



The **RADIOGRAM**

When All Else Fails ~ Amateur Radio Works

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

PCARS - the 2018 Hamvention® Club of The Year

July 2019 - Volume 14 Number 7

FIELD DAY 2019 Results



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

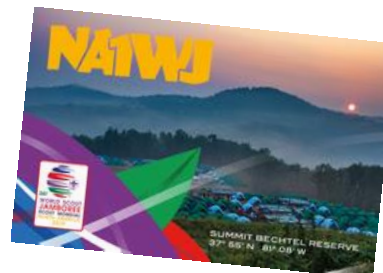
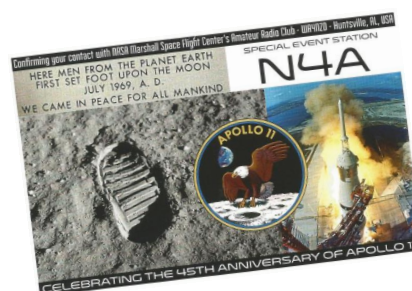


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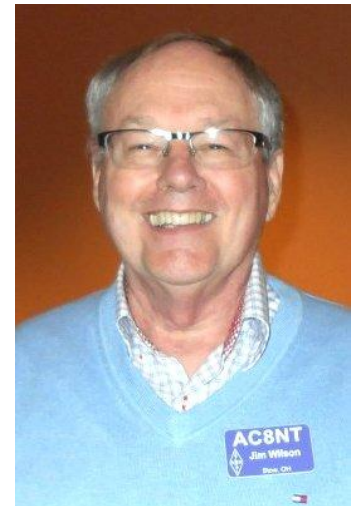
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From the President

Jim, AC8NT
PCARS President



June Meeting

I would like to thank Hal Turley W8HC for his wonderful presentation on DXpeditions. Most of us had no idea the work required to make these events happen. Some fail, but I think every ham appreciates the results of those that work and appreciate the work and dedication of every DXpedition team. These teams deserve our support and appreciation. Thanks again to Hal.

Field Day

Field Day 2019 is now in the history books. As with Field Days in the past every event has been better. This one was no exception. First we need to thank Mother Nature for giving us a beautiful weekend. I think everyone was expecting the worst with tons of rain and maybe storms. We ended up sunshine and relatively dry fields. Setup was amazing. The additional use of falling derricks made all of the antennas go up quickly and SAFELY. We were up easily in time to start the event. This was our first year using FT8 Field Day mode at the VHF and Flex stations. We had a bump or two at the VHF station, but all in all FT8 was a success. Food and fellowship were the best and it can be safely said everyone had a great time. FD 2019 is an event we can be very proud of and will be the foundation of an even better Field Day in 2020.

I would like to thank the Field Day team headed by Tony WA8AR for doing an outstanding job putting together this event. The Field Day team made this happen. It was a solid group effort. Thanks to everyone that helped make this a great weekend.

Fox Hunting resulted in some event development

We had some big fun with fox hunting at Field Day. We had kids that both wanted to find and hide the fox. It was huge fun and resulted in some future activity. Fox Hunting is a natural for scouting programs of all ages and we can use it to create a build day for scout leaders and scouts. We are planning to build more 2 meter tape measure Yagi antennas with the addition of injection attenuators. This will provide scouting groups with the equipment to allow more scouts to share in the fun and introduce some adults to the fun of building radio stuff. It may even result in bringing more into the ham radio fold. As with all build days we will need help to prepare and execute the event. Anyone interested can let me know.

Also please remember that Frank Tompkins, W8EZZT will be our speaker at the July meeting and his topic will be Fox Hunting. He is an expert and the program will be outstanding. Please plan to attend.

Maker Opportunities

Rick, KD8WCK has created a Maker Faire like event scheduled for Saturday July 13 from 9 till 1. It will be held at St. Timothy's Episcopal Church, 8667 Shepard Rd., Macedonia, OH. I plan to represent PCARS using my portable ham station and a number of other exhibits we have used at Maker Faires in the past. Anyone interested in helping, please let me know. These events are a great way to let people know what ham radio is all about. Those who have helped with these type of events in the past know they are a lot of fun.

Remember PCARS will be displaying at the Akron Maker Faire at the Akron Public Library in the main library on Saturday October 12th from noon to 4. We can always use help for this great event.

You may have heard that Maker Faire (the brand) is out of business, but all of the Maker Faires that have been scheduled are going on as planned for this year and I am sure will continue in the future.

Club Work

Work on Bay 3 was not the priority before Field Day. We all agreed on that. Now that FD is in the past, we need to finish the work on this project. Expect to see QSTs coming out asking for help. Again, the bulk of the work is cleanup and painting. This work will result in much needed space for events and especially "Build Days".

From the Vice President

Nick, AC8QG
PCARS Vice President



Wow! Field Day was a blast! I don't know how the points will fall, but I had a ton of fun! The weather was amazing and the food was great! I had a really special run working FT8 with my kids! I am tremendously blessed to share these experiences with my family!

I want to send a huge thank you to all the volunteers who came out and helped! We couldn't do it without you! There was a lot of work that had to be done, but everybody stepped up, worked together, and made it all happen.

Well, now it's time to prepare for upcoming events. Field Day just whet my appetite for more radio! Mark your calendars now for the **Annual Amateur Radio Cruise-In**, August 15, at the A&W in Ravenna. Then we have the **Ohio QSO Party** and our **Open House and BBQ on August 24**. And don't forget that the **Ohio State Parks On The Air** contest (OSPOTA) is September 7.

I hope everyone has a safe and enjoyable Fourth of July! I look forward to seeing all of you at future PCARS events!

Upcoming Monthly Meetings

- July: Frank Tompkins W8EZZT "Finding the Fox — The Art and Science of Amateur Radio Direction Finding"
- August: Jim Wilson AC8NT — Antenna analysis
- September: Ryan Shackelford — Director of the Portage County EMA
- October: Australia Radio Club — Special Skype Presentation from Down Under
- November: Election of officers and Center of Hope fundraiser
- December: Christmas social

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



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



Schedule of Events

On the calendar for upcoming meetings and activities are:



- July 1st - Board Meeting at the club site - 7 pm
- July 8th - PCARS Meeting at the American Legion in Kent - 7 pm
- July 20th 21st - NA QSO Party RTTY at the club site
- July 25th - Net Night at the Club Site
- August 3rd - VE Testing at the Club Site - Starts at 10 am
- August 5th - Board Meeting at the club site - 7 pm
- August 12th - PCARS Meeting at the American Legion in Kent - 7 pm
- August 15th - 10th Annual Mobile Cruise-In at the Ravenna A&W
- August 24th - Ohio QSO Party - OPEN HOUSE & BBQ at club site
- September 14th - Tour of the K8JYL old Radio Museum in Jackson Township

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

- First Tuesday - **Digital** - Moderator: Rick, K8CAV
- Second Tuesday - **QRP/CW** - Moderator: Terry, KB8AMZ
- Third Tuesday - **Antenna** - Moderator: Tony, WA8AR
- Fourth Tuesday - **DX & Contest** - Moderator: Chuck, W8PT
- Fifth Tuesday - **Linux for Hams** - Moderator: Terry, KB8AMZ
- Fourth Thursday - **Net Night at the club site - 6:30 pm**



Happy Birthday PCARS Members

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

N8FTP	Larry	Cole
AC8QG	Nick	Wagner
KE8IED	Ian	Warring
W8PT	Chuck	Patellis
W3CDG	Cory	Gibson
KD8EPA	Dan	Porcase
KD8MOF	James	Harbert
KE8IEC	Willie	Watts, Jr.
AB8IE	Westy	Westover
N8QZ	Paul	Mitchell

G0BPS	Dick	Pascoe
W8KUZ	Jim	Kuzman
N2KWW	James	Harbert
AK8U	Wayne	Schaefer
WB9LBI	Bill	Fraedrich
N8HUC	Karen	Andrews
KE8LWN	Dennis	Daniels
N4PKW	Rod	Thompson
KE8HTL	Mark	Woessner
KE8GBL	Marla	DiGiammarino

Field Day 2019

Tony, WA8AR
Field Day Chairman



Well, mother nature did not cooperate with Antenna Day. The past rains had made the site *way* too soggy for us to be on. We did not want to risk putting big divots in the ground, plus the chance of more thunderstorms were predicted for June 1st.

So - it was **ON TO FIELD DAY - June 22, 23** - The weather was perfect! The grassy areas were soggy in a few places, but we did not have any problems. It was Sunny and clear for both Saturday and Sunday. The Station Set up crew was a great help in getting all of the stations up and ready to go. James, KD8VT supplied the generator system that kept everything running without a problem all weekend. Saturday's dinner was catered in and there was plenty for all to eat. Lots of snacks for munching late into the evening as well. Sunday we ran right up until the end of Field Day and then immediately went into tear down mode. Again, the antenna crews got everything safely taken apart and when we left the park area, it was clean as a whistle. You would never have known we were there for over 30 hours.

Thanks goes out to ALL that helps with Field Day 2019 - your help was VERY much appreciated by all.

FIELD DAY 2019 CREW			
Field Day Chairman	Tony WA8AR	CW Station Captain	George K3GP
Field Day Co-Chairman	Mike KB8TUY	Flex Station Captain	Rick K8CAV
Safety Officer	Karen N8HUC	VHF Station Captain	Mike KB8TUY
Public Info. & Social Media	Tom WB8LCD	20 Meter Station Captains	Tom WB8LCD/Chuck W8PT
On-Site PIO & Media Table	Tom KB8UUZ	40 Meter Station Captain	Ed K8IV
Antenna Crew Chief	Tony WA8AR	GOTA Station Captain	Jim AC8NT
Traffic Messages	Bill WB9LBI	Power Team Captain	James KD8VT
IT Managers	Steve K8SRR	Food Service Captain	Ed K8IV
	Zeb KD8WZS	Educational Program	Jim AC8NT
Satellite Coordinator	Jim AC8NT	ARRL Bulletin	Rick K8CAV
News Paper Info Coordinator	Nick AC8QG	Finance Chairman	Paul KE8EGF



Field Day 2019 - Loggers/Operators

Parky, KB8UUZ



PCARS Field Day 2019 is History.

The totals are not all verified yet and if there are adjustments I will publish them in the next month's issue of The RADIOGRAM.

We set up in the Freedom Township Park located at the corner of State Route 700 and Streeter Road. This was our fourth year at this location.

Following a **VERY** soggy two or three weeks of rain here in NE Ohio on Saturday, the annual **PCARS Field Day Fun** commenced.

Everyone pitched in. It was a great Team Effort! Almost all of the stations were on the air at the start of Field Day.

There was also a VE testing session at 4 pm, and we had one person earn their General Class upgrade!

Dinner was on Saturday and we had it catered as we did last year. There was plenty of good food and if you went away hungry, it was your own fault. Everyone had plenty to eat and there were also a ton of snacks to keep the late shift running with no problems. On Sunday there was a great pancake breakfast.

1st Contact was logged at 1800 UTC on June 22nd by the **20 Meter Phone Station** to W5MWL in OK.

3565th Contact was logged at 1759 UTC on June 23rd by the **40 Meter Phone Station** to N2JF in NNY.

Total Contacts by Loggers / Operators

Logger	#
K8IV	559
W8PT	451
KD8DFL	326
N8XTH	321
K3GP	275
WB9LBI	191
K8RR	148
N8NB	130
K8KSU	128
K8SRR	123
KE8JFP	117
KD8SKL	93
WB8LCD	81
W8KNO	73
N8GIE	71

Logger	#
KB8AMZ	70
N8QE	65
N8WCP	61
W8AHC	37
KA8TOA	35
N8QZ	34
W8NET	34
KD8WCK	29
KE8BWA	29
W8BBQ	22
K8CAV	21
AC8QG	20
KE8EGF	8
KE8JUJ	7
KB8TUY	2

Operator	#
KD8DFL	382
N8GIE	354
K8IV	331
N8XTH	321
K8KSU	302
K3GP	275
WB9LBI	191
N8QE	170
W8PT	155
K8RR	148
N8NB	130
K8SRR	121
KD8SKL	115
W8KNO	73
KB8AMZ	70

Operator	#
N8WCP	61
KE8JUJ	47
WB8LCD	38
KA8TOA	35
N8QZ	35
W8NET	34
W8AHC	33
KD8WCK	29
KE8BWA	29
K8CAV	22
W8BBQ	22
AC8QG	20
KE8EGF	13
KB8TUY	5



Field Day 2018 - PCARS Preliminary Results

Parky, KB8UUZ

This issue of **The RADIOGRAM** has the preliminary results. I'm still double checking everything prior to submitting our information to the ARRL. Also included are number of Field Day related articles.

Photos - **WOW**, do we have a **TON** of photos from PCARS Field Day. The count is up over 200. Needless to say - you're not going to see all the pictures in the newsletter - there are some of them here, but there are more. We just don't have room for all of them. It would make the newsletter **way** too big to email. So, there are two other places you can go on the web and see the PCARS 2019 Field Day pictures.

John, KD8MQ posted all of the picture on the PCARS web site. You can see ALL of the pictures under the tab about Field Day at: http://www.portcars.org/wp/?page_id=7388.

Another place to see the PCARS Field Day pictures - along with pictures from other clubs around Ohio, is to visit the **Ohio Section** web site. Our ARRL Ohio Section Manager Scott, N8SY posted pictures that he received - and **YES**, I sent him all I have. **Thank you Scott!!**

Go to: <http://arrl-ohio.org/fd-19/>



PCARS FIELD DAY 2019



Portage County Amateur Radio Service - Field Day 2018

Call Used: **K8BF**

ARRL/RAC Section: **OH**

Class: **4A**

Participants: **98**

Power Source(s): **Generator, Battery, Solar** Power Multiplier: **2X**

Score Submitted: 9,288 + Bonus 1,710 = 10,998

Score Summary:

	CW	Digital	Phone	Total	
Total QSOs	791	292	2,478	3,561	
Total Points	1,582	584	2,478	4,644	X2 = Claimed Score = 9,288

Bonus Points:

Description	Points
100% Emergency power	400
Media Publicity	100
Set up in a Public Place	100
Information Booth	100
NTS message to ARRL SM/SEC	100
W1AW Field Day Message	100
Formal NTS messages handled - No.=11	100
Natural power QSOs completed	100

Description	Points
Site Visit by invited elected official	100
Site Visit by invited served agency official	100
Educational activity	100
Youth Element Achieved	60
Submitted via the Web	50
Social Media	100
Safety Officer	100
Total Bonus Points	1,710

Band/Mode QSO Breakdown:

	CW		Digital		Phone		
	QSOs	Pwr(W)	QSOs	Pwr(W)	QSOs	Pwr(W)	
80m	149	100	53	100	202	100	
40m	482	100	66	100	1,569	100	
20m	151	100	131	100	698	100	
15m	9	100	0	100	-	100	
6m	-	100	42	100	9	100	
Total	791		292		2,478		3,561

First Contact was logged at 1800 UTC on June 22nd by the **20 Meter Phone Station** to W5MWL in OK.
3565th Contact was logged at 1759 UTC on June 23rd by the **40 Meter Phone Station** to N2JF in NNY.

Station Totals:

Station	QSO's
40M	1,569
CW	762
20M	698

Station	QSO's
Flex	481
VHF	51

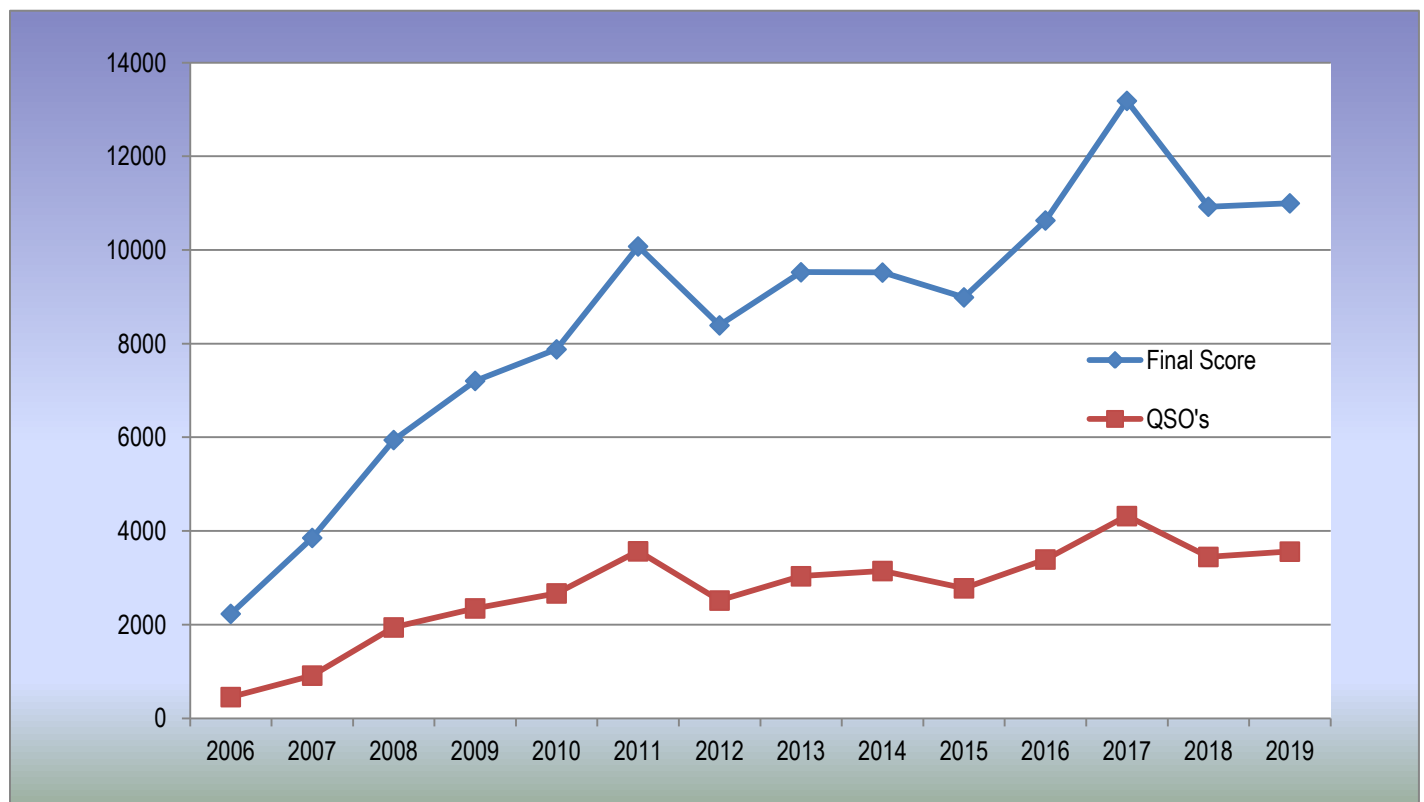


Past Field Day Comparisons

PCARS	Final QSOs	Final Score
2019 - K8BF	3,561	10,998
2018 - K8BF	3,448	10,926
2017 - K8BF	4,320	13,186
2016 - K8BF	3,393	10,632
2015 - K8BF	2,778	8,990
2014 - K8BF	3,147	9,520
2013 - K8BF	3,035	9,526
2012 - K8BF	2,517	8,392
2011 - K8BF	3,568	10,078
2010 - K8BF	2,669	7,880
2009 - KD8CKP	2,349	7,206
2008 - KD8CKP	1,942	5,944
2007 - KD8CKP	914	3,854
2006 - KD8CKP	455	2,232
14 Year Totals	38,096	119,364



14 Year Average: QSOs = 2,721 Score = 8,526



PCARS Field Day Final Scores and QSOs - 2006 through 2019

Field Day 2019 - A Very Flexy Field Day

Rick, K8CAV
Flex Station Captain



The woes of more rain and a lake at the Freedom Township Park turned out to be false. For once, the forecast up until a day out from Field Day turned out to be wrong! Saturday and Sunday were sunny with reasonable temperatures and a nice breeze! Granted it was chilly Saturday evening and Sunday morning but a sweatshirt or jacket cured that problem. The field at the park was still kind of mucky but some last-minute changes in procedures to raise the masts kept vehicles off of the field and worked quite well!

Mike, KD8FLZ and I arrived on the site at 8:30 AM to get the trailer leveled and unloaded, and to lay out where everything for where the antenna system was to go. At 10:00 AM Tony, WA8AR conducted a safety briefing and shortly after that we started working on the antenna system. With the help of a GREAT antenna crew, everything was up in the air and ready to go by 11:30.

Radios, computers, and all manner of accoutrements were unloaded, stowed in their proper positions and connected. A check of antennas at Flex showed a problem with the 40m inverted V. Despite some troubleshooting and ultimately letting the smoke out of my SGC MAC-200 tuner, the issue was unable to be resolved. After replacing the MAC-200 with an LDG PROII, we found that we could tune the 80m inverted V on 40m very well so operations on 40m were not hindered.

Operations at Flex started promptly at 2:00 PM on 20m with digital using FT8 in the Field Day contest mode. Last year we had major issues with procedures on FT8 (there was no 'contest' mode at that time) which lead us to abandon it rather early. This year, we found the contest mode of FT8 to work quite well both calling CQ and answering CQ. We checked both 10m and 15m for activity and found that with some limited activity on 15m there wasn't much to be had so we concentrated on 20m. Early evening saw two hours of CW activity with a switch back to FT8 after that. Other digital activity was also worked on PSK-31 using fldigi. At midnight Phone operations started with Deron, NX8TH bringing his IC-7610 and a laptop which resulted in making a bit over 200 Q's in a four hour period! Technology is wonderful! At 4:00 AM operations moved back to digital and remained in that mode throughout the remainder of Field Day.

The results were impressive. For Phone, CW, and Digital we surpassed last year's result. I was especially happy to see the much greater success we had in digital operations this year.

None of this would have been remotely possible without the efforts of the people involved with Flex! Everyone who operated at the Flex station worked hard to knock out as many Q's as they could to help the effort, and I hope, had a great time while doing it. Thanks to Jim AC8NT, Steve K8SRR and his son Jaden, Amy KD8SKL, Wayne K8FF, Terry KB8AMZ, Deron N8XTH, Rick KD8WCK, Mara KE8KBJ, Andrew KE8BWA, Gene W8NET and his son John, Mike N8WCP, Nick AC8QG, Ben KE8JUZ, Bernadette KE8LWO, and Agnus KE8LWP. I really appreciate all the effort you all put in to make Flex a great operation this year.

I'd also like to thank the supporting cast for PCARS Field Day without which things would have been more difficult. The Antenna crew, Power team, Food Team, Safety team, Public Affairs, and everyone else involved did a superb job!

Last but definitely not least, thanks to Tony, WA8AR our Field Day Chairman for a Herculean effort in planning and executing a great **PCARS, K8BF BIG FUN Field Day**.

Field Day 2019 - CW Operations Summary

George, K3GP
CW Station Captain



Many thanks to the dedicated CW operators who contributed 791 CW contacts to our field day effort this year: KB8AMZ, W8BBQ, K3GP, WB9LBI, N8NB and K8RR

This year raising (and later lowering) of the antenna mast at the CW trailer was greatly simplified using the falling derrick method engineered by Rick, K8CAV, along with the help of a ground crew that braved a very soggy field. My appreciation goes out to all those that helped.

Aside from a slightly delayed start due to a minor computer configuration glitch, we had someone “in the seat” for the entire duration – delivery of meals (and snacks) to the operators was a big plus.

We plan to address some minor problems we encountered this year to improve CW results in 2020!



CTU 2019 Presentations Available On-Line

Tim, K3LR



Dayton 2019 Contest University - Go to <http://contestuniversity.com> and click on Videos to watch the following presentations that were at the 2019 Contest University in Dayton, Ohio

Radio Contesting - Contesting with Integrity - K5ZD

Session 1 - **2BSIQ & SO3R Riding the Edge of Human Capabilities**, N6MJ

Session 2 - **No Compromise Remote Contesting** - KL9A

Session 3 - **Solar Cycle Impacts on Radio Propagation: Forecasting Cycle 25** - WX6SWW

Session 4 - **Eyeball Sprint Contest** - K1DG

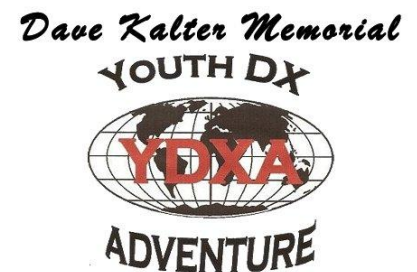
Session 5 - **Contest Station Optimization** - K3LR

Session 6 - **Waterