr.com](mailto:gmarks@neo.rr.com) [08/02/19]

**FOR SALE:** My son in law's mother passed away a month ago. He is getting her home cleaned out and ready for sale. There are five or six **10 foot light duty tower sections** stored that have never been erected that the family wants to sell. \$75 for all. Contact

Al WA8CCU - email: [radioflyer73@roadrunner.com](mailto:radioflyer73@roadrunner.com) [08/02/19]

**FOR SALE: "ChannelMaster" 50' steel telescoping antenna supports - Two (2) each.** Good condition, never used, stored in garage. Five 10.5' sections each, with hardware. Guy rings attached. No shipping. U-pick-up. \$50.00 cash for pair. Location: Cuyahoga Falls.

Contact: Bob, NT8K (330) 923-2542 [08/02/19]

**FOR SALE: Flex Radio 5000A** with second receiver Excellent condition Original owner Original and upgraded FireWire cables \$1150.00 **Palstar DL2K Dummy Load** with wallwart. Original model with antenna connection on the front. \$250.00 **Yaesu FT-8800R** Mint condition. Never mobile used in shack for 3 months \$225.00 **CN-801HP Power and SWR meter.** Older model with little use \$90.00 **W2IHY 8 band Audio Equalizer and noise gate.** **W2IHY EQPlus wallwarts** for both units and a custom cover. Cable for Icom radio \$375 **Palstar SP30 speaker.** Mint condition \$85.00 **Logikey Model K-5** Mint condition. Never used \$150.00 **ZN-4A Key.** Mint condition. never used \$225.00 **MFJ 929 IntelliTuner automatic antenna tuner** 200 watts SSB/CW excellent condition used for 2 months. \$165.00 All sales cash and no trades.

Contact Russ K8QF- Phone 330-906-2880 or email: [russ32458@aol.com](mailto:russ32458@aol.com) [07/02/19]

**FOR SALE: MFJ-259B Antenna Analyzer,** 1.8 to 170 MHz , with charger and new rechargeable battery set , manual, MFJ box included. \$175.00 **RigExpert AA-35ZOOM Antenna Analyzer,** .06 to 35 MHz, with USB cable , manual and carrying case. Like new, in factory box.

Contact Gary WD8ICX - Phone 330-863-2247 or email: [gmarks@neo.rr.com](mailto:gmarks@neo.rr.com) [07/02/19]

**FOR SALE: Icom 756 Pro III** - With box, manual, microphone and power cord. Selling since I upgraded to a 7600. Asking \$1000.00 or best offer - let's talk.

Contact Richard KA8OAT - Phone 330-506-7068 or email: [RCMBASS@AOL.COM](mailto:RCMBASS@AOL.COM) [06/02/19]

**FOR SALE: Bird Watt Meter Slugs:** I will give a \$15 discount on the second and any subsequent slugs in multiple slug purchases. Prices are as follows; 50H (50 Watts 2-30 MHz) \$110. 250H (250 Watts 2-30 MHz) \$110. 1000H (1000 Watts 2-30 MHz) \$120. 2500H (2500 Watts 2-30 MHz) \$160. 5000H (5000 Watts 2-30 MHz) \$180. Any of the following for \$65.00: 5A (5 Watts 25-60 MHz), 10A (10 Watts 25-60 MHz), 1000B (1000 Watts 50-125 MHz), 50C (250 Watts 100-250 MHz), 50 D (50 Watts 200-500 MHz), 500E (500 Watts 400-1000 MHz).

**Alpha 77DX** with all of the Dick Byrd upgrades. These upgrades include the following; higher voltage plate transformer providing 4300 Volts idle, 7500 Volt rectifiers, 5000 Volt 35 µf filter capacitor, 15,000 Volt DC blocking capacitor, wide spaced loading capacitors like are used in the 77SX, all new step start components, large 10x38mm fuse holders, all new electrolytic capacitors on timer & QSK boards as well as LED lighting for the meters. This amplifier has ZERO HOURS since being upgraded as it was my back-up amplifier.

**Ameritron ALS-606S,** 160-6 meter 600 Watt solid state amplifier. I purchased this amplifier from HRO in Woodbridge, VA to use in my 6 meter simplex operations. I found that 600 Watts was not enough power for what I was trying to do. So this amplifier was only out of the box for three days. and only used for about four hours of testing one day until I purchased a full legal limit 6 meter amplifier. I paid \$1899 for the amplifier and I will sell it for \$1700.

**HENRY 3006 6 meter full legal limit floor console amplifier** needs a new filament transformer. Runs an 8877 tube, tube has been verified as being at full output thru testing in my Henry 3002 2 meter amplifier. The tube produced 1850 Watts FM carrier into a 50 Ohm load with just 75 watts of drive on 144.200 MHz. Asking \$1500.00

**IC-718 160-10 meters,** Mars Mod, full output, few minor scratches, power cord & microphone. \$400.00

If not sold prior to Dayton Hamvention all of these items will be available at Dayton.

Contact James. KD8VT - 330-206-4909 [08/02/19]

**FOR SALE: Diawa Cross Needle Antenna Tuner** - Model CNW 419 - Asking \$175

Contact David, WV8P - email: [WV8P@roadrunner.com](mailto:WV8P@roadrunner.com) [05/02/19]



## Kent Mini Maker Faire 2019

*Jim, AC8NT*

This was our third year at the Kent State Mini Maker Faire and I believe it was our best. First we had a great crowd. It was the best crowd we have had at Kent State. I have received a lot of emails asking for more information on our club and classes. This fair had a more educational focus with many of the tables focused on resources for teachers and students to learn more about electronics, robotics and programming. I was surprised to see the large number and variety of tools available. At our booth we had several “maker” projects supplied by Robert - KD8CGH, Doug - WA8UWV and Rick - K8CAV. I had my IC-7000 up and running on FT8. We actually made some decent contacts using our station.



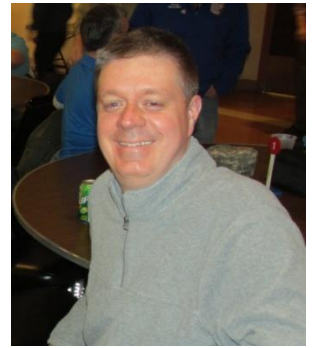
Again, people are continually surprised that hams still make stuff. We showed them that you can make some decent equipment without a lot of tools or money. We also showed with the help of our young ambassadors Ben - KE8JUZ, Bernadette - KE8LWO and Agnes - KE8LWP that kids can learn a lot from ham radio. They were great! I think Ben met almost everyone that attended the fair. Rick demonstrated a SDR system; the Doug and Robert team had lots of stuff that they had built to show; and Mike - KB8TUY answered questions. We all had a good time.



As I have said before, Maker Faires are an excellent opportunity to introduce people to ham radio and show its many facets. Our next Maker Faire will be the Akron Mini Maker Faire on October 12<sup>th</sup>. If you are interested in helping with that event let me know by email.

## PCARS Flex Net

*Deron, N8XTH*



The PCARS FlexNet is a monthly net for PCARS members and all other hams using HF, 2 meter simplex or 2 meter SSB.

The net will be held on the second Wednesday of the month at 8:00pm. Every month the net will be held on a different band. We will communicate what frequency we are using for the Flex Net on the K8IV 146.895 repeater and also post it to the PCARS group.io page.

Below is the net schedule, (subject to change):

8-May-2019	40m
12-Jun-2019	80m
10-Jul-2019	2m FM Simplex
14-Aug-2019	40m

11-Sep-2019	20m
9-Oct-2019	15m
13-Nov-2019	10m
11-Dec-2019	20m

There will be two parts to the net. The first is a quick check in and social time. (This net is not designed to take the place of the weekly Thursday night nets on 146.895.) The second part will be devoted to the PCARS A-to-Z Award where you will be given the chance to work different PCARS members in order to earn the award. (Information on the award was in the April newsletter.)

While you do not need to be a member to check into the FlexNet, qualifying for the A-to-Z Award requires that you are a PCARS member, so we would kindly ask that you state that you are not a member during the check in portion of the net and refrain from participating in the A-to-Z exchange portion of the net.

If you are a PCARS member participating in the A-to-Z net, the only requirement is that you provide a QSL card to each and every member that requests a QSL card from you. The new PCARS "Squirrel Buro" will hopefully help to defray the cost of exchanging cards by providing members a free way to trade cards at their convenience. (Information on this is also in this month's newsletter.)

The A-to-Z portion of the net will be run like any typical net with a net control operator. The exchange between stations is simple, callsign, name, and signal report.

More than anything, this net is hopefully going to get more people on the air more consistently, help other members earn their first HF or SSB wallpaper, and help to put more FUN into amateur radio!

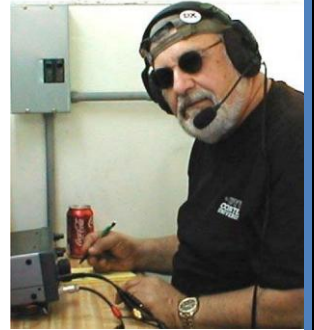


**PCARS K8BF**  
*The Club that puts the FUN in Ham Radio!*



## Charlie the Tuner's HF High-Lites

**Chuck, W8PT**  
a.k.a. "Charlie the Tuner"



Greetings to all DXers:

May has arrived and the sun is starting to give us some nice temps. In fact, it's nice enough that I and a few others have started to work on getting the antenna/tower wreckage cleared so that I can start digging holes for the new tower bases. It will be a long process but I'm hoping that I can be on the air by fall. I tried to get a professional group to do the work, but it seems my projects are too small for them to fit into their schedules. I can appreciate that but of course that means that I and a few others will be doing the work and it will take a lot longer. Oh well....what else do I have to do since I am retired and have a lot of time on my hands. Ha!!!

I'm hoping that those of you who have antenna work or other work outside will not be like me (a procrastinator) and start on your projects as well.

I have read that the next sunspot cycle is starting and will be better than Cycle 24. I've also read that the next sunspot cycle is starting and will be no better than Cycle 24. I think these folks are getting their training from the same people that weather forecasters do. And they're no better. So my advice is to turn on your rigs and see for yourselves if the bands are open or not. You might be presently surprised.

Let's see what you might be able to work in the next few months.

As always, thanks to the Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn PacketCluster Network, the AB5K's AR Cluster Networks, NJ1Q & W1AW, NG3K & ADXO, W3UR & The Daily DX, K4UEE, WB6RSE, N7WR, W7HU, K8YSE, W8GEX & 60m DX News, W9ILY, DL1SBF, DL7UXG & The DX News Letter, DxCoffee.com, DXNews.com, DX-World.Net, F5NQL, F6AJA & Les Nouvelles DX, I1JQJ/IK1ADH & 425 DX News, IZ4YGS, OM3RM, OZ4FF, OZ6OM & 50 MHz DX News, RW6HS, Sixitalia Weekly, and VA3RJ & ICPO for the following DX information.

And as always, this report "could" contain "Pirate/SLIM" operation or more likely a "BUSTED CALLSIGN". As always, you never know, so..... - **"Work First, Worry Later"**.

PLEASE NOTE: The fact that donation requests, from various DXpeditions, are at times included in this column does not mean that PCARS or this HAM approves or disapproves of donating to the DXpeditions listed. I am only providing information for you to make up your own minds as to whether or not to donate.

**3D2 & FW, FIJI AND WALLIS & FUTUNA ISLANDS (Reminder).** Nobby, G0VJG, will be active as 3D2AS from Fiji between May 3-8th. He will also be active as FW/G0VJG from Wallis Island (OC-054) between May 8-22nd. He may also make a possible short side trip to Futuna Island (OC-118). Dates could change. Activity from the islands will be on 60/40/30/20/17/15/12/10/6 meters using SSB and FT8. QSL via M0OXO's OQRS.

**4X64/4Z64, ISRAEL.** Members of the Israel Amateur Radio Club will be active during the 64th Eurovision Song Contest in Tel Aviv with the following special event callsigns until May 18th: 4X64G, 4X64N, 4X64O, 4X64S and 4Z64EURO. Activity will be on various HF bands using CW, SSB, PSK and FT8. A special colorful award will be given to any radio amateur station or SWL that will make or hear at least 10 contacts with the special stations. Details are available on QRZ.com for each of the special stations. QSL via ClubLog, LoTW or eQSL. To check your contacts or to generate the special award, please follow the link: <https://www.iarc.org/livelog>

**5R, MADAGASCAR.** (Reminder) Giovanni, IZ2DPX, will be active as 5R8PX from Nosy Be Island (AF-057), Madagascar, between, August 3-17th. Activity will be on various HF bands using SSB and the Digital modes. Equipment

is an IC-706 (w/100w) into a vertical. QSL via IK2DUW/HE9ERA, direct, by the Bureau, Clublog or LoTW. For updates, watch: <https://iz2dpx.jimdo.com>

**6O, SOMALIA** (Update). Ali, EP3CQ, active as 6O1OO until May 15th. Activity limited to his spare time because he works for the UN Department of Safety and Security (UNDSS) in Mogadishu. Operations will be on 80/40/30/20/17/15/10 meters (mostly on 40/20meters FT8) using SSB & FT8. Last time he suggested that he will be on everyday between 1800-2000 East Africa Time (EAT) and on the weekend (Friday and Saturday) between 1400-1800. Equipment is a Yaesu 857D into a Tarheel Little II (currently active), and Sandpiper MV-10. Also, effective as of Feb 11, the callsign (6O1OO) is accepted for DXCC credit. QSL direct to: Ali Solhjoo, Schnackenburgstr. 3, Berlin 12159, Germany. QSL cards will be replied to on a bi-monthly basis.

**8Q, MALDIVES.** Operators Nobuaki "Nobu"/JA0JHQ and Tetsuya "Ted"/JA7XBG will be active as 8Q7NH and 8Q7XB, respectively, from Embudu Island, Maldiv Islands (AS-013) between May 7-10th. Activity will be on 160-6 meters using CW and FT8. QSL 8Q7NH via JA0JHQ direct only or LoTW (preferable). NO BUREAU. For updates, watch his home page at: <http://pandasan.jimdo.com> QSL 8Q7XB via JA7XBG, direct or LoTW

**9G, GHANA.** Matteo, IZ4YGS, active as 9G5GS from Sanzule, West Takoradi (Western Region), Ghana, between April 13th and May 7th. Matt said that he travels to Ghana almost every month for work reasons. Activity will be limited to his spare time. He is usually on "almost every evening" on 20/30/40/60/80/160m; Setup FT-891, small 300w amp and vertical antenna, using mostly FT8 and SSB. On FT8 (Fox-Hound Mode) the suggested frequencies are: 3567, 7056, 10131 and 14090 kHz. QSL via IZ4YGS, direct or eQSL.

**9K, KUWAIT.** Hamad, 9K2HN, will be active during the CQWW WPX CW Contest (May 225-26th) as a Single-Op/All-Band entry. QSL via 9K2HN, by the Bureau, direct or LoTW. You can see some of his videos or Ham related video on: <http://www.youtube.com/user/9k2hn>

**9U, BURUNDI.** Francesco, IV3TMM, will once again be active as 9U3TMM from Bujumbura (WW Loc. KI46QP) between August 31st and September 17th. Activity will be on 60-6 meters using SSB, RTTY and FT8. QSL via IV3TMM, by the A.R.I. Italian Bureau, ClubLog or LoTW.

**AMSAT RARE GRIDS.** Alex, N7AGF, will make his semi-annual rover trip to activate rare and somewhat rare grids May 4th or 5th (or longer depending on how things go). He will fly into Minneapolis and drive back to his home grid CN88, activating as many ENx8, ENx7, DNx8 and DNx7 grids as possible along the route. He hopes to hit as many corners and lines. Activity will be on both linear and FM birds. As always, activations and route details will be posted on his Twitter page @N7AGF at (<https://twitter.com/N7AGF>). Alex will also be on APRS at (<https://aprs.fi/N7AGF-10>). In areas of limited cell service, he will be using inReach.

**CARIBBEAN TOUR (FS/PJ8).** Satoru, JI1DFO, will be on holiday with his XYL in the Caribbean during the month of June. His tentative schedule are from Saint Martin (FS) and Sint Maarten (PJ8): June 13-15th -- From Dutch Sint Maarten (NA-105); signing PJ8SK; QTH will be at Bob's Baywatch Villa, 28 Beacon Hill Rd. June 16-18th -- From French Saint Martin (NA-105); signing FS/AG5CR; QTH will be at Le Temps des Cerises Hotel Beach, Grand Case. Activity will be on 40-17 meters using FT8 only. Equipment is an IC-7300 with a amp(~300W) into 8 meter long vertical+ ATU or 17 meter delta-loop+ ATU. QSL via JI1DFO, LoTW and ClubLog's OQRS. Look for updates on his QRZ.com pages.

**CR3/CT9, MADEIRA.** Tibi, OM3RM/CT9ABN, will be active as CR3DX from Porto Moniz, Madeira Island, during the CQWW WPX CW Contest (May 25-26th) as a Single-Op/All Band/High-Power entry. He will be on the island between May 21-29th, so activity outside of the contest will be on 80-10 meters using the callsign CT9ABN. QSL via OM2VL, direct or by the Bureau. Please don't send QSL via CT Bureau; use OM QSL Bureau or direct.

**CZ, CANADA.** Gerry, VE1RM/W1VE, will be using callsign, CZ1Z, during the CQWW WPX CW Contest (May 25-26th) as a Single-Op/High-Power entry. QSL via LoTW. The CZ1Z special callsign belongs to the Yukon CanAm Contest Club (VY1AAA). The special callsign is part of the 50th anniversary celebration of the Official Languages Act of Canada. Canada amateurs will be using these special prefixes for this celebration between March 28 and May 28. The VEs may change their prefix to CK, VA may use CJ, VY may use CZ and VO can use CY.

**EA6, BALEARIC ISLANDS.** Dave, WJ2O, will be active as EA6/WJ2O from the Balearic Islands (EU-004) during the CQWW WPX CW Contest (May 25-26th) as a Single-Op/All-Bands/Low-Power entry. Activity outside of the contest will be on the WARC-79 bands. QSL via Ken, N2ZN, and LoTW.

**EF8, CANARY ISLANDS.** Juan, EA8RM (ex-EA8CAC), will be active as EF8R during the CQWW WPX CW Contest (May 25-26th) as a Single-Op/All-Band entry. QSL via LoTW or EB7DX.

**FR, REUNION ISLAND** (Reminder). Thomas, F4HPX, active as FR/F4HPX from various locations on Reunion Island (AF-016) from mid-May until the beginning of June. He will be operating from his family home, and also from beaches and especially from the mountains because there is a lot of them including an active volcano. This time he will be with SOTA Manager for FR-RE - James, FR4PV, (but possibly alone as well). Activity will be on 40-15 meters using CW (possibly), SSB, RTTY, PSK31, JT65, JT9 and possibly FT8. He will use various wire and portable antennas with 2 rigs: FT-891 from home with 100w and KX2 outside (alone or with small 30W HF amp). QSL via his home callsign, by the Bureau, direct, LoTW, eQSL or ClubLog's OQRS. Also, check out the pictures of his past operations on QRZ.com.

**J7, DOMINICA.** Operators Tom/SM0CXU/SM2U (PY2ZZXU, PW2D) and Andersson/ SM0DZB/SM0T will be active as J79U and J79TA, respectively, from Dominica Island (NA-101) between May 7-15th. Activity will be on various HF bands. QSL both callsign via M0OXO or his OQRS.

**J8, ST. VINCENT** (Reminder/Update). Brian, GW4DVB, active as J88PI from Palm Island (aka Prune Island, WW Loc. FK92HO, IOTA NA-025), in the St. Vincent and the Grenadines Island group, between May 7-14. Activity on 40/20/17/15/10/6 meters using CW, SSB, SSTV and FT8. He will use a Yaesu FT991A into a 10m vertical antenna, a M0CVO HW-40HP off center fed dipole and possibly new antennas. QSL via GW4DVB direct only (PayPal available) to: PO Box 20:20, Llanharan, Pontyclun, Wales - UK CF72 9ZA. For more details and updates, check: <http://www.g4dyb.co.uk> ADDED NOTE: Palm Island is an exclusive, private-island resort. This idyllic tropical hideaway is situated near the southern tip of St. Vincent and the Grenadines, an idyllic archipelago of 32 tropical islands and cays known for its stunning natural beauty, clear, warm waters and turtles.

**JA, JAPAN,** Special event station 8J1ITU will be QRV from Honshu Island, IOTA AS-007, from May 1 to 31 to celebrate the anniversary of the founding of the International Telecommunications Union. QSL via bureau.

**JT, MONGOLIA,** Andy, R9YU will be QRV as JT/R9YU from the Great Lakes Basins of Mongolia from May 2 to 12 while here as a communications specialist. Activity will be on 40, 20 and 15 meters using SSB. QSL direct to home call.

**JW, SVALBARD.** Freddy, ON6FDP, will be active as JW/ON7SA from Svalbard (EU-026) during the RSGB IOTA Contest (July 27-28th) as a Single-Op/ Non-Assit entry. QSL via ON6FDP.

**K7, UNITED STATES** (Special Event). For one week, beginning May 12th, operators Jerry/N7WR and Tim/KC8RYO will activate special event station, K7P, in honor of National Police Week. They will be on the air (SSB only, General portions of the HF bands) as their schedules permit. There is a commemorative QSL card (SASE required) for those who QSL to the K7P address as listed on QRZ.com. The purpose of this special event is to call attention to the men and women of law enforcement who have given their lives in the line of duty. This special event is in cooperation with the Concerns of Police Survivors organization.

**LY, LITHUANIA.** Special event station LY800SMG is QRV until May 27 to celebrate the first datable reference to the region Samogitia from 800 years ago. QSL via LY2NZ.

**MJ, JERSEY.** Ops Marek/MJ0ILB, Lidor/MJ0IKL, Vláša/OK1FIK, Honza/ OK1NP, Jozef/OK1FWM and Zdenek/OK3RM will be active using their own personal callsigns, be it the native Jersey callsign or the CEPT variant of their home callsign, near St. Brélade, Jersey (EU-013), between July 21-29. Activity on various HF bands, including 6 m using CW, SSB and some Digital modes. Active as MJ0ICD during the RSGB IOTA Contest (July 27-28th). For more details: <http://www.ok1bil.cz/pages/jersey-2019-dxpediton>

**OJ0, MARKET REEF.** Pasi, OH3WS, active as OJ0W from Market Reef (weather permitting) between May 1-4th. Activity will be limited to his spare time on 20-6 meters, including 60/30 meters, using mostly CW and some SSB. Pasi will try 60m on both CW and SSB, listen on 5354 kHz. QSL via OH3WS, by the Bureau or direct.

**S9, SAO TOME & PRINCIPE.** Operators of the LazyDxers Team(Jose/EA1ACP,Charly/EA1DVY, Pedro/EA5BJ, Gen/EA5EL, Francisco/EA7FTR, David/EB7DX and Helio/S92HP) will be active as S9A from Sao Tome Island (AF-023) between June 6-18th. Activity will be on various HF bands using CW, SSB and FT8. QSL via EB7DX. Look for

more info to be forthcoming. ADDED NOTE: This is a reissued callsign that was used in the 2004 CQWW CW Contest. QSL via OH2TA.

**T5, SOMALIA.** Ali, EP3CQ is QRV as 6O1OO until May 15 while on work assignment with the UN Department of Safety and Security in Mogadishu. Activity is in his spare time on 80 to 10 meters using SSB and FT8. QSL direct to home call.

**T43, CUBA.** Members of the Special Group of Expeditions and Competitions (GEEC) will be active using the special callsign T43A from the Province of Artemisa, in the western part of the Republic of Cuba, between 0000 UTC, May 16th and 0000 UTC, May 20th. This operation is celebrating their first anniversary. Activity will be on 80-10 meters, including 60 meters, using CW, SSB, RTTY and FT8. QSL via RW6HS.

**V3, BELIZE.** Paul, VE3AXT, is once again active as V31AX in the northern part of the country, Consejo Shores, Corozal, until mid-May. His rig is an IC-7300 with 100 watts into a Hexbeam G5RV dipole. QSL via M0URX and OQRS. Bureau QSLs are via OQRS ONLY at . Please do not send YOUR QSL card via the Bureau. For more info and pictures, see his V31AX QRZ.com Web page.

**WP4, PUERTO RICO.** Felipe, NP4Z, will be active as WP4X from San Juan during the CQWW WPX CW Contest (May 28-29th) as a Single-Op/High-Power entry. QSL via N4AO.

**XV, VIETNAM.** Sven, HB9DXB, will be active as XV9DXB from his second home in Vietnam starting around June 1st. Activity will be on 80/40/20/10 meters using CW and SSB. QSL via HB9DXB direct or LoTW.

**YB, INDONESIA.** Hans, YB2DX, will be active during the CQWW WPX CW Contest (May 25-26th) as a Single-Op/Single-Band (80m) entry. QSL via LoTW or direct to his home callsign.

## IOTA NEWS...

**AF-118.** (New IOTA) Toufelaz, CN8QY, is planning to lead a team to activate Los Farallones Island, Morocco, between July 25-30th. Callsign will be 5C9A. Operators mentioned are Zidane/CN8CE, Toufelaz/CN8QY, Hamid/CN8HDZ, CN8PA/CN8PA, Ferti/CN8RAH, Leopoldo/I8LWL, Bruno/IK2PZG, Simon/IZ7ATN, Col/MM0NDX and possibly 1-2 more. They are looking for support. Details are on QRZ.com.

**AS-079.** Take, JS6RRR/JI3DST, will be active from Miyako Island between April 24 - May 7. He will use the following callsign: JI3DST/6 for DX, and JS6RRR & JL3YWN/6 for JA stations. Activity on 80/40/30/20/17/15/12/10/6 meters using CW, SSB, FM, RTTY and FT8. Ops may vary in case of heavy rains or other conditions. QSL routes: JI3DST/6 via JI3DST; JS6RRR via JS6RRR and JL3YWN/6: ONLY 1 WAY (Please don't send QSL to him). Please check QRZ.com for details. Look for logs to be posted on ClubLog.

**EU-008.** Operators Steve/2E0EFP, Glen/G0SBN, Chris/GM3WOJ, Graham/M0GAE, Bob/M0KLO and Callum/M0MCX (members of the Tynemouth ARC) active as GS0NWM from Mull Island (WAB NM73) between May 17-24. Activity on 80-10 meters using CW, SSB and the Digital modes. QSL via M0URX direct or via OQRS.

**EU-065.** Operators Christophe/F4ELI, Andy/F4ELK, Stef/F5UOW, Derek/F5VCR, Dick/F6DXE and Jean/ON7ZM will be active as TM5BZH from Ouessant Island (DIFM AT-001, WLOTA LH-0208) between May 25th and June 1st. Activity will be on CW, SSB and FT8. QSL via F4ELK, direct or by the Bureau.

**EU-068.** Members of the F6KOP Radio Club active as TM5S from Sein Is. during the RSGB IOTA Contest (July 27-28) as Multi-Single/DXpedition/Mixed-Mode/Low-Power. QSL via F5MFV, by the Bureau, direct, ClubLog or eQSL. Ops mentioned are Maurice/F5NQL, Raymond/F6DVH, Pierre-Marie/F4FCE, Bastien/F4EYQ and Fabien/F4GYM.

**EU-122.** Ian, G3WVG, will be active as MN5A from Rathlin Island, Northern Ireland, during the RSGB IOTA Contest (July 27-28th) as a Single-Op/Mixed-Mode/DXpedition entry. QSL via LoTW.

**NA-143.** Joe, K5KUA, will once again be active as K5KUA/5 from Galveston Island (USI TX-001S, Galveston County, Texas) during the RSGB IOTA Contest (July 27-28th) as a Single-Op/Island-Fixed/Low-Power entry. Operations will be mostly CW and some SSB. QSL via his home callsign, direct, by the Bureau or LoTW.

**NA-250.** (NEW IOTA/UPDATE) Ops Mike/K9AJ and Bruce/KD6WW will be active as K7Y from the North side of Khantaak Is. in the Yakutat County Group, Coastal Groups (Alaska), between May 9-13. Activity on 40/30/20/17 meters using mainly CW, with some SSB and FT8. QSL via K9AJ, direct, by the Bureau or ClubLog's OQRS.

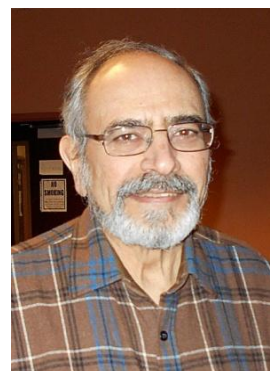
**OC-133.** Saty, JE1JKL, will once again be active as 9M6NA from Mohammed's, 9M6MO, QTH on Labuan Island, East Malaysia, during the CQWW WPX CW Contest (May 25-26th). He will be on the island between May 23-28th., His focus will be on 6 meters FT8 (50.313 and 50.323 MHz). Also, FT8 (F/H) on 50.318 MHz. QSL via ClubLog's OQRS only for Bureau and direct QSLs. All the logs are promptly uploaded to LoTW. Visit Saty's home page at: <https://jsfc.org/je1jkl/9m6na.html>

**OC-235.** Operators Audie/DU1ZDR and Gazelle/DU1ZDQ active as DZ1A from Patrick's on the Beach, Siargao Island, between May 4-5. Activity on specifically IOTA frequencies 14260 and 7055 kHz using CW and SSB.

There seems to be a lot going on in the next few months, so turn on your rigs and see if can work some DX. Until next month, 73 and Gud DX!!

## Deriving Equations for NE555 Timing

*Doug, WA8UWV*



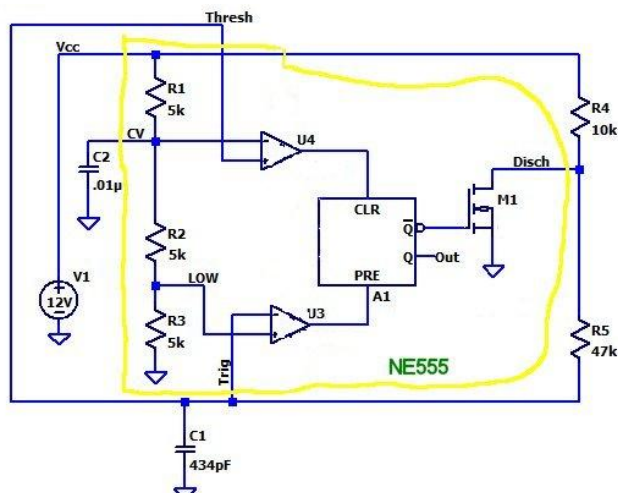
### Deriving Equations for NE555 Timing using the CV input

About 8 or 9 years ago I needed a way to control the frequency of a NE555 oscillator with a variable voltage. I knew that the CV input to the NE555 could be used to adjust the timing but couldn't find an equation that related timing to control voltage. I'm not really fond of math for its own sake but decided to attempt to derive the needed equations. It turned out to be a not too difficult exercise and actually was a bit fun. Thus, I thought I would share the resulting equations with the fun-loving club I've found you to be.

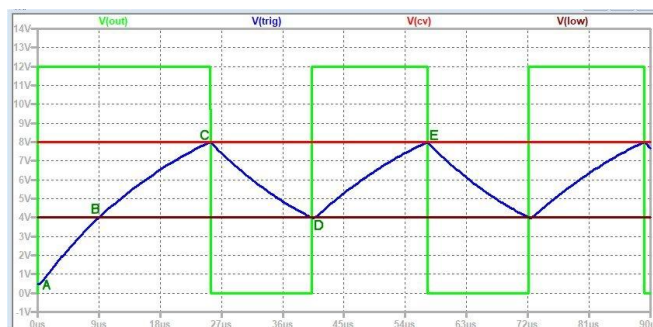
The first step is to examine the equivalent circuit for the internals of the NE555. It is basically a voltage divider, a couple comparators and a flip-flop. See **Figure 1**. The NE555 was designed by Hans Camenzind while under contract with Signetics in 1970 to develop a new circuit. If you wish to examine his development process, I urge you to download a free copy of "Designing Analog Chips" by Hans Camenzind at: <http://www.designinganalogchips.com/>

We will derive the charge and discharge equations separately, then, add them together to find period. Frequency is the reciprocal of the period. Things to note:  $e = 2.718+$  (base of natural logarithm),  $\ln(x)$  = natural logarithm of  $x$ ,  $\ln(e^x) = x$  and  $e^{\ln(x)} = x$ .

Referring to **Figure 1**, the timing capacitor (C1) is charged through the two resistors (R4 & R5) in the conventional asynchronous NE555 oscillator circuit. The charging source is  $V_{cc}$  and the charge process is terminated when it reaches CV (voltage on the CV pin). At that time the discharge process begins by discharging C1 through R5. The internal NE555 circuit is outlined in yellow. **Figure 2** Shows the waveforms of the schematic in Fig 1. Point A is about where power is applied with the external capacitor beginning to charge from 0v. At point B it has charged to the lower limit of the running waveform. At point C the capacitor has charged to the voltage on the CV pin and the discharge through R5 begins. At point D the capacitor has discharged through R5 to the LOW voltage where the discharge is terminated and the charge cycle begins from there.



**Fig 1.**



**Fig 2.**

The equations to determine periods and frequency of the NE555 oscillator are well published and easy enough to follow and use. The function of the voltage applied to the CV pin - not so much.

According to the ARRL handbook and any other authority, the equation for charging a capacitor through a resistor from a fixed DC source is:

**Equation 1:** 
$$v(t) = E * (1 - e^{-\frac{t}{R*C}})$$

Rearrange that equation to solve for t.

I'll spare you the grimy details and cut to the chase, er, equation. Refer to **Figure 2** for points on the charge-discharge plot.

**Equation 2: Time to charge from point B to point C.**

$$T(B \text{ to } C) = -(R4 + R5) * C1 * \ln \left( 1 - \frac{cv}{(2 * Vcc) - cv} \right)$$

Next, we need to derive an equation for the discharge of the capacitor from point C to point D as a function of the voltage on pin CV.

The equation for the voltage on a capacitor as it is being discharged through a resistor is:

**Equation 3:** 
$$v(t) = E * e^{-\frac{t}{R*C}}$$

Solving for time, t and, since we are discharging from cv to cv/2, v = CV/2 and E = CV. Discharge is only through R5 so, R = R5

**Equation 4: Time to discharge from point C to point D.**

$$T(C \text{ to } D) = R5 * C1 * 0.693$$

Therefore, the discharge time from point C to point D is independent of the voltage on the CV pin or Vcc. The period from point B to point D is the sum of T(B to C) and T(C to D).

The frequency as a function of the voltage applied to the CV pin is the reciprocal of the period.

Equation 5: Frequency as a function of the voltage on the CV pin of the NE555.

$$f(cv) = \frac{1}{\left( -(R4 + R5) * C1 * \ln \left( 1 - \frac{cv}{2 * V_{cc} - cv} \right) \right) + (R5 * C1 * 0.693)}$$

I have verified the equations by measuring the timing of an actual NE555 asynchronous oscillator circuit while varying voltage applied to the CV pin (**Figure 3**).

Do note that the impedance of the CV pin on the NE555 is about 3k Ohms at 2/3 of Vcc due to forcing of the internal resistive divider. It may be different for other variations of the 555. Please note, also, that the charge time and frequency are no longer independent of Vcc when forcing a voltage on the CV pin different from 2\*Vcc/3.

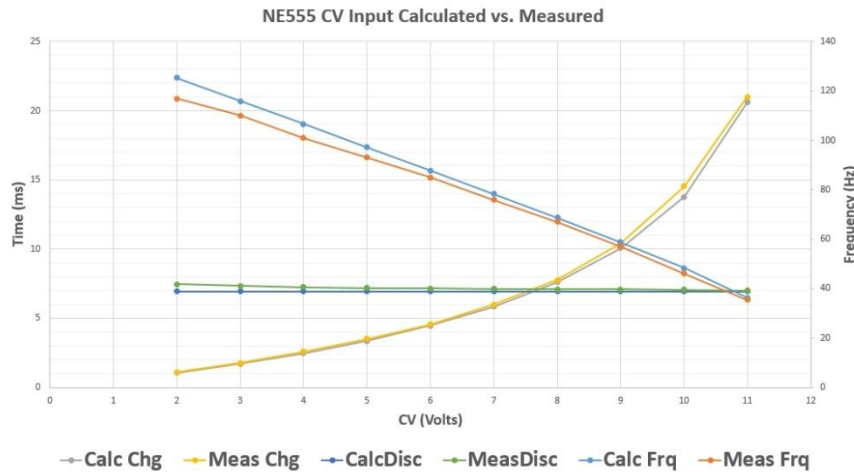


Figure 3. R4 = 1k  $\Omega$ , R5 = 10k  $\Omega$ , C1 = 1 $\mu$ F, Vcc = 12 V

In summary:

$$T(B \text{ to } C) = -(R4 + R5) * C1 * \ln \left( 1 - \frac{cv}{(2 * V_{cc}) - cv} \right)$$

$$T(C \text{ to } D) = R5 * C1 * 0.693$$

$$Period = T(B \text{ to } C) + T(C \text{ to } D)$$

$$Frequency = \frac{1}{Period}$$

If you would like to see more details of the derivation, email your request to [wa8uwv@arrl.net](mailto:wa8uwv@arrl.net).



## CW/QRP & Linux Special Interest Groups

**Terry, KB8AMZ**

### CW & QRP SIG

For the May 14th, 2019 QRP - CW SIG we will be operating CW QRP from the clubhouse. If you have a favorite QRP rig bring it and work some CW. The IC-7300 is available too. See you in May.

### Linux for Hams SIG

The next Linux for Hams SIG will be Tuesday July 30. Please bring your Raspberry Pi and peripherals for another application install and configuration. I will announce which application we will install as the SIG date nears. More stuff to learn.

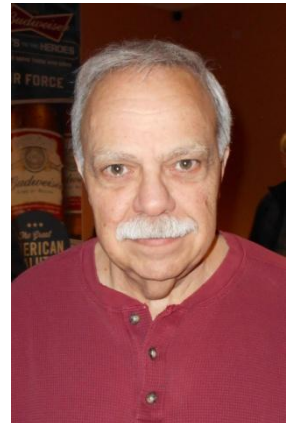


## Antenna Special Interest Group

**Tony, WA8AR**

The May 21<sup>st</sup> Antenna SIG is being **CANCELLED** due proximity to Antenna Day and Field Day planning meetings.

The June Antenna SIG is not cancelled at this time. I will let everyone know by about next month's meeting, in early June



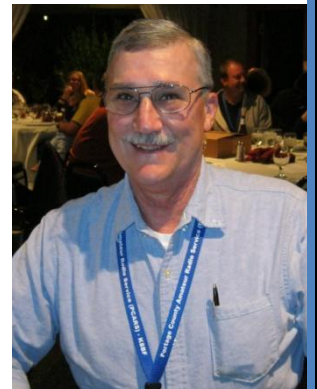
## Digital Special Interest Group

**Rick, K8CAV**

The Digital Special Interest Group will be meeting on Tuesday May 7th at 7:00 PM at the PCARS club site in Ravenna.

This month we'll have a presentation on using fldigi for Field Day with macros written specifically for PCARS Field Day. We'll also be doing hands-on, on-the-air practice with the club's IC-7300s into dummy loads.

As always if you have any questions or problems, we'll make time to answer them and help out. You can bring your computer, radio, or other equipment to help get it set up as well.



## Contest Calendar

May Contest Calendar	
Contest Name	Times
10-10 Int. Spring Contest, CW	0001Z, May 4 to 2359Z, May 5
<b>7th Call Area QSO Party</b>	<b>1300Z, May 4 to 0700Z, May 5</b>
Indiana QSO Party	1600Z, May 4 to 0400Z, May 5
Delaware QSO Party	1700Z, May 4 to 2359Z, May 5
New England QSO Party	2000Z, May 4 to 2400Z, May 5
CQ WW WPX Contest, CW	0000Z, May 25 to 2400Z, May 26

YES - There are MANY More Contests out there - Check the internet.



Contests that will be active at the PCARS Club Site in 2019	
Date	Contest
May 4-5	7th Call Area; Indiana; Delaware; New England QSO Parties
Jul 20-21	NA QSO Party RTTY
Aug 24-25	Ohio QSO Party/ BBQ
Oct 5-6	California QSO Party
Oct 12-13	Arizona QSO Party

## Special Event - MVARA - 100<sup>th</sup> Anniversary

### Special Event - 100th Anniversary - Mahoning Valley Amateur Radio Association

**May 4-May 5, 1300Z-0100Z, W8QLY, Youngstown, OH.** Mahoning Valley Amateur Radio Association. 3.825 7.250 14.250. QSL. MAHONING VALLEY AMATEUR RADIO ASSOCIATION INC, 125 W McKinley Way, PO BOX 14141, Youngstown, OH 44512. Electronic QSLs will be sent for confirmed contacts--request form on QRZ page. [mvara.W8QLY@gmail.com](mailto:mvara.W8QLY@gmail.com) or [www.qrz.com/db/w8qly](http://www.qrz.com/db/w8qly)



Mahoning Valley Amateur Radio Association

# PCARS

**ARRL Volunteer Examiners:**  
serving the Amateur Radio community

**First Saturdays 10:00 am**  
**at the club site in Ravenna**  
**February, April, June, August,**  
**October, December**

## Almost a Shack - Shot - KB8UHN

A quick note about the slow progress at the new KB8UHN/W8CDL QTH in Edinburgh township, Portage County, Ohio. I made some brackets to go on the old wooden light pole out back to hold a mast made of water pipe.

Running all of the cables overhead. The messenger cable is up, as well as the rotator and its control cable. Waiting on some of the back ordered parts for the DX Engineering HEXX BEAM kit to build and put on the "tower".



Meanwhile, I'm working on putting up a Comet GP-9 VHF-UHF vertical, mounted on the house chimney, and a 160 meter Carolina Windom wire antenna between the house and the woods. Using a tree as the center support.

Hope to have it all up in the next couple months, but, with all that metal in the sky, I do need to slow down a bit and consider proper grounding.



## QSL Cards - WX4QZ

*Daryl, WX4QZ*

**Hello from Little Rock !!**

Out with the old, and in with the new... I changed callsigns, and have gone from QSL to eQSL

WX4QZ - My new callsign.

Formerly known as: WX1DER,  
AE5WX and N5VLZ



## Some Notes About Antenna & Field Day

**Tony, WA8AR**  
Field Day Chairman



This year we will be conducting a full test of all transmitting/receiving equipment that will be utilized for our Field Day operations; AKA **Antenna Day**. The test will be conducted at our Field Day site and will involve setting all stations including the proposed antenna systems. Transmitting tests will be conducted to determine if there is interference between any stations. Interference testing will be done on all bands we anticipate using on Field

Day. Power will be supplied by backup generators for each station. The test will be conducted between the hours of 9 am and 3 pm on Saturday May 11, 2019. Donuts and coffee will be supplied for breakfast; pizza and water will be supplied to all for lunch. All stations will be taken down and stowed for transport at the end of testing.



A minimum crew of twelve (12) Volunteers **WILL BE NEEDED**, in addition to the station captains who will bring all the station equipment plus tools. Station captains have designed and will direct setup of each station. New hams are welcome to volunteer and there will be plenty of help to show you what to do.

So that I have an exact count of how many volunteers we will have to help out, please email me at: [tromito99@gmail.com](mailto:tromito99@gmail.com) (give me your name and call sign). I will send out a QST when we have filled our volunteer antenna/station assembly team. It should be a good experience for all.

Location: If you have not been there before, our Field Day site is the Freedom Township Park, located just southwest of the intersection of State Route 700 and Streeter Rd. From Ravenna take State Route 88 north to State Route 700 north. The park is on the left, just under one mile after you cross over the Turnpike, traveling up SR 700. You will see a storage building, the open shelter and a baseball field on the left. The park is not well marked, but still pretty easy to find. See you there for Antenna Day!



## Gearing Up for Antenna Day 2019

Here's a map showing where PCARS will be for Antenna Day and Field Day 2019.

PCARS will be at the Freedom Township Park located on State Route 700 and the corner of Streeter Road. That is just about 2 miles north of Route 303. See you there!!!!!!!!!!



## Flex Station - Field Day 2019

**Rick, K8CAV**  
Field Day Flex Station Captain



WOW, only eight more weeks until PCARS Field Day is up and running and there's still room for operators and loggers at the Flex Station! We've put a lot of thought into how we can really get Flex to make points this year and all we need now is YOU to volunteer to operate or log. We have slots open for Phone, CW, and Digital, see the schedule chart in this article.

So, let's start with how we're preparing. Phone and CW ops are pretty straight forward but we will be providing some training on the logging program for those not familiar with it or those needing to brush up.

For the Digital ops we are holding two training sessions. The first will be during the Digital Special Interest Group meeting on Tuesday May 7th at 7:00 PM at the PCARS Club Site. This training will concentrate on using fldigi and the associated macros for PSK-31 and RTTY modes, and we'll talk about holding and running the frequency. We will also demonstrate how to use the N3FJP logging software. In addition to a short presentation and demonstration, we'll be doing hands-on, on-the-air training using the club's IC-7300s running low power into dummy loads, using fldigi and macros while logging contacts with N3FJP.

The second training session will be during the Digital Special Interest Group meeting on Tuesday June 4th at 7:00 PM at the PCARS Club Site. This training will cover how to use FT8 in the Field Day mode, again showing how to hold and run the frequency. As in May, we'll be doing a presentation, demonstration, and hands-on, on-the-air training.

The Flex Station will be located in an air-conditioned trailer using one of the club's IC-7300s feeding an automatic antenna tuner. There will be a 20m dipole, 40m Inverted V, and 80m Inverted V for antennas. A laptop will have fldigi (with Field Day macros) and FT8 loaded and connected to the transceiver. For CW we'll have the K1EL Winkeyer with a Kent single paddle key. The Winkeyer will have pre-defined macros for Field Day that run through the N3FJP software, and use the keyboard with the logging computer.

So, you can see we not only have the gear for success, but we also have your comfort in mind for a fabulous operating experience during Field Day. Take a look at the schedule and drop me a note at [k8cav.coms@gmail.com](mailto:k8cav.coms@gmail.com) if you want to sit for one of the openings still available!

Critical Dates: May 7th 7:00 PM fldigi/macro training, PCARS club site; May 11th 9:00 AM, PCARS Antenna Day, Freedom Township Park; June 4th 7:00 PM, FT8 training, PCARS Club Site; June 22-23 Field Day, Freedom Township Park. Come on out and have some Field Day Fun!



Flex Station Schedule - Field Day 2019				
DAY	Local TIME	MODE	OPERATOR	LOGGER
SAT 23	1400-1600	40M FT8 DIGITAL	Jim AC8NT	Rick K8CAV
	1600-1800	20M DIGITAL	Steve K8SRR	Rick K8CAV
	1800-2000	20M DIGITAL	OPEN	
	2000-2200	80M CW	Terry KB8AMZ	
	2200-0000	80M PHONE/ DIGITAL	OPEN	
SUN 24	0000-0200	80M PHONE	Deron N8XTH	Deron N8XTH
	0200-0400			
	0400-0600	80M DIGITAL	Rick KD8WCK	
	0600-0800	80/40/20M	OPEN	
	0800-1000	80/40/20M DIGITAL	Gene W8NET	
	1000-1200	40/20M DIGITAL	OPEN	
	1200-1400	40/20M DIGITAL	OPEN	

## CW Station - Field Day 2019

**George, K3GP**  
Field Day CW Station Captain



### STILL LOOKING FOR CW OPERATORS FOR FIELD DAY

Come pound some brass for K8BF at Field Day - June 22 and 23. Let us know if you are interested in joining our effort in the CW trailer. Email George K3GP ([rttyfan@gmail.com](mailto:rttyfan@gmail.com)) ASAP so that we can prepare an operator schedule - we anticipate three hour shifts based upon the current operator commitment level, with shorter shifts possible with increased participation.

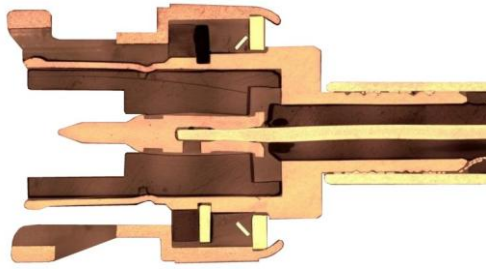


CW Station Schedule - Field Day 2019		
DAY	Local TIME	OPERATOR
SAT 23	1400-1600	Jack N8BI
	1600-1800	Mark W8BBQ
	1800-2000	Ray ND8L
	2000-2200	Rod K8RR
	2200-0000	George K3GP
SUN 24	0000-0200	OPEN
	0200-0400	OPEN
	0400-0600	OPEN
	0600-0800	Terry KB8AMZ
	0800-1000	Ed K8IV
	1000-1200	OPEN
	1200-1400	OPEN



# The BNC Connector and How It Got That Way

*Dan Maloney*



When I started working in a video production house in the early 1980s, it quickly became apparent that there was a lot of snobbery in terms of equipment. These were the days when the home video market was taking off; the Format War had been fought and won by VHS, and consumer-grade VCRs were flying off the shelves and into living rooms. Most of that gear was cheap stuff, built to a price point and destined to fail sooner rather than later, like most consumer gear. In our shop, surrounded by our Ikegami cameras and Sony 3/4" tape decks, we derided this equipment as "ReggieVision" gear. We were young.

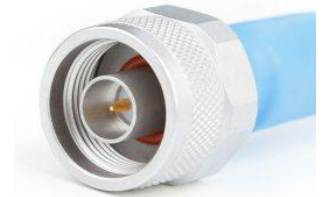
For me, one thing that set pro gear apart from the consumer stuff was the type of connectors it had on the back panel. If a VCR had only the bog-standard F-connectors like those found on cable TV boxes along with RCA jacks for video in and out, I knew it was junk. To impress me, it had to have BNC connectors; that was the hallmark of pro-grade gear.

I may have been snooty, but I wasn't really wrong. A look at coaxial connectors in general and the design decisions that went into the now-familiar BNC connector offers some insight into why my snobbery was at least partially justified.

## KEEPING THE IMPEDANCE

The connector that would eventually become known as the BNC connector when it was invented in the 1950s has its roots in two separate connectors developed in the 1930s and 1940s for the burgeoning radio and telephone industries. When it comes to wires and connectors for DC and low-frequency AC circuits, pretty much anything that will carry the current and provide a firm mechanical connection will do. But once a circuit is into the radio frequency range it's a different story. At such frequencies coaxial cable is preferred for transmission line, and any connectors inserted into the line need to be engineered to minimize changes in impedance, which could cause reflection of the signal and generate standing waves that can cause damage.

Type N connector: Source: Wikipedia



Paul Neil, an electrical engineer who had been with the Bell Company since 1916, was well versed in RF systems. In the 1940s he identified a need for a coaxial connector capable of working well at microwave frequencies and designed the Type N connector. Like all coaxial connectors, it was designed to present as little change in the characteristic impedance of the feedline as possible by keeping the spacing between the center conductor connection and the outer shell as close to the feedline dimensions as possible.

Neil's connector had a female threaded outer shell on the plug that mated with male threads on the matching socket, and was designed to be weatherproof. The N connector took its name from Neil's last initial and is still in use to this day.



Type-C connector and a BNC, both male. Source: Wikipedia

Meanwhile, an engineer at Amphenol Corporation was working on his own design. Carl Concelman's connector, similarly dubbed the Type C connector, used the same approach to reduce impedance changes in coaxial connections. However, he chose to make his connector quick-disconnect; rather than tediously screwing and unscrewing the outer shell, the C connector had a bayonet connection. The outer shell of the socket had lugs diametrically opposed on its outer surface. These lugs would mate with the long arm of L-shaped grooves machined into the inner surface of the outer shell on the plug. The shell would be rotated to move the lugs into the short arm of the groove, locking the two connectors together mechanically and electrically.<sup>385</sup>

## BEST OF BOTH WORLDS

Both the N and the C connectors enjoyed success in the marketplace, but neither was ideal. The N connector was slimmer in profile than the C but had all that pesky threading and unthreading to deal with; the C connector has that nice quick-disconnect but was bulky. In addition, neither connector was particularly easy to manufacture as each required some fairly fancy machining. With those shortcomings in mind, an engineer at the Hazeltine Electronics Corporation named Octavio Salati came up with his own design. It would have the bayonet locking feature of the C connector and the slimmer profile of the N connector. It used the same techniques as both connectors to minimize reflections due to inline impedance changes.

**Octavio Salati. Source: University of Pennsylvania**

Salati's connector was patented in 1951 with the unexciting name "Electrical Connector." Unlike its predecessors, it would not be dubbed the "S-Connector" but, in a gentlemanly gesture, it was called the BNC, for "Bayonet Neil-Conselman." To support the RF work for which it was originally designed, the connector had a 50-ohm characteristic impedance; later, a 75-ohm version was made for the television industry. The connector is usable up to around 11 GHz, although it's not ideal past 4 GHz or so owing to the slots cut into the conductor for the outer shield, which start to radiate signals.



The BNC connector has seen widespread acceptance as a coaxial connector in industries far beyond its original target markets. From public service communications to scope probes to computer networking, Salati's design, and by extension both Neil's and Conselman's, has delivered solid performance for the past sixty years.

[Featured images: SMT Analytical, Belden Corp.]

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From the HACKADAY web site: <http://hackaday.com/> Dan Maloney: Contributor to HACKADAY and PCARS

Dan has been a tinkerer since the days when Radio Shack still issued an annual paper catalog. Scientist by training but developer by necessity, Dan left his Ph.D. program with a Master's in biology when he realized that automating his experiments and data capture was far more interesting than the ribosomal whooziewhatsis he was supposed to be studying. His day job now is to keep the R&D pipeline filled at a Major Pharmaceutical Company by automating experiments and data capture. What goes around comes around. The remainder of Dan's time is spent homesteading and trying to pry enough productivity out of 10 acres of New England glacial till and forest to sustain his family. While not remotely close to it yet, his goal is to free himself from the systems of support and build regenerative systems that require as few inputs as possible, which tweaks his hacker instincts as he searches for ways to automate his homestead as much as possible.



**PCARS K8BF**  
*The Club that puts the FUN in Ham Radio!*



## Paper Chase

**Joe, W8KNO**

The Long Island Mobile Amateur Radio Club, K2CAM, will once again sponsor a special event from the **Cradle of Aviation Museum** in Garden City, New York. This year they will be celebrating **Lindbergh's flight across the Atlantic in the Spirit of St. Louis**. The event will take place on Tuesday, May 21st from 9:00 a.m. to 4:30 pm. Please note this is a week day so you will not have to compete with some weekend contest. Listen for them around 7.240, 14.240 and 21.340.



After making contact mail your QSL Card to:  
Long Island Mobile ARC  
PO Box 392  
Leavittown, NY 11756

For those not familiar with Lindbergh's flight, he flew from Roosevelt Field, Long Island to Le Bourget Airport near Paris, France. In 1927 he left Long Island May 20th and arrived the 21st. He was attempting to win the \$25,000 Prize offered by Raymond Orteig for the first non-stop flight from New York City to Paris. A group of businessmen from St. Louis provided the financial backing to have a Ryan monoplane constructed for the endeavor. The rest is history.



## PCARS Thursday 2 Meter Nets

**Greg, KA8TOA**  
Net Control Coordinator

Thank you all for helping with this! Anytime you are unable to take the net, please give me as much advance warning as possible! **Check-in using the receiver located in Sugar Bush Knolls ~ 146.895 with a PL tone of 118.8.**

**Don't forget - 4<sup>th</sup> Thursday is NET NIGHT at the Club Site !!**

May	
2	WB8LCD
9	KA8TOA
16	KB8UHN
23	K8CAV
30	N8XTH

June	
6	KE8BWA
12	N8QE
20	WB8LCD
27	K8IV

The PCARS net is **BIG Fun** - tell your friends to check in via RF or EchoLink!



### Stats for the Thursday night nets

For 13 weekly check-ins we had a total of 338 which averages out to 26 check-ins per week. Pretty good numbers and it speaks highly of PCARS members.

I am still looking for at least 2 more net control operators (*it's Fun*). This would really help all of us out. So spread the joy and put the fun into Ham radio. It's good practice for emergencies and it is simple. It only takes a little time, plus you get to talk with other hams and club members. What could be better, I will be posting the net schedule in a few weeks for July. If you have not been a Net Control Operator for PCARS and would like to give it a try, *please* contact me at: [grgory999@roadrunner.com](mailto:grgory999@roadrunner.com) everyone who is a club member is welcome to have a turn - and have fun being the PCARS Thursday Night Net Control ! Again thanks to all of you who check in and the net control operators for there devotion. Have fun in Xenia at Hamvention® 2019.

# A Tribute to KC8PD - SK

*From the Record Courier Newspaper*

## A tribute to Chief Magistrate, Amateur Radio Operator and friend, the late Jim Aylward

The Portage County Emergency Radio Communications Room has been named in memory of James J. Aylward, who was a dedicated volunteer leader and passionate supporter of emergency radio communication, emergency management services and disaster preparedness. The radio room in the Emergency Operations Center at the Portage County Office of Homeland Security and Emergency Management is now known as the **"James Aylward Communications Room."**



Portage County Commissioners [Vicki A Kline](#), [Kathleen Clyde](#) and [Sabrina Christian-Bennett](#) celebrated Jim's extraordinary contributions in a proclamation that was read by Commissioners Kline and Clyde at the March 2019 meeting of the EMA Advisory Committee. The proclamation eloquently describes the importance of Jim's impact.



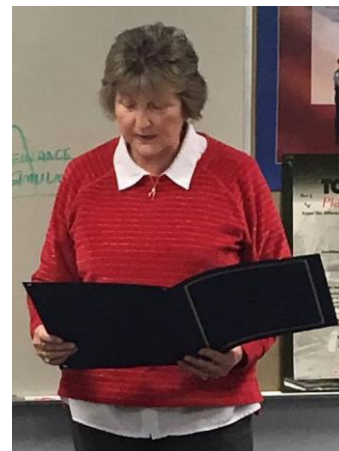
In the mid-2000's, Jim was the founding member of the Portage County OHS/EM Communications Unit, and a devout member of Portage County Amateur Radio Emergency Service (ARES) and Radio Amateur Civil Emergency Service (RACES). He was keenly aware that even in this digital age, radio communications would still be functioning during a disaster when cell phones and computers ran out of power. Jim took great pride in the growth and success of the Comms Unit, ARES club and the fun that it provided for ham radio operators in Northeast Ohio.

Jim always stood ready and willing to assist the Portage County Emergency Management Agency, area safety forces, and countless other support agencies in meeting their emergency preparedness or communications needs.

He was also an integral part of national and regional amateur radio communications as he coordinated radio communications during a variety of events including the Cleveland Marathon, local community events and the catastrophic disaster; Hurricane Katrina. Jim continually trained in many facets of emergency management and preparedness to be part of, and lead disaster response efforts locally and beyond.

In 2016 and 2017, he chaired the Portage County Local Emergency Planning Committee which is responsible for the county's preparedness to respond to hazardous material disasters. He was also a founding member and leader of the [Portage County Incident Management Assistance Team](#), which stands by to assist local first responders to manage incidents by helping with a variety of management tasks.

Jim passed away in 2017. His colleagues in radio communications and emergency management remember him with great admiration for his professionalism, his drive, his high standards and his dedication to community. The **"James Aylward Communications Room"** will be a reminder to always strive for excellence.



## PCARS Ham Radio License Plates Wanted !!!

**Dig out an old amateur radio call sign license plate (with your present call sign), clean it up and bring it to be permanently affixed to the wall in the PCARS club station.**

We have 69 PCARS member's ham plates now, **but we can use more**. Don't have ham radio call plates on your vehicle? Well for those of you in Ohio, you can get the plates sent to you by going to any License Bureau office and filling out the special plate registration form. Have a copy of your current FCC license when you apply. The official form to obtain your Ohio Amateur Radio license plates is on the [PCARS Yahoo Group](#) site. Then you'll have an old plate to bring in to get hung up as a **permanent part of PCARS history**.



*From the Ohio BMV:*

**General Information:** Owners or lessees of motor vehicles who are residents of Ohio and hold an unrevoked and unexpired official amateur radio station license issued by the Federal Communications Commission may apply for these plates. The official call letters will be the license plate numbers.

**Registrant Eligibility:** Owner must submit a copy of the un-revoked and unexpired official amateur radio license issued by the Federal Communications Commission. (FCC).

**Title Requirements:** Ohio Certificate of Title issued in the same name as the FCC license, either singly or jointly, or the name on the FCC license is the same name on the lease agreement.

**Vehicle Information:** These plates may be issued to passenger vehicles, non-commercial trucks, recreational vehicles, house vehicles and non-commercial trailers.

**Type of Plates:** Plates will be manufactured with the FCC license.

**Issuance Information:** Amateur Radio plates cannot be issued with system assigned, reserved, or personalized plate formats.

Renewal of plates can be done at your local Deputy Registrar or by mail using their renewal notice. **Amateur Radio License Holders must provide a copy of their current unexpired and unrevoked official amateur radio license issued by the Federal Communications Commission (FCC) at the time of any type renewal transaction.**

All plates will be mailed directly to the address on your registration card unless customer requests otherwise. The deputy will issue your registration card, stickers and provide you with a permit which will allow you to operate your vehicle while your plates are being manufactured. Special license plate applications are available at all Deputy Registrar license agency locations. These plates cost an additional \$10.00 annually plus the normal registration fees. The fee is determined by Ohio Revised Code section 4503.14.

## PCARS is on YouTube

That's right - PCARS is now on YouTube. So, what does that mean? Hey, we have a new place to put all kinds of videos that are about PCARS for the world to see.

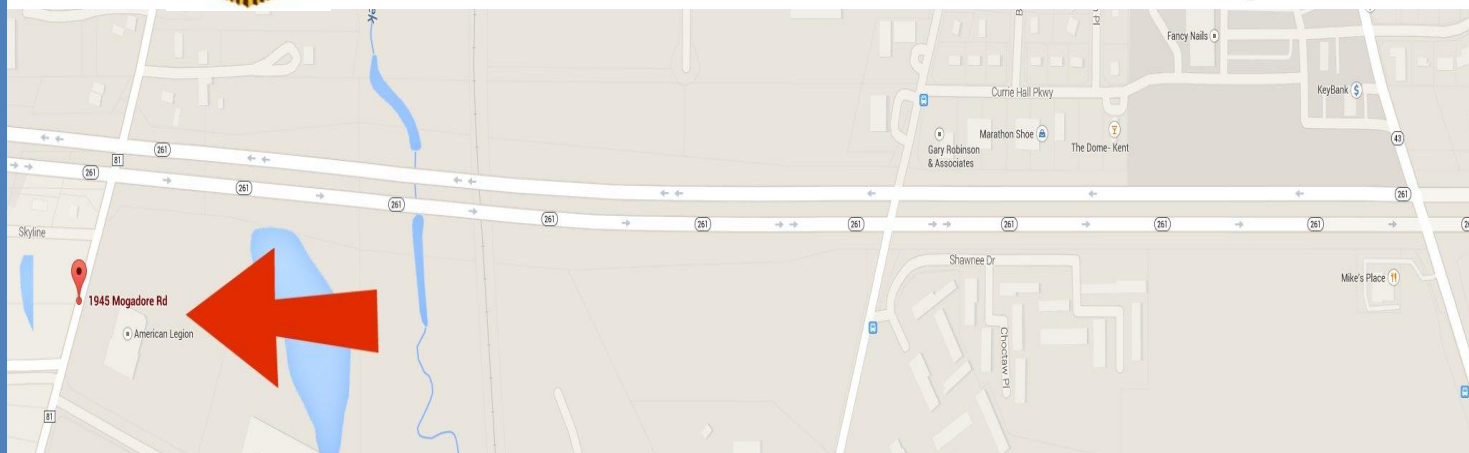


## PCARS Meetings

The Portage County Amateur Radio Service (PCARS) meetings are held the **2<sup>nd</sup> Monday** of each month and start at 7:00 pm.



*The meetings are held at The American Legion, Post 496  
1945 Mogadore Road - in Kent. (Just South of Route 261)*



The American Legion Post 496 is located on the southeast corner of State Route 261 and Mogadore Rd. The driveway is on the south side of the building and as you enter you will pass through a parking lot on the south side of the building. Please do not park in this lot but instead continue on to the parking lot on the east side of the building which is the near the rear entrance into the Post 'Canteen'. As you enter the post from this entrance you'll see a bar to the left and a dining area to the right. The meeting area we'll be in is on the right, to the rear of the dining area.

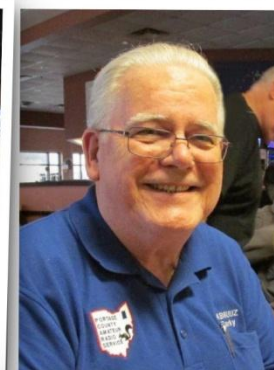
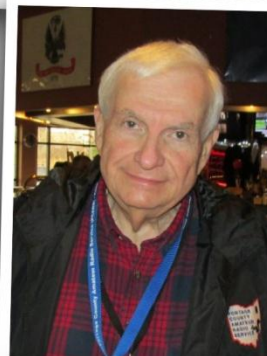
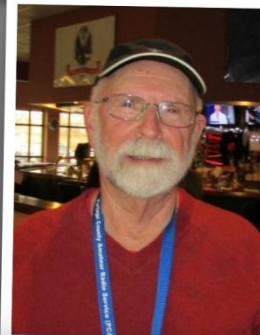
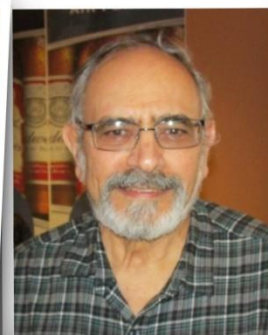
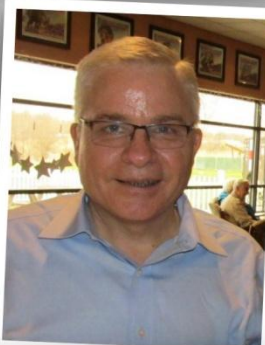
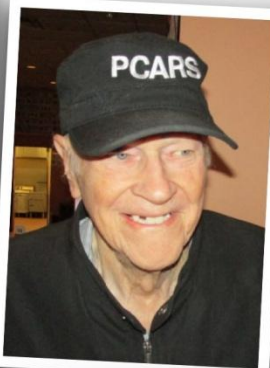


*The picture on the left shows  
The American Legion Post 496  
as viewed from Mogadore Road.  
(looking East)*

The menu consists of your basic burger / dog / chicken sandwiches, wings, fries, onion rings, and salads. There is also an appetizer selection as well. Adult beverages are available and costs are in line with what you would expect at most bar-restaurant facilities.

If you are a member of the The American Legion, The American Legion Auxiliary, or the Sons of The American Legion, bring your ID card as you get a substantial discount on adult beverage pricing.

## Photos from the PCARS April Meeting

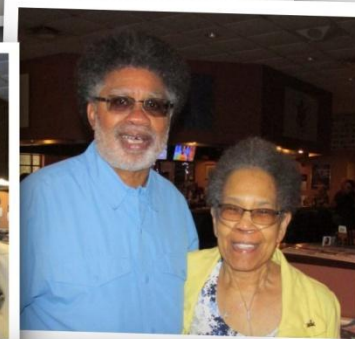
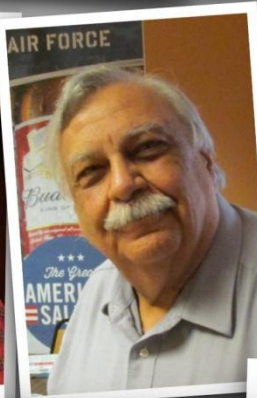
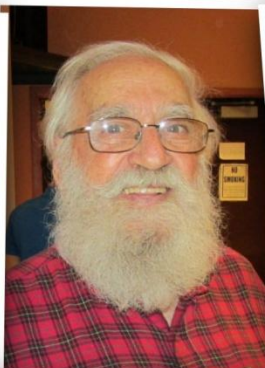
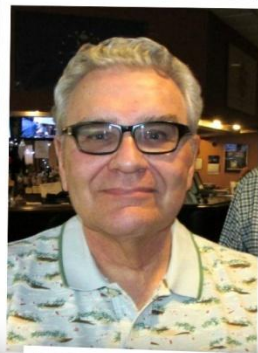
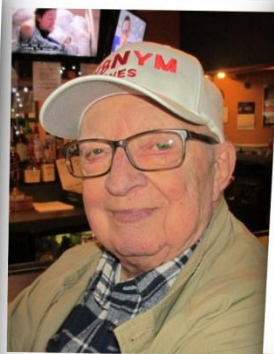
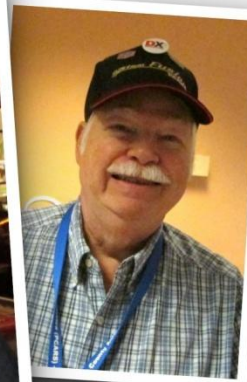
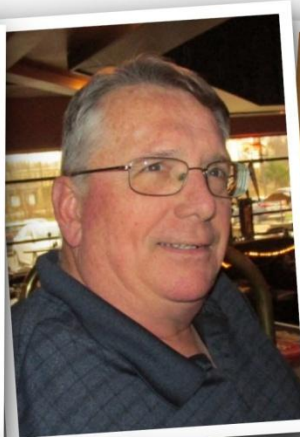
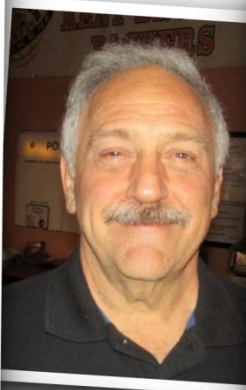


# PCARS Meeting 8 April 2019



# PCARS Meeting

## 8 April 2019



**PCARS Meeting 8 April 2019**



# Pioneer Amateur Radio Fellowship, Inc.

## Hamvention 2019

Saturday, May 18, 2019 - 5:30 AM



Don't miss this year's PARF Bus Trip to the world's largest topical conference and product exhibition. Save on gas, parking, and walking by riding with us! Leave the driving to us, and you can come and go to the flea market with your great purchases and leave them on the bus. This event takes place at the Greene County Fairgrounds in Xenia, Ohio.

**You can save \$10\* if you book before April 15th.**

The cost of the **Bus & Entrance ticket** to the Hamvention:  
**\$72\* before April 15, 2019**

The cost of the **Bus Only** to the Hamvention:  
**\$55\* after April 15, 2019**

(You will need to get your own Hamvention Entrance Ticket at gate \$27, or order by phone & have held at Will Call--possibly getting Advanced \$22 price.)

The above pricing does not include driver's tip for which a hat will be passed.

P.A.R.F. reserves the right to cancel this trip should a minimum of 22 riders not be secured by April 15th. If that happens, a full refund will be made. Otherwise, cancellation by you at any time results in a \$5 deduction of refund for handling.

We will take riders right up to departure that morning (if there are seats available) on a first come, first served basis.

**Departure time is 5:30 AM SHARP**, so please be on time so you don't miss the bus!

There will be a stop for breakfast @ McDonald's & a dinner stop @ Golden Corral Buffet (both out of pocket expense).

**To Order - Complete application & send with check/money order (*payable to "PARF"*) to:**

**Joy Spencer % PARF**

**2101 Bigelow St**

**Akron, OH 44314**

**Or call 330-745-5115**

**E-mail: [KA8TDF@arrl.net](mailto:KA8TDF@arrl.net)**

### **NEW THIS YEAR:**

**Transportation provider: Intimidator Tours & Motorcoach Services, LLC.**

*This bus is a smoke free bus, so there will be no smoking permitted.*

**Location of Departure - Walmart, 2887 S. Arlington Road, Akron OH 44312**

*(Park in spaces across from Applebee's.)*

*Parking (as always) is **at your own risk**, but this location is commonly used by a variety of bus companies.*

***Please pass the word out to all of your ham friends & computer geeks.***

PARF Uses Repeater 147.135 & Owns Repeater 146.610

Web Site: [www.qsl.net/w8ctt](http://www.qsl.net/w8ctt)

## Registration Open for Four Days In May



### Registration is Open for QRP-ARCI Four Days in May 2019

**Registration** (<http://adatab.duckdns.org/QRPARCI/registration.cfm>) now is open for the QRP Amateur Radio Club International “Four Days in May” (FDIM), Thursday – Sunday, May 16 – 19, at the Holiday Inn, Fairborn, Ohio. The annual FDIM event for QRP enthusiasts and builders takes place in conjunction with Hamvention®. Registration begins the evening of Wednesday, May 15.

Most of Thursday will be taken up with seminars, “meet the speakers” opportunities, and an open room for casual show and tell. Most of Friday and Saturday are open to attend the Hamvention and visit the QRP-ARCI Toy Store.

Friday evening activities typically include “show and tell,” vendor displays, and a homebrew contest. Saturday evening features social activities and a banquet, while Sunday is open for Hamvention. Attendees are invited to display their QRP-related projects at FDIM. One evening will feature vendors offering QRP-related products, with some offering FDIM discounts. Dress is casual for all events.

Reservations and special room rates for FDIM will be available after January 1 through the **QRP-ARCI website** (<http://www.qrparci.org/>). For more information, **contact** FDIM 2019 Chair Norm Schklar, WA4ZXV ([fdim@qrparci.org](mailto:fdim@qrparci.org)).

## Registration Open for CTU 2019



**Registration** now (<https://www.contestuniversity.com/registration/>) is open for 2019 ConTest University (CTU), Thursday, May 16, 2019, at the Crowne Plaza in downtown Dayton, Ohio. This is the day before Hamvention® opens in Xenia.

More than 7,500 students have attended CTU sessions over the last 13 years in eight countries, and more than 100 CTU professors have shared their contesting experiences. The faculty lineup, posted on the CTU website, includes several new and returning members. Newcomer Bryant, KG5HVO, will present ideas for attracting youth into contesting, while Dan, N6MJ, and Chris, KL9A - the gold medalists at WRTC 2014 - will present advanced operating papers.

Not teaching but on hand to field questions will be CTU stalwart Frank, W3LPL. The 2019 CTU Dayton course outline will be posted soon. Scholarships (paid registration) are available for CTU attendees through a grant from the Northern California DX Foundation (NCDXF - <http://www.ncdxf.org/>) for students age 25 and younger. Click the “**Contact Us**” tab on the CTU website.

CTU Dayton 2019 registration information is on the **CTU website** (<http://contestuniversity.com/>). Prospective attendees who have given or will give a talk about Amateur Radio to any club, hamfest, or other group since May 16, 2018, qualify for a \$10 registration discount. Choose the “Registration with Club Talk Discount” option.

## Thanks & 73



**Parky, KB8UUZ**  
PCARS Newsletter Editor

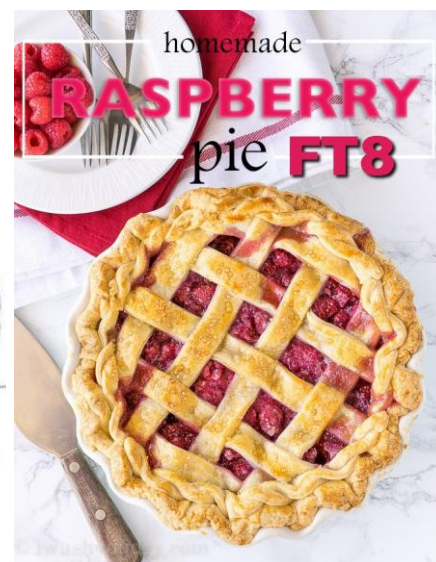


All of our members (and others) look forward to getting this newsletter every month, so keep sending those inputs! I'm sure PCARS is known as the **BIG FUN** amateur radio club with plenty of activities. So chip in and send your report in to keep this newsletter great throughout 2019 and beyond.

Thanks go out to the contributors for this month's newsletter:

**AC8NT, AC8QG, KB8UUZ, WB8SCI, K8MSH, KB8AMZ, WB8LCD, N8XTH, W8PT, WA8UWV, WA8AR, K8CAV, KB8UHN, WX4QZ, K3GP, Dan Maloney, W8KNO, KA8TOA, NF8R, West Chester Amateur Radio Club, National Weather Service, The ARRL, The Record Courier Newspaper and the World-Wide Web.**

With *your* continued help – we can keep making this a *great* newsletter.



**PCARS K8BF**  
*The Club that puts the FUN in Ham Radio!*



# The Portage County Amateur Radio Service, Inc. (PCARS) - Ohio

~ The Hamvention® 2018 "Club of the Year" ~



PCARS meets the second Monday of each month at the **Kent American Legion Post 496**, 1945 Mogadore Rd. - just South of Rt. 261 - enter the rear of the building for the meeting room.

**Meeting starts at 7:00 pm - All are welcome to attend ~ Stop in and say hello!**

PCARS uses the **K8IV** repeater: **146.895 MHz PL 118.8** in Sugar Bush Knolls ~ EchoLink Node: **K8SRR**

Check PCARS out on the web: [www.PORTCARS.ORG](http://www.PORTCARS.ORG) -or- [www.K8BF.ORG](http://www.K8BF.ORG)



~ 2019 Officers ~		2019 PCARS Appointments & Committees	
<b>President - Jim Wilson - AC8NT</b> <b>Vice President - Nick Wagner - AC8QG</b> <b>Treasurer - Paul Hyland - KE8EGF</b> <b>3 Year Trustee - Terry Morris - KB8AMZ</b> <b>2 Year Trustee - Ed Polack - K8IV</b> <b>1 Year Trustee - Tom Parkinson - KB8UUZ</b> <b>Past President - Rick Kruis - K8CAV</b>	ARRL Awards - DXCC WAS, VUCC, WAC	<b>W8KNO</b>	Joe Wehner
	Club Site Manager/Liaison	<b>K8CAV</b>	Rick Kruis
	Contest Coordinator	<b>W8PT</b>	Chuck Patellis
	EchoLink & Web Guru	<b>K8SRR</b>	Steve Randlett
	Field Day Chairman, 2019	<b>WA8AR</b>	Tony Romito
	FYAO Chairman	<b>W8PT</b>	Chuck Patellis
	Historian	<b>KB8SZI</b>	Peggy Parkinson
	K8BF Callsign Trustee	<b>KD8SKL</b>	Amy Leggiero
	K8BF QSL Manager	<b>KD8SKL</b>	Amy Leggiero
	Membership Chairman	<b>WB8LCD</b>	Tom Sly
	Net Control Manager	<b>KA8TOA</b>	Greg Ash
	Net Night - Club Manager	<b>WB8LCD</b>	Tom Sly
	Newsletter Editor	<b>KB8UUZ</b>	Tom Parkinson
<b>~ Meetings &amp; Net ~</b>  2nd Monday of each month. 7pm  Thursday night Club Net at 8 pm on 146.895	OSPOTA Chairman	<b>KB8UUZ</b>	Tom Parkinson
	Public Information Officer	<b>WB8LCD</b>	Tom Sly
	Secretary	<b>W8NET</b>	Gene Marsh
	Tech, Gen & Extra Class Manager	<b>AC8NT</b>	Jim Wilson
	Volunteer Examiner Liaison	<b>KB8UUZ</b>	Tom Parkinson
	Webmasters	<b>KD8MQ</b>	John Myers
		<b>K8SRR</b>	Steve Randlett



**PCARS Active Volunteer Examiner Team Members**

<b>KB8UUZ</b>	Tom Parkinson
<b>WB8LCD</b>	Tom Sly
<b>N8XTH</b>	Deron Boring
<b>N8PXW</b>	Jim Korenz
<b>N8QE</b>	Bob Hajdak
<b>K8IV</b>	Ed Polack
<b>W8RID</b>	Robert Davet
<b>WA8CCU</b>	Al Nagy
<b>W8EZT</b>	Frank Tompkins
<b>AC8NT</b>	Jim Wilson
<b>K8MSH</b>	Mark Haverstock
<b>KA8TOA</b>	Greg Ash
<b>W8PT</b>	Chuck Patellis
<b>AC8QG</b>	Nick Wagner
<b>N8FUM</b>	Dan Torchia
<b>W8GWI</b>	Dave Seckel



## THE RADIOGRAM

**PCARS Incorporated**  
Nov. 1, 2005

**First Meeting**  
Nov. 14, 2005



**ARRL Affiliation**  
April 20, 2006



**Special Service Club**  
March 22, 2010

The **RADIOGRAM** is the official newsletter of the Portage County Amateur Radio Service, Inc. (PCARS) - **Hamvention® 2018 Club Of The Year** - copyright ©2019. The **RADIOGRAM** is an **Award Winning** newsletter: ARRL Ohio Section Newsletter First Place Winner for 2012 AND 2013. Second Place in the Great Lakes Division for 2013. Second Place ARRL Ohio Section Newsletter for 2014. Third Place Winner in the Ohio Section 2015. Second Place Winner in the Ohio Section for 2016. **First Place Newsletter Winner in the Ohio Section for 2017 & 2018 and First Place Newsletter Winner in the Great Lakes Division 2017.** Articles are the opinion of the authors and not necessarily those of PCARS. Or, better yet, let me express it this way: "These are my opinions and only my opinions, unless you share them as well, which would make them our opinions, but I am not of the opinion that I can express your opinion as my opinion without your prior expression of said opinion, and then my re-utterance of that opinion would, in my opinion, be foolish unless I were expressing agreement to your opinion, and then it wouldn't be my opinion but your opinion to which I only agree." **GO AHEAD - STEAL THIS NEWSLETTER!** You have our permission to post, e-mail, copy, print, or reproduce this newsletter as many times as you like, but please do not modify what you use. If you use material in this newsletter, all we ask is that you give credit to PCARS along with the author of the article. Caution - some of the articles in this newsletter maybe covered by copyright - please do not copy and use the ones that have by-line information unless you obtain permission from the original author. If you're not sure, drop an e-mail to [KB8UUZ@gmail.com](mailto:KB8UUZ@gmail.com). The **RADIOGRAM** always obtains written permission for reproducing copyright material. The **RADIOGRAM** comes out the first day of each month (usually), please have inputs submitted by 8 pm ET on the last Friday of each month. ARES® (Amateur Radio Emergency Service®) is a program of, and both logos are registered trademarks (used with permission) of the American Radio Relay League, Inc. ARRL, the National Association for Amateur Radio™. **Why the Black Squirrel in our logo?** For those of you not familiar with it: The Black Squirrel is commonly seen around Portage County, Ohio. Seems that some of these little guys and gals got loose from Kent State University back in 1961. They have migrated and thrived throughout our county. Kent State University even has an annual Black Squirrel Festival. **So when you spot a black squirrel - think PCARS!**

The **RADIOGRAM** is published every month and only sent to subscribers. If you would prefer not to receive this newsletter, we understand. We'll try not to take it personally. It's not you saying you don't like us, but maybe you just don't have the time to look at all this hard work we've done just for you. Hey, that's cool. But if your heart is truly set on making sure you no longer receive this newsletter, even though we promise to one day reveal the meaning of life in it and you're going to be really upset when you miss out on that, we can take you off the e-mail list. Send your newsletter inputs (in .TXT format) along with in-focus pictures (not small 50 kb photos) to the newsletter editor: [KB8UUZ@gmail.com](mailto:KB8UUZ@gmail.com)



Portage County Amateur Radio Service  
705 Oakwood Street - Box 12  
Ravenna, OH 44266 USA



NLC

