



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

April 2019 - Volume 14 Number 4

Carole Perry's Visit to PCARS



Gearing Up For Field Day 2019



PCARS K8BF

The Club that puts the FUN in Ham Radio!



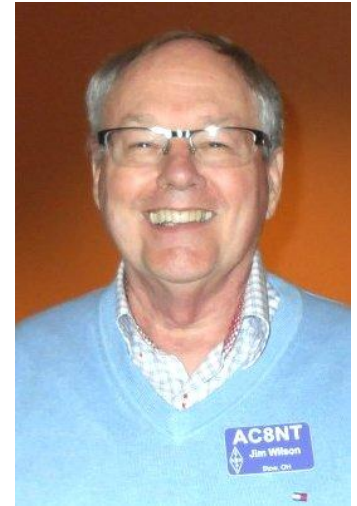
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From the President

Jim, AC8NT
PCARS President



Carole Perry Visit

It has been an exciting month at PCARS. It started with an absolutely great visit by Carole Perry to our club. She visited our club site and made an outstanding presentation at our monthly meeting. Her activities utilizing ham radio in the classroom have energized at least my efforts to get more young people interested in our hobby. Time to start poking my nose into our local schools and libraries to make a few contacts. I have posted a card she sent thanking us for our hospitality at the club site. Special thanks go out to Tom, WB8LCD and Tim, K3LR for making her visit very special. If you didn't get a chance to hear Carole's talk you can find a nice video of the presentation on the PCARS YouTube site at: <https://www.youtube.com/watch?v=Y4gSHP5h5Tw>.

Build Days

We had a great Yagi build day. 14 antennas were built and all left the club working. Lots of comments on the fun that was had by everyone. More to come on this event later. We had planned to build both the Yagi antennas and baluns at the same time. Time did not permit us to get to the baluns, so we have rescheduled the balun build day for Saturday April 13th. We are also planning other builds for the near future. One for sure will be an Anderson PowerPole[®] distribution box. Something every ham can use. We will be announcing the date for the power distribution box at our April meeting. **If anyone has a recommendation for a build day project, please let Nick or me know.** We always have fun at these events. Most hams are basically makers that need to make stuff.

Coming up this month

This month will include a great speaker Michael Kalter, W8CI at our April meeting, the Kent Mini Makerfaire, some great contests, a VE session and a balun build day.

- We will have a VE session on Saturday April 6th from 10 AM to noon.
- At the Monday April 8th PCARS meeting, Michael Kalter will be discussing the behind the scenes work required to make Hamvention[®] a success.
- We will have a setup at the Kent KSU Mini Maker Faire - Friday April 12th from noon to 4 PM to show visitors all about ham radio and PCARS. Volunteers are always welcome for this event.
- Last but not least, we have rescheduled the Balun Build Day for Saturday April 13th. If you are interested in building a balun or two let us know and we will make sure we have everything you need to complete your project.

Tech Class

Our latest tech class will have finished by the time you read this. It has been a great class. We have had a terrific age range and have had a lot of fun with the class. We have learned a few lessons. First, we will be using our own slide deck going forward. The deck we received from the ARRL needed a lot of work to use. Second, the day we spent on the "mechanics" of ham radio including antenna and station setup was a great addition. Classes going forward will be much better based on these lessons learned.

From the Vice President

Nick, AC8QG
PCARS Vice President



Welcome to spring, everybody! It's time to clean the shack and get to the projects you put off all winter. I have a few projects in the works myself, but I personally feel that this is antenna season. Maybe this is the year I finally put up a loop!

Speaking of spring cleaning, now that the weather is warming up, the time is coming to finally finish up the work in Bay 3. We'll need a clean-up day or two to get that area up to the standard of the rest of the club site. Volunteers are greatly appreciated.

Thank you so much to all the people who helped out with the Technician class! It's not easy to stand up in front of even a small crowd of people and deliver a presentation, much less a crowd with some very enthusiastic kids! That being said, everybody did a great job and represented PCARS superbly!

Remember: April is one of the special months where we get five Tuesdays. That means an extra SIG! I hope to see a few new faces at the Linux SIG on April 30th.

Upcoming Monthly Meetings

The upcoming meeting topics should be very interesting! This month, Michael Kalter W8CI is coming out for a very timely presentation about how they make Hamvention® possible. This will be my first year attending Hamvention®, so I'm looking forward to the "behind the scenes" look at what makes such a famous event happen!

April: Michael Kalter, W8CI will tell us all about the work required to make Hamvention® possible.

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

June: Jim Wilson, AC8NT - Antenna analysis

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

A big thank you goes to the people who helped build the schedule, and also to our speakers! The quality of the presentations this year has been truly outstanding! If you have any suggestions or are interested in a particular topic, please let me know. I'm always looking for feedback and ideas!



Schedule of Events



On the calendar for upcoming meetings and activities are:

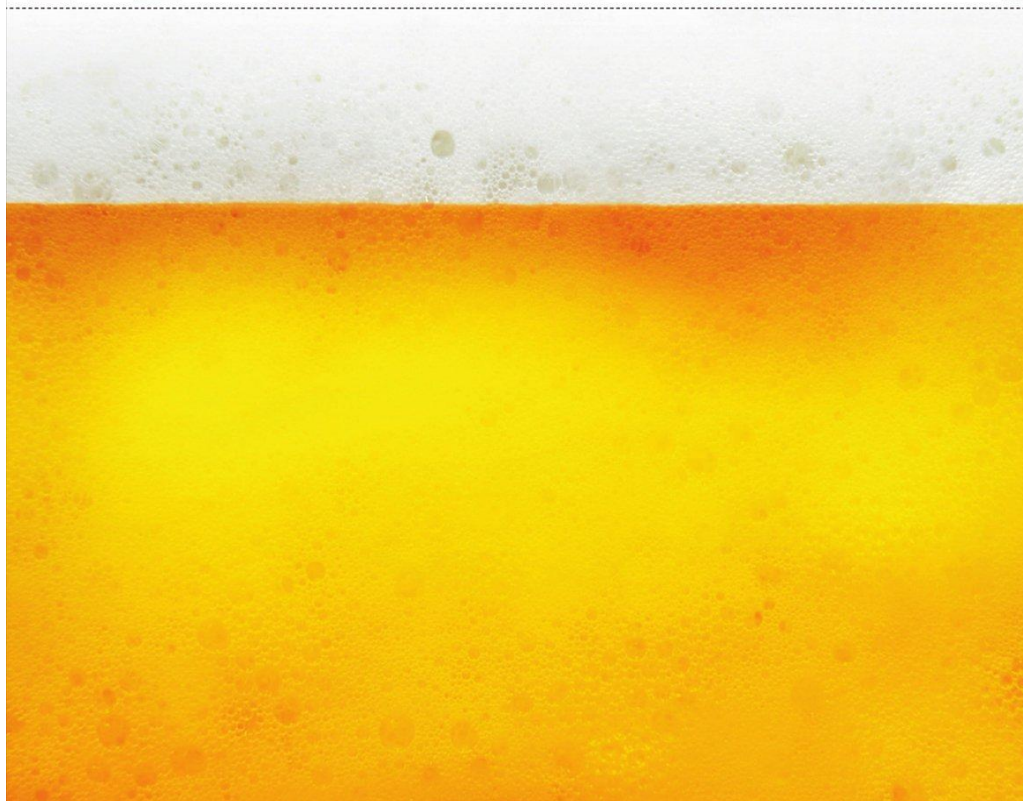
- April 1st - Board Meeting at the club site - 7 pm
- April 6th - VE Testing at the club site in Ravenna - Starts at 10 am - Walk-ins Welcome
- April 8th - PCARS Meeting at the American Legion in Kent - 7 pm - W8CI, Hamvention
- April 12th - Kent KSU Mini Maker Faire - 12-4 pm
- April 13th - Balun Build Day at the club site in Ravenna - 9am
- April 27th - Florida QSO Party - at the club site in Ravenna
- May 6th - Board Meeting at the club site - 7 pm
- May 11th - Antenna Day - Field Day Operational Dry Run
- May 13th - PCARS Meeting at the American Legion in Kent - 7 pm
- May 17th-19th - Hamvention® 2019 in Xenia, Ohio



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 | - Moderator: Tony, WA8AR - starts at 7:30 pm |
| Fourth Tuesday | - | DX & Contest | - Moderator: Chuck, W8PT |
| Fifth Tuesday | - | Linux for Hams | - Moderator: Terry, KB8AMZ |
| Fourth Thursday | - | Net Night at the club site - 6:30 pm | |

FREE BEER!



Tom Creech, K8STK - SK



Tom Creech joined PCARS back in 2010 and was member number 183. He was formerly KD8OSL.

The following is from the Record Courier:

Thomas Dale Creech was born on November 26, 1957. He was raised in South Euclid, Ohio, attending Charles F. Brush High School.

Tom served in the U.S. Navy from 1977-1980 on the USS Badger (FF-1071). He married Martha (nee Staudt) on June 29, 1988, with whom he had three daughters- Annie, Sandra, and Mary. Tom worked and was a well known face at Ray's Place in Kent for approximately 40 years.

He passed surrounded by his loving family on February 23, 2019, after surviving with cancer for some time.

He was preceded in death by his parents, Ann and Arvel, and his two brothers, Dennis and Doug. He is survived by his wife and daughters, his sisters Sandy Floyd (Jack) and Sharon Rigg (Lyle), sisters-in-law Sherri and Jan, many nieces and nephews, and his beloved Ray's Place family.



April Meeting

Tom, WB8LCD



I would like to encourage everyone to attend our April meeting! Of course, that's no different than any other PCARS meeting. April will be our Hamvention meeting. Every year, since the beginning of PCARS I've been encouraging all of our members to attend Hamvention. This year is no different. Go for the day (see elsewhere information on the 1-day Hamvention bus trip) or stay for the weekend! Just GO! I promise, when you return, you will be invigorated and turned onto Ham Radio like never before. This is, one of the largest conventions of Ham Radio Operators in the world – and it's right in our own back yard! Everyone and everything you're interested in will be there. You can wander for 3 days, look at stuff and talk to people – you will not be bored. Want to sit down? There are plenty of seminars and forums to attend. Just Go! If you need an excuse, do it for ME – Because I told you to!

Maybe I'm not passionate enough, maybe not persuasive enough. Maybe you just don't like me! (Aw please, don't say that.) So, just in case, our April PCARS meeting speaker will be Michael Kalter, W8CI.

Michael Kalter - W8CI
What it Takes to have the
Dayton Hamvention®
PCARS Meeting - April 8th

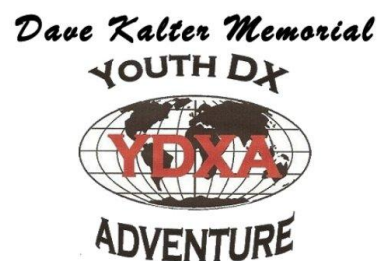


Michael is the "Official Spokesperson for Hamvention 2019." Michael has been around ham radio for a large part of his life (like many of us). He was the President of DARA (Dayton Amateur Radio Association – Hamvention sponsor since it's beginning in 1952) in 2005 and 2006. He was the Hamvention general chairman in 2011 and 2012. Currently, in addition to Hamvention Spokesperson, Michael is the Financial Chair for

Hamvention 2019, as well as the Treasurer for DARA. He is also the Hamvention Awards Co-Chair (along with WS8B, Frank Beafore) for 2019. Michael promises some insights into the Hamvention that you won't be able to hear anywhere else!

Michael has led a very interesting life, even outside of Amateur Radio. In 1974-1975 he served as a Peace Corps Volunteer in Tunisia. He is retired from a successful career in manufacturing as a business owner. He has been to Amateur Radio conventions and events all over the world as both a participant and as an invited guest speaker. He has served his local community in many capacities. He is also a musician, playing acoustic music with a group called The Wingwalkers. We are certainly lucky to have Michael as our special guest speaker for the April PCARS meeting!

One last thing I would like to mention. Michael's younger brother is Dave Kalter, KB8OCP, SK. You may have heard of the David Kalter Memorial Youth DX Adventure program. PCARS has been a supporter of the YDXA program for the last many years, and we will be again this year.



In May, our monthly meeting is on Monday May 13th, and Hamvention is that following weekend – May 17, 18 & 19. Our speaker for the May meeting will be Jim Storms, AB8YK. Jim is the current Vice President of DARA and an honorary PCARS member! Jim will be coming out to talk to us about YDXA and this year's trip. Please, put it on your calendar as another "can't miss" PCARS presentation, even though that will be a very busy (and short) week for many of us.

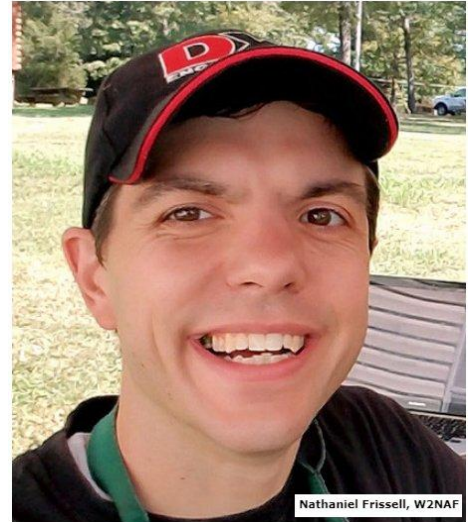
Hamvention® 2019 Award Winners

The Hamvention® Awards committee has announced the recipients the four Hamvention 2019 awards — Amateur of the Year, Club of the Year, Technical Achievement, and Special Achievement.

Amateur of the Year

Named Amateur of the Year was Nathaniel Frissell, W2NAF, who founded and spearheads Ham Radio Science Citizen Investigation (HamSCI), which joins professional researchers and the Amateur Radio community for mutual benefit. Frissell may best be known for his involvement in the 2017 Solar Eclipse QSO Party (SEQP) to study eclipse ionospheric effects. Peer-reviewed results were published in Geophysical Research Letters.

A ham since 1998, Frissell got acquainted with ham radio while in middle school at a Jamboree on the Air (JOTA) event. Scouting has played an important role over his years as a radio amateur, and Frissell, an Eagle Scout, established W2FSR at Forestburg Scout Reservation, where he served as Technology Center Director and taught radio merit badge and ham licensing for six summers. He also served three times on the K2BSA National Scout Jamboree staff.



Meeting members of the Virginia Tech Amateur Radio Club (K4KDJ) at Hamvention while wrapping up his undergraduate work in New Jersey prompted Frissell to attend Virginia Tech to pursue his doctorate. His PhD research determined that medium-scale traveling ionospheric disturbances are primarily associated with polar vortex activity rather than auroral activity as previously thought.

Frissell is currently a research professor at the New Jersey Institute of Technology Center for Solar-Terrestrial Research, where he works with undergraduates and coordinates the annual HamSCI workshop. He is a member of ARRL, the Radio Club of America, and the American Geophysical Union.

Club of the Year

The Nashua Area Radio Society (NARS) is Hamvention 2019's Club of the Year. The ARRL Special Service club in southern New Hampshire focuses on mentoring and youth outreach to bring newcomers into the hobby and help them to get on the air. The club has raised more than \$8,000 to enable its Amateur Radio mentoring and outreach activities.



The club offers Technician, General, and Amateur Extra-class licensing classes twice yearly and has helped more 210 individuals earn a license or to upgrade with a success rate exceeding 90 percent. Field Day provides members with ample opportunity to develop practical emergency communication skills, station-building expertise, and on-air operating skills. The club holds a monthly "Tech

Night,” in which members provide hands-on training to help new and experienced amateurs build stations, develop technical skills, and try new activities. NARS holds Amateur Radio Youth Expos at local events including the New England Division Convention, NEAR-Fest, and local schools and libraries.

The club has partnered with four local high schools and middle schools to develop and deliver STEM learning programs based upon Amateur Radio. One such project provides 14 hours of classroom presentations about Amateur Radio and high-altitude balloons. Through the Amateur Radio on the International Space Station (ARISS) program, NARS partnered with Hudson Memorial School to help students speak via ham radio with astronaut Serena Auñón- Chancellor, KG5TMT.

Technical Achievement Award

Pietro Begali, I2RTF, is the 2019 recipient of Hamvention’s Technical Achievement Award. Begali is best known for designing and producing high-quality Morse keys and paddles. He authored *History and Stories of Radio* in 2005. The book includes not only radio history descriptions of radio technology, but also reflects on his personal experiences. When the market crashed for the precision knitting machines he produced, Begali dedicated his manufacturing efforts to the field of mechanics, and began designing and producing Morse keys.

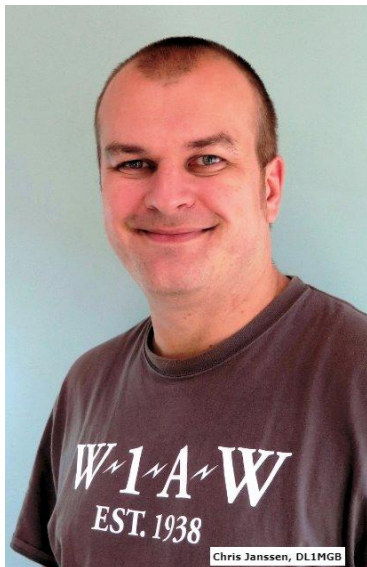
Passionate about electricity, he built a crystal radio as a youngster and then graduated to regenerative receivers. Setbacks have never dimmed his passion. Workshop lessons by Professor Renato Luisa, then I1RD, and electromechanical engineer Giuseppe Masserdotti, then I1GME, helped him cultivate his strong interest in radio communication.

Licensed since 1964, Begali dedicated himself in the early years to DXing. He gravitated into experimental work with equipment, antennas, and propagation phenomena, documenting his activities in publications.



Special Achievement Award

Chris Janssen, DL1MGB/KO2WW, is the winner of Hamvention’s 2019 Special Achievement Award. Janssen served as president of World Radiosport Team Championship (WRTC) 2018, guiding more than 300 volunteers who put on the successful competition in Germany.



Licensed in 1990 at age 14, Janssen began contesting on VHF but shifted to HF when he took part in his first CQ World Wide DX Contest in 1993, joining the Bavarian Contest Club a year later. He went on to become a world-class contester and is part of the DA0HQ team.

His first DXpedition was to the Faroe Islands, and more than 20 other trips have followed. When time permits, he enjoys contesting or chasing DX, still trying to snag the 10 DXCC entities he’s missing.

Janssen was a referee for WRTC 2010 in Russia. Immediately after WRTC 2014 in New England, he headed a team of German radio amateurs who agreed to take on mounting WRTC 2018 in Germany.

FCC to Reinstate Morse Code Test

Dan, KB6NU



Washington, D.C. – The Federal Communications Commission (Commission or FCC) approved Report and Order 14-987af which reinstates the Morse Code test for General Class and Amateur Extra Class licensees. “It was a big mistake eliminating the Morse Code test,” admits Dotty Dasher, the FCC’s director of examinations. “We now realize that being able to send and receive Morse Code is an essential skill for radio amateurs. As they say, it really does get through when other modes can’t.”

Not only will new applicants have to take the test, but General Class licensees who have never passed a code test will have one year to pass a 5-wpm code test. Similarly, Amateur Extra class licensees that never passed a code test will have one year to pass a 13-wpm test. Those amateurs that fail to pass the test will face revocation of their operating privileges. Materials for administering the examinations will be distributed to Volunteer Examiner Coordinators by the end of April, so that they can begin the testing on May 1, 2019.



“This isn’t going to be one of those silly multiple-choice type tests,” noted Dasher. “We’re going to be sending five-character random code groups, just like we did in the old days. And, applicants will have to prove that they can send, too, using a poorly adjusted straight key.”

Technician Class licensees will not be required to take a Morse Code test, nor will a test be required for new applicants. “We discussed it,” said Dasher, “but decided that since most Techs can’t even figure out how to program their HTs, requiring them to learn Morse Code seemed like cruel and unusual punishment.”

When asked what other actions we might see from the FCC, Dasher hinted that in the future applicants taking the written exam may be required to draw circuit diagrams, such as Colpitts oscillators and diode ring mixers, once again. “We’re beginning to think that if an applicant passes an amateur radio license exam it should mean that he or she actually knows something,” she said.

For further information, contact James X. Shorts, Assistant Liaison to the Deputy Chief of Public Relations for the FCC at (202) 555-1212 or jim.shorts@fcc.gov. For more news and information about the FCC, please visit www.fcc.gov.

When he's not teaching ham radio classes, Dan blogs about amateur radio, writes exam study guides (www.kb6nu.com/study-guides), and operates CW on the HF bands. You can email him at cwgeek@kb6nu.com.



Winter Tech Class & VE Session

Jim, AC8NT



Our Winter 2019 Technician Class ended with 7 passing their test. We added two new hams from the Nick Wagner, AC8QG family, Bernadette age 12 and Agnes age 8. Both passed their Technician test. They can now join their dad and brother Benedict, KE8JUZ on the air. We also welcome Holly and Mark Knox, Dennis Daniels and Jim Valovcik.



Holly and Mark can now transmit on some of the equipment they have already purchased and Jim can fly his drones equipped with high power FPV transmitters. We have several students including Dennis and Mark from the class that will be trying to upgrade to General at our April VE session.

**Bernadette, Ben,
Nick and Agnes.**

I am also very excited to announce that Benedict (better known as Ben to all of his ham friends) Wagner, KE8JUZ, age 10 **passed his General test**. We were all excited to see he made it on his first try. This makes the Wagner family a club of its own. Can't wait to hear all of them on the air.



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**



Carole Perry's Visit to PCARS

Tom, WB8LCD



I want to make a few comments regarding our visit for the March meeting with Carole Perry, WB2MGP. First, thank you to all of my fellow PCARS members for allowing me to “host” Carole while she was here with us. It was an amazing experience for me. I also want to thank all of my fellow PCARS members who were able to come out for Carole’s presentation. It is always a worry when a special guest is invited to think that we will be able to provide an audience worthwhile for them to spend their time with us. Again, with both club members and guests, I think we had a fantastic turnout. Carole has said several times that she was “blown away” by the turnout, and at the reception that she received while she was here. I consider that a very high compliment for PCARS. Thank you all for being such an outstanding group of Amateur Radio Operators! I also want to especially thank Tim, K3LR – and the whole crew at DX Engineering who helped me keep Carole very busy for the two and a half days she was with us. Your help and support of PCARS is always appreciated.

As you know, Carole puts on the youth forums at the Hamvention every year. This year will be the 32nd year that she has hosted the youth forums, along with support through the Radio Club of America (RCA). PCARS will have it’s FIRST year supporting this important activity with a couple of donations made to the RCA through PCARS. The PCARS logo will be proudly displayed on the Banner at the forums! (We are also a supporter of the Youth DX Adventure program) In her presentation, Carole mentioned a YouTube video titled “Where are they now” which hi-lites some of the Youth Forum presenters from prior years. This is about a 20-minute video well worth the time to watch it.

<https://www.youtube.com/watch?v=CZiUViM9QBw&feature=youtu.be> If you’re talking to youth, or maybe even their parents, about Ham Radio, this would be a good support piece to reinforce how Ham Radio can have a positive effect on the continuing education, and ultimately employment of youth who get involved with the hobby. If you can fit it into your Hamvention schedule (and you know I’m expecting you to be there), please, take in the Youth Forums and help to support the future of Amateur Radio.



Another thing that Carole made me aware of was the Radio Club of America (RCA). This is the oldest radio club in the US (if not the world) and predated the ARRL by five years. At this point it is more an Industry group than an Amateur group, but Carole says that many of the leaders of the industry are also Hams! Anyone at all interested in the industry, or in the perpetuation of Amateur Radio would be in good company to join the RCA. You can check out their website at <https://www.radioclubofamerica.org/>. Carole wrote a short article on the history of the RCA that appeared in Monitoring Times. If you would like a PDF of that article, just drop me an email and I’ll send you a copy of it. (tomsly29@gmail.com)

Finally, I would like to see PCARS at the forefront of bringing youth into Amateur Radio and into our local clubs. While I have some ideas of my own, I'd like to know what you think. What are your ideas? What would that program look like as a part of PCARS? Would it be strictly a local program, or could it be something that encompassed a larger geographical area? How much would it be run by the youth themselves and how much involvement would be needed from older hams? Think outside the box here just a bit, and try to think in terms of a program that you would support and participate in, especially in the early stages of getting it off the ground. Think about how we could utilize outside resources to leverage our results. How could we make a program that would co-op with other clubs? Again, send me an email – let me know what you think.



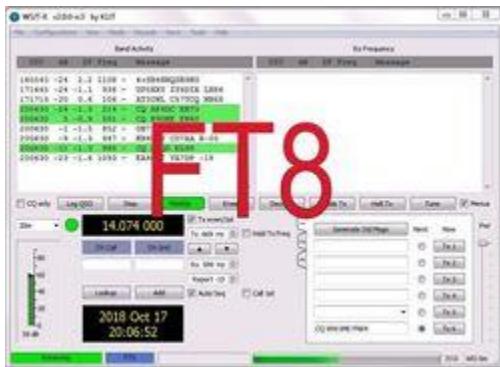
PCARS K8BF
The Club that puts the FUN in Ham Radio!



Survey Says FT8 Growing as THE DX Mode

From the ARRL

In his 2018 update of his survey of modes used on the air, Club Log's Michael Wells, G7VJR, says the number of Club Log users uploading at least one FT8 contact to the site grew from 8,000 in 2017 to 14,200 in 2018. Wells worked with data from Club Log users who, he reports, uploaded 41.3 million contacts in 2018, up by 12% from last year.



"I think that fact is more significant given the ongoing decline of this particular solar cycle, and it's possible evidence of extra activity from FT8 and newly active amateurs who'd run out of steam on CW and SSB, but are back to try digital modes," Wells said.

He reports that 13,900 users uploaded at least one CW contact, and 18,000 had at least one phone contact. The total number of active users was just under 22,000 across all modes in 2018, Wells said, who added that number has been dropping each year since 2015.

"When we look at the graph of QSOs (<https://g7vjr.org/wp-content/uploads/2019/03/clublog-modes-2017-2018.png>) you can deduce that FT8 users must be prolific in terms of the number of QSOs they make when they're on the air," Wells said. "Once you start making FT8 QSOs, I get the feeling it's more likely you'll be on the bands for longer in a session, as it can be quite addictive working DX in the noise. Having those absolute signal-to-noise figures is compelling." In his discussion, Wells reported that operators from some 270 DXCC entities were active on FT8 in 2018. "It's quite a showing for FT8," he allowed, pointing out that the figure is close to the computed 287 active DXCC entities. About two-thirds of DXpeditions using Club Log used FT8 while active, and a bit more than 6% of Club Log DXpedition contacts were on FT8 last year.

Wells observed that while it's likely that more modest stations are logging rare DX, especially in DXpedition mode where FT8 favors weaker signals, its use comes at the expense of speed - or rate.

"With many expeditions to rarer locations being somewhat constrained logistically, and not having the luxury of staying a long time, operating FT8 could be seen as something of a trade-off," Wells said. "Even so, for pure throughput, it seems expeditions are still getting the numbers from other modes. Expeditioners like to work pileups and amass as many contacts as they can, after all."

Wells posits that FT8 may be the only way to stay in the hobby for operators living on small lots and confronting stringent zoning regulations. "However, I think we mustn't romanticize those particular situations too much. A lot of the FT8 on the bands today is just plain old competitive," he concluded. "It's generally become a QRO [high-power] mode, and it's fierce in its ways. SSB and CW CQs are often going unanswered, while a tiny sliver of each band heaves with FT8. This pattern hasn't relented in 2018. That's not great news."



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.

April 6th, June 1st, August 3rd, October 5th
Saturday, June 22nd 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



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.



Don't Miss the 2019 ARRL National Convention at Dayton Hamvention® Programs

Richard, K1CE
Editor, ARRL ARES® E-Letter.
Public Service columnist



Don't Miss the 2019 ARRL National Convention at Dayton Hamvention® Programs. The 2019 Dayton Hamvention® hosts the ARRL National Convention this year, and features a treasure trove of exhibits, programs and forums of interest to the Amateur Radio emergency/disaster response community - don't miss it! Special exhibits include a showcase of communications vans and strategies from across the country. Click here if you have a vehicle that you would like to have showcased at the event. There are many ARES and other groups that are building out vehicles and would benefit from ideas from the operators of the displayed units. Groups bringing their vehicles to exhibit should have their units fully staffed, functional and demonstrated so that its capabilities can be observed throughout the show.

The forums schedule is coming soon, according to the Hamvention forum schedule page. Check [here](#) for further information.

The 2019 ARRL National Convention at Dayton Hamvention® is Friday, May 17, through Sunday, May 17, at the Greene County Expo Center, 120 Fairgrounds Road, Xenia, Ohio, sponsored by the Dayton Amateur Radio Association. [I am hoping to meet and greet readers at Dayton in just a couple of months. See you there!]

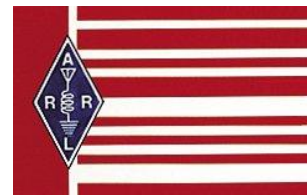
K1CE For a Final: Anderson Powerpoles, GoVerticalUSA Products

Some recent, personal experience with two popular products may be of interest to emergency communicators. I've installed dozens of Powerpole® connectors successfully; they are an excellent ARES® standard connector, with many devices and cables pre-prepared with the connectors. I've had great luck with them for years. Recently, however, I was in a hurry during an install, and left the exposed, un-insulated ends of the wires too far out of the red and black plastic housings. The exposed wire extended out of the housings perhaps only as much as 3/16", but it was enough to result in a short, with my solar regulator/charger detecting the fault and automatically disconnecting. The short posed a serious safety issue. Lesson learned: Make sure all of the exposed wire is protected inside the housings; and in general, always take your time to do any job right! Also recently, I discovered and have been experimenting with GoVerticalUSA (<https://www.goverticalusa.com/>) products. The Pennsylvania-based company sells new, used and surplus heavy duty mast sections, tripod/base components, guy rings, cable, accessories, etc. I discovered their products at a recent emergency communications exercise, but I also saw their outdoor booth at Orlando Hamcation® a few years ago.

I purchased the Antenna Tower Aluminum Tripod base and a set of four used 48" fiberglass mast sections to use as the three legs of the tripod. These products are heavy duty and easy to put together in seconds. I ran my existing antenna support mast up through the middle hole of the tripod base and mounted my 2-meter beam on top. The mast is supported at the top by a U-clamp on the side of my roof. My next purchase will be for their smooth walled aluminum mast sections and the 12" base that holds the antenna mast on the ground, with guy rings, guy wires and stakes to allow my installation to be erected independently of my house. These products would serve ARES® operators well when quick set-up of masts and antennas are indicated in the field: at disaster areas and public event checkpoints, etc.



New ARRL Radiosport & Field Services Manager



From the ARRL

Bart Jahnke, W9JJ, has been appointed as ARRL Radiosport and Field Services Manager. Jahnke, who has served as ARRL Contest Branch Manager for the past 3 years, succeeds Norm Fusaro, W3IZ (a long time PCARS friend), who was recently promoted to Director of Operations at ARRL Headquarters. "This new role now offers me the exciting opportunity not only to be on the front lines of our radiosport community, but our international/DX and domestic radiosport operating and awards activities," Jahnke said. "Having worked closely with tens of thousands of our Volunteer Examiners in my prior Headquarters tour, I'm able to reengage with many of them now in our Field Services program."



Bart Jahnke, W9JJ

With respect to radiosport, Jahnke pointed out that contesting activity not only defends Amateur Radio allocations but builds a pool of operators and expands their skills in providing communication in times of emergency or disaster. Jahnke said contesters, DXers, traffic handlers, and everyday users of the amateur bands know what to expect in terms of propagation at different times of day and year, and can apply that knowledge in establishing disaster communication. As Radiosport and Field Services Manager, Jahnke will oversee the Radiosport and Field Services staff in managing awards, contests, and Logbook of The World (LoTW), as well as issues involving the ARRL Field Organization on Section, club, and current volunteer monitoring and emergency services issues. Before returning to ARRL Headquarters in 2016, Jahnke was in the private sector for about a decade, working in the emergency medical services, customer service, long-term care manufacturing sales and support, and information technology fields in the midwest and on the east coast. Jahnke first joined the ARRL Headquarters staff in 1985, starting as editor of the ARRL Repeater Directory and as a Membership Services Representative, handling matters related to FCC rules. For the next 3 years, he also assisted with ARRL Award processing (except DXCC) and later trained incoming Awards Managers. In 1989, he became the manager of the ARRL Volunteer Examining (VEC) Program, a position he held for 16 years.

Happy Birthday PCARS Members

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

KC8FQV	Mark	Studer
WB2DFC	Dave	Rarrick
N8QE	Bob	Hajdak
KW8KW	Bill	O'Neil

K1ZZ	Dave	Sumner
KE8EGG	Alice	Harris
W8YIH	Sly	Kaleja
KE8JFP	Joseph	Wolfe

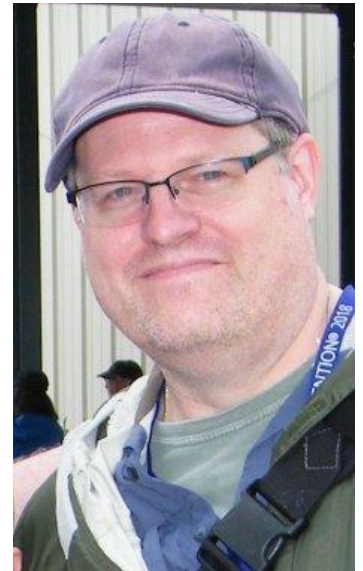


PCARS K8BF
The Club that puts the FUN in Ham Radio!



Raspberry Pi Sunclock Project

JC, KC3JXQ



In my short time with ham radio, I've truly come to appreciate that it is a hobby made up of hobbies and as a "reformed software developer" I can see a million places to apply technology to solve the little non-problems that I create in my shack. To wit, the sunclock. I'm the kind of guy who likes to see that kind of data on a screen because my shack is in the basement and I have no idea where the sun is. So using a Raspberry Pi I had lying around and a touchscreen, I was able to scratch this itch.

I started out with the Raspberry Pi 3 B+ but do check the documentation for any touchscreen you're thinking of buying before you go too far. Originally, I had a \$20 3.5" touchscreen, but my fingers are too big and my progressive lenses disagreed with how small that screen is, so I upgraded to a 7" screen which costs about \$70 new.

A significant bonus to using the official Pi 7" touchscreen is the fact that once it's attached to the Pi, there are no drivers to install or packages to update. I'm running Raspbian Stretch on mine and it might hold the record for the easiest hardware install I've ever had with the Pi platform.

I also grabbed the SmartPi Touch Case [<https://www.amazon.com/SmartPi-Official-Raspberry-Touchscreen-Display/dp/B01HV97F64/>] that allows me to angle the display and let it sit on my desk next to my rig's head unit. It's a great enclosure without having to find a Maker Space or invest in a 3d Printer (hobby made of hobbies, right?). The enclosure allows for adding on Pi Hats later which is great because I can do more with this than just show a map.

With the screen installed, two packages need to be added right away: NTP [<https://packages.debian.org/stretch/ntp>] and Sunclock [<https://packages.debian.org/stretch/sunclock>]. They can be installed by simply issuing the following:

```
sudo apt-get update
sudo apt-get install ntp
sudo apt-get install sunclock
```

NTP is the Network Time Protocol and the NTP packages within the Raspbian distro allow a computer to synchronize with a defined time server or time servers. Why bother? The service will run in the background and ensure that the time on the Pi remains in sync with other computers across the network. It makes the clock in this project far more accurate and if FT8 is in the mix on this system, it ensures that the time on the system agrees with the rest of the world so that successful contacts are possible.

There are some great tutorials and man pages for NTP out there if you really want to tweak it, but a basic install from the Raspbian distro gets the system up and running and the clock synced appropriately. Next up is the sunclock.

Sunclock can be run from a command line by simply issuing the command "sunclock". Check out the arguments that feed into the sunclock by looking up its doc page or running "man sunclock". Options include

showing lines and what day of the year it is, etc. It's a very complete and can be a fiddly piece of software if one is so inclined. Personally, I just set it up to run maximized in an undecorated window so that it takes up the whole screen. And as a pro-tip, minimizing the system menu when it's not in use makes the whole screen a sunclock and it looks really cool - almost like a dedicated sunclock appliance.

Something that improves the sunclock experience is following the instructions of K2CG (I found this **after** doing the hard work) and downloading the higher quality maps referenced on this page: <http://www.kd2iff.com/node/20>

Also, make sure that the power supply that's being used can supply what's required by both the Pi and the touchscreen. The 7" screen is much hungrier than it's 3.5" little sibling. The screen kit I received had a micro USB Y-cable to allow me to feed the screen and the Pi from the same power supply.

As a final note, I think almost everyone knows how powerful the Pi is. I have to say that while it's nice to have the sunclock, the added ability to run things like <http://pskreporter.info> and pull up QRZ or figure out what grid square I'm talking to without taxing the machine that is running FT8 is handy. I also use mine as a fileserver to share data between the various devices in my shack.

At the end of the day, I have an affordable and useful device that provides me with the data I need while operating deep underground.



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.

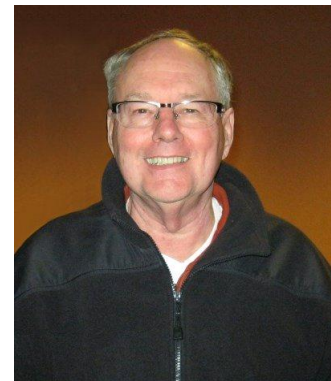
1. Check the PCARS web site every day, maybe a couple of times a day to see new information that is posted.
2. Another thing to do is to join the PCARS Group IO. That's a great place to post message when you are looking for information or have a question about something. Try it - you just may like it!!



Yagi Antenna Build Day



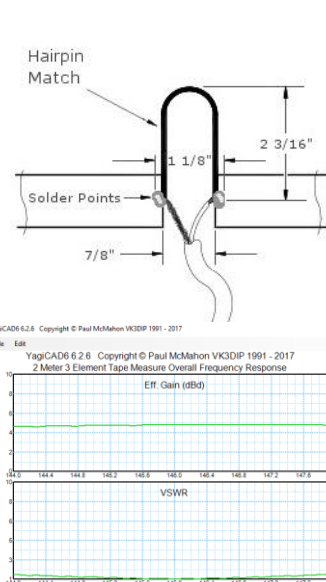
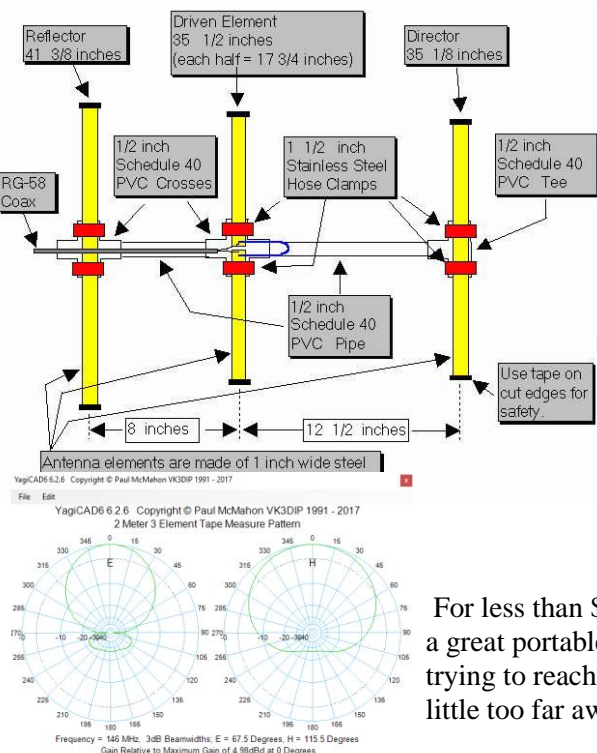
Jim, AC8NT



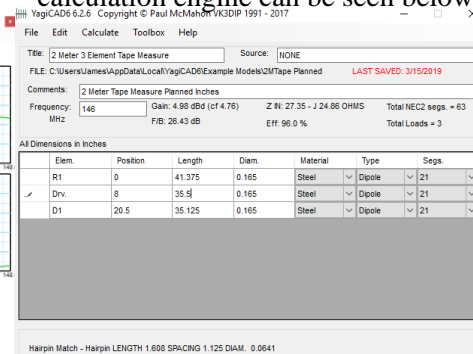
We had a great time at our Yagi build day event on March 23rd. We had 18 hams in attendance there to either help with or build a 2 meter tape measure Yagi antenna. We finished 14 antennas and verified that all worked before the event ended at about noon. Not bad for half a day.

With the help of a few club members the Saturday before the event, we prepared by creating 16 kits of parts consisting of PVC boom construction parts and the tape measure elements. This made the event move very smoothly on the build day. I think everyone learned some construction and design skills during the build. We started by covering basic operation of a Yagi and key design points. We then spent a few hours building and ended by testing each antenna using the club's antenna analyzer. All antennas, a few of which required minor tweaks, tested operational before leaving the build.

We received a lot of positive comments from participants about how much fun they had. Many wanted to know what we were going to build at the next event and when it was going to happen. For those who did not attend but would like to build this project the diagram of the antenna is shown below.



If built to the diagram it provides an antenna that has a 1.2:1 SWR over most of the two meter band without any tuning. Remember to center the reflector and director and make sure the director is centered and cut to 35 1/2 inches end to end. Output from the analysis of this antenna using YagiCAD which uses the 4NEC2 calculation engine can be seen below.



For less than \$30 and about 2 hours, this is a great portable antenna for fox hunting or trying to reach that repeater just a little too far away.

I would like to give Joe Leggio, WB2HOL a shout out for his article on the construction of this antenna. If you would like to read his article go to: http://theleggios.net/wb2hol/projects/rdf/tape_bm.htm.

If anyone would like to build this antenna we have a few parts left over that we can sell for a great price to help with the build. Just let me know.



PCARS is One Fantastic Club

Tom, WB8LCD

OK. I'll admit to the fact that I'm biased about PCARS. And by writing this, I don't mean any disrespect to any other club. I know that there are a lot of really fantastic clubs out there. But, PCARS is the club that I belong to, the club that I'm a part of. I've seen the workings and the operations of the club from many different perspectives. Let me talk about a few things that I think set us apart from the ordinary.



