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From the President

Nick, AC8QG
PCARS President



As of the time I'm writing this, it looks like the COVID-19 situation in Portage county and throughout Ohio is slowly improving. That's great news, but we're still stuck in Level 3. For now, that means we will continue to exercise caution and limit our in-person group activities.

Even though we can't get together the way we used to right now, there are still some great ways to gather as a club. Check in to our weekly net every Thursday at 8 PM on on the K8IV repeater (146.895 MHz PL 118.8 Hz) or by using the K8BF-L EchoLink node. We also continue to have some special interest group meetings on Zoom or on-air. You'll find more information about our SIGs in this newsletter, in QST emails, and on our website. Finally, our monthly meetings are in-person at American Legion Post 496 in Kent and also virtual over Zoom. I encourage you to join us either way for both the business meeting and to watch the presentation by our guest speaker. Social distancing and mask rules apply to anyone joining us in-person.

Please remember, if you shop with Amazon, you can help the club out by using Amazon Smile. Just go to smile.amazon.com and set up "Portage County Amateur Radio Service Inc" as your charity. After that whenever you use smile.amazon.com to make purchases, a small portion will go to PCARS. Go to <https://bit.ly/3q04uqB> for more detailed instructions.

Speaking of supporting the club, you can purchase 50/50 tickets on our website. Get your purchase in by noon on February 8, the day of the meeting, to be included in this month's drawing.

This is a great time to be involved in amateur radio. There are so many different things to try out, people to meet, and skills to develop. I'm curious. What are you doing now to have fun with ham radio? What new aspect would you like to try out? What do you want other hams to experience so that they can join in the fun? Let me know, and also let me know how you think PCARS can continue its history of bringing "Big Fun" to our members.



Portage County Amateur Radio Service



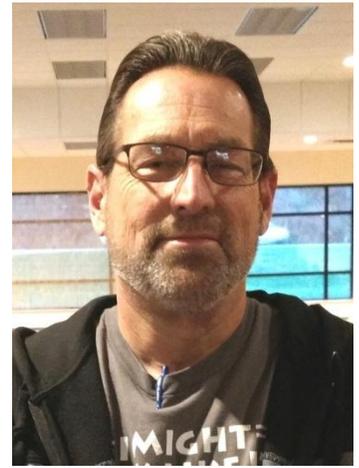
K8BF



2018 Hamvention® Club of the Year

From the Vice President

Mike N8WCP
PCARS Vice President



March has arrived and the warmer weather is a welcome relief from the sub zero temps we experienced in February.

If you couldn't attend our February meeting, we accepted five new members to PCARS. Our new members are; John Sullivan, KE8FWH - Michelle Sullivan, KE8FWI - Brandon Mercer, KE8ARB - Timothy Novak, KE8QOK and Bill Kaczmarek. Welcome to PCARS!

Our guest speaker was Rob Zarges, K2MZ who discussed the youth CW program sponsored by the Long Island CW Club and the success they've had teaching kids CW. It's amazing how quickly the kids catch on.

Our speaker for the March meeting will be Jeff Kopack, K8JTK. Jeff is the ARRL Ohio Section Technical Coordinator and will discuss VoIP modes and the Digital Voice over IP Multimode Interlinked System (DVMIS). His DVMIS bridges AllStar Link, EchoLink, DMR, D-STAR, NXDN, P25, and Yaesu System Fusion modes for interoperability. If you're interested in exploring these modes, you join us in person or via Zoom.

While March brings us warmer weather it also marks the start of severe weather season in Ohio. March 21-27 is Severe Weather Awareness week and a state-wide tornado drill is scheduled for March 24th at 9:50AM. Are you prepared for severe weather or other natural or man-made disasters? The Ready website <https://www.ready.gov/> offers suggestions for preparing and managing these events.

If you're interested in becoming a Skywarn observer, the National Weather Service will be holding online training this year, there are no in person training sessions. See the Skywarn article in this newsletter.

Stay radioactive!



Schedule of Events



On the calendar for upcoming meetings and activities are:



Although we are resuming in-person activities, many regular events are canceled or will be conducted virtually. Even events that are scheduled to be in-person may be canceled or moved to virtual. Please read this newsletter, join our weekly on-air club net, and watch for QST emails so you can stay up to date.

- March 1st - PCARS Board Meeting via Zoom - 7 pm
- March 8th - PCARS Meeting - 7pm - Jeff Lopack, K8JTK - VoIP & Digital Modes
- April 5th - PCARS Board Meeting via Zoom - 7 pm
- April 12th - PCARS Meeting - 7pm

NOTE: All In-Person Activities & Meetings

Subject To Cancellation

Check Web Site for Updates



- First Tuesday - **Digital** - Moderator: Rick, K8CAV
- Third Tuesday - **Antenna** - Moderator: Tony, WA8AR
- Fourth Tuesday - **DX & Contest** - Moderator: Chuck, W8PT
- Fourth Thursday** - **Net Night at the Club Site - 6:30 pm** - Moderator: Tom, WB8LCD

PCARS Custom Coffee Cups - Limited Edition- Almost Gone

PCARS has obtained a limited number of special, custom made coffee cups that are available only to members.

Supply is limited. If you are a current (PAID) member of PCARS you get one coffee cup for **FREE !!** The only catch is you have to claim it from the **Treasurer - Paul, KE8EGF.**

Paul has a list of current members and will check off your name when you get your **FREE** PCARS coffee cup.



Portage County Amateur Radio Service



K8BF



2018 Hamvention® Club of the Year

There are a very limited number of extra coffee cups and they are for sale at \$5.00 each.

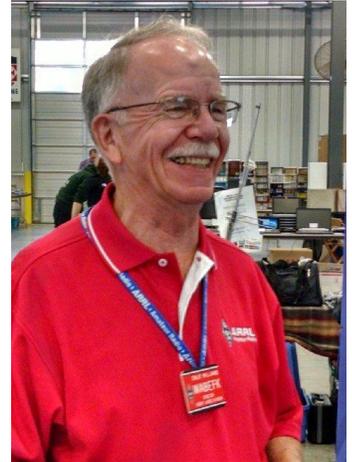
Contact Paul for all of the details



From the Great Lakes Division Director



Dale, WA8EFK
ARRL Great Lakes Division Director



Greetings, welcome to "Dale's Tales"

We are saddened by the loss of Dave Pruett K8CC (SK) who has been the Great Lakes Division's representative on the Contest Advisory Committee. Dave served for many years to contentiously represent the interests of all contesters. Currently, we are interviewing prospective members to represent our Division on the CAC.

Our Annual ARRL Board of Directors meeting was held by video conference on January 15 & 16. Several Motions were presented that may be of interest.

One was to consider changing several of our active committee configurations. As proposed, it would eliminate the DX Advisory and Contest Advisory Committees and instead, create a pool of subject matter experts - of course this pool would include DX and Contesting experts plus potentially several others. I think that it is quite fortunate that most Directors felt that the existing committee structure was working well and with a few considerations could be made even more effective without a major change. This proposal did not gather enough Board support and the motion failed.

A motion was tendered to reactivate the HQ staff position of Chief Development Officer. This position has been vacant for several years, and the Board considers it to be important to have a selected individual ready to work closely with those who would like to contribute to one of the ARRL's several development funds. This motion passed.

The Legislative Action Committee presented their annual report and advised the Board that the draft bill for HOA-Resident Antenna Assistance has been completed and is expected to be entered in Congress early in the new session now beginning. This is the revised bill to clear the path so residents living in Homeowners' Association controlled areas can install effective Amateur Radio antennas. It is a revised and updated plan, differing from the previous bill, The Amateur Radio Parity Act.

By vote, the Board will also be looking into various types of optional electronic balloting for ARRL Elected positions. Electronic voting was tested several years ago and resulted in a low turnout. The Administration and Finance Committee may offer a hybrid voting plan, making electronic voting an option for our members.

Other Board actions will be reported in the meeting minutes to be published as soon as they are approved. Scott and I received some committee appointments and we'll cover these assignments next month.



From the Great Lakes Division Vice Director



Scott, N8SY
ARRL Great Lakes Division Vice Director



It has been a busy month and I've already been assigned to a couple of very active committees. Let me tell you, they are rolling! This is going to be a very exciting time for the ARRL. If you're not a member, you will definitely want to rethink that idea and soon!

Ok, let's switch gears... With the weather getting downright nasty, you'll want to be thinking about how to keep the necessities going if the power would go out. One way is with a whole-house generator. It will do the job, including one on your pocketbook. A portable gasoline generator will also work well, if you keep a fresh can of gas around and are willing to go out in the miserable weather to set it all up. Now there is a new option for you to consider, Lithium battery portable power stations.

I sat in on a Zoom meeting the other week where these portable power stations were the topic. These stations are just coming into their own, but what makes them so interesting is that they are much easier and safer to handle and last for hours, even under the heaviest of loads. The presenter did an excellent job of explaining how the power station works and how easy it is to setup and operate, right inside the house! His power station is setup so he can quickly and easily power up most of the necessities in his home. And, what makes this so great is that the batteries he is using are the same ones that he uses in his weed-whacker and lawn mower! Yes, his power station was designed to use the same battery packs as his power tools. So, all that he needs to do when the power starts to decrease on the power station is to pop in another pack! Talk about a good return on investment! These power stations have enough amperage to easily power your ham shack, a refrigerator or even freezer for quite a long time! And Lithium batteries are not like the old lead acid deep cycle marine batteries that we're all familiar with. Lithium batteries give you years of maintenance free power, plenty of current to power those larger appliances and none of the mess, and best of all, you don't have to go out into the miserable weather to hook anything up. There is a wide variety of power stations and options to choose from.

That's going to do it from here. Let's keep our fingers crossed that we all get to meet at a Hamfest somewhere soon, I've got a bunch of stuff to buy!

A banner with a black background. On the left is the Portage County Amateur Radio Service logo, which includes a map of Portage County, Ohio, and a squirrel. In the center, the text "PCARS K8BF" is written in large, bold, yellow letters. Below this, the slogan "The Club that puts the FUN in Ham Radio!" is written in a smaller, yellow, italicized font. On the right is the ARRL Special Service Club logo, which is a circular emblem with a yellow background and a black border, featuring a stylized antenna and the letters "A", "R", "R", "L".

From the ARRL Ohio Section Manager



Tom, WB8LCD
ARRL Ohio Section Manger



While I am personally not a fan of winter, I do live in NE OHIO, so, I have to put up with it. The Good News: Spring is coming! It always does.

As the NEW OHIO Section Manager, I want to share with you my priorities in the OHIO Section for my term(s) in this position. While I have my own priorities, I think it important to point out, that none of my initiatives are to be pursued at the cost of any existing program. Those who have built the OH Section to what it is today have made an investment in excellence that I am not willing to sacrifice. I've inherited an OH Section Cabinet full of exceptional and talented people who are dedicated to the hobby. My personal goals in this position are based on the extremely sound foundation that has already been set, while being flexible enough to respond to changing conditions.

I have three main areas that I will be working on and hope that you will join me in. #1. Making sure that the Hams in the OH Section not only have but take advantage of all the opportunities that this hobby gives them to have FUN! #2. Increase the number of licensed hams, increase the number of *active* hams, and increase the number of ARRL member hams in the OH Section. #3. Increase and improve the public image of Amateur Radio to the general population of OH.

If you really think about it, if we work on all three of these items together, each one will feed off the success of the others. Now, if you personally, or "you" as a club, work on these concepts with *enthusiasm*, then that enthusiasm will spread to those around you. Once it reaches a certain level, it becomes a "self-fulfilling prophecy" much to the benefit of all of us. I hope you will join me in working to make Amateur Radio the Greatest Hobby in the World!

Now that we've had this little blast of cold, snowy weather, how about we do a little bit of Ham Radio PR? This would be a good time to write a small article for your local paper, explaining to them that as the storms blew through Ohio (and the rest of the country) Amateur Radio operators were prepared, willing and able to provide emergency communications for both public & private entities.

To show you that I'm a "sporting" kind of guy, I'm offering (personally) a \$100 DX Engineering gift certificate to the first club who can send me a copy of their article, in a local newspaper, naming their club by name, which is a PR piece for Amateur Radio and specifically the local club. In addition to the story, I would suggest sending along a photo or two of club members at their operating position. I would also suggest in your cover letter to the editor that you invite him to send a reporter and/or photographer out if they would rather make it an "interview" piece.

One of two different things will happen after your article is submitted: the story gets published, everyone is happy; or the story does not get printed, you may or may not receive a reason why. Don't despair! About a month prior to Field Day this year, send them a "Press Release" noting that Field Day will be taking place, your club is participating, and visitors are welcome. A week or two prior to Field Day, send the editor an invitation to send a reporter / photographer to your Field day site on the day of the event. If that happens – Great! If not, write your own story about how Field Day went, include your own photos and submit it for publication. Once we start having meetings in person again, make sure you send a notice for every meeting, letting the community know you're there and they are welcome to join you. If you have a particularly interesting meeting, with a "notable" expert on some facet of Amateur Radio, submit that article, include some photos.

Got a club member who just got WAS or DXCC? That's newsworthy! Worked it via FT8 or some other digital mode? That makes it even more newsworthy. Got a club member who has been racking up contacts via satellites? Newsworthy. The whole point here is to keep submitting those articles and Press Releases! It's what's called "Drip Marketing" and the pros are doing it to you every day. We want to keep "dripping" information on that editor until he finally realizes that something exciting is happening and no one else is reporting on it! Once he picks up your stories, then you'll be dripping on the general public where it can finally do some real good!

Two last things on this topic. First - always include the line "For More Information on Amateur Radio, go to

WWW.ARRL.org . When someone follows that link, they will land on the ARRL homepage where in the upper left of the main screen are the words: What is Amateur Radio or Ham Radio? This will immediately give readers the information about who we are and what we do. You don't have to reinvent the wheel. Second – if you have any relationships with editors or program directors at either newspapers or radio stations in your local area, please, send me their name and contact information. I want to support your local PR efforts with information as a State level ARRL representative.

OH Section Nets are an important part of keeping us all connected to each other. I hope that you will all participate in the nets that are operating in the OH Section. Nets are a fantastic way to get involved, improve your skills and try different modes. I want to encourage you all to participate in nets. Everyone has checked into the “Social” nets, now I want to ask you to make a point of checking into some EmComm training nets and some Traffic nets. As an Amateur Radio Operator, it is assumed that you will be able to participate in these in times of an emergency. That's *NOT* the time to be a “first timer” on these nets. I know that this is not everyone's idea of fun, but, do it once or twice, so you at least have a basic understanding of how they operate and what they expect of their participants.

From the ARRL Web Site: “The ARRL Online Net Directory shows Amateur Radio nets that have been registered with ARRL Headquarters net directory database. It primarily covers nets that are of interest to Amateur Radio operators in the United States and Canada. Worldwide coverage nets and maritime service nets are featured (as are National Traffic System Area and Region Nets) in the database. You can search the database for a particular net [here](#).

One focus of the directory is toward public-service oriented nets that support the ARRL National Traffic System (NTS) and the Amateur Radio Emergency Service (ARES). Further information about NTS and ARES activity in your area may be obtained through your ARRL Field Organization leaders. (See page 12 of *QST* for the list of ARRL [Section Managers](#).)

Net Registration

Nets must be registered to be published in The ARRL Net Directory. To register a net through the web please go to this [page](#). As for the nets that are already listed, any information regarding updates or deletions is welcomed. Section and local nets should also be registered with the ARRL Section Traffic Manager. (ARRL HQ can refer you to your Section Traffic Manager.) Net Directory updates received via mail or email within the past few months will be merged into the directory this fall. New updates should be submitted using the [update form](#). The registration deadline for the next issue of the Net Directory is announced in *QST* and appropriate [ARRL Letters](#). [Search for a Net](#) | [Update an Existing Net](#) | [Submit a New Net](#)”

IMPORTANT:

If you are a net manager, club officer, or someone involved in running a net, please make sure your net is listed on the ARRL Web Site.

I received the following from Chris – KD2HCE in Medina: New Worked All States nets on 40 and 80m (75m if you are old school...). You can find our site at USTAW.net. I am a co-founder, and the 80m band coordinator. We *currently* run 40m nets weekdays at 3PM Eastern (2100z) and 80m nets every day at 8PM Eastern (0100z). Our difference versus other nets, is in our award, it's not a paper certificate, but a Rosewood Plaque with a bronze engraved panel. Of course we charge a bit more for it, but the value is much better. We have a low cost membership, and there is no need to be a member to participate in any nets. Go look around the site.

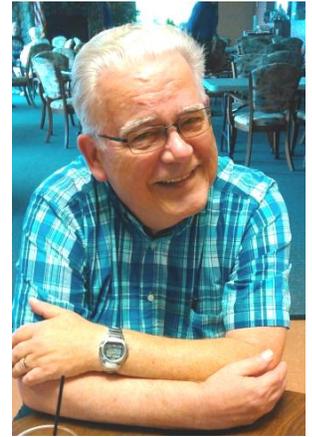
We really have not advertised the nets yet, but we've been live on 80 since 11/12/20, and on 40 since the beginning of year. We're also recruiting NCSs who would be interested on either/both bands. You can check out our main site, or my QRZ for details. A QRZ subscription is required, and we use Netlogger. Experience with NL usage is a big plus, but not as an NCS, just a few minutes training further as an NCS is needed.

That's it for me this month. Get on the air, build something, try something new! Have fun and let me know what you're doing.

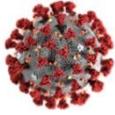


PCARS VE Test Information & News

Tom, KB8UUZ
PCARS VE Team Liaison



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



NOTE: All Dates Subject To Cancellation
Check Web Site for Updates

- You **MUST** register in advance - **NO WALK-INS** will be accepted. Send an email to KB8UUZ@gmail.com to register.
- You will be required to have, in advance, a Form 605 - properly filled in and signed. Once you register a form 605 will be sent to you via email. You can print it out and fill it in.
- **You must have your FRN prior to taking an exam** - no SSNs will be used on the Form 605 anymore.
- If you are sick, have a cough, a high temperature or have been exposed to COVID-19 or someone that has been infected - please, do not come to the club site.
- You will wear a mask covering your mouth and nose at all times.
- No food or snacks allowed.
- Only people that are testing will be allowed in the building.
- \$15.00 Fee Payment will only be by check or exact change. We cannot make change
- If paying by check, make check out to: "ARRL-VEC" The VE Fee is \$15.00
- Ensure you have the following:
 - A picture ID such as a valid Driver's License, State ID, School ID, or US Passport.
 - If you are under 16 years of age, a parent or guardian must be able to vouch for you and you need a copy of your birth certificate (you do not have to give us a copy, we just have to see and verify).
 - FCC is requiring you have your e-mail address on the Form 605.
 - If you are taking a Technician test you will need your FRN number (you can apply for an FRN on the FCC website). For hams having a license, your FRN is printed on your license.
 - If you are upgrading to General or Extra - You **MUST** bring your original valid amateur radio license and a copy of your valid amateur radio license to turn in with your Form 605.
 - Bring your own pencils and pens.



Any questions? Contact KB8UUZ@gmail.com

Additional Information - What to Bring to the Testing Session

- 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.
 - 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.

Dates subject to change - Check the PCARS web site for the latest information

A banner for PCARS ARRL Volunteer Examiners. It features the PCARS logo in a yellow box on the left. To the right, text reads: "ARRL Volunteer Examiners: serving the Amateur Radio community". Below this, it says "First Saturdays 10:00 am at the club site in Ravenna" and lists the months "February, April, June, August, October, December". On the far right is the ARRL VEC Volunteer Examiner logo.

FCC to Require Email Addresses on Applications

Amateur radio licensees and candidates will have to provide the FCC with an email address on applications, effective June 29, 2021. If no email address is included, the FCC may dismiss the application as defective. The FCC is fully transitioning to electronic correspondence and will no longer print or provide wireless licensees with hard-copy authorizations or registrations by mail. A *Report and Order (R&O)* on "Completing the Transition to Electronic Filing, Licenses and Authorizations, and Correspondence in the Wireless Radio Services" in WT Docket 19-212 was adopted. When an email address is provided, licensees will receive an official electronic copy of their licenses when the application is granted.

Under Section 97.21 of the new rules, a person holding a valid amateur station license "must apply to the FCC for a modification of the license grant as necessary to show the correct mailing and email address, licensee name, club name, license trustee name, or license custodian name." For a club or military recreation station license, the application must be presented in document form to a club station call sign administrator who must submit the information to the FCC in an electronic batch file.

Under new Section 97.23, each license will have to show the grantee's correct name, mailing address, and email address. "The email address must be an address where the grantee can receive electronic correspondence," the amended rule will state. "Revocation of the station license or suspension of the operator license may result when correspondence from the FCC is returned as undeliverable because the grantee failed to provide the correct email address."

ARE YOU GOING FOR YOUR TECHNICIAN LICENSE? READ THIS IMPORTANT INFORMATION

FRNs Required at Exam Sessions

The FCC has indicated VECs/VE teams will discontinue the practice of accepting social security numbers at exam sessions. Examinees should register in the FCC CORES registration system and receive an FRN **before exam day**.

The FCC also advised VE teams to make it clear to candidates that some information about them will be made publicly available on the FCC's website, including their name, mailing address, and felony conviction status.

“Dorothy Stifflemire, the Associate Division Chief of the WTB Technologies Systems and Innovation Division told VECs that new license applicants should create an FCC user account and register their social security number in the FCC Commission Registration System (CORES) before attending exam sessions. Registrants will be assigned a Federal Registration Number (FRN) which will be used in all license transactions with the FCC.”

She explained that auto-registration in CORES for examinees using a social security number will be going away. In addition, since no mail is being sent because of the COVID-19 pandemic, applicants will not receive their auto-created password and FCC FRN and will not be able to access their personal license record in the FCC License Manager database or their FRN record in CORES. Going forward, she said, VECs should make sure all applicants are registered and have an FRN before exam day.

“Additionally, FCC Mobility Division (MD) Deputy Chief Tom Derenge recommended that VECs make it clear to applicants that their address will be public information when the new license is issued. He suggested advising that an alternative address, such as a PO Box or work address, would be acceptable. Derenge pointed out that once an address is in the FCC database, it’s nearly impossible to be permanently removed.”

Examinees can be directed to this information on our the ARRL website or directly to the FCC website.

FRN registration information (see item #4): <http://www.arrl.org/what-to-bring-to-an-exam-session>

FCC Privacy information: <http://www.arrl.org/fcc-licensee-privacy>

FCC CORES User Account and Registration: <https://apps.fcc.gov/cores/userLogin.do>





From the ARRL

FCC Amateur Radio Application Fee \$35

12/30/2020

The FCC has agreed with ARRL and other commenters that its proposed \$50 fee for certain amateur radio applications was “too high to account for the minimal staff involvement in these applications.” In a Report and Order (R&O), released on December 29, the FCC scaled back to \$35 the fee for a new license application, a special temporary authority (STA) request, a rule waiver request, a license renewal application, and a vanity call sign application. All fees are per application. There will be no fee for administrative updates, such as a change of mailing or email address.

This fall, ARRL filed comments in firm opposition to the FCC proposal to impose a \$50 fee on amateur radio license and application fees and urged its members to follow suit.

As the FCC noted in its R&O, although some commenters supported the proposed \$50 fee as reasonable and fair, “ARRL and many individual commenters argued that there was no cost-based justification for application fees in the Amateur Radio Service.” The fee proposal was contained in a Notice of Proposed Rulemaking (NPRM) in MD Docket 20-270, which was adopted to implement portions of the “Repack Airwaves Yielding Better Access for Users of Modern Services Act” of 2018 — the so-called “Ray Baum’s Act.”

“After reviewing the record, including the extensive comments filed by amateur radio licensees and based on our revised analysis of the cost of processing mostly automated processes discussed in our methodology section, we adopt a \$35 application fee, a lower application fee than the Commission proposed in the NPRM for personal licenses, in recognition of the fact that the application process is mostly automated,” the FCC said in the R&O. “We adopt the proposal from the NPRM to assess no additional application fee for minor modifications or administrative updates, which also are highly automated.”

The FCC said it received more than 197,000 personal license applications in 2019, which includes not only ham radio license applications but commercial radio operator licenses and General Mobile Radio Service (GMRS) licenses.

The FCC turned away the arguments of some commenters that the FCC should exempt amateur radio licensees. The FCC stated that it has no authority to create an exemption “where none presently exists.”

The FCC also disagreed with those who argued that amateur radio licensees should be exempt from fees because of their public service contribution during emergencies and disasters.

“[W]e are very much aware of these laudable and important services amateur radio licensees provide to the American public,” the FCC said, but noted that specific exemptions provided under Section 8 of the so-called “Ray Baum’s Act” requiring the FCC to assess the fees do not apply to amateur radio personal licenses. “Emergency communications, for example, are voluntary and are not required by our rules,” the FCC noted. “As we have noted previously, “[w]hile the value of the amateur service to the public as a voluntary noncommercial communications service, particularly with respect to providing emergency communications, is one of the underlying principles of the amateur service, the amateur service is not an emergency radio service.”

The Act requires that the FCC switch from a Congressionally-mandated fee structure to a cost-based system of assessment. The FCC proposed application fees for a broad range of services that use the FCC’s Universal Licensing System (ULS), including the Amateur Radio Service, which had been excluded previously. The 2018 statute excludes the Amateur Service from annual regulatory fees, but not from application fees.

“While the Ray Baum’s Act amended Section 9 and retained the regulatory fee exemption for amateur radio station licensees, Congress did not include a comparable exemption among the amendments it made to Section 8 of the Act,” the FCC R&O explained.

The effective date of the fee schedule has not been established, but it will be announced at least 30 days in advance. The FCC has directed the Office of Managing Director, in consultation with relevant offices and bureaus, to draft a notice for publication in the Federal Register announcing when rule change(s) will become effective, “once the relevant databases, guides, and internal procedures have been updated.”

<https://docs.fcc.gov/public/attachments/FCC-20-184A1.pdf>

FCC Requires E-Mail Addresses on Applications



From the ARRL

ARLB002 FCC to Require Email Address on Applications Starting on June 29, 2021

Effective on June 29, 2021, amateur radio licensees and candidates must provide the FCC with an email address on all applications. If no email address is included, the FCC may dismiss the application as "defective."

On September 16, the FCC adopted a Report and Order (R&O) in WT Docket 19-212 on "Completing the Transition to Electronic Filing, Licenses and Authorizations, and Correspondence in the Wireless Radio Services." The R&O was published on December 29 in the Federal Register. The FCC has already begun strongly encouraging applicants to provide an email address. Once an email address is provided, the FCC will email a link to an official electronic copy of the license grant. An official copy will also be available at any time by accessing the licensee's password-protected Universal Licensing System (ULS) account.

The R&O is available online in PDF format at,
<https://www.fcc.gov/document/fcc-adopts-electronic-licensing-report-and-order>

Licensees can log into the ULS License Manager System with their FRN and password at any time and update anything in their FCC license record, including adding an email address. For questions or password issues, call the CORES/FRN Help Line, (877) 480-3201 (Monday - Friday, 1300 - 2300 UTC) or reset the password on the FCC website.

The only way to refrain from providing an email address on an application would be to submit a request to waive the new rule, providing justification for the request. (The FCC would not be obliged to grant such a request.)

Under Section 97.21 of the new rules, a person holding a valid amateur radio station license "must apply to the FCC for a modification of the license grant as necessary to show the correct mailing and email address, licensee name, club name, license trustee name, or license custodian name." For a club or military recreation station license, the application must be presented in document form to a club station call sign administrator who must submit the information to the FCC in an electronic batch file.

Under new Section 97.23, each license must show the grantee's correct name, mailing address, and email address. "The email address must be an address where the grantee can receive electronic correspondence," the amended rule will state. "Revocation of the station license or suspension of the operator license may result when correspondence from the FCC is returned as undeliverable because the grantee failed to provide the correct email address."



PCARS
www.portcars.org



PCARS Patches & Stickers



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



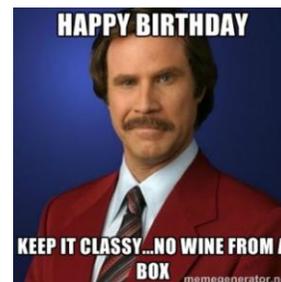
and Blue. Cost for a patch is only \$2.00 each and can be obtained at any PCARS meeting. There are 2 types of stickers available - a 4" x 6" oval and a 3" x 10" bumper sticker. Stickers are \$1 each. Show your pride in PCARS - Wear a patch, use the stickers! See the club Treasurer: **Paul, KE8EGF** or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

Happy Birthday PCARS Members

PCARS members having their birthday in **March**:

KB3GXB	Jennifer Williams
KE8KCJ	Montie Hardman
N8KEV	Kevin Settle
WX4QZ	Daryl Stout
K8QF	Russ Conklin
WB8LCD	Tom Sly

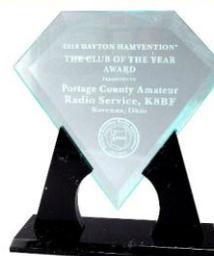
KE8BBI	Doug Daniels
N8FUM	Dan Torchia
W8CYN	James Shoemaker
W8KNO	Joe Wehner
K8SRR	Steve Randlett



Portage County Amateur Radio Service



K8BF



2018 Hamvention® Club of the Year

New Test Equipment for the Shack - The tinySA

Rick, K8CAV



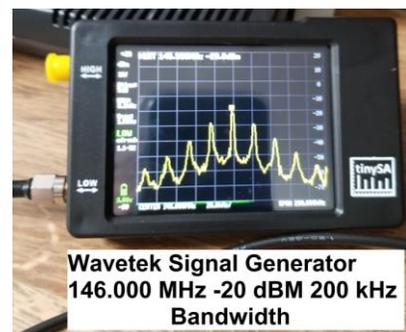
Last week's mail brought the March issue of QST magazine and with it a review of the tinySA spectrum analyzer (pages 48-51). Back in the 70's when I was working in an R&D lab we bought an HP spectrum analyzer with tracking generator and I instantly craved one of my own. At a price of ten-thousand dollars in 1976 dollars it was way out of my reach so I had to satisfy myself with just using it on personal projects I could squeeze in time for. Today companies such as Siglent sell lab grade spectrum analyzers in the fifteen hundred dollar range, far more affordable but still hard to justify for the more casual use I would put it in my home lab. So when the QST article stated the tinySA could be had for a mere, forty-nine dollars, it took ten milliseconds to make the decision to buy it. Unfortunately it seems there were a whole lot of other Hams who had the same thought because when I went to the R&L web site to buy it they were sold out. Amazon rode to the rescue and I did find one, though at a price of ninety-four dollars, still well within what I was willing to spend. I received it last night and after some mandatory un-fun, not ham stuff that had to be done in the morning, I got it on the bench this afternoon.

The tinySA comes with literally no documentation, so the QST article was a big help in getting started. One of the things that can be daunting about this type of test equipment (read cheap) is that the learning curve can be steep, with a lot of head-scratching to figure out how to use it. The good news for the tinySA is that if you've used and understand spectrum analyzers, you'll find the basics of the tinySA pretty intuitive. The more esoteric functions may take a bit more time to learn, but there's no reason you can't be up and running in just a few minutes.



So the first thing many of us want to see is "what does my handheld signal look like?", and I was no exception. I set the handheld to 146.000, low power. I attached the antenna to the tinySA and set it up for a center frequency of 146.000 with a bandwidth of 200 kHz. Holding the handheld an arm's length away I keyed the transmitter and was rewarded with seeing its signal at a power level of -20 dBm on the display, see the photo on the left.

The next step was to connect the tinySA to my Wavetek 3003 signal generator to check a couple of things. I set the Wavetek's signal level to -20 dBm (approximately 23 mV) at 146.000, and the tinySA to a center frequency of 146.000 with a bandwidth of 200 kHz. The result was not what I expected to see. The carrier was present at 146.000 MHz, but so were sets of spurs on either side of the carrier, approximately 23 kHz apart and 10 dB below the carrier and 10 dB below each previous set of spurs, see photo on the right. My first thought was that the tinySA was being overdriven so I reduced the output of the generator in 10 dB steps, only to find that even at -80 dBm, the spurs were still there, at least the ones above the noise floor. So it seems my venerable Wavetek has issues. I was able to ascertain that the amplitude accuracy of the tinySA was good from -90 dBm to 0 dBm. Frequency accuracy, to the extent that I could see on the screen, seems good as well.



That pretty much ended things for the day but it did allow me to conclude that for the price, the tinySA is a great addition to my lab. It has enough features that can let you do things like determine absolute signal strength of a received signal on an antenna system, which could give more accurate ideas of antenna performance, or comparing antennas. Also things such as being able to see spurious signals from a transmitter come to mind. As I explore more features of the tiny SA I'll be sure to share them with PCARS. All in all it's a good piece of equipment for the price and I rate it four stars out of five.



Swap-N-Shop

FOR SALE - Bridge Com Systems BCH-270 2M/70CM HT, BGM-270-Cable, & BGM-BCH-270 Spare Battery and Belt Clip new, never used. \$100.00. **MFJ-9340K 40M Cub QRP Kit** new, never used. \$100.00. **TIDRADIO UV-5R** Dual Band 2M/70CM HT new, never used. \$50.00. **DX Engineering DXE-SWP8** Memory Keypad for Kenwood, and ICOM new, never used. \$50.00. **Reconditioned Heath Kit SB-200 Amplifier** \$500.00 with new tubes.

Contact: Bob, N8QE at rhajdak@aol.com [05/02/21]

WANTED - Kenwood AT-130, Tuner.

Contact: Richard, KA8OAT at 330-506-7068 [03/02/21]

FOR SALE - Yaesu FT-dx1200 Transceiver-TX 160 to 6M, RX 30 kHz to 56 MHz, Spectrum Scope, Roofing Filters 3/6/15 kHz, 4.3" color TFT display, Autotuner,. Bought in 2017, used as backup rig. Low air time, Like New.Has original boxes, power cord, manual, mic, etc - \$800.00 **FT-7800R Dual Band Mobile**, TX 50W on 2M, 40W on 70CM, Receive from 108 to 520 MHz (cell blocked), 1055 Memory channels, Used as base radio, never mobile. Includes RT Systems programming software and cable. All original boxes, power cord, mic, etc. Like new, \$250 **Comet DS-150S Discone Base Wideband scanner/receive/TX antenna.** Receive 25-1300 MHz, TX 6M/2M/440/900/1200 MHz. Gain- Unity/2/4dB, UHF connector. All Stainless, excellent condition \$60.00

Contact: John, W8JJW by phone at: 330-842-3619 [04/02/21]

For Sale or Want Ad policy reminder: This is a PCARS *members only benefit*. Please don't ask to list items for a friend, relative or SK estate unless they are/were a member of PCARS. Requests come in from all over the USA (and beyond) to list items for sale or wanted items and we just cannot dedicate that much space to non-members. Listings are good for 3 months unless canceled or changed earlier. The date listed after the contact information tells you when the ad expires - example: [05/02/21] indicates the ad will run until May 2, 2021.

PCARS IO Group

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

Check out the PCARS IO Group 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 info that's posted.
2. Join the PCARS IO Group. 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!!



The screenshot shows the PCARS IO Group page on groups.io. The group name is "PCARS K8BF" and the tagline is "The Club that puts the FUN in Ham Radio!". The page includes a "Group Description" section, "Group Information" (59 Members, 1 Topic, Last Post: Feb 21), and "Group Settings" (All subscribers can post to the group, Posts to this group require approval from the moderators, etc.). There are also buttons for "Join This Group" and "Log In if You Are Already A Member".



Field Day 2021



Tony, WA8AR
Field Day Chairman



The ARRL is planning have Field Day 2021 and PCARS will be participating. FD 2021 will somewhat modified for COVID-19. The ARRL has not published the rules for 2021, however we have heard that the (cancelled) 2020 rules may be used with some modifications. This is all subject to change, however, so far we are anticipating the following for the PCARS Field Day 2021:

- PCARS will be participating as usual in Class 4A. Our goal will be to win our class. We got very close in 2019; no reason we can't be #1 this year.
- Since COVID is still with us SAFETY will be an absolute top priority. And PCARS will be adjusting how we go about putting on Field Day to maximize the health and safety of everyone participating.
- Our FD will be held in the same location as recent years, in the Freedom Township Park. Township officials have been contacted and are welcoming us back.
- There will be no need for an "Antenna Day" test run since all stations can be set up in the same positions as 2019; that configuration worked very well and there is no reason to think it will not work well again this year. Also four out of our five station captains will be returning this year, which stabilizes our superior operating team.
- FD 2021 will be less of a social event (unless COVID vanishes). Personnel on site will be limited to operators; loggers; safety & management coordinators; setup and teardown crews. We may develop screening guidelines for a limited number of visitors but access to operating stations will be restricted. There will be NO big Club dinner or breakfast. Food, water and soft drinks will be provided for operating personnel, plus for setup and teardown crews.
- I will be announcing FD Team meetings, but these will be kept to a minimum with only essential personnel in attendance, or done with zoom meetings. I will also issue regular progress reports to all.
- I would encourage everyone who think that they may want to participate in operating, logging, setup/teardown or just wants to visit the FD site, while in operation, to get vaccinated. We will not require this for participation in FD, however some stations where operators and loggers will be forced into close quarters for extended periods may have individual Health and Safety requirements as determined by the station captain. We will make every effort to give everyone a chance to participate under these difficult conditions.

One final note for members who are veterans regarding getting vaccinations. I just heard that the VA is giving vaccinations to veterans and that (as of yesterday) you can get scheduled to get a shot in about a week if you are a veteran. Contact the VA.

Stay tuned for lots of updates and requests for volunteers both in this News Letter and via QST announcements.

ARRL to Extend Field Day Rule Waivers from 2020, Add Class D and E Power Limit

The COVID-19 pandemic-modified ARRL Field Day rules from 2020 will continue this June with the addition of a power limit imposed on Class D (Home Stations) and Class E (Home Stations-Emergency Power) participants. The news from the ARRL Board's Programs and Services Committee comes as many clubs and



groups are starting preparations for Field Day in earnest. Field Day 2021 will take place June 26 – 27.

“This early decision should alleviate any hesitancy that radio clubs and individual Field Day participants may have with their planning for the event,” said ARRL Contest Program Manager Paul Bourque, N1SFE. For Field Day 2021:

- Class D stations may work all other Field Day stations, including other Class D stations, for points. This year, however, Class D and Class E stations will be limited to 150 W PEP output.
- An aggregate club score will be published — just as it was done last

year. The aggregate score will be a sum of all individual entries that attributed their score to that of a specific club.

ARRL Field Day is one of the biggest events on the amateur radio calendar. Last summer, a record 10,213 entries were received.

“With the greater flexibility afforded by the rules waivers, individuals and groups will still be able to participate in Field Day, while still staying within any public health recommendations and/or requirements,” Bourque said.

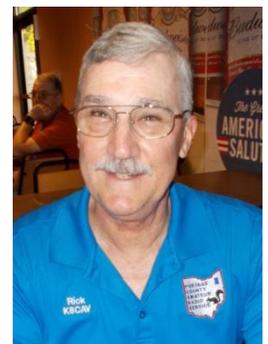
The preferred method of submitting entries after Field Day is via the web applet. The ARRL Field Day rules include instructions on how to submit entries, which must be submitted or postmarked by Tuesday, July 27, 2021.

The ARRL Field Day web page contains for complete rules and entry forms, as well as any updated information as it becomes available. Join the ARRL Field Day Facebook page.

Field Day 2021 - Flex Station



Rick, K8CAV
Field Day Flex Station Captain



The PCARS Field Day Chairman Tony, WA8AR, has announced that PCARS will be conducting Field Day as a club at the Freedom Township Park. In order ensure the safety of all involved in Field Day in view of the pandemic, Tony and the committee will be discussing and implementing measures to mitigate the spread of the virus.

Limit attendance of people at the Field Day site to only those performing Field Day functions such as operating, setup, etc. No club meals will be served. No social gatherings at Field Day. Masks covering mouth nose and face are required. Frequent hand washing or sanitizing. Surface wipe-down inside station with disinfectant

between shifts. Operators to provide their own microphone and headset. Social distancing to the maximum extent possible.

There may be other measures taken as the committee deems necessary to keep all participants safe. The thing to know is that we're doing everything possible to make the Field Day site as safe as possible for volunteers.

The Flex Station will be part of PCARS Field Day. As its name implies, the Flex Station is not tied to a given band or operational mode, although there are some restrictions to ensure that we are operating under the rules for Field Day, and to avoid operating on the same band at the same time that the CW station is. The bands/modes for Flex are as follows:

- 10 meters, Phone, Digital, or CW, no restrictions
- 15 meters, Phone, Digital, or CW, no restrictions
- 20 m, Digital or CW only, permitted when CW station is not on 20 meters, CW and Flex to coordinate
- 40 m, Digital or CW only, permitted when CW station is not on 40 meters, CW and Flex to coordinate
- 80 meters, Phone, no restrictions
- 80 meters, Digital or CW, permitted when CW station is not on 80 meters, CW and Flex to coordinate

The Flex Station schedule is shown below. If you would like to operate at the Flex Station, please let me know what time slot you would like to operate, and your preferred mode. The use of a separate logging person at the station is under discussion but if you want to log let me know what time slot. If the Field Day committee decides not to have loggers, I will let you know. Contact me at k8cav.com@gmail.com to let me know if you will volunteer.

DAY	TIME	MODE	OPERATOR	LOGGER
SAT 27 JUN	14:00 - 16:00	10M, 15M PH or DIG; 40M DIG *		
	16:00 - 18:00	10M, 15M PH or DIG; 20M DIG *		
	18:00 - 20:00	10M, 15M PH or DIG; 20M DIG *		
	20:00 - 23:00	80M PH, CW, or DIG		
	23:00 - 00:00	80M PH, CW, or DIG		
SUN 28 JUN	00:00 - 02:00	80M PH, CW, or DIG		
	02:00 - 04:00	80M PH, CW, or DIG		
	04:00 - 06:00	80M PH, CW, or DIG		
	06:00 - 08:00	80M PH, CW, or DIG		
	08:00 - 10:00	10M, 15M PH or DIG; 20M DIG *		
	10:00 - 12:00	10M, 15M PH or DIG; 40M DIG *		
	12:00 - 14:00	10M, 15M PH or DIG; 40M DIG *		

FLEX and CW to cooperate on 20M and 40M to insure that both are not on the same band at the same time

* If 10M and/or 15M is open make QSO's using PH, CW, or DIG, otherwise use the 20M or 40M band DIG as indicated for that time slot.



Insuring Your Ham Gear

Dan, KB6NU



On the Long Island CW Club mailing list, a fellow asked whether or not he should get insurance for his ham equipment. He writes, “Back when I ran a home brew 6CL6 tube type rig it didn’t matter much. Now — the investment makes me think about the safety of the gear. Any suggestions?”



One of the first responses was that the ARRL offers insurance. This insurance covers all of your equipment, including computers and costs \$1.40 per \$100 of equipment covered, with a minimum premium of \$20. There is a deductible, but it’s only \$50. It covers equipment in your shack, theft from unattended vehicles, and towers and antennas up to \$15,000.00 replacement cost. Our club carries this insurance on our repeater system, and I know at least one club member carries it on his personal equipment.

Two of the folks replying to the original post have had good experiences with the ARRL insurance. One said, “About a dozen years ago lightning struck about a hundred feet from my home and took out 99% of the electronics including the hearing aids I was wearing. I didn’t even notice the deductible after my insurance took care of everything. Just be sure you have a good agent!”

Another replied, “I am a big fan of the insurance available thru the ARRL. While some homeowner policies might cover gear in the house, the ARRL plan covers your mobile gear and portable gear as well. As I do a lot of mobile and portable HF and bring my gear on vacation even when traveling abroad, the ARRL plan is a good fit for me. And it covers full replacement cost.”

Someone else mentioned that he had purchased insurance through Ham Radio Insurance Associates. This seems a bit more expensive than the ARRL insurance. There is a minimum annual premium of \$25 for \$1,600 of equipment coverage, but you don’t have to be an ARRL member to get the insurance.

Should you get insurance? Well, the first thing you might do is to take stock of your gear to determine how valuable it is. Here’s what one of the respondents had to say:

"Once I did an inventory, my "shack" was more valuable than I thought – once I considered replacement value. My insurance agent told me that as long as it was a "hobby" that they would insure my equipment, but we have a \$500 deductible on our homeowner's insurance. I was on the fence about specialty insurance until I heard the wind whistling past my 34' tower with gusts up to 70mph one winter night. I decided that if everything was intact by morning (it was) that I'd buy the ARRL insurance and be able to sleep much better at night."

I think that I’m long overdue on coming up with this list for myself. I’m definitely putting this on my ham radio to-do list.

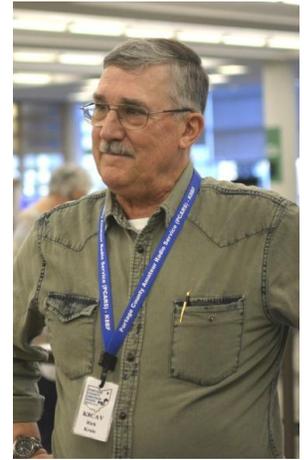
When he's not teaching ham radio classes, Dan blogs about amateur radio, writes exam study guides (www.kb6nu.com/study-guides), and operates CW on the HF bands. You can email him at cwgeek@kb6nu.com.



Portage County Park District Headwaters Race

Rick, K8CAV

Portage County Coms Unit Commander



For several years the Portage County Park District has held an annual three-event race in portions of Mantua Village, Mantua Township, and Hiram Township in Portage County. The Portage County Park District Headwaters Adventure Race is used to raise funds for the Park District's projects. The race consists of a two mile run, followed by a ten mile bicycle drive and ending in a five mile canoe ride on the Cuyahoga River. The Communications Unit of the Portage County EMA along with other amateur radio operators has supported this event by providing communications to the race director from various points on the course. The Race Director contacted me with the date for this year's event, which will be **Saturday morning, July 10th**. Our participation as communicators is usually finished very early afternoon.



As with all things of late, virus safety is a serious consideration. With three exceptions, all of the positions will involve radio operators on the course at given road junctions to provide information for the Race Director as requested, and to provide requests for emergency services should the need arise. There should be little to no interaction required and when such interaction must take place, it will be out of doors, socially distanced, and with masks used which should mitigate the risks. Communicators assigned to Shadow the race director, man the sweep canoe, and man the sweep vehicle will be masked the entire time and will socially distance to the extent possible.

Communications will take place using the K8IV 444.575 repeater. It has excellent coverage throughout the entire area using just a handheld. There are still six positions open and I really need your help. If you are a new Amateur Radio Operator and don't feel comfortable on your own, let me know and I can pair you with an experienced communicator so you'll have an opportunity to learn how to work a Public Service event. Please contact me at k8cav.coms@gmail.com if you can help with this event.



PCARS
www.portcars.org



Hamfest Calendar

HAMFESTING: This continues to challenge all of us as many clubs are making their best efforts to return their hamfests to the calendar. Several early-in-the-year swaps have now been postponed, but some clubs are adjusting their timetables and setting their hamfests up with different configurations and planning them for dates later in the season.

For the latest detail on regional hamfests, check the ARRL web page at: <http://www.arrl.org/hamfests-and-conventions-calendar> . PLEASE NOTE THAT SEVERAL CANCELLATIONS ARE ON THE SCHEDULE.

Please note that all are subject to change, so please stay current by checking the sponsoring club's web page before making your travel arrangements.

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03/07/2021 - CANCELED - WINTERHAMFEST - Location: Elyria, OH - Type: ARRL Hamfest - Sponsor: Northern Ohio Amateur Radio Society

03/13/2021 - 03/14/2021 - Online - QSO Today Virtual Ham Expo - Location: Los Angeles, CA - Type: ARRL Hamfest - Sponsor: KEG Media, Inc. dba QSO Today - Website: <http://qsotodayhamexpo.com>

05/21/2021 - 05/23/2021 - CANCELED - Dayton Hamvention, Xenia, OH - Sponsor: Dayton Amateur Radio Association Website: <http://hamvention.org>

07/10/2021 - MANSFIELD Mid-Summer Trunkfest - Location: Richland County Fairgrounds - 750 N. Home Road - MANSFIELD, OH 44901 - Website: <http://WWW.IARC.CLUB> - Sponsor: Intercity Amateur Radio Club - Public Contact: Danny Bailey , W8DLB - 70 Euclid Street Shiloh, OH 44878 - Phone: 419-541-8557 - Email: W8DLB113@GMAIL.COM

08/07/2021 - DX Engineering Hamfest - Location: **DX** Engineering/Summit Racing - 1200 Southeast Ave - Tallmadge, OH 44278 - Website: <http://dxengineering.com> - Sponsor: **DX** Engineering - Type: **ARRL Great Lakes Convention** - Talk-In: 146.985 -600 - Public Contact: Teri Grizer , K8MNJ - Phone: 330-630-7520 - Email: tgrizer@dxengineering.com

09/26/2021 - Cleveland Hamfest -Location: Cuyahoga County Fairgrounds - 164 Eastland Road - Berea, OH 44017 - Website: <http://www.hac.org> - Public Contact: Mathew Nickoson, KC8NZJ - PO BOX 201173 Shaker Heights, OH 44120 - Phone: 8002533378 (800-CLE-FEST) - Email: kc8nzj@hac.org



Fun Facts About Towers

Jim, AC8NT



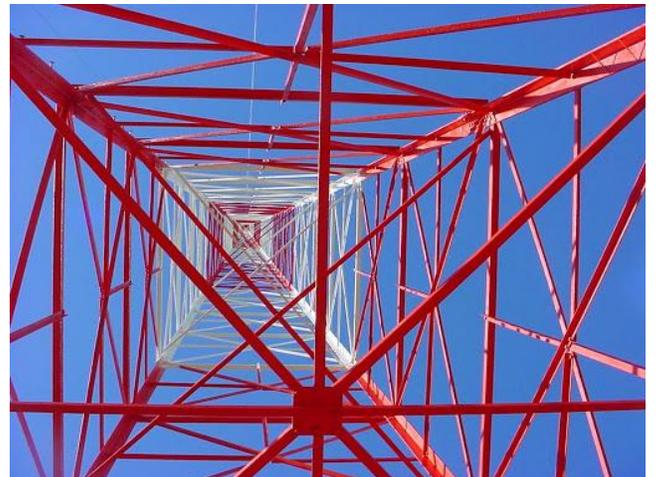
The rules for painting towers may surprise you. Most know the towers are painted



with alternating bands of aviation orange and white with both the bottom band and top band orange. But did you know that towers up to and including 700 feet must have seven colored bands; towers from 700 to 900 feet must have 9 bands and from 900 to 1100 they must have 11 bands. This is designed to make each band under 100 feet long. Towers over 1100 feet (and a lot of newer shorter towers) are now usually marked with white strobes that operate at all time and don't require the tower to be painted.

Everyone has seen the red lights on towers. When I worked at Honeywell Avionics, we were developing systems

to replace incandescent bulbs with LED lighting units. Why? They last longer reducing the cost of tower work; are much brighter; and require much less power. But did you know there is a problem with LED lights on towers. Helicopter pilots (like Life Flight) often use night vision goggles when they fly at night especially at low levels or when landing in unlighted areas. The incandescent bulbs produce a significant amount of infrared light that can be easily seen with these glasses. Pure red LED systems are almost invisible when using the goggles. Therefore, tower LED lights have infrared LEDs added to make them more visible. Proving even things that you think are going to be simple often provide challenges.

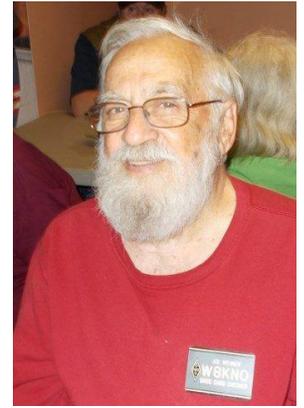


PCARS K8BF
The Club that puts the FUN in Ham Radio!



Paper Chase - Arrows From The Air

Joe, W8KNO



How many of you use e-mail? We need to look at the history of delivering mail over long distances. We all remember the Pony Express and then there was the Intercontinental Railroad. The next step was Air Mail and resulted in Giant Arrows Dotted the American Landscape? The arrows were part of a federal project to speed up communication across great distances.



Transcontinental airmail service began in 1920, but even with this advancement over ground travel, service was slow. Pilots had no sophisticated

instruments, so they couldn't fly at night or in poor weather. To combat this the government built a path of 70-foot-long concrete arrows about every ten miles from coast to coast. Each was painted yellow and topped with a 51-foot steel tower that had a rotating beacon. Using the path, an airmail pilot needed only half the time to deliver a letter from New York to San Francisco.

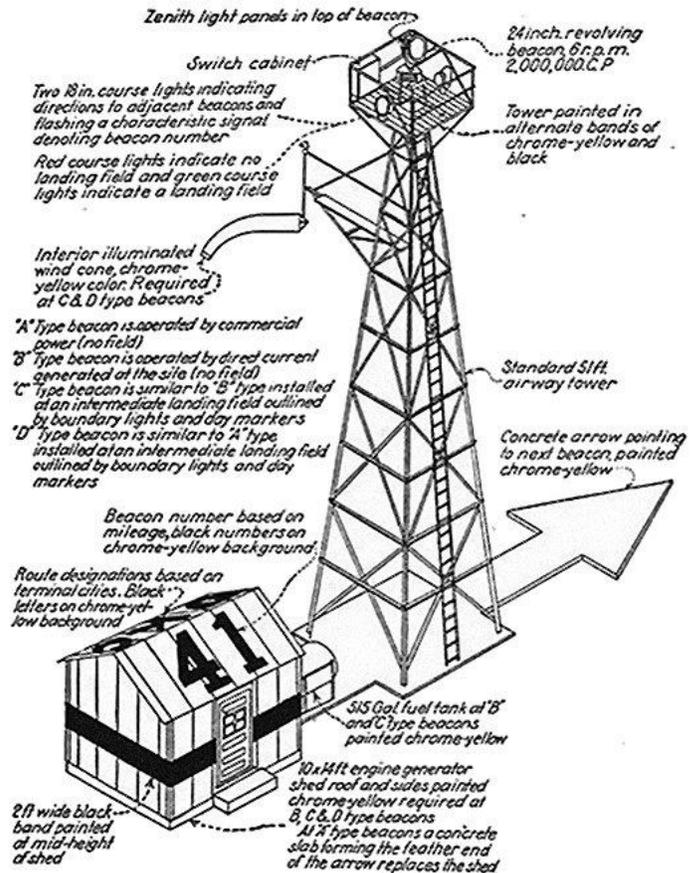


FIG. 301.—Standard installation airways beacon.

To remember this project, the SOUTH WEST IDAHO ARC (K7SWI) will operate from 2pm March 20th until 11pm March 21st on 3.827, 7.227, 14.227 and 28.427 plus or minus traffic/qrm.

K7SWI will issue a Certificate and QSL to all those requesting them. Please include an SASE for a QSL only and SASE with one green stamp for QSL and Certificate. Mail your request to K7SWI - 332 West Dewey Ave. - Nampa, ID 83686.



NWS Skywarn Storm Spotter Program



In most years, thunderstorms, tornadoes and lightning cause hundreds of injuries and deaths and billions in property and crop damages. To obtain critical weather information, the National Weather Service (NWS) established SKYWARN® with partner organizations. SKYWARN® is a volunteer program with between 350,000 and 400,000 trained severe weather spotters. These volunteers help keep their local communities safe by providing timely and accurate reports of severe weather to the National Weather Service.

Although SKYWARN® spotters provide essential information for all types of weather hazards, the focus is reporting on severe local thunderstorms. In an average year, the United States experiences more than 10,000 severe thunderstorms, 5,000 floods and more than 1,000 tornadoes.

Since the program started in the 1970s, the information provided by SKYWARN® spotters, coupled with Doppler radar technology, improved satellite and other data, has enabled NWS to issue more timely and accurate warnings for tornadoes, severe thunderstorms and flash floods. SKYWARN® storm spotters form the nation's first line of defense against severe weather. There can be no finer reward than to know that your efforts have given your family and neighbors the precious gift of time--minutes that can help save lives.

Who is eligible and how do I get started?

NWS encourages anyone with an interest in public service to join the SKYWARN® program. Volunteers include police and fire personnel, dispatchers, EMS workers, public utility workers and other concerned private citizens. Individuals affiliated with hospitals, schools, churches and nursing homes or who have a responsibility for protecting others are encouraged to become a spotter. Ready to learn more? [Find a class in your area](#) Training is free and typically lasts about 2 hours. You'll learn:

- Basics of thunderstorm development
- Identifying potential severe weather features
- How to report information
- Fundamentals of storm structure
- Information to report
- Basic severe weather safety

Need help with your Spotter Number or other local information such as a missing class schedule? If you need help finding your spotter number or a class schedule, contact your local Warning Coordination Meteorologist. He or she can help you get, find or replace your spotter information and let you know about upcoming classes. Classes typically are held in an office's relatively slow season. Classes are NOT typically offered all year. Schedules vary from office to office.

Looking for our online program? You also can also take our free online spotter program. Some offices also ask that you take a local class to learn about weather unique to your area.

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Spring & Summer Safety

Severe Weather Awareness Week: March 21-27, 2021

[Governor's 2020 Resolution](#)

[Letter from 2020 OCSWA Chair](#)

[Severe Weather Terms](#)

[Thunderstorms & Lightning Safety](#)

[NWS Lightning Safety Tips & Resources](#)

[Thunder & Lightning Safety Brochure](#)

[Flood Information and Safety Tips](#)

[Flood Insurance Information](#)

[FEMA: Flood Insurance Reform](#)

[FEMA Brochure: Build Back Safer & Stronger](#)

[Turn Around Don't Drown®](#)

[Flooding & Flash Flooding Safety Brochure](#)

Tornado Safety Statewide Tornado Drill: March 24 at 9:50 am

[Tornado Facts and Safety Tips](#)

[Fire Drills and Tornado Safety Precautions \(ORC 3737.73\)](#)

[Emergency Evacuation Drills - Fire, Tornado](#)

[School Drills and Fire Safety during COVID-19 Pandemic \(State Fire Marshal\)](#)

[COVID-19 Health and Prevention Guidance for Ohio K-12 Schools \(Ohio Depts. of Health and Education\)](#)

[Taking Shelter from a Tornado](#)

[Tornado Safety and the Dangers of Highway Overpasses](#)

[Tornado Safety Tips for Schools](#)

[Tornado Safety & Preparedness for Schools Brochure](#)

[Tornado Safety Brochure](#)

Spotter Class Schedule Last Updated: February 25, 2021

Location	Date & Time	Address	Basic / Advanced	Contact Info	Preregistration
Online	3/2/2021 600 pm	Online	Basic	Freddie Zeigler freddie.zeigler@noaa.gov	Required: Register Here
Online	3/8/2021 1000 am	Online	Basic	Freddie Zeigler freddie.zeigler@noaa.gov	Required: Register Here
Online	3/12/2021 1000 am	Online	Basic	Freddie Zeigler freddie.zeigler@noaa.gov	Required: Register Here
Online	3/15/2021 200 pm	Online	Basic	Freddie Zeigler freddie.zeigler@noaa.gov	Required: Register Here
FACEBOOK LIVE	3/22/2021 200 pm	Online	Basic	Freddie Zeigler freddie.zeigler@noaa.gov	None
Online	3/30/2021 600 pm	Online	Basic	Freddie Zeigler freddie.zeigler@noaa.gov	Required: Register Here
Online	4/6/2021 1000 am	Online	Basic	Freddie Zeigler freddie.zeigler@noaa.gov	Required: Register Here



SKYWARN
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QSO Today Virtual Ham Expo - March 13-14



The [QSO Today Virtual Ham Expo](#) will return March 13 – 14 for a full 48 hours, *QSO Today* host Eric Guth, 4Z1UG/WA6IGR, announced this week. [ARRL](#) is a QSO Today Expo Partner. Guth said the inaugural QSO Today Expo last August attracted more than 16,000 attendees, and he anticipates that the March 2021 event will be even more successful.

The upcoming QSO Today Virtual Ham Expo will feature new speakers and presenters, panel discussions, and kit-building workshops among other activities. Guth pointed out that attendees can log in from anywhere. While he anticipates a good turnout by those who typically attend such ham radio events, the virtual Expo also offers an opportunity for those concerned about pandemic travel restrictions as well as for those who don't typically attend in-person events.

“At our last Expo, we found that 60% of attendees don't go to in-person national conferences, and 40% don't attend state or local events,” Guth said, noting that distance and the high cost of travel and lodging were the most oft-cited reasons.

Registration is required, and to help cover the costs of staging this event, there will be a charge to attend. Advance tickets are \$10 (\$12.50 at the “door”) and include entry for the live, 2-day show as well to the 30-day on-demand period.

At the Expo, visitors can:

- Learn from a line-up of such well-known ham radio personalities as Bob Allphin, K4UEE, on “My Favorite DXpeditions to DXCC Top 10 Most Wanted;” Michael Foerster, W0IH, on “Using the Arduino in Your Shack;” and Ron Jones, K7RJ, on “3D Printer Basics.”
- Take part in live virtual kit-building workshops. (Kits will be available for purchase and delivered to attendees in time for the Expo.)
- Walk through the virtual exhibit hall to visit an array of amateur radio vendors and see live demonstrations of the latest equipment. This show will leverage newer video technology to provide a better experience for attendees to engage with exhibitors.

Those planning to attend the Expo may take advantage of new speaker calendar technology to create their own calendar of presentations in their time zones, which can be saved to a Google or Outlook calendar. Registrants may return over the 30 days following the live event to catch speakers and presentations missed during the live period, as well as to explore and re-engage exhibitor offerings.

“The QSO Today Virtual Ham Expo has all of the familiar hallmarks of an in-person hamfest, including opportunities to connect and learn,” ARRL Product Development Manager Bob Inderbitzen, NQ1R, said.

“Expect to bump into friends and well-known experts and personalities from throughout our worldwide ham radio community!” He explained that attendees visiting an exhibit or virtual lounge will be able to interact with other attendees in those settings.



PCARS
www.portcars.org



Contest Update



Chuck, W8PT
Contest & DX SIG Coordinator

This month's briefing lists a few of our favorite state QSO parties and a couple of major contests. As always, please make sure that in every case, you have the most up to date logging software loaded on your computer. (And if you are using paper, keep your pencils sharp.)

Oklahoma QSO Party - The Oklahoma QSO Party takes place starting Saturday, March 13 from 1500 to 0200 UTC and then picks back up after a good night's sleep, on Sunday March 14 from 1500 to 2100 UTC. For you who are UTC challenged, that's 10AM to 9PM Saturday and then from 9AM to 5PM on Sunday. But wait, the contest begins each day at 1500 UTC. Why is the local time different? That's because Daylight Savings Time starts at 2AM Sunday morning. Bands: Only 80-6m. No WARC bands Modes: Phone, CW and Digital (NO FT8)

Idaho QSO Party - The Idaho QSO Party is one of the contests that PCARS has participated in for a couple of years now. This contest takes place the week end of March 13-14. The operating hours are from 1900 UTC to 1900 UTC, a single 24 hour period. All stations may operate the full 24 hours. Again, make sure that you account for Daylight Savings Time. Bands: 160-10m. NO WARC Bands. Modes: Phone, CW and Digital. (NO FT8)

Wisconsin QSO Party - The Wisconsin QSO Party is one in which PCARS has done very well in the past. We will probably participate again but from our own QTHs. So please pay attention. The contest takes place March 14 from 1800 UTC to 0100 UTC March 15 (2:00PM EST to 9:00PM DST on March 14). Bands: 160-10m. NO WARC Bands Modes: Phone, CW. Digital is counted as CW. FT8/FT4 is not acceptable.

ARRL International DX Contest – SSB - The ARRL contests are some of the major ones that take place each year. The Phone (SSB) portion of this contest takes place the weekend of March 6-7 from 0000 UTC Saturday and runs through 2359 UTC Sunday. This is one of the contests where many DX stations that are normally not on the air, can be found. So it's a perfect time to work some DX that you normally won't often hear. Bands: 160-10m. NO WARC Bands Mode: SSB

North American Sprint, RTTY - The NA Sprint – RTTY Mode contest will be held March 13-14 from 2300 UTC to 0259 UTC. This is one of those contests where special rules apply regarding how contacts are made. Since this weekend will be filled with several contests, you will have to choose which one or ones you want to play in. Keep in mind that if you try to do too much, you will not necessarily do well in any of them. Bands: 80, 40, and 20m Mode: RTTY Of course.

CQ WW WPX Contest, SSB - This contest takes place March 27-28 and starts 0000UTC Saturday and ends 2359 UTC Sunday. The objective here is for amateurs worldwide to contact as many amateurs and prefixes as possible during the contest period. This is another contest where you can work a lot of DX in a very short time and possibly put some new DXCC entities in your log. One special rule in this one is that any of times must be a minimum of 60 minutes. Bands: 160-10m. Mode: SSB only

There are a LOT more contests this month but again, I've picked out a few that I figured might interest our members. Have some fun this coming month and play in one or more of the contests. If you happen to participate in one that we haven't listed, let me know how you did and if it was a fun contest.



Charlie the Tuner's HF High-Lites

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



Greetings DXers:

March greetings to all DXers. If you have been on the bands, you know that there have been many days when conditions have been good enough for satisfactory DX contacts with the UK, Europe, Scandinavia, and Africa. As a matter of fact, I worked three ZS's between 05:15 and 05:26 UTC on Feb. 19 with nothing less than a 57 report both ways all on **40 meters**. Other interesting stations worked this past week were from Bosnia, Latvia, San Marino and Corsica. But as mentioned before, you have to be on the air to work DX.

Why not make it a contest with yourself to see how far you can work a station under the present propagation conditions. And please don't use the excuse that you don't have anything other than a dipole and or 100 watts. That's exactly what a few stations I worked were using and they had nothing less than 59 sigs into Ohio.

I realize that many of you work and are not free at any time of the day to get on the air but there are still times when still times when you are home to turn on your rigs for at least a half hour. So get on and work someone outside of the US. Let's keep our bands occupied or we will lose them.

With that in mind, let's see what will be happening in the next month or so.

Thanks to the Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn PacketCluster Network, the AB5K's AR Cluster Networks, NJ1Q & W1AW, NG3K & ADXO, W3UR & The Daily DX, WC6DX, K8BL, K8LBT, K8YSE, W8GEX & 60m DX News, DL1SBF, DL7UXG & The DX News Letter, DXNews.com, DX-World.Net, F6AJA & Les Nouvelles DX, I1JQJ/IK1ADH & 425 DX News, Sixitalia Weekly, UA3DX, VA3RJ & ICPO and VK5GR 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.

March...

3W, VIETNAM. Brian, AA5H, is expected to be active as 3W9OK from Da Nang (WW Loc. OK46), Vietnam, between Mar-Apr. Activity will be on various HF bands. No other details were provided. QSL via his home callsign, direct, LoTW or ClubLog's OQRS.

5A, LIBYA. YL Elham, 5A0YL, continues to be active from Tripoli. Activity has been mainly on 20/17 meters FT8 between 0830-1130z and 1500-1800z. QSL via ClubLog's OQRS.

CT9, MADERIRA. Operators Georg/DD8ZX and Klaus/DJ9KM will once again be active as CT9/DD8ZX and CT9/DJ9KM from Madeira Island (AF-014) until March 6th (depending on the Covid-19 situation). Activity will be holiday style on 40-10 meters using mostly the Digital modes (FT8 and RTTY). QSL via their home callsigns, by the Bureau, direct or LoTW.

D2, ANGOLA (Update). Paulo, CT1FJZ, is now active D2FJZ from Province of Cuando-Cubango until September 2021. He informs OPDX that "he is there for professional reasons as responsible for Safety, Quality and Environment." Activity will be on 80-10 meters using SSB with a TS 480SAT into a DX Patrol EZ-wire antenna. He states to OPDX, "I hope to improve the antenna system with a new directional antenna soon." QSL via CT1FJZ direct. Look for more details to be posted on QRZ.com.

DR100/DQ100, GERMANY (Special Event). Look for special event stations DR100JL and DQ100JL to be active from Dessau-Rosslau City between March 1st and May 31st, to celebrate the 100th anniversary of the Junkers Luftverkehrs Aviation AG and Air

Traffic. Activity will be on various HF bands with a focus on 80/40/20 meters using SSB. Also, they will be operating together with FFR Stations (Flieger-Funk-Runde e.V.) [DA0FFR, DB0FFR, DF0FFR and DK0FFR] on the air. A special diploma/award will be available. All QSOs will be automatically confirmed after June 15th, 2021, with QSL card via the Bureau.

DX90, SOUTH KOREA (Special Event). Kim, DS3BBC, and some other Korean HAMs will activate the special event station D90EXPO between March 1st and October 17th, to promote the 2021 Gyeryong World Military Culture EXPO (K-Military, Harmony of Peace) being held between October 1-17th. QSL via DS3BBC, LoTW or ClubLog.

EM150/EN150/EO150, UKRAINE (Special Event). Look for special event station EM150PLU, EN150PLU and EO150PLU to be active from the Volyn region until December 31st. Activity is to celebrate 150th anniversary of the birth of Lesya Ukrainka one of Ukrainian literature's foremost writers, best known for her poems and plays. Operations will be on various bands using CW, SSB and the Digital modes. A special "Lesya Ukrainka" diploma will be issued in electronic format. See QRZ.com for details. QSL via LoTW.

GB0, ENGLAND (Special Event). Members of the Welland Valley Amateur Radio Society will be putting several special event stations on air during 2021 to celebrate the patron saints of England, Ireland, Scotland and Wales. They will be on air for the feasts of the said Saints. (The Saints Days). Here are the current following special event stations: GBOSP -- Saint Patrick, patron saint of Ireland; between March 16-18th; (The Feast of St. Patrick is the 17th March) GB0SG -- Saint George, patron saint of England; between April 22-24th; (The Feast of St. George is on the 23rd April) GB0SA -- Callsign pending; for Saint Andrew for St. Andrews Day in November 2021. The QSL routes for the above are: eQSL, LoTW and by the Bureau via Manager G4XEX.

JD1, MINAMI TORISHIMA. Take, JG8NQJ, will once again be active as JG8NQJ/JD1 from Marcus Island, Minami Torishima (OC-073, JCG 10007). He will go there starting March 10th or 17th, and be there for 3 months. He is usually there to work on the island's weather station. Activity will be limited to his spare time. Mainly on 17 meters, but will also be on 20/15/12/10/6 meters using CW possibly RTTY), with a Yaesu FT-450 and 50W. QSL via JA8CJY or by the Bureau via JG8NQJ.

JX, JAN MAYEN. Erik, LA2US is QRV as JX2US until the end of March, 2021. Activity is on 160 to 12 meters using CW and FT8 in DXpedition mode. QSL to home call.

OE100, AUSTRIA (Special Event). Members of the Burgenlaendischer Amateur Radio Club will activate the special event callsign OE100BL to celebrate the 100th anniversary of Burgenland [OE4] (Austria's easternmost Province) between now and December 31st. QSL via OE4JHW. Also, look for Tom, OE4EIE, who will activate the special callsigns OE100EIE and OE100VNA to celebrate the anniversary. QSL via LoTW, by the Bureau, eQSL and ClubLog. A special award is available. See QRZ.com for details.

PC19, THE NETHERLANDS (Special Event). Hans, PA7HPH, will activate the special event station PC19HOPE from Vaassen until March 10th, 2021. Activity is to commemorate (not forget) the economic, social problems, and the many people who have died (lost of their loved ones or were left in solitude) as of the result of the pandemic. QSL via PA7HPH, by the Bureau or eQSL.

PJ2, CURACAO. Operators Dan/N1ZZ, Don/AF4Z, Walter/WB5ZGA and Vince/K4JC, active as PJ2T from Curacao (SA-099, WLOTA 0942) in the ARRL DX SSB Contest (Mar 6-7th). QSL PJ2T via W3HMK. Ops will be on the island between Mar 1-5, and active as PJ2/homecall on 160-10 meters using CW, SSB, CW and possibly FT8. QSL PJ2/homecalls via their homecalls.

PJ4, BONAIRE. Marty, W1MD, will be active as PJ4A from the "PJ4G Radio House" on Bonaire (SA-006, WLOTA LH-1279) during ARRL DX SSB Contest (March 6-7th) as a Single-Op/Single-Band (20 or 15m) entry. Outside the contest, Marty will be active as PJ4/W1MD. QSL PJ4A via K4BAI or LoTW. QSL PJ4/W1MD via his home callsign.

RI0, ANTARCTICA (AN-016, WFF RFF-168). Alexey, RX6A, continues to be active as RIOIANT from either the Russian Antarctic Progress (WAP RUS-11) or Vostok (WAP RUS-13) Base Stations until May 30th. Activity will be on 40-15 meters using CW and FT8. QSL via his home callsign.

SQ0, POLAND (Special Event/Correction). Members of the SEDINA Contest Club will activate the special event station SQ0MORSE from Szczecin, Poland, between now and April 30th. Activity is to celebrate the 230th anniversary of the birth of Samuel F.B. Morse. Operations will be on various HF bands. Operators mentioned are Waldemar/SP1DPA, Wies/SP1EG, Krzysztof/SP1MGM, Janek/SQ1PSA and Waldemar/SQ3PMX. QSL via SP1EG, direct or by the Bureau.

SV, GREECE. Nine multi operator special event stations, SX1A, SX2A, SX3A, SX4A, SX5A from Dodecanese, SX6A, SX7A, SX8A, and SX9A from Crete, are QRV in the countdown towards celebrations of the 200th anniversary of the Hellenic War of Independence in 1821. This effort actually goes on until March 24. QSL via operators' instructions.

TM150, FRANCE (Special Event). Nicolas, F4HZS, will be active as TM150PAR from Berlancourt, France, to celebrate the 150th anniversary of the popular uprising of 1871 called Paris Commune (see QRZ.com for more details). Activity on the following days: March 20-21st, April 4th/10-11th/17-18th/24-25th, and May 1-2nd/8-9th/15-16th. QSL via F4HZS, direct or the REF Bureau.

TY, BENIN. Ian, ZS6JSI, has been active recently as ZS6JSI/TY from Parakou about 400km north from capital city. He has been there since late January and is expected to be there for 6 months. Activity recently has been mainly on 20 meters FT8 around 1630-1700z and 2130-2200z. He operates mobile and can be on 80/40/20 meters using SSB and FT8. Equipment is an ICOM IC-718 transceiver with 100 watts into a ZS6BKW directional antenna pointed towards Europe and Africa and a Trap dipole directional towards the Americas. Ian states when time allows to look for him between 6:00pm and 8:00pm local time.

VK9C, COCOS KEELING ISLANDS. Members of the Northern Corridor Radio Group will be active as VK9CE from Cocos Keeling Islands (OC-003) between Mar 16-23. Ops mentioned are Steve/VK6SJ, Wayne/VK6EH, Stu/VK6SSB, Gerald/VK6XI, Chris/VK6LOL, Brian/VK6BMA, Tim/VK6EI, Alex/VK6KCC, John/ VK6NU and Brian/VK6MIT. Activity will be holiday style on 80-10 m (possibly 6m) using CW, SSB and FT8, with two radios and modest antennas. QSL via LoTW, ClubLog or eQSL. Paper QSL via EB7DX. Uploading to eQSL, ClubLog and QRZ.com in real time (pending good enough internet access) and at least daily to LoTW. They state, "Big shout out and thanks to Pedro/EA5GL and Bob/N2OO who also offered to do our Paper QSLs."

YB, INDONESIA. Hans, YB2DX, will once again be active during the CQWW WPX SSB Contest (March 27-28th) as a Single-Op/All-Band entry. QSL via LoTW or direct to his home callsign.

Z8, SOUTH SUDAN. Massimo, IZ0EGB, is once again active as Z81B and working in Juba, South Sudan. Length of stay is unknown. Most of his activity has been on 20 meters SSB. QSL via IZ0EGA, ClubLog, eQSL and LoTW.

ZC4, UK SOV. BASE AREAS ON CYPRUS. Garry, 2M1DHG, is now active as ZC4GR from the Eastern Sovereign Base Area (ESBA) [WW Loc. KM65WC] of Cyprus for the next 2.5 years. Activity is limited as time permits. Operations are mainly on SSB and the Digital modes (new to FT8) using a FT-450 into a Buddipole (40-10m). He does state that he also uses SSTV, PSK31 and WSPR, and suggests to look for him between 1700-1900z a few nights during the week. QSL via EB7DX.

IOTA News...

AS-152. (Update) Members of the Arctic Legends Team (RT9K), plan to be active as RI0Q from **Bolshoj Begichev Island** sometime in March. To achieve their goal to operate from Bolshoj Begichev Island, the team will have to travel 3624 km (by snowmobil 1812 km*2). The latest info indicates: "A snowmobile expedition to Bolshoy Begichev Island will start on March 4, 2021, from the village of Tazovsky. This is the fifth expedition from the cycle "Legends of the Arctic".

As I mentioned last month, let's get on the air and not waste what we have and what we have all studied so hard to earn. Get on the air and work some DX! 73 for now.

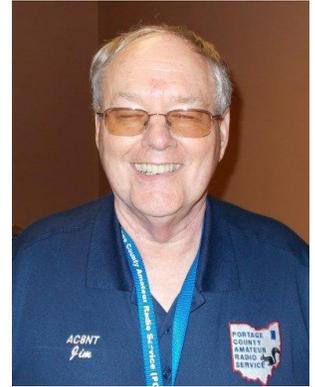


PCARS K8BF

The Club that puts the FUN in Ham Radio!



Jim, AC8NT



Tower Work

A few weeks back we found that both the side lights on the tower had failed. The tower is equipped with a light monitoring system built by TowerSentry that is designed to report these failures to the owner and if necessary, to the FAA for issuance of a NOTAM (Notice to Airmen).

Things didn't work as planned and there is a lesson worth learning. The TowerSentry system notifies support of failures using cellular data sent to headquarters in Lakeland Florida. Periodically it sends an "I am OK message" telling the support staff all is working. Three months ago, it stopped phoning home with the OK messages. TowerSentry sent an email to their contact at FCS indicating a possible failure in the system. The email went to an address that was no longer being checked. The employee associated with the address had left over a year ago. A letter was sent to the address in the AWS database which also went unanswered because FCS was no longer using that address in Kent. FCS is responsible for repair and maintenance of the unit, so the unit went without repair. Without a working system, the failure of lights on the tower went unreported. This is not good. The FAA takes lighting failures very seriously. If the top light goes out it mandates the FAA be notified within 30 minutes of failure. Fines are significant. That is why you have the TowerSentry system. This should be a reminder to everyone that continuity of support is very important. People change and systems must expect these changes.

Work needed to get done to update the systems and get everything back up and running. I asked FCS if I could help and they agreed.



1. The AWS database that shows contact information was updated with FCS's current address and contact information.
2. Tri County Tower was contracted to fix the lights. Jeremy Dombrowski and Dylan Hartzen of Tri County completed this work. Tri County is a great company.
3. I disassembled the TowerSentry system, with FCS's blessing, and returned the boards to Florida for repair and upgrade. The system had been equipped with a 2G modem and 2G is no longer supported in most areas, including ours. It will be returned with a 4G LTE modem. I will reinstall the equipment and get the system recertified when the boards are returned. That is expected to be completed in a week.
4. With Mike Szabo's N8WCP help a review of the antennas and public service equipment was made for a clearer definition of responsibility. This includes insurance coverage and needed support requirements.

This did offer PCARS an opportunity for a little tower work. It was decided, while the lights were being fixed, adding additional antenna pulley mounts to the tower, would allow us to better manage our dipoles and also elevate the 80-meter dipole. Jack N8BI generously supplied the pulley brackets and ropes for the installation. The additional Tri County labor for the installation was covered by a donation. We now have three pulleys for our dipoles. We plan to change the mounting of the dipoles

within the next couple of weeks. This should improve our 80-meter antenna and make our antennas much easier to maintain and change if necessary. Jack and I got to watch the installation and Jeremy and Dylan did a great job.

EchoLink

A new system supporting EchoLink has been installed and is operational. It is based on a Raspberry Pi and the SVXLink software library. There are some neat features to this system that are now available including remote support. This will allow the system to be rebooted and upgraded without going to the club. It also is equipped with a "Watch Dog" timer system that will automatically reboot the system if it "gets stuck". This should significantly increase our EchoLink system's reliability. No more Microsoft updates to worry about.

A complete set of configuration files for SVXLink and operating instructions has been put together. In the next couple of weeks at least two other club members will be trained in supporting this new system. The files and instructions will be added to the PCARS Business System to support continuity of support should new people be need to be trained.

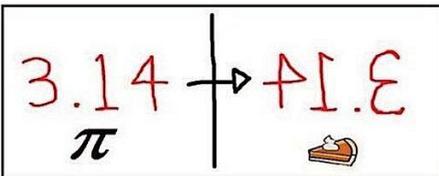


Pi Day - March 14th

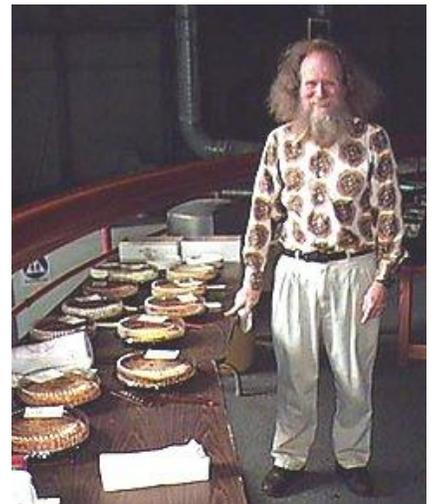
Pi Day is an annual celebration of the mathematical constant π (pi). Pi Day is observed on March 14 (3/14 in the month/day format) since 3, 1, and 4 are the first three significant digits of π . [2][3] In 2009, the United States House of Representatives supported the designation of Pi Day.

History: In 1988, the earliest known official or large-scale celebration of Pi Day was organized by Larry Shaw (photo at right) at the San Francisco Exploratorium, where Shaw worked as a physicist, with staff and public marching around one of its circular spaces, then consuming fruit pies. The Exploratorium continues to hold Pi Day celebrations.

On March 12, 2009, the U.S. House of Representatives passed a non-binding resolution (111 H. Res. 224), recognizing March 14, 2009 as National Pi Day. For Pi Day 2010, Google presented a Google Doodle celebrating the holiday, with the word Google laid over images of circles and pi symbols and for the 30th anniversary in 2018, it was a Dominique Ansel pie with the circumference divided by its diameter.



the holiday, with the word Google laid over images of circles and pi symbols and for the 30th anniversary in 2018, it was a Dominique Ansel pie with the circumference divided by its diameter.



The entire month of March 2014 (3/14) was observed by some as "Pi Month". In the year 2015, March 14 was celebrated as "Super Pi Day". It had special significance, as the date is written as 3/14/15 in month/day/year format. At 9:26:53, the date and time together represented the first 10 digits of π .



Young Ham Lends a Hand Contest



Carole Perry, WB2MGP
Director RCA, Youth Activities



We want to reward a young ham who has volunteered to help an elderly person, a military person, his or her community somehow, or a young ham actively involved with recruiting other young people into ham radio. There's no red tape; it's just me and my RCA Youth Activities evaluating the application forms. You will smile to know that we have had high caliber and terrific young hams who get nominated every year.

I am still accepting nominees for this contest to encourage volunteerism in our young hams. Forms may be submitted up until April 1st. The winner is usually announced at Hamvention Youth Forum. This May I will be announcing the winner through our normal ham radio networks. A \$100 stipend is awarded to the winner.

This is sponsored by RCA and QCWA. Please contact me with any questions. All forms should be submitted to: wb2mgp@gmail.com

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Young Ham Lends a Hand Contest
Carole Perry WB2MGP wb2mgp@gmail.com

Please fill in the following requests for information about your nominee for this year's contest.

Information about your nominee:

Name and call sign

Age

Address

Home Number and Cell number

Please fill in YOUR name, relationship to the candidate and contact info.

Please describe reasons why this nominee is deserving of the award that looks for a young ham who gives back to the community by participating and helping in local events, assisting the elderly, assisting military personnel, or is instrumental in recruitment and/or training of more young hams.

Youth Activities Program

The Youth Activities program is chaired by RCA Director Carole Perry WB2MGP and has Richard Somers, Stan Reubenstein, Gordon West and Charles Kirmuss as committee members.

A major event for the committee is to moderate and to sponsor the annual Dayton Youth Forum where RCA Young Achievers, age 18 and below, give presentations highlighting their technical abilities and enjoyment of radio.

The RCA Young Achiever is a youngster 18 and below who has demonstrated technical excellence and creativity in wireless communications. We are always interested in receiving nominations for these talented young people. Please contact Carole at wb2mgp@gmail.com to nominate someone as a Dayton HamVention presenter or as a student deserving the RCA Young Achiever award.

We are also always interested in supporting schools, scout groups, and museums that incorporate radio/technology in their programs. Support can be in the form of books, equipment, or curriculum. Please contact Carole at wb2mgp@gmail.com for further information.

The Youth Activities members travel across the country to speak at radio conventions, to moderate Youth Forums, and to vet large organizations enlisting our help in motivating and supporting young hams and in introducing wireless technology to school curriculum.

Tax deductible donations specifically to RCA Youth Activities can be made through the Richard G. Somers Youth Scholarship Fund. Please contact Carole at wb2mgp@gmail.com for further information.

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. We also use EchoLink node K8BF**

Don't forget - 4th Thursday is NET NIGHT at the club site - sometimes yes, sometimes no - watch for a QST in your email box for details

The net control dates will be posted on the Club website. An email will be sent out after the posting. As usual if there are issues please contact me via the roadrunner email address. Thanks to all of you for helping out.

March	
4	WB8LCD
11	KD8WCK
18	N8QE
25	KA8TOA

April	
1	
8	
15	
22	
29	

May	
6	
13	
20	
27	

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

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 !

Daylight Saving Time Starts March 14th

SPRING FORWARD
FALL BACK

Yep, Sunday March 14th **Daylight Saving Time** starts. At 0200 local, turn your clocks **ahead** 1 hour.

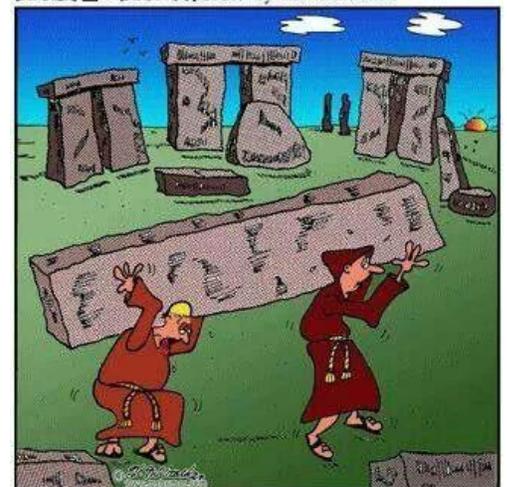
Remember UTC (Zulu, GMT) time does NOT change.

Examples:

March 13th - we are still on **EST** (Eastern Standard Time).
At 0800 EST (8 am for you non-military people) it is 1300 UTC (1 pm) - That is a five hour difference between Ravenna, OH and Greenwich, England.

March 14th - we are now on **DST** (Daylight Saving Time).
At 0800 EDT (Eastern Daylight Time) it is 1200 UTC (noon) - That is a four hour difference between Ravenna, OH and Greenwich, England.

MCHUMOR.COM by T. McCracken



PCARS
www.portcars.org



A Ham Shack by Another Name



John, KD8IDJ
ARRL Ohio Section PIC

I am not kidding that the subject of Amateur Radio for me comes up in the strangest places...this week at the doctor's office!!

For my yearly medical tune-up I wore a short sleeve ARRL branded shirt. So, when the doctor asked what the ARRL is I obliged with the standard ham radio definition about the organization, what it does and about ham radio in general. I also mentioned I had a room in the basement with all of my electronic equipment and it was a great place to relax and talk on the radio. "So you have a NEST then?" the doctor said without batting an eye. I thought for a second what a birdbrain thing to say but I realized he was right...I guess I have been "nesting" between the radios, video screens and wires. No more HAMSHACK...I have a HAMNEST!...minus any eggs to sit on.



The true definition of a nesting is pretty obvious...at least you would think so...but is usually defined for our Avian friends to hatch their young and teach them to eat worms. I found a better definition in the Collins dictionary: **NOUN** ...the tendency to arrange one's immediate surroundings, such as a work station, to create a place where one feels secure, comfortable or in control.

So, I passed the medical exam but had a co-pay for the English lesson. Feel free to call your "room" a nest, a table, a HAMSHACK or a HAMNEST knowing whatever you're doing there is helping Amateur Radio!

By the way, I think the ARRL has a lot of branded merchandise still on sale this month in case you want "live the experience" with me talking about ham radio!!!



Digital Special Interest Group

Rick, K8CAV
Digital SIG Coordinator



The PCARS Digital Special Interest Group will be meeting virtually on **Tuesday March 2nd at 7:00 PM**, and will take place using Zoom.

The link for the first, 45-minute session is:
<https://us05web.zoom.us/j/85722401088?pwd=WUISQ2dVSS91VjdFT0R1QWQ2Vms1UT09>
and for the second, 45-minute session, *if required* is:
<https://us05web.zoom.us/j/83129581903?pwd=U1JBTKYwVDMYtNjacURIWkEzbVZsUT09> .

I'll also send an announcement with the Zoom links out by QST a few days before the meeting. Last month I tried to conduct the meeting on both Zoom and on the K8IV repeater but that turned out to be problematic so this month's meeting will be strictly on Zoom.

This month I'll be doing a presentation on the Generate Scripts and Execute Scripts feature of fldigi. The Scripts feature of fldigi is a very useful tool when you find yourself needing different configurations of fldigi for different radios or sound cards, or for different operating environments. When everything in fldigi is setup to your liking, you generate a script and name it. When going back to that particular radio or environment you simply execute that script and fldigi is now setup with all of the parameters in that script. It's especially handy when you use fldigi with multiple radios and/or soundcards where there can be numerous differences in parameters between radios or sound cards.

Additionally, we're going to talk about how to name each one of the USB Audio CODEC's used with your computer so it is easier to identify and select the one needed for an application.

As always, we'll have time to answer questions or help with problems or issues you may be having with digital communications. I hope to see you there.



PCARS
www.portcars.org



DX & Contest Special Interest Group

Chuck, W8PT
DX & Contest SIG Coordinator



We held our DX/Contesting Special Interest Group Zoom meeting on Tuesday, Feb 23. Twelve members were in attendance and took part in the discussion. Topics covered were the North American QSO Party - RTTY mode contest; the Wisconsin QSO Party; the results of the 2020 California QSO Party and W4DXCC.

When we discussed the Wisconsin QSO Party (which is being held March 14 from 1800 UTC until 0100 UTC March 15), nine of those present indicated that they would be taking part in the contest. Since we cannot yet operate from the club site, we will once again work from our individual QTHs, using our own call signs and making sure that we indicate PCARS membership on our Cabrillo logs. Please go to the Wisconsin QSO Party website to get a copy of the rules.

We discussed the NA QSO Party - RTTY mode and learned that there will be at least four members participating. George, K3GP and Ed, K8IV, will be using the club's call, K8BF, during the contest, working from GEorge's QTH. Two other members, Rick, K8CAV, and Mike, N8WCP, will be working from their own QTHs using their own call signs. Others can also take part by using their own call signs and making sure that they put PCARS (Portage County Amateur Radio Service) down as their club affiliation. As above, please Google NA QSO Party to get a copy of the rules.



W4DXCC is a DX conference held in September of each year in Pidgeon Forge, TN. It's a gathering of approximately 350-400 dedicated DXers who attend this two day conference to discuss DXing and to attend workshops and presentations regarding DXing. Many top notch DXers are present along with several major vendors such as ICOM, YAESU, Kenwood, Heil, SteppIR, Inrad among others. Tom, WB8LCD and I have attended in the past and recommend this to anyone who would like to sit with some of the best DXers in the world and have an in-depth discussion with them regarding any and all aspects of DXing.

Results of the 2020 California QSO Party

The results of last year's CA QSOP are now in and K8BF did well. We only had four ops participating but it seems that we held our own. The Ops were W8KNO, KB8TUY, N8QE and W8PT.

We were placed in the large club non-CA category and in that category, K8BF finished 9th in the US and 1st in Ohio. Overall scoring found K8BF 2nd in Ohio to MRRC (Mad River Radio Club). Since the scorers did not list power levels it is unclear if we finished actually 1st in the overall scoring or 2nd to MRRC. But we will take it!

In any event, with only four ops and working from our own QTHs, we did surprising well.

Individually, the ops finished as follows: W8KNO 7th; W8PT 13th; KB8TUY 24th; and N8QE 29th out of all the operators in the Ohio entries.

I'm hoping that we can get back to operating from our club site for the next CA QSOP and regain our 1st in USA and 1st in Ohio status.

Well done K8BF!!



Shack Shots - Greg KA8TOA

Greg, KA8TOA



Here are some photos of the new antenna and the new ham shack. In earlier articles I thanked everyone who helped me out. The antenna is a 4 band Hy-Gain explorer 14 - 10,15,20 & 40m. Works well sitting on a 30 ft tower. With a Yaesu G-450 rotor.



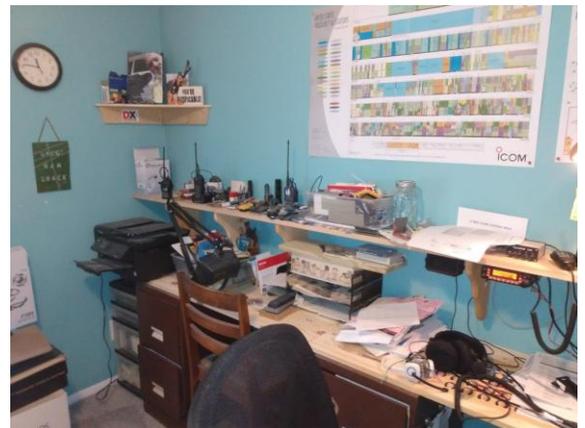
Also in the yard is a vertical Hustler 5-BTV antenna that has been out there for years. I now have an official Antenna farm.

Inside the new shack room is an Icom IC-718 Samlex power supply, MFJ tuner and of course a Yaesu 440/ 2 meter rig and a lot of clutter and HT's. I'm slowly taking care of the clutter. The move was to shorten the cable runs and not going into the crawl space of the attic, getting too old for that.



The antenna photos were taken in October of 2020. Again I would like to thank everyone who helped me out. This project would have not come together without your help.

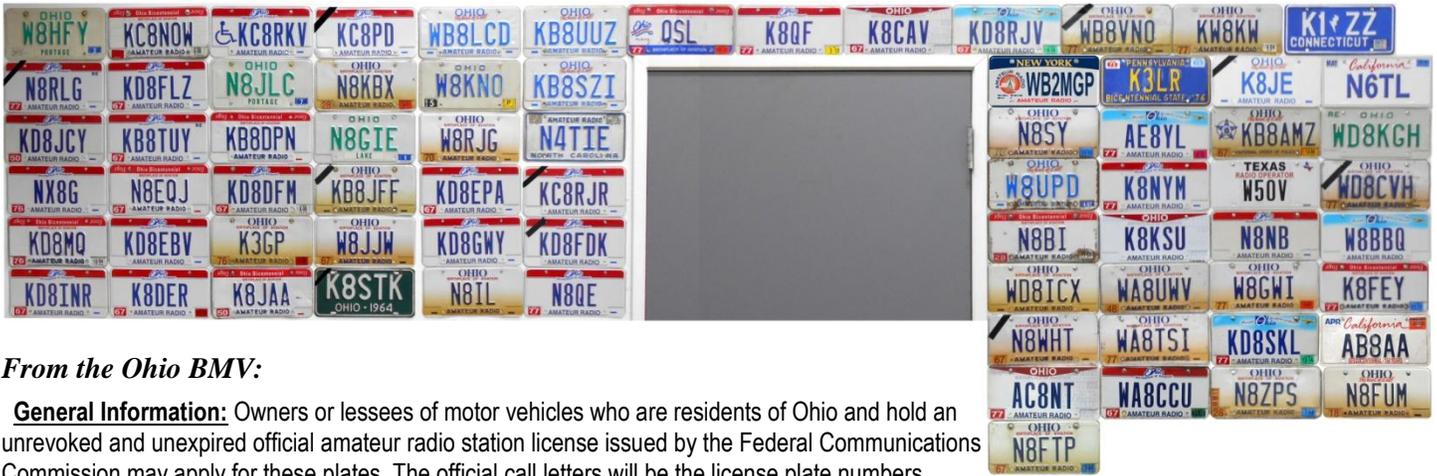
I will post some of these on my QRZ page. I'm looking forward for a good radio year.



PCARS Ham Radio License Plates Wanted !!! PLEASE !!

Dig out that 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 72 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 IO 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.



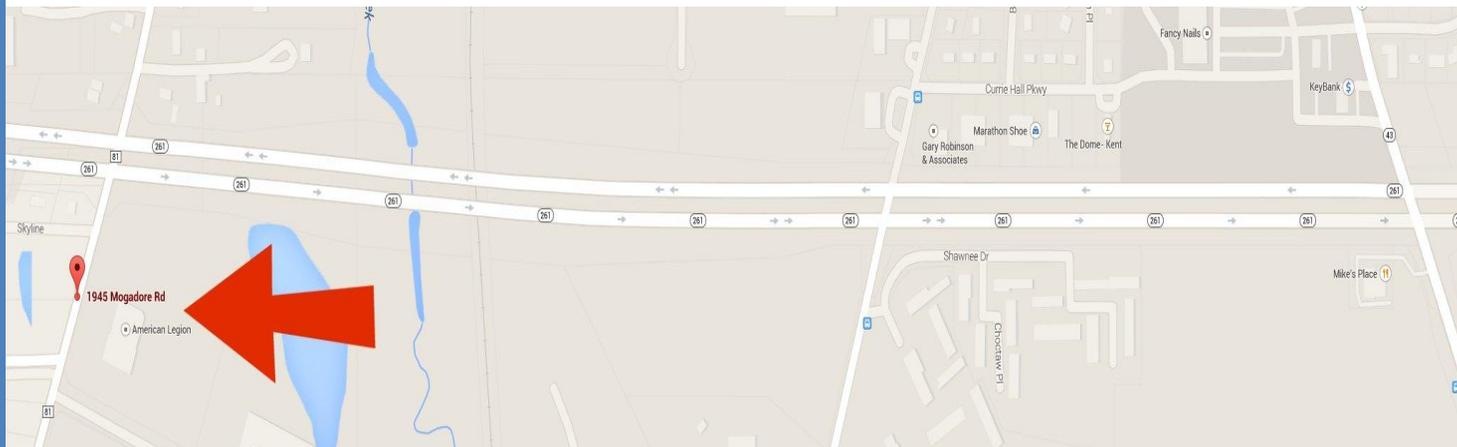
PCARS Meetings

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



CHECK WEBSITE FOR UPDATES ABOUT IN-PERSON MEETINGS

*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.



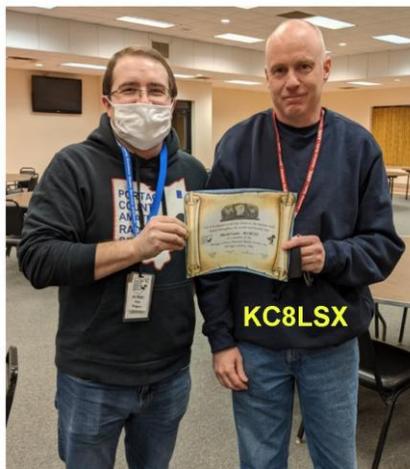
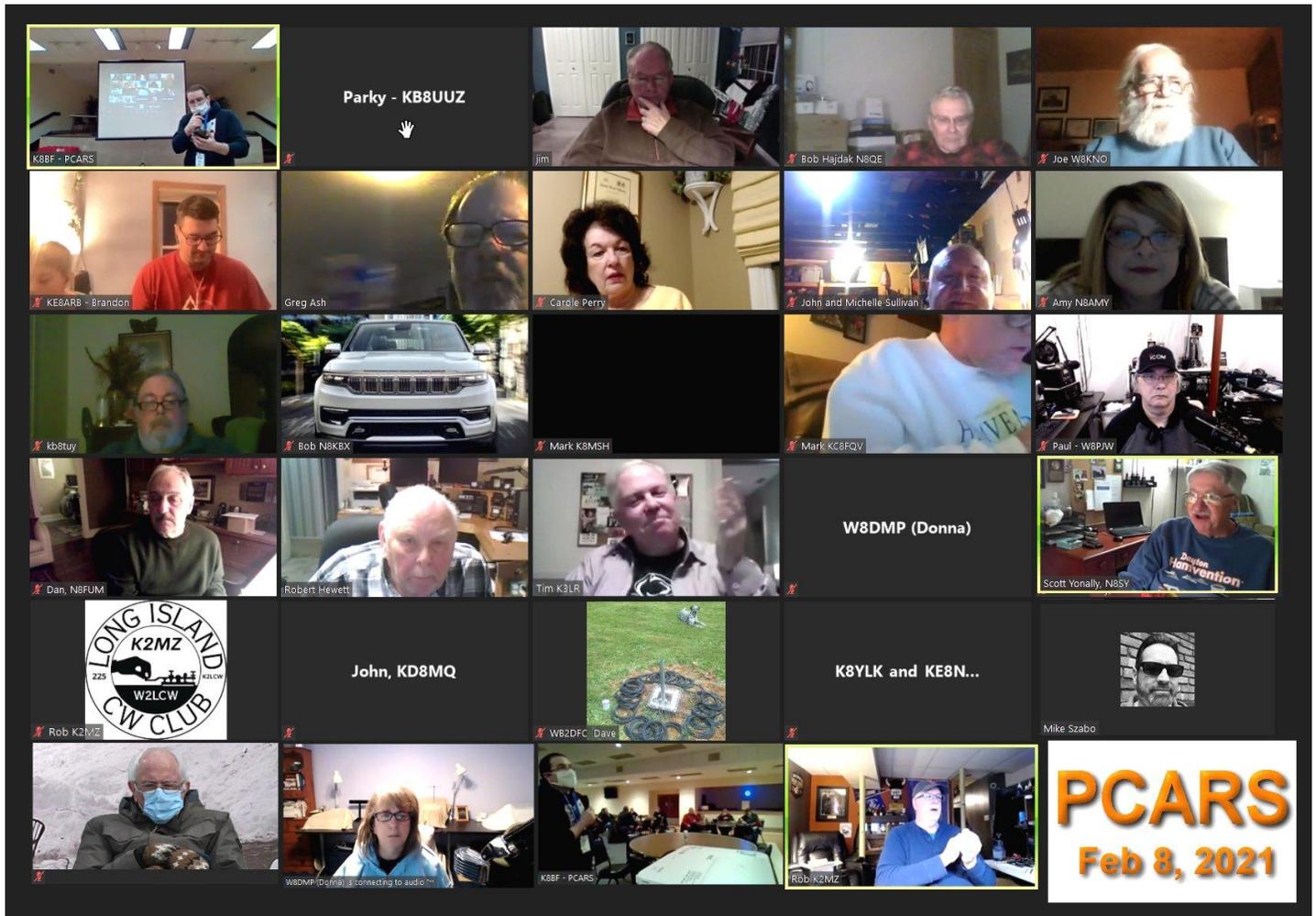
*The picture on the left shows
The American Legion Post 496
as viewed from Mogadore Road.
(looking East)*



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 February Zoom Meeting



Just for Fun

An old lady handed her bank card to the teller and said "I would like to withdraw \$10." The teller told her, "For withdrawals less than \$100, please use the ATM."

The old lady wanted to know why? The teller returned her bank card and irritably told her "These are the rules, please leave if there is no further matter. There is a line of customers behind you."

The old lady remained silent for a few seconds and handed her card back to the teller and said "Please help me withdraw all the money I have." The teller was astonished when she checked the account balance. She nodded her head, leaned down and respectfully told her "You have \$1,300,000 in your account, but the bank doesn't have that much cash currently. Could you make an appointment and come back again tomorrow?"

The old lady then asked how much she could withdraw immediately. The teller told her any amount up to \$3000. "Well please let me have \$3000 now." The teller kindly handed \$3000 very friendly and with a smile. The old lady put \$10 in her purse and asked the teller to deposit \$2,990 back into her account.

The moral of this story is.... Don't be difficult with old people. They have spent a lifetime learning certain skills!

=====

An oldie, but still a goodie!

Everyone can use a little "grammar" update now and then, so here's yours for today...

Is it "complete," "finished," or "completely finished?"

No English dictionary has been able to adequately explain the difference between these two words - "Complete" or "Finished."

In a recent linguistic competition held in London and attended by, supposedly, the best in the world, Samdar Balgobin, a Guyanese man, was the clear winner with a standing ovation which lasted over 5 minutes.

The final question was: 'How do you explain the difference between COMPLETE and FINISHED in a way that is easy to understand? Some people say there is no difference between COMPLETE and FINISHED.'

Here is his astute answer:

"When you marry the right woman, you are COMPLETE. When you marry the wrong woman, you are FINISHED. And when the right one catches you with the wrong one, you are COMPLETELY FINISHED!"

He won a trip around the world and a case of 25 year old Scotch!



Thanks & 73



Parky, KB8UUZ
PCARS Newsletter Editor



I really appreciate the help in gathering material to keep this newsletter number one. Without your help we would not have received the newsletter awards in past years. 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. So chip-in and send your article in to keep this newsletter great for 2021 and beyond. You will see some humor based cartoons and articles about the COVID-19 - Yes, I agree this pandemic is VERY serious to all - but in tough times, you just have to have a bit of humor to get you through - I hope you agree. Hang in there, please.

Please - Be careful out there, wear a mask and practice social distancing. We will get through this if we all work together. **Have a wonderful New Year. I'm looking forward to seeing ALL of you in person - sometime later in 2021.**

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

AC8QG, N8WCP, KE8EGF, WA8EFK, N8SY, WB8LCD, KB8UUZ, K8CAV, WA8AR, KB6NU, AC8NT, W8KNO, WA6IGR, W8PT, WB2MGP, KA8TOA, KD8IDJ, KB8UHN, The ARRL, Weather.gov, and the World-Wide Web

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

From the Editor: You will see some humor based cartoons about the COVID-19. Yes, I agree that this pandemic is VERY serious to all - but in tough times, you just have to have a bit of humor to get you through - I hope you agree. Hang in there, please. We'll all get through this together

2021

1918



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

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

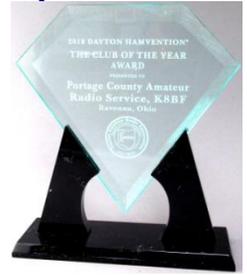


PCARS meets the second Monday of each month at the **Kent American Legion Post 496**,
1945 Mogadore Rd. - just South of Rt. 261 - Enter the rear of the building for the meeting room.

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: **K8BF-L**

Check PCARS out on the web: www.PORTCARS.ORG -or- www.K8BF.ORG



~ 2021 Officers ~	2021 PCARS Appointments & Committees	
President - Nick Wagner - AC8QG Vice President - Mike Szabo - N8WCP Treasurer - Paul Hyland - KE8EGF 3 Year Trustee - Amy Leggiero - N8AMY 2 Year Trustee - John Myers - KD8MQ 1 Year Trustee - Terry Morris - KB8AMZ Past President - Tom Sly - WB8LCD	ARRL Awards - DXCC	W8KNO Joe Wehner
	Club Site Manager/Liaison	K8CAV Rick Kruis
	Contest Coordinator	W8PT Chuck Patellis
	EchoLink & Web Guru	K8SRR Steve Randlett
	Field Day Chairman, 2021	WA8AR Tony Romito
	FYAO Chairman	W8PT Chuck Patellis
	Historian	KB8SZI Peggy Parkinson
	K8BF Callsign Trustee	N8AMY Amy Leggiero
	K8BF QSL Manager	N8AMY Amy Leggiero
	Membership Chairman	AC8NT Jim Wilson
	Net Control Manager	KA8TOA Greg Ash
	Net Night - Club Manager	WB8LCD Tom Sly
	Newsletter Editor	KB8UUZ Tom Parkinson
OSPOTA Chairman	KB8UUZ Tom Parkinson	
~ Meetings & Net ~	Public Information Officer	
2 nd Monday of each month. 7pm Thursday night Club Net at 8 pm on 146.895	Secretary	
	Social Media	N8AMY Amy Leggiero
	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
WA8CCU	Al Nagy
AC8NT	Jim Wilson
KA8TOA	Greg Ash
W8PT	Chuck Patellis
AC8QG	Nick Wagner
N8FUM	Dan Torchia
W8GWI	Dave Seckel
N8AMY	Amy Leggiero



THE RADIOGRAM

PCARS Incorporated
Nov. 1, 2005

First Meeting
Nov. 14, 2005



ARRL Affiliation
April 20, 2006



Special Service Club
March 22, 2010

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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

By attending PCARS in-person activities, you are acknowledging that an inherent risk of exposure to COVID-19 exists in any public place where people are present. By attending PCARS in-person activities, you voluntarily assume all risks related to exposure to COVID-19 and covenant not to sue and agree not to hold the Portage County Amateur Radio Service (PCARS) or any of their directors, officers, contractors, vendors or volunteers liable for any illness or injury. While PCARS implements preventative measures to reduce the spread of COVID-19 in accordance with Federal, State and Local guidelines, we cannot guarantee that attendees will not become infected with COVID-19 as a result of attendance.



NLC



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Ravenna, OH 44266 USA