If you want to be involved in HAM RADIO, PCARS will give you ample opportunity to participate in activities and events. Every week there are at least two activities you can participate in with the weekly Special Interest Groups (SIGS) and the weekly 2-meter club net. Add to that the monthly general club meeting, the monthly officers meeting (open to any club member who wants to attend), the bi-monthly VE sessions, the 2 or 3 licensing or upgrade classes we offer each year, usually for an 8 week duration each, Freeze Your Acorns Off, Field Day, Ohio State Parks On The Air, contest operations from the club site and all the other Get on the Air days and project build days. There's no reason you couldn't spend 2 or 3 days every week of the year with PCARS activities. And don't forget the other Ham Radio groups you belong to, you want to spend at least a couple days a month with them. Get involved. You'll have a blast with PCARS!

Being a larger club, PCARS has people from all walks of life, all sorts of backgrounds – we are a very diverse group. But no matter how diverse we are in other areas of our lives, we are all Ham Radio Operators and we are all PCARS members and we all pull together when it's time for us to do so. Just as diverse as our backgrounds are, so are our Amateur Radio interests. We have some very smart and experienced people in our group and all of them are willing to spend the time to help someone who is new, or maybe just needs a little help, getting to the place where they are comfortable and confident in their Amateur Radio activities. Just ask. Someone will be there to help you out.

Lots of club members play important roles in the success of all PCARS activities. They see what needs to be done, and they get it done! In fact, some of the “behind the scenes” work that gets done is amazing. Every club officer has been given great ideas in the form of “Hey – you guys ought to do this!” And I know its all good intentioned and lots of times correct and acted on by the officers. But, PCARS has some members that go beyond the suggestion phase and say: “We ought to be doing this, and I'll put it together and make it happen.” One of my favorite quotes is “Good ideas are a dime a dozen, but the person who puts them into practice is priceless!” And quite often a PCARS member. I recently learned a thing or two about everything the PCARS contest coordinator handles for us. It's a lot more than you would think. And it just happens. No one asks, no one tells. It just gets done. That's Fantastic!

One last thing. PCARS members have been most generous to supporting our local community, and the Amateur Radio community. We have been supporters of the David Kalter Memorial Youth DX Adventure program. Now, after Carole Perry's visit we are also supporting the youth programs through the Radio Club of America (RCA) who sponsors Carole's Youth Forums at the Hamvention (2019 will be the 32nd year). Many of our members belong to the local EMA Communications Group. They put lots of time and effort into being ready and prepared to serve the community in times of disaster. And finally, every year we support the Center of Hope at Thanksgiving and Christmas time. Our total contribution through the years has been astounding! PCARS members have been generous to a fault. Everyone does what they can, and together we have made an impact in our community.

I know this is the “April Fools” issue of the Radiogram, and I chose this month to say something in all sincerity and seriousness. Sorry about that. I just had to say, PCARS is one FANTASTIC Amateur Radio Club, and I'm proud to be a part of it!



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Hamfest Calendar

04/13/2019 - 65th Annual Cuyahoga Falls Amateur Radio Club Hamfest - Location: Emidio & Son's Party Center - 48 East Bath Road - Cuyahoga Falls, OH 44221 - Website: <http://cfarc.org> - Sponsor: The Cuyahoga Falls Amateur Radio Club, Inc. - Public Contact: Pat Morrow, N8OQP - 627 Brewer Avenue Akron, OH 44305 - Phone: 234-206-0270 - Email: retired_guru@neo.rr.com

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

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

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

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

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

PCARS
Join Now
Discover the FUN



From the Ohio Section Manager



Scott, N8SY
ARRL Ohio Section Manager



Hey Gang... I had a blast this past week visiting with many of you at your meetings and events.

The Ohio Section ARES[®] Conference Date Announced I know a lot of you have been waiting patiently for this announcement. Yes, we have set a date for the Ohio Section ARES[®] Conference... It's going to be held on **April 6th** at Marion Technical College / OSU Marion Campus. So, make sure to mark your calendars for this date.

Also, don't forget to "sign up" for this event in ARES[®] Connect as well!



Stan is working diligently on the agenda getting great forums arranged and it's sure to be a really great conference. There are loads of information for those interested in any part of Ohio's ARES[®] program. This is an all-day adventure, but we are in a real college setting with all the amenities that you would expect in a first-class campus. Electric outlets are easily accessible for those bringing laptops and such. Wi-Fi is available and the seats are very comfortable.

And... I'll have some great Give-A-Ways to pass out as well. Lunch is on you, but the campus is close to many popular fast-food and sit down restaurants. You can even brown bag it if you want to eat on campus.

We've had some updates on some Code Plugs that Daniel, KB8LKH has been working hard on. He's got the latest Code Plugs for the AnyTone AT-D868UV Dual Band HT; the Connect Systems CS-800D Dual Band mobile and the Connect Systems CS-800 Single Band mobile. If you have one of these rigs, you'll want to head up that way and get these newest Code Plugs. We've also had an update from Greg, WD9FTZ on DMR Nets around the country. Greg works hard at keeping up with this for all of us. So, if you have an interest in DMR Nets, you'll want to download this newest listing from Greg.

ARES[®] Connect... There has been some movement with this new system for the Admins. If you haven't heard Headquarters has brought back for good the "New Volunteer" bucket. This allows the admins to find those new folks that just signed up to the ARES[®] Connect system. The county admin also can once again "vet" their own people. This means that they can once again go in and change things. It's really nice to have both of these features back once again. I have been working with the folks at Headquarters to get the data to where you can actually do something useful with it. We now have a master Ohio Section listing of all of those registered in ARES[®] Connect. This listing will be made available to all of the EC's and DEC's from the secured end of the Ohio Section website.

I do want to clear up some miss-interpretations that have been going around. First, in the Ohio Section we only require our Level 2 volunteers to have the 4 basic courses, IS 100, 200, 700 & 800. For our Level 3 volunteers we do require the additional ICS 300 / 400, or the equivalent professional series courses IS 120, 230, 240, 241, 242, 244 & 288. These equivalent courses are all on-line classes just like your basic 4 NIMS courses

are and being offered as an alternative way for you to get credit for taking the professional series courses in the event you just cannot get scheduled into an ICS 300/400 class.

By the way, if you decide to take these 7 on-line courses and complete them all, you will want to take just one more class IS-235. By completing this additional course, you will get a really great looking certificate from FEMA recognizing that you have completed the entire Professional Series courses. I do hope that this clears up the confusion that has been going around lately. As we have stated on the website and in this newsletter many times “We don’t want anyone left behind.”

Ok.. One final go around.... Some of you may have had a problem with signing up for the Handbook this month. I do apologize for that. It seems that my Host Server company had been changing some things around and it got the form all confused. I guess it was time for me to update the form and this was its way of letting me know. So, if you were one of the unfortunate folks that couldn’t get signed up for the drawing, try it again. Oh, I do want to remind you that you need to clear your Cache’ out from time to time. Cookies get stored there and it will get you messed up on sites that get changed.

Whelp... That’s going to do it for this time around. Stay safe, stay warm, and most of all... have FUN!!

73, and stay warm and dry!!!

Little City Grill



Tom, WB8LCD



Bert from Little City Grill informs me that on Friday, April 19th, Little City Grill will be hosting a special evening with Stella Artois. From 5 to 7 PM they will be offering a **free** Stella glass to anyone who purchases a draft Stella at the bar. BUT – in addition to the free glass, there will also be an engraver on premises who will engrave your name (read: callsign if you like) on the glass! Could be a fun evening. And don’t forget to bring a QSL card to hang on the wall.



Swap-N-Shop

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 IntellTuner automatic antenna tuner** 200 watts SSB/CW excellent condition used r 2 months. \$165.00 All sales cash and no trades

Contact Russ K8QF- Phone 330-906-2880 or email: russ32458@aol.com

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 [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 [06/02/19]

For Sale: Two Velvet Vernier Drives, Large 4" dia. Vernier drives used for precision adjustment of air variable capacitors. \$60.00 for the pair. **For Sale: Two (2) Hammarland transmitting capacitors**, for a large antenna tuner. Rated 300 pf at 7500 Volts. They would make the ideal capacitor pair for a high power tuner. 13-7/8" L x 5-1/2" W x 4" H. One of the capacitors has had a single plate removed from the rotor. This has had the effect of reducing the capacitance by 4% or 12 pf. Therefore, one of the capacitors measures 288 pf while the other one measures 300 pf. However, 250 pf is all that is required to tune 160 meters in a T-network tuner so this should not be a problem. \$150 **For Sale: 4" Coax Entry Port**, This 4" entry panel complete with stainless steel mounting hardware, boot and cushion for four cables up to 1/2" in dia. The cushion can be changed out so any combination cable sizes can be accommodated. Two of the holes have removable plugs. \$30.00 **For Sale: Andrew Helix Prep Tool Set**, One set consisting of a prep tool for Andrew LDF4-50 1/2" Helix and one almost new, (used once) Helix cutter. This special Helix cutter is designed keep the cut end perfectly round so it will easily fit into prep tools and result in a properly prepared cable end ready for the installation of a connector. \$130 for set **For Sale: Andrew Helix Prep Tool**, Two (2) new prep tools for Andrew LDF4-50 1/2" Helix \$100 each

Contact James. KD8VT - 330-206-4909 [04/02/19]

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

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



For Sale: Collins 100 Watt Dummy Load DL-1 S/N-5288 dummy load will handle 100 watts for tuning up your rig, can work with any radio transmitter. \$150

For Sale: Used KT-88 Amplifier tubes that just came out of service in a McIntosh MC-2102 100 watt stereo amp. \$150

For Sale: Collins SM-2 microphone with original box, packing, cable, connectors, and mounting stand. \$350

For Sale: Used Collins SM-2 microphone with mounting stand no cable included. \$150

For Sale: Drake B-line Restored - Drake R-4B receiver S/N-14602B, T-4XB transmitter S/N-19769B, AC-4 power supply S/N-38653, MS-4 speaker (1972 Vintage), EV-638 microphone, RED LED digital readout, plus extra range crystals for all WARC bands & 160 meters, cooling fan on T-4XB.

Restored, aligned using sweeping method. Many new parts too much to list here. AC-4 re-built. \$1200, no trades, no Pay-Pal, Prefer pickup (NE Ohio Cleveland) or plus UPS Shipping 48 States

For Sale: Swan WM-1500 Wattmeter - Swan WM-1500 large 4-inch wattmeter, with scales of 5, 50, 500, 1500 watts analog only (no peak reading). Just a nice LARGE meter that works well.

Contact: Jeff, WA8SAJ at (440) 951-6406 is best for more info, no E-mails [04/02/19]



Filling Your Skills Gaps at Think[box]

Jim, AC8NT



Sometimes projects require some skills that we don't have. My current project seems very simple electronically speaking. But it is not simple.

I am working on a new power meter equipped with a 250 watt 50 db attenuator. This project uses a Arduino based design for the actual power meter that costs \$31 and is amazing accurate for measuring power up to about 5 dbm. I will require a substantial attenuator to measure my outputs. My attenuator uses a 30 db hybrid module and a 20 db hybrid module. Its cost is very reasonable at about \$100 for parts but does require a very large heat sink and a serious thermal design.

There is a lot of information in textbooks and online about heatsink design. For this project I need a large unit and excellent contact between the heatsink and the hybrid modules. If I don't do a great job, I will let the smoke out of my hybrid modules. I can handle the thermal design, but constructing it is another issue.

Two problems. I don't have a mill to machine the modifications required to the heatsink I purchased and I need a little help every time I use a mill. Where do we find help in these situations? Fortunately we have a great resource in the area to help with filling our skill gaps, Case Western Reserve's Sears Think[box], a great maker space.



Think[box] not only supplies equipment free for operation, but best of all, free training in the use of this equipment. It is open to everyone, not just students. The only cost is materials and parking. Equipment includes 3D printing, milling, turning, wood working, circuit board construction as well as all kinds of computer software to help you create your solution. **Did I say it costs nothing but**

materials and parking? Sorry to repeat myself.

They will help me mill my heatsink and maybe provide some good design advice. I have been there a few times and can tell you the experts and students that assist users are simply "The Best". I have seen electronics students and hobbyist make front panels, machines and enclosures, and circuit boards that look and function to professional standards. I know they will help me finish my project and help me add to my skill set. The next time you would like a great front panel, chassis or something else you are not equipped to do well, consider this resource.



I would like to plan a tour of Think[box] for our members. If you are interested, let me know by sending me an email at jawilson@j3solutions.com. For more information visit <http://engineering.case.edu/sears-thinkbox>.

WWV Funding Restored, Centennial Preparations Continue

Congress has restored full funding for WWV, WWVB and WWVH, despite a budget proposal from the National Institute of Standards and Technology to shut down the three standard time and frequency radio stations. The Consolidated Appropriations Act of 2019 included some \$725 million for NIST's Scientific and Technical Research and Services (STRS), the budget category that includes the stations' funding, according to NIST Public Affairs Director Gail Porter. The conference report accompanying the budget bill notes that "(t)he agreement rejects the proposed terminations and reductions for all STRS programs" and includes "not less than fiscal year 2018 funding" for several services, including "Time and Fundamental Measurement Dissemination."

With the shutdown threat ended, preparations continue for marking WWV's centennial this fall. According to the *ARRL Letter*, the Northern Colorado Amateur Radio Club will be operating a special event station from the WWV transmitter site from September 28 through October 2, using the callsign WW0WWV.



WWV and WWVH are also making timeslots available from April 20 to May 3 for the Department of Defense to request reception reports of communication during its "Northcom Vital Connection Wisconsin" exercise. The announcements will be broadcast at 10 minutes after each hour on WWV and 50 minutes after the hour on WWVH. It will reportedly serve as a pilot for future broadcasts of similar exercises. (Tnx WA2KBZ)

Squirrel Buro at PCARS

Deron, N8XTH is setting up the *PCARS Squirrel Buro*. it's a simple way to allow members to exchange QSL cards confirming contacts with each other.

Just like a "real" QSL Buro you can leave a self-addressed stamped envelope with the buro and we will send you your cards every July 30th and every December 30th. Every envelope should have sufficient postage with your name and callsign very clear above your address. Envelopes must be either 5x7 or 6x9 and should NOT be padded envelopes.

Or you can leave your cards and pick up your cards from the Squirrel Buro any time the PCARS Club Site is open or at every club meeting.



The Squirrel Buro is very simple to pick up and leave your cards.

To leave a card in the Squirrel Buro, find the folder with the last letter of the callsign that you are "sending" a QSL card to and leave the card in that folder.

If there is an envelope for the member, please put the card in the envelope.

To pick up a card from the Squirrel Buro, find the folder with the last letter of your callsign and take your cards with you.

Flex Net to Start in April

Deron, N8XTH



The PCARS FlexNet is a new 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.

The first FlexNet will be held on April 10, 2019 at 8:00pm on 10 meters. We will hold the net on 28.325 MHz +/- 5 kHz. In the event that we need to find a new frequency, we will communicate it on the K8IV 146.895 repeater and also post it to the PCARS group.io page.

Below is the tentative net schedule, subject to change:

10-Apr-2019	10m	11-Sep-2019	20m
8-May-2019	40m	9-Oct-2019	15m
12-Jun-2019	80m	13-Nov-2019	10m
10-Jul-2019	2m FM Simplex	11-Dec-2019	20m
14-Aug-2019	40m		

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 also in this month's 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 also in this month's newsletter.)

The A-to-Z portion of the net will be run like any typical net with K8BF/N8XTH as net control. The exchange between stations is simple, callsign, name, and signal report.

Exchange format: Net control will prompt calling station for each station next on the roster. If calling station cannot hear net control, designated alternate net control will relay net roster. Stations will have 3 attempts to call/work each station. If after 3 attempts to work a station fail, NCS will move calling station on to next call sign.

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!



Portage County Amateur Radio Service (PCARS)



A-Z Award

Open to all current Portage County Amateur Radio Service members

Contact 26 current PCARS members (**current members on the date of award submission**) with the **last** letter in their suffix to complete the English alphabet - letters A through Z.

Example KD8EPA counts as the letter "A", through KB8UUZ counts as letter "Z"

PCARS members can see the current listing for PCARS members on the PCARS website: www.portcars.org.

QSL card verified contacts made with **current** PCARS members since PCARS started (November 14, 2005) count toward the award.

Three Awards:

Bronze: Voice contacts made through 2 meter FM repeaters. EchoLink/DMR/D-Star, etc. contacts are allowed.

Silver: Voice contacts made on 2 meters FM or SSB - not through repeaters - no EchoLink or digital.

Gold: Contacts made on 160/80/40/30/20/17/15/12/10 or 6 Meters - AM/SSB/CW/Digital (any combination) (not through a repeater).

QSL Cards (Photo copies) ARE required. No e-QSL, no LoTW. QSL cards must have call signs of both stations, contact date, time (UTC), band (frequency if FM) and mode. Contacts made starting November 14, 2005.

Don't have a QSL card? Hand made QSL cards are allowed.

Award Verification:

Complete the entry form and have the sorted QSL cards verified by PCARS ARRL Card Checkers (W8KNO or KB8UUZ).

PCARS members located outside of the local area: Send completed award entry form and photo copies of QSL cards showing appropriate information (photo copies *preferred* - we don't want you losing original QSL cards in the postal system) with fee to the QRZ.com address for either W8KNO or KB8UUZ.

Award Fee:

\$2.00 for the award certificate if the award is to be picked up at a PCARS meeting. See the meeting information on the PCARS website at: www.portcars.org

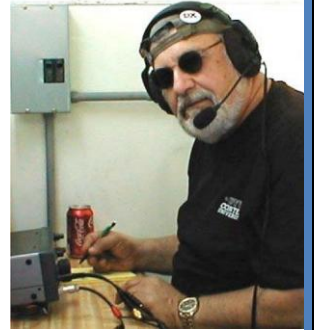
If the award is to be mailed in the USA, fee is \$4.00 (covers cost of award, large envelope and US postage).

Certificate: 8-1/2" x 11". No endorsements. Separate awards for Bronze, Silver and Gold.

The sponsoring organization, the Portage County Amateur Radio Service (PCARS), reserves the right to modify any part of this program or to discontinue it at any time. All decisions of the sponsoring organization are final.

Charlie the Tuner's HF High-Lites

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



Greetings to all DXers:

A well known saying is that April showers bring May flowers. Well, as I write this it is raining outside and the trees in my yard can't wait to push out leaves. With the onset of Spring it's also the time when we're able to get out in milder weather and start to do some antenna maintenance as well as plan other projects to enhance the enjoyment of our hobby.

My project or should I say projects this year will be to remove damaged towers and antennas and replace them with all new towers and antennas. By the time this is over, I'll feel that I have stock in DX Engineering. Tim and guys at DXE will be seeing a lot of me in the very near future. Since my previous project took over two years, I am hoping that I can get all this done this year in time to at least get on the air in late Fall. If you hadn't heard, the wind storm we had a few weeks ago wiped me out in regards to towers and antennas. I've taken pictures and will also do so for the replacement projects. I plan to keep a log of how things are going so that I can write a little tale of my woe and recovery.

In the meantime, even though I can't work any DX from my QTH, that doesn't mean that you should become a couch potato and not turn your rigs on. So let's see what the next few months have in store in the way of DX and other interesting events on the bands.

As always, thanks to the Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn PacketCluster Network, AB5K & the AR TelNet Clusters Network, AF1G/C6ATH, NJ1Q & W1AW, NG3K & ADXO, W3UR & The Daily DX, K6VVA, K8GI, K8YSE, W8GEX & 60m DX News, W9ILY, DL1SBF, DL7UXG & The DX News Letter, DxCoffee.com, DXNews.com, DX-World.Net, ES1CW, F5NQL, F6AJA & Les Nouvelles DX, HA1AG, I1JQJ/IK1ADH & 425 DX News, I2MQP & DX Italia News, JI1LET, OZ1ADL, OZ6OM & 50 MHz DX News, 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 (Update). 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.

3W, VIETNAM. Jean-Pierre, F6CTF, will be active as 3W9JF from two different locations in Vietnam until April 6th. His schedule is as follows: February 19th-March 6th -- From Phu Quoc Island (AS-128), March 16th-April 6th -- From Hoi An. Activity will be on 80/40/20/17 meters using CW and SSB. QSL via direct or eQSL.

3Y0I BOUVET DXPEDITION NEWS. As you may have heard, this DXpedition is once again on hold. The seas have been so rough that waves damaged their vessel and they are returning to their base. They are saying that the DXpedition has not be cancelled but is only postponed.

5R, MADAGASCAR. 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, who went QRT on Mar 23, will be active as 6O1OO starting Apr 15, for one month. Activity will be 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 and FT8. Last time he suggested that he will be on every day between 1800- 2000 East Africa Time (EAT) and on the weekend (Friday and Saturday) between 1400-1800. QSL direct to: Ali Solhjoo, C/O Dr. de Vivanco, Schnackenburgstr. 3, Berlin 12159, Germany. QSL cards will be replied to on a bi-monthly basis. IRC's are not accepted. See QRZ.com for more info and picture of his station. Flash news will be posted via Twitter: @ep3cq

6W, SENEGAL. Elvira, IV3FSG is QRV as 6W/IV3FSG from Thies, near Dakar, until Apr 16 while working for the Informatici Senza Frontiere organization. Activity on 80 to 10 meters using SSB and possible digital modes. QSL via IK3GES.

8Q, MALDIVES. Darek, SP3DX will be QRV as 8Q7DM from Lankanfinolhu Island, IOTA AS-013, from April 1 to 7. Activity will be on 20 to 10 meters using SSB and FT8. QSL to home call.

9G, GHANA. Matteo, IZ4YGS, will once again be active as 9G5GS from Sanzule, West Takoradi (Western Region), Ghana, starting April 13th. The length of his stay is not known. He states that he is on "almost every evening on 20/30/40/60/80m; Setup FT-891 and vertical antenna, mainly FT8 and other digital modes, if propagation helps also SSB." On FT8 (Fox-Hound Mode) the suggested frequencies are: 3567, 7056, 10131 and 14090 kHz. QSL via IZ4YGS, direct or eQSL.

AMSAT RARE GRIDS. Alex, N7AGF, will make his semi-annual rover trip to activate rare and somewhat rare grids between April 29 and 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. 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 limited cell service areas try inReach.

C5, THE GAMBIA. A group of operators will be QRV as C5DL from April 1 to 15. Activity will be on 160 to 10 meters using CW, SSB and various digital modes, with three stations active. QSL via DL7DF.

E5, NORTH AND SOUTH COOK ISLANDS. Ops Dagmar/DM7PQ, and Rainer/DL1AUZ active as E51NPQ and E51AUZ, respectively, during Apr. Activity will be from: April 2-11th -- Rarotonga Island (OC-013), South Cook Islands. Activity holiday style on various HF bands. QSL via their home callsigns. Watch QRZ.com for possible updates.

E5, SOUTH COOK ISLANDS. Doug, W6HB, will once again be active as E51DLD from either Jim/E51JD or Bob/E51BQ's shack on Rarotonga Island (OC-013) between April 21-28th. Activity will be holiday style on 160-10 meters. QSL via his home callsign.

E6, NIEU. Janusz, SP9FIH is QRV as E6AF until April 25. On 160 - 15 meters using SSB, RTTY and FT8. QSL to home call.

EM75, UKRAINE (Special Event). Look for special event station, EM75FA, to be active Apr 6-14th. Activity is to commemorate the 75th anniversary of the liberation of city Odesa from the Nazi invaders during World War II (10 Apr 44). Operations will be from Odesa and Odes'ka oblast. QSL via UT7FA. A free electronic award is available. Details, see the EM75FA page on QRZ.com.

GB0, ENGLAND (Special Event). To celebrate Maritime Radio Day 2019, look for special event stations GB0GKA (operated by Tony, G3ZRJ) and GB0GKB (operated by Larry, G4HLN) to be active between 1200z, April 14th and 2200z, April 15th. The stations are representing Portishead Radio/GKA, the UK's long-range maritime radio station which closed in 2000. Activity will be mainly CW on various HF bands. Other coast radio stations (DAN, PCH, WCC, IAR and quite a few others) will also be represented. QSL GB0GKA and GB0GKB via G4HLN. For more details, check their QRZ.com pages.

HB0, LIECHTENSTEIN. A group of Dutch amateurs (from the PI4RAZ Radio Club) will be active as HB0/homecall from Steg (WW Loc. JN47SC) Apr 6-13. Ops are Mans/PA2HGI, Robert/PA2RDK, Frank/PA3CNO, Gert/PE0MGB and Piet/PE1FLO. Activity will be on all bands, 160-10 meters, using the main modes CW and FT8, with occasional SSB. QSL via PE1FLO.

HS, THAILAND. Lars, SM6NT is QRV as HS0ZME until April 9. Activity is on the HF bands. QSL to home call.

J5, GUINEA BISSAU. Livio, IZ3BUR, is once again active as J52EC from the Cumura High School in Guinea Bissau until April 15th. Activity will be mainly on 20/15/10 meters. QSL via IZ3BUR. PLEASE NOTE: This project is part of "Books for the high school of Cumura" by Father Gianfranco, J52OFM. For info see: <http://www.padregianfranco.org> Any donation will be greatly appreciated, it'll be donated to the Cumura Mission.

JA, JAPAN. Special event stations 8J0M, 8J2M and 8J9M are QRV until April 30 to mark the 30th General Assembly of the Japan Medical Congress in Chubu. QSL direct to JP7FSO.

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.

OJ0, MARKET REEF. Pasi, OH3WS, will once again be 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.

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.

VI9N, NORFOLK ISLAND (Update). Operators Chris/VK3QB, Luke/VK3HJ, Patrick/VK2PN and David/VK3BDX will be active as VI9NI from Norfolk Island (OC-005) between April 1-14th. VI9NI is being activated to celebrate the 40th anniversary of the signing of the Norfolk Island Act. Their main focus will be on low bands using CW and FT8, but will also be active on various HF bands (160-17m) on SSB. The team plans to include some SOTA activation from "Mt. Bates" and "Jacky Jacky" summits. QSL via VK4FW, direct or by the VK4 Bureau. Look for more details to be forthcoming such as Clublog and FaceBook info.

VK9N, NORFOLK ISLAND. Rob, VK2FBBB, will once again be active as VK2FBBB/VK9 from Norfolk Island (OC-005) between April 14-27th. Activity is usually and mainly on 40 meters, with an occasional 80 meters operations after 6 pm (local time) each night. QSL via VK2 Bureau.

VK9N, NORFOLK ISLAND. Operators Chris/VK3QB, Luke/VK3HJ, Patrick/VK2PN and David/VK3BDX will be active from Norfolk Island between April 1-14th. Their main focus will be on low bands using CW and FT8, but will also be active on various HF bands on SSB. The team plans to include some SOTA activation from "Mt. Bates" and "Jacky Jacky" summits. Look for more details to be forthcoming such as callsign, QSL, Clublog and FaceBook info.

XT2, BURKINA FASO. Harald, DF2WO, will once again be active as XT2AW from Ouagadougou, Burkina Faso, between April 7-26th. Activity is usually holiday style on 160-10 meters using CW, SSB and the Digital modes. He states that he works mostly on the Digital modes (FT8, PSK31, JT65 and RTTY) and slow CW. QSL via M0OXO, direct or OQRS <www.m0oxo.com/oqrs/>.

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.

EU-008. Operators Steve/2E0EFP, Glen/G0SBN, Chris/GM3WOJ, Graham/M0GAE, Bob/M0KLO and Callum/M0MCX (all members of the Tynemouth ARC) will be active as G50NWM from Mull Island (WAB NM73) between May 17-24th. Activity will be 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.

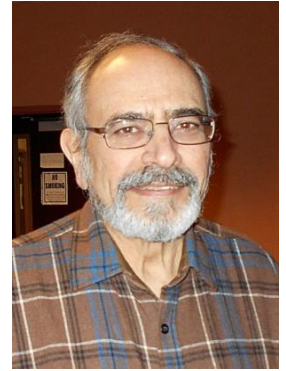
NA-250. (NEW IOTA/UPDATE) Operators Mike/K9AJ and Bruce/KD6WW will be active as K7Y from the North side of Khantaak Island in the Yakutat County Group, Coastal Groups (Alaska), between May 9-13th. Activity will be on 40/30/20/17 meters using mainly CW, with some SSB and FT8. QSL via K9AJ, direct, by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

OC-183/ Operators Andy/VK6MAV and Vlad/ER1PP will be active as VK5MAV/6 **OC-211.** from both Houtman Abrolhos Island (OC-211) and Favorite Island (OC-183) between April 15-25th but it's not final; it depends on Vlad's visa conditions and international flight's availability. Also third party's interests and plans are involved. Watch: <http://vk5mav.wixsite.com/dxpedition/next-expedition>

Well there seems to be a lot of opportunities to work some interesting DX in the next few months. Let's hope that whatever or whoever is in charge of band propagation will look kindly on us HAMS. Until next month, 73 and Gud DX!!

Voltage References

Doug, WA8UWV



Having several digital multimeters, I've compared their readings of the voltage of a battery. Many of them, being very low cost, old or second hand (read hamfest) reported numbers that do not agree. I was in search of a reliable reference voltage to possibly calibrate the meters so they would read within a least significant digit of the true value or, at least, know which were most accurate.

Most are 3 1/2 digits (1XXX) so a precision of 1/2000 or 0.05% would suffice. Calibration standards are generally required to be an order of magnitude more accurate than the equipment being calibrated however, a 0.01% accurate reference device gets expensive and I couldn't find a chip that claimed 0.005% tolerance.

I've found a couple low cost voltage reference chips designed as the reference for A/D converter applications. The REF34xx-Q1 from Texas Instruments is one such device costing \$2.91 from Mouser. It uses very low power, has an initial precision of 0.05% and is available in several different voltages. One disadvantage is the package is an SOT23-6 surface mount. I've soldered SOT23-3 transistors before but this device might lose some precision if exposed to excessive heat.

Another part is the Maxim MAX6350CPA+ a 5V reference with an initial accuracy of 0.02%. It is available in a through hole 8 pin DIP package making assembly much easier. This device has the ability to be trimmed with an external potentiometer. That would be useful if you could adjust it using a NIST calibrated 5 or 6-digit DVM. It is a bit more expensive at \$11.60.

The Maxim MAX876AESA+ is also a good 5 V candidate with an initial accuracy of 0.03%. It costs \$5.59 and comes in the SOIC-8 package. That is a little bit easier to solder than the SOT23-6 package.

I purchased 4 of the 5 V version part number REF3450-Q1. This way I can compare the 4 outputs and stack them to also get 10, 15 and 20 volt references. I also purchased 2 of the MAX6350CPA+ 5V references and 4 of the MAX876AESA+ 10 V references.

Finally, another reference with a 0.02% tolerance is the MAX6126AASA50+T costing \$7.82 from Mouser. It is only available in the SOIC-Narrow-8 surface mount package or smaller. A good option if you can solder SMDs without overheating them.

On eBay I found a source of boards that adapt an SOT23-8 footprint to 0.1" spaced through hole pads. These are from China so delivery takes a couple weeks. I have a few adaptor boards for the SOIC-8 package and ordered more on eBay.

My initial test was with the MAX6350CPA+, a 5 V Through hole devices. I assembled two on a plug-in breadboard. The outputs agreed with each other using several meters. If I were to believe the references are within 0.02% of 5.000 V then none of my meters were perfectly accurate. The closest readings were 4.98 V so I guess these meters are my most accurate. I'll mark them as such and mark the others appropriately or open them up to make adjustments if possible. The 10 volt reference (MAX876AESA+) will be useful for an additional data point. Building these into a box with individual isolated 9V batteries for each reference would allow for stacking them to get multiple reference outputs.

From these examples it appears that the more accurate a reference is, the more it will cost. (Not surprising) If you wish to build a voltage reference standard for your shop, I suggest using the devices you are most comfortable soldering (or socketing) and follow the circuit suggestions in their respective data sheets. They are static sensitive so use an anti-static mat on your bench and wrist straps when working with them. There are many other reference chips available. To find them search for voltage references in DigiKey, Mouser, Jameco or on the general web. It's reassuring to know that the meter you're using is giving a reading you can depend on. When critical, I often make the measurement with 2 or more "calibrated" meters.

I choose not to write an April article on Dark Emitting Diodes since they are based on a singularity (black hole) with the mass of a neutrino and an event horizon on the order of a Plank length with selective extended effects through extreme warping of the space-time continuum. The physics of these devices is so far beyond my understanding I can no longer comment on, or verify, their existence.

CW/QRP & Linux Special Interest Groups

Terry, KB8AMZ

CW & QRP SIG

The next meeting we will be discussing what we would like to build. I asked each person at the March SIG to bring a drawing or plans for discussion with the group to determine which build projects we might build this year. I hope to see you at April QRP-CW SIG.



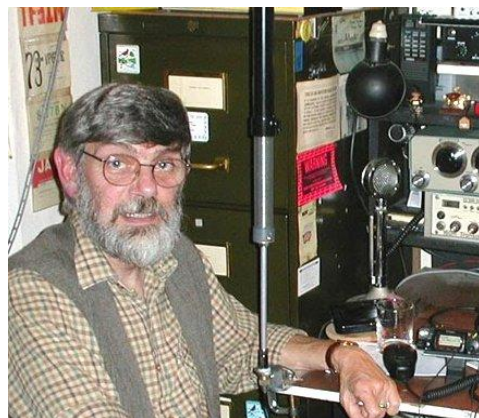
Linux for Hams SIG

The next meeting of Linux for Hams SIG will be April 30, 2019. Please bring your Raspberry Pi computer setup. I will announce on one of the PCARS member radio nets what the topic will be. This will be the 2nd Linux for Hams SIG for 2019.

One of the QRP Giants is no longer with us. **The Rev. George Dobbs G3RJV**, of Littleborough, England - Founder of G-QRP passed away on March 11, 2019. Dobbs was the author of *QRP Basics*, *The International QRP Collection* (co-authored with Steve Telenius-Lowe, 9M6DXX), and *Making a Transistor Radio*. He was a frequent **Hamvention®** attendee, and in 2015, he received the **Hamvention "Technical Excellence Award."**

This was the e-mail, posted to QRP-L by Ken Evans, Past President of QRP-ARCI. It was sent to him by Graham Firth G3MFJ:

"I'm sorry to have to tell you, but George Dobbs, G3RJV died early this morning. He was taken to hospital a few days ago with pneumonia, and an infection, but he didn't respond to the antibiotics. He was 75. His wife JoAnna was with him when he died. He had suffered from dementia for some time, but was still taking as much interest in the running of the G-QRP Club until recently."



Digital Special Interest Group

Rick, K8CAV



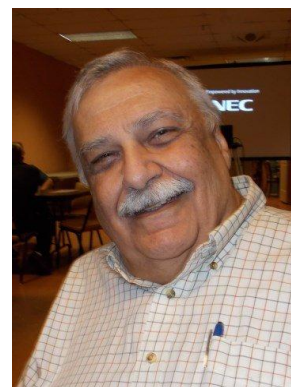
This month's Digital Special Interest Group will include a presentation on D-STAR, a digital voice mode used primarily on VHF and UHF FM. We'll be talking about the basics of D-Star and how to get registered in the D-STAR system. As always we'll be available to help out with any questions or issues you may be having with digital communications. Feel free to bring your computer, interface, radio, or other equipment and we'll do our best to get you up and running.

This month we're starting a 'tip of the month' section in this column to provide those often unpublished or overlooked issues that can make the difference between failure and success in operating digitally. If you have a tip you'd like to share, please let me know at k8cav.coms@gmail.com and I'll make sure it's shared with all of us here in the newsletter.

TIP OF THE MONTH: TIME. Most of the protocols in the WSJT-X suite (FT8, etc.) rely on your computer's clock being accurately set. If your computer clock is not accurately set, the software will not decode received signals and a transmitted signal will not be decoded by others. Assuming you have an internet connection, most computer operating systems will allow you to use an on-line time server such as nist.gov or others to set your clock using a manual procedure. There are some automated aps (see the WSJT-X manual for details) that will automatically keep your clock updated with no action required by you. For instances where you don't have access to the internet, a GPS based external time server may be your best option. In a worst-case scenario if your are careful and diligent, you can use reception of WWV and your OS time setting function along with a very quick keystroke to set the time accurately enough for successful operation of WSJT-X modes.

DX & Contest Special Interest Group

Chuck, W8PT



PCARS Black Squirrel Contesters put K8BF on the air during the Idaho and Wisconsin QSO Parties, held on March 9th and 10th. We had seven operators show up for both contests.

The Idaho QSO Party is a 24 hour affair but the lack of Idaho ops gives me pause as to why they even hold a QSO Party. The contest started at 2 PM on Saturday and we were on the air until 7:30 that evening and had only made 2 contacts, which were the only Idaho stations heard. I told the second station that we had only made two contacts and he said, "I can't understand why it's so difficult getting other Idaho HAMS on the air." He said that he has tried but was not successful.



Last year we dropped the Michigan QSO Party because we are too close to the state and the Michigan signals simply skipped over us. We inserted the Florida QSO Party and it seems to be a much better contest for us. We decided that we should do something similar here. We will be dropping the Idaho party and looking for an alternative contest.

The Wisconsin Party started at 2 PM on Sunday and ran until 9 PM in the evening. This was somewhat better although propagation was not in our favor this year. We have done nicely in the past, but this year we only made 40 contacts and 26 multipliers for a total of 1482 pts. We will continue playing in the contest until something better comes along.

We did get a chance to get on the air and also to have some fun operating together. I want to thank all who came out to participate and look forward to their involvement in our next contest The Florida QSO Party on April 27 & 28th. Announcements will be made ahead of time so you can plan on your participation.

We are trying to get another IC-7300 tutorial scheduled ahead of the contest so that those of you who have not had the opportunity to take the training, will be able to do so. We're, of course, doing this so that more of you can sit in the OPS chairs and not be nervous about using the new rigs. And also, the more familiar you are with the rigs, the more efficient you will be during the contest.

Since the contest will take place so late in the month, we will have the good fortune of being able to have one more DX/Contest SIG meeting the week of the contest to cover any late questions or concerns prior to the event.

Let's turn out for this contest and allow yourselves the fun of operating with your fellow PCARS members. You may surprise yourself and learn to like contesting.

Contest Calendar

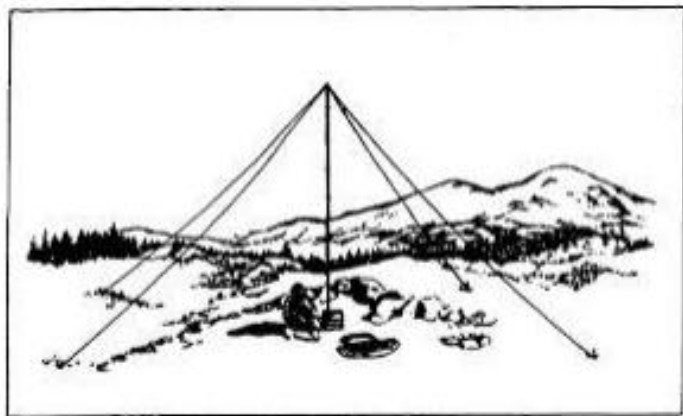
April Contest Calendar	
Contest Name	Times
Georgia QSO Party	1800Z, Apr 13 to 2359Z, Apr 14
Michigan QSO Party	1600Z, Apr 20 to 0400Z, Apr 21
Ontario QSO Party	1800Z, Apr 20 to 1800Z, Apr 21
10-10 Int. Spring Contest, Digital	0001Z, Apr 27 to 2359Z, Apr 28
Florida QSO Party	1600Z, Apr 27 to 2159Z, Apr 28

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
Apr 27-28	Florida QSO Party
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

Ohio NVIS Day

NVIS Day April 27, a Saturday, from 10-4 will be this year's NVIS Day in Ohio. This has become a tradition, and the importance of easily deployed portable antennas was brought to the spotlight after Hurricane Michael and others this past year. The devastation took down ALL commercial, safety and amateur communications. There were no towers, no repeaters, and very little formal generator power. 80-meter sideband was one of the most-used forms of emergency communication. It worked well for them and would work well for Ohio in a wide-spread "flat-earth" situation. We got a taste of that during "Snow Net" where operators in 44 counties participated both on 80 and on DMR Ohio. This makes NVIS practice even more important. The real purpose of NVIS day is



to test antenna performance compare signals and try different configurations. There is a contest type ranking for how many contacts you can make, that just creates a more fun atmosphere. The suggestion is that the DMR Ohio Talk Group be used to coordinate contacts, and to advertise that a station is operating on a certain frequency. That can help to remove the searching and some frustration since everyone is all over the bands that day. Using DMR Ohio similar to a spotter type operation would make it much more fun and provide better ways to find other participating stations for testing. Thanks to Alan Rothweiler KD8TNS for the idea!

Check the Ohio Section web site for the latest details: <http://arrrl-ohio.org/>

Russian Sunflower Coastal Radar Showing up on Ham Bands

Russian "Sunflower" Coastal Radar Showing Up on 60, 40, and 75 Meters

The January issue of the IARU Region 1 Monitoring System (IARUMS) newsletter reports the Russian "Sunflower" coastal radar, located east of Vladivostok, is being heard at nights on 3,716 kHz and 6,860 – 7,005 kHz, as well as on several 60-meter frequencies.



A Chinese wideband over-the-horizon (OTH) radar also appeared on 7.000 MHz in early January. While 60 meters and 80/75 meters are shared bands, the 7.000 – 7.200 MHz segment of 40 meters is currently allocated exclusively to the Amateur Radio Service worldwide. True intruders are those appearing on exclusive Amateur Radio

frequency allocations.

Some domestic Amateur Radio HF allocations outside Region 2 (the Americas), such as 7.200 to 7.300 MHz, are either shared with other services or not available to radio amateurs. On HF allocations such as 30 and 60 meters, Amateur Radio is secondary to other users. The 20-, 17-, 15-, 12-, and 10-meter bands are exclusively available to the Amateur Radio Service worldwide.



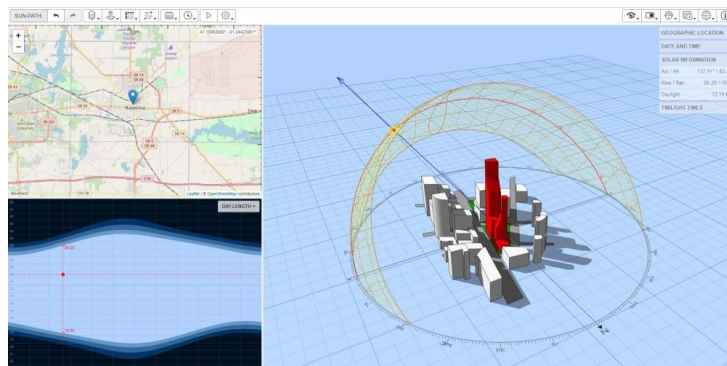
☐Sun-path

Good tool to use for calculating the sun location, angle, etc.

<http://andrewmarsh.com/apps/staging/sunpath3d.html>

Overview:

The aim of this app is to demonstrate the relationship between geographic location and solar position throughout the year. You can use the map to drag the location around and interactively see how the Sun-path diagram and shadow projections change. You can also directly relate the 3D Sun-path and day-length, as well as a range of different 2D Sun-path projections.



CQ 160 Meter Contest



Deron, N8XTH

Murtaugh in Lethal Weapon had it right, "I'm too old for this...." About 17 hours over the course of two overnights. I'm tiiiiiiired.

Hung it up around 7am this morning short of my goal of 400 contacts. Would have easily made it but for 2 different 40 minute QSO's with KD8VT. I had plans for an inverted L to be added to my antenna farm this year, ran out of time and never even started building it. Ran off of a full sized 160 dipole at 85ft for TX, split time between a Beverage on Ground and the dipole for RX.



Year two with the Icom IC-7610, HUUUUGE improvement in my operating despite horrible band conditions and a short disconnect/shut down for lightning around 330am. By next year, that thing is going to be a QSO machine, if band conditions cooperate, my goal is 500 Q's for 2020. CQ on the main VFO, search and pounce with the SDR screen, 2nd RX/dial = twice the points. (Killed me not being able to do that on Field Day on the flex station overnight....it's such a point saver when CQ replies are slow)

At Parky's urging, I recorded my entire time on the air, for anyone that wants to know, I had 9,317 TX/RX cycles. (The rig makes a new file for every tx/rx cycle) - Roughly 4.3 gigs. So plenty of space left on the 32GB SD card. Every file has mode, main and sub VFO data embedded in it. I'm actually curious to go back and listen to some of it to find out how I can be a better operator.

Also, my secretary always says that I talk too much when I'm super tired and drank too much coffee? Do you guys think she's nuts, too? HA HA HA

Fun time, but glad I only do the overnight thing a few times a year. I call this weekend my Super Bowl. (Hello NFL, I dare you to sue me :) . Total Contacts = 386 Total Points = 54,120

Worked several PCARS members, will be QSL'ing them, too. W8KNO, N8IL, KD8VT, KD8MQ. Hopefully I can defend my low power/unassisted 8th call area title this year with this effort.

Now that this is behind me, and I'm done with my graduate term on Weds, on to the HF net idea to figure out some logistics of it.....



DX - 7

Bahamas
Bermuda
Bonaire
Cayman Is.
Honduras
Montserrat
US Virgin Is.

Flex Station - Field Day 2019

Rick, K8CAV
Field Day Flex Station Captain



Still looking for Flex Station Operators. Come on out and have some Field Day Fun!
You can contact me at: k8cav.coms@gmail.com



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			
	2000-2200	80M CW	Terry KB8AMZ	
	2200-0000			
SUN 24	0000-0200	80M PHONE	Deron N8XTH	
	0200-0400			
	0400-0600	80M DIGITAL	Rick KD8WCK	
	0600-0800			
	0800-1000	80/40/20M DIGITAL	Gene W8NET	
	1000-1200			
	1200-1400			

CW Station - Field Day 2019

George, K3GP
Field Day CW Station Captain



The following is a PRELIMINARY FIRST DRAFT of a 12 operator schedule.

It is subject to change and will be revised as we get closer to Field Day. Please review and let me know

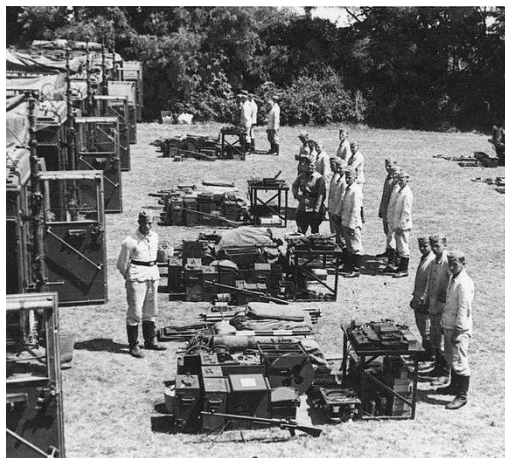
(rttyfan@gmail.com) if you need to make any changes or want to sign up in an open slot.



CW Station Schedule - Field Day 2019		
DAY	Local TIME	OPERATOR
SAT 23	1400-1600	Jack N8NB
	1600-1800	Mark W8BBQ
	1800-2000	Ray ND8L
	2000-2200	Rod K8RR
	2200-0000	George K3GP
SUN 24	0000-0200	
	0200-0400	
	0400-0600	
	0600-0800	Terry KB8AMZ
	0800-1000	Ed K8IV
	1000-1200	
	1200-1400	

Gearing Up for Field Day 2019

Field Day 2019 is rapidly approaching. Prior to Field Day we will have an Antenna Day - a dry run to test out the gear and antennas to make sure there are no surprises when we set again for Field Day.



Station Captain Inspection

The dry run practice will be on the Saturday before the Dayton Hamvention (May 11th). That gives everyone a chance to come out to the Freedom Township Park and see what Field Day will be like.

Of course, when the real Field Day rolls around - PCARS will be ready to get on the air and have **BIG FUN**.

We all hope you can join us for both Antenna Day and Field Day 2019.



Ed's New Satellite Gear

This year, with the aid of new technology that Ed K8IV is thinking about bringing, we hope to make some contacts through one of the amateur radio satellites.

Additionally, in order to save a few dollars on the Field Day budget, it was decided to combine a few functions to get maximum use from our facilities. This will be the new location for the VHF Field Day 2019 station



You swerve to avoid a squirrel.
Unknown to you, the squirrel pledges a
life debt to you.
In your darkest hour, the squirrel arrives.



BUILD YOUR OWN MINI COUNTRYMAN.

ONE NEW PART EVERY MONTH!
Zippy go-kart handling is brought to life in this unique 29,762 part series. Capture the joy of MINI, collect one new part every month and enjoy years of fun for the whole family.

WEEK ONE: SCREW A-76-FD-1

ONLY 95c PLUS P&H

Next week's part: SCREW A-76-FD-2.

ORDER FORM

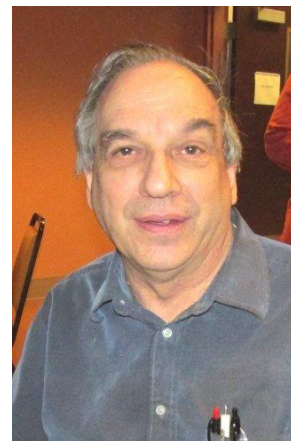
YES! I wish to build my own MINI Countryman from 29,762 individual parts.

Signature: _____ Please mail by 12:00pm April 1

Name: _____

Address: _____

Jim, N8PXW



The concept and use of the DB system for power, gain, and loss in RF systems can be confusing and frustrating.

Its main advantage is the eliminating of multiplying numbers by adding the logarithms of the values.

A major disadvantage comes from relating ratios to their corresponding DB values. What is shown here is a relatively simple way to remember or relate DBs to the corresponding ratios.

First, 0 DB is no gain or loss, so its ratio is 1.00. Since the DB scale is based on 10, 10 DB ratio is 10.00 . Another key relationship is 3 DB has ratio 2.0 . OK, now we can start constructing our table. 0 DB is 1.0, 3 DB is 2.0, then 6 DB is 4.0 . Remember we are using logs, so when we add logs, 3DB + 3DB = 6 DB, we are multiplying the ratios, thus $2.0 \times 2.0 = 4.0$. Likewise going from 6 DB to 9 DB, we get $2.0 \times 4.0 = 8.0$.

We are using logs, so when we subtract logs, we are dividing the ratios. Now working backwards from 10 DB we get 7 DB = 5.0, 4 DB = 2.5, and 1 DB = 1.25 . So far so good, but we have 8 DB , 5 DB, and 2 DB to value. Now we resort to another log trick. When you square a number, you multiply its log by 2. From our previous exercise we know 4 DB is 2.5, therefore 8 DB is $2.5 \times 2.5 = 6.25$. Working downward, 5 DB is 3.12, and 2 DB is 1.62 .

So now we have our gain table:

10 DB = 10X	7 DB = 5X	4 DB = 2.5 X	1 DB = 1.25X
9 DB = 8X	6 DB = 4X	3 DB = 2X	0 DB = 1.0X
8 DB = 6.25 X	5 DB = 3.13 X	2 DB = 1.62X	

We can calculate the loss table similarly. 0 DB is 1.0, -10 DB is 0.10 . -3 DB is 0.5, -6 DB is 0.25, -9 DB is 0.125 . -7 DB is 0.2, -4 DB is 0.4, -1 DB is 0.8.

Using -4 DB and the power squaring we get -8 DB 0.16 . Then -5 DB is 0.32, and -2 DB is 0.64 .

Our loss table becomes:

-10 DB = 0.10 OR 10% RATIO OR 90% LOSS	-7 DB = 0.20 OR 20% RATIO OR 80% LOSS	-4 DB = 0.40 OR 40% RATIO OR 60% LOSS	-1 DB = 0.80 OR 80% RATIO OR 20% LOSS
-9 DB = 0.125 OR 12.5% RATIO OR 87.5 %LOSS	-6 DB = 0.25 OR 25% RATIO OR 75% LOSS	-3 DB = 0.50 OR 50% RATIO OR 50% LOSS	0 DB = 1.00 OR 100% RATIO OR NO LOSS
-8 DB = 0.160 OR 16% RATIO OR 84% LOSS	-5 DB = 0.32 OR 32% RATIO OR 68% LOSS	-2 DB = 0.64 OR 64% RATIO OR 36% LOSS	

From this table we can see that a 1 DB loss in a duplexer, a common value, can result in the loss of 20W in an amplifier outputting 100W. Similarly, coax losses can seriously reduce TX power.

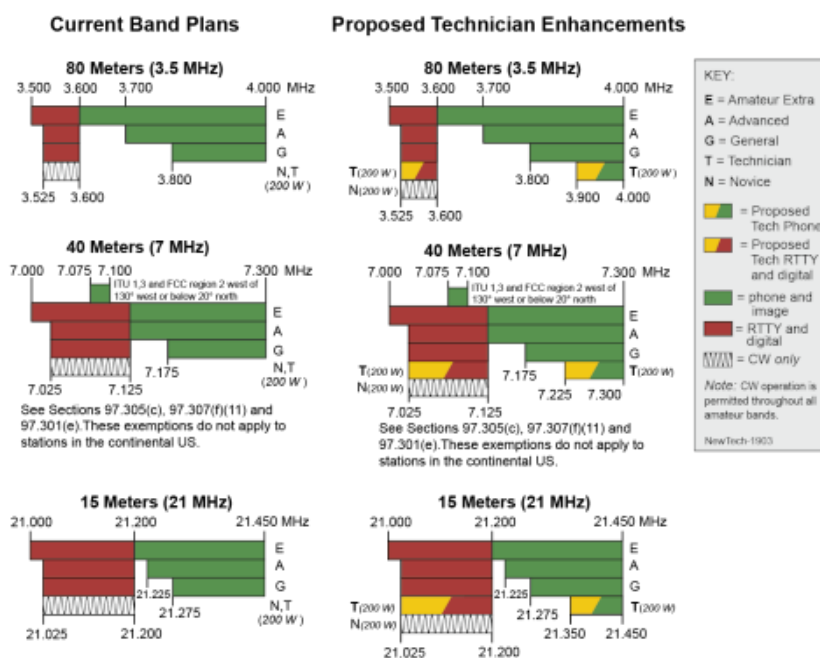
Two Entry Level Petitions

From the ARRL

The FCC recently invited public comment on ARRL's 2018 Technician Enhancement *Petition for Rule Making* ([RM-11828](#)). It asks the FCC to expand HF privileges for Technician licensees to include limited phone privileges on 75, 40, and 15 meters, plus RTTY and digital mode privileges on 80, 40, 15, and 10 meters. It does *not* seek to create a new Amateur Radio license class.

Specifically, ARRL proposes to provide present and future Technicians with phone privileges at 3.900 to 4.000 MHz, 7.225 to 7.300 MHz, and 21.350 to 21.450 MHz, and with RTTY and digital privileges in current Technician allocations on 80, 40, 15, and 10 meters.

The FCC has also invited public comment on an entirely *unrelated* *Petition for Rule Making* ([RM-11829](#)), filed in 2017 by ARRL member Gary A. Hampton, AD0WU, of Longmont, Colorado. Hampton has asked the FCC to create a new "Tyro" entry-level license class, which would require a minimal online examination as well as mentoring by an Amateur Radio licensee of Technician class or higher. Tyro licensees would have to be at least 11 years old and would earn operating privileges on 99 channels in a 70-centimeter segment that Hampton calls a "TyroSubBand." It would offer no HF privileges.



These are *not* competing petitions. Members of the Amateur Radio community should evaluate both proposals on their own merits and comment if they desire. ARRL has provided [a summary of the Technician Enhancement proposals](#) and explained their advantages.

Interested parties have 30 days to comment on both proposals. For information on how to file comments, visit "[How to Comment on FCC Proceedings](#)."

The FCC has invited public comments on ARRL's 2018 *Petition for Rule Making*, now designated as RM-11828, which asks the FCC to expand HF privileges for Technician licensees to include limited phone privileges on 75, 40, and 15 meters, plus RTTY and digital mode privileges on 80, 40, 15, and 10 meters. Interested parties have 30 days to comment. The Technician enhancement proposals stemmed from the recommendations of the ARRL Board of Directors' Entry-Level License Committee, which explored various initiatives and gauged member opinions in 2016 and 2017.

"This action will enhance the available license operating privileges in what has become the principal entry-level license class in the Amateur Service," ARRL said in its *Petition*. "It will attract more newcomers to Amateur Radio, it will result in increased retention of licensees who hold Technician Class licenses, and it will

provide an improved incentive for entry-level licensees to increase technical self-training and pursue higher license class achievement and development of communications skills.”

Filing Comments

Those interested posting brief comments on the ARRL Technician Enhancement proposal (RM-11828) using the Electronic Comment Filing System (ECFS) should access FCC Electronic Comment Filing System Express. In the “Proceeding(s)” field, enter the number of the PRM, i.e., RM-11828 (using this format), complete all required fields, and enter comments in the box provided. You may review your post before filing. All information you provide, including name and address, will be publicly available once you post your comment(s). For more information, visit “How to Comment on FCC Proceedings.”



Specifically, ARRL proposes to provide present and future Technicians with:

- phone privileges at 3.900 to 4.000 MHz, 7.225 to 7.300 MHz, and 21.350 to 21.450 MHz.
- RTTY and digital privileges in current Technician allocations on 80, 40, 15, and 10 meters.

The ARRL petition points out the explosion in popularity of various digital modes over the past 2 decades. Under the ARRL plan, the maximum HF power level for Technician operators would remain at 200 W PEP. The few remaining Novice licensees would gain no new privileges under ARRL’s proposal. ARRL’s petition points to the need for compelling incentives not only to become a radio amateur in the first place, but then to upgrade and further develop skills. Demographic and technological changes call for a “periodic rebalancing” between those two objectives, ARRL maintained in his proposal. The FCC has not assessed entry-level operating privileges since 2005.

The Entry-Level License Committee offered very specific data- and survey-supported findings about growth in Amateur Radio and its place in the advanced technological demographic, which includes individuals younger than 30. It received significant input from ARRL members via more than 8,000 survey responses. “The Committee’s analysis noted that today, Amateur Radio exists among many more modes of communication than it did half a century ago, or even 20 years ago,” ARRL said in its petition.

Now numbering some 384,500, Technician licensees comprise more than half of the US Amateur Radio population. ARRL stressed in its petition the urgency of making the license more attractive to newcomers, in part to improve upon science, technology, engineering, and mathematics (STEM) education, “that inescapably accompanies a healthy, growing Amateur Radio Service.”

ARRL said its proposal is critical to develop improved operating skills, increasing emergency preparedness participation, improving technical self-training, and boosting overall growth in the Amateur Service, which has remained nearly inert at about 1% per year.

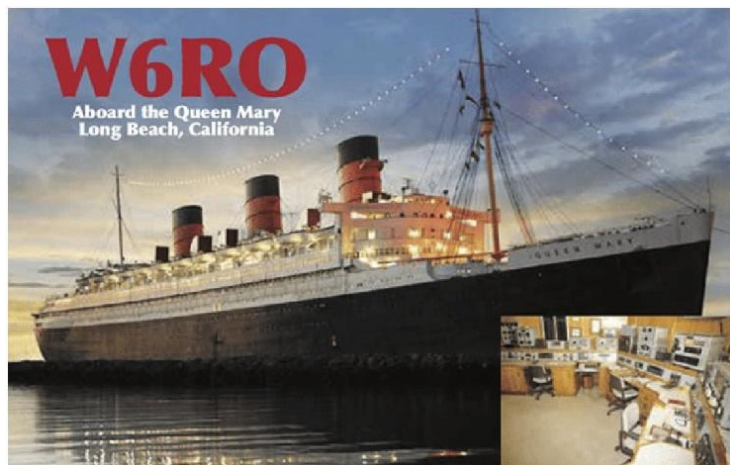
The Entry-Level License Committee determined that the current Technician class question pool already covers far more material than necessary for an entry-level exam to validate expanded privileges. ARRL told the FCC that it would continue to refine examination preparation and training materials aimed at STEM topics, increase outreach and recruitment, work with Amateur Radio clubs, and encourage educational institutions to utilize Amateur Radio in STEM and other experiential learning programs.



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



Joe, W8KNO



During April you will have the opportunity to work a Special Event Station for the entire month, so you will have more than one or two days to contact this one. What is it? It is the 40th Anniversary aboard the Queen Mary. The event is being sponsored by the Associated Radio Amateurs of Long Beach. That is in California for those geographically challenged.

W6RO first began operating April 22nd 1979. David, N6HHR, the wireless room manager has set a goal of 1,000 logged QSOs for the month. They will operate daily from noon until 8 p.m. our time, primarily on 14.340 14.048 7.240 7.040. Operation on other bands is possible as conditions permit. Look for them on frequencies ending in .x40. During your QSO, insure to copy your QSO number. Request it if the operator forgets to give it to you.

To receive W6RO's very popular Queen Mary QSL card, just follow these steps: 1. Send your own QSL card, or a report on a piece of paper if you don't have a QSL card. Be sure to include: Your QSL card or report (report the contact date & time as UTC), Your QSO number (preferably in the report area of your card) and a Self-Addressed Stamped Envelope. Their QSL card is standard size (3.5 x 5.5 inches).

Mail it all to:

W6RO - QSO
P.O. Box 7493
Long Beach, CA 90807

If you are lucky enough to get to Long Beach, you can operate the club station and they send you a Guest Operator Certificate, and maybe they will spell your name correctly.



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 - 4th Thursday is NET NIGHT at the Club Site !!

April	
4	AC8NT
11	WB8LCD
18	N8QE
25	KB8UHN

May	
2	WB8LCD
9	K8CAV
16	KB8UHN
23	KA8TOA
30	N8XTH

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

I am trying to get some new net control operators, anyone interested please contact me.

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 everyone who is a club member is welcome to have a turn - and have fun being the PCARS Thursday Night Net Control !

How to Clean Up after a Battery Leak

From the ARRL

Many hams have had the unfortunate experience of old batteries leaking in a piece of gear or a flashlight, creating a mess. Business technology news site ZDNet recently [offered its procedure](#) for cleaning it up. The brief online presentation recommends taking some precautions about coming in contact with the white



discharge -- specifically potassium hydroxide in the case of alkaline cells, a caustic irritant. An old toothbrush or something similar can start the project, along with a small scraper, and cotton swabs dipped in water. Start by removing and properly disposing of the bad cells and then brushing out the worst of the material -- preferably outdoors or over a container to catch the remnants.

The article advises against using any sort of acid such as vinegar or lemon juice, lest it cause corrosion problems of its own. It suggests a fiberglass scratch brush for scrubbing the battery compartment contacts clean, although other tools may work as well. Deoxit D5 or similar contact cleaner also comes in handy, with a tiny dab of dielectric grease

or silicone paste as a finishing touch to inhibit future corrosion if a leak occurs. Other tips to head off problems down the road include using only name-brand batteries, avoiding mixing old and new batteries, removing batteries from devices not in use, avoiding exposing batteries to extreme heat or cold, and minding battery expiration dates.

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.

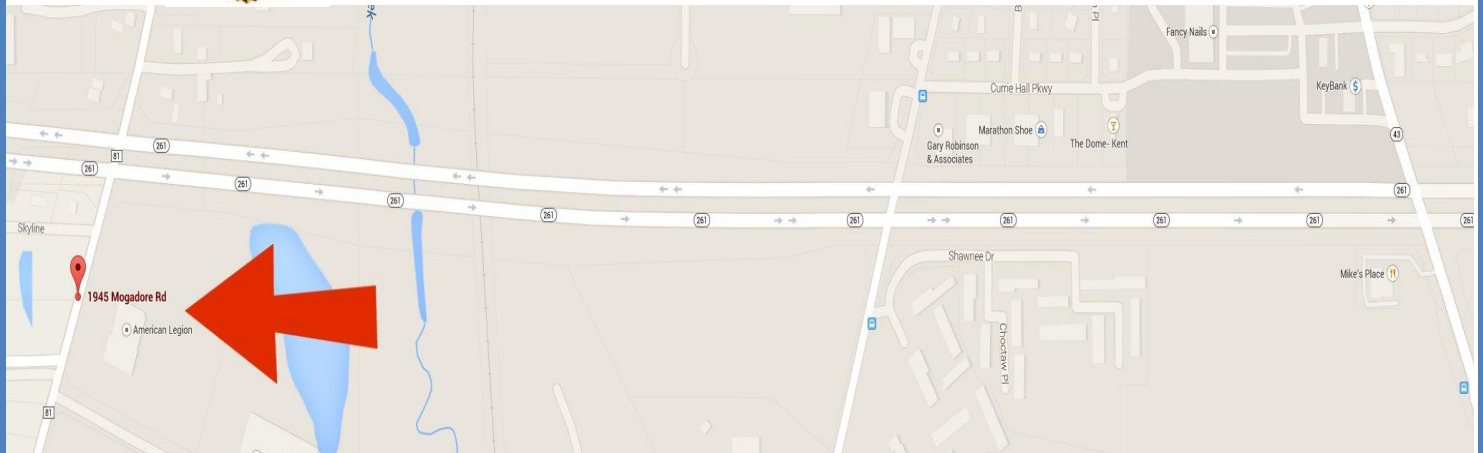


PCARS Meetings

The Portage County Amateur Radio Service (PCARS) meetings are held the **2nd 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 March Meeting



PCARS Meeting - March 11, 2019



PCARS Meeting MARCH 11, 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

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

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).

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.

Senior Test

*** SENIOR TEST* **** Something for seniors to do to keep "aging" grey cells active and well!
And for you younger ones, to get them growing!!

1. Johnny's Mom had three children. The first girl was named April. The second was named May. Can you name the third child?
2. There is a clerk at the butcher shop, he is five feet ten inches tall and he wears size 13 sneakers. What does he weigh?
3. Before Mt. Everest was discovered, what was the highest mountain in the world?
4. How much dirt is there in a hole... That measures two feet by three feet by four feet?
5. What word in the English Language.. Is always spelled incorrectly?
6. Billy was born on December 28th, yet his birthday is always in the summer. How is this possible?
7. In California, you cannot take a picture of a man with a wooden leg. Why not?
8. What was the President's name in 1975?
9. If you were running a race, and you passed the person in 2nd place, what place would you be in now?
10. Which is correct to say, "The yolk of the egg are white" or "The yolk of the egg is white"?
11. If a farmer has 5 haystacks in one field and 4 haystacks in the other field, how many haystacks would he have if he combined them all in another field?

=====

Here are the Answers: (No peeking!)

1. Johnny, of course.
2. Meat.
3. Mt. Everest, it just wasn't discovered yet. [You're not very good at this are you?]
4. There is no dirt in a hole.
5. Incorrectly.
6. Billy lives in the Southern Hemisphere.
7. You can't take pictures with a wooden leg. You need a camera to take pictures.
8. Same as it is now - Donald Trump [Oh, come on ...]
9. You would be in 2nd. Well, you passed the person in second place, not first.
10. Neither, the yolk of the egg is yellow [Duh]
11. One. If he combines all of his haystacks, they all become one big one.

IMPOSSIBILITIES IN THE WORLD

- 1) You can't count your hair.
- 2) You can't wash your eyes with soap.
- 3) You can't breathe through your nose when your tongue is out.
Put your tongue back in your mouth, you silly person.

Ten (10) Things I know about you.

- 1) You are reading this.
- 2) You are human.
- 3) You can't say the letter "P" without separating your lips.
- 4) You just attempted to do it.
- 6) You are laughing at yourself.
- 7) You have a smile on your face and you skipped No. 5.
- 8) You just checked to see if there is a No. 5.
- 9) You laugh at this because you are a fun loving person & everyone does it too.
- 10) You are probably going to send this to see who else falls for it.

TO ALL MY INTELLIGENT FRIENDS

Keep that brain working; try to figure this one out....

See if you can figure out what these seven words all have in common?

1. Banana
2. Dresser
3. Grammar
4. Potato
5. Revive
6. Uneven
7. Assess

Give it another try.... Look at each word carefully. You'll kick yourself when you discover the Answer. This is so cool....

No, it is not that they all have at least 2 double letters....

Answer: In all of the words listed, if you take the first letter, place it at the end of the word, and then spell the word backwards, it will be the same word.

Did you figure it out?

No? Then show this test to more people and stump them as well. Then, you'll feel better too.....!



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, WB8LCD, KB6NU, K1CE, KC3JXQ, N8SY, N8XTH, WA2KBZ, W8PT, WA8UWV, KB8AMZ, K8CAV, NO8D, N8PXW, K3GP, W8KNO, KA8TOA, CQ Magazine, The ARRL and the World-Wide Web.

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



PCARS
www.portcars.org



HERE IT IS
THE AMAZING NEW
Man-from-Mars
RADIO HAT

COMPLETE 2-TUBE RADIO BUILT INTO A HAT

Here's the famous two-tube topper you've read about in LIFE, TIME, POPULAR SCIENCE, BUSINESS WEEK, and many other magazines and newspapers, coast-to-coast. Now, you too can own this wonderful "dream-come-true" radio hat. A perfect gift idea! Study these amazing features

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plus fed. tax
Complete with Battery Pack

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P.S. 10-49



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

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

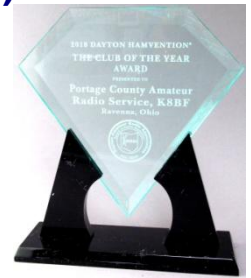


PCARS meets the second Monday of each month at the **Kent American Legion Post 496**, 1945 Mogadore Rd. - just South of Rt. 261 - enter the rear of the building for the meeting room.

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 -or- www.K8BF.ORG



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



PCARS Active Volunteer Examiner Team Members

KB8UUZ	Tom Parkinson
WB8LCD	Tom Sly
N8XTH	Deron Boring
N8PXW	Jim Korenz
N8QE	Bob Hajdak
K8IV	Ed Polack
W8RID	Robert Davet
WA8CCU	Al Nagy
NR8W	Russ Williams
W8EZT	Frank Tompkins
AC8NT	Jim Wilson
K8MSH	Mark Haverstock
KA8TOA	Greg Ash
KB3GXB	Jennifer Williams
W8PT	Chuck Patellis
AC8QG	Nick Wagner
N8FUM	Dan Torchia



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. 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

NLC



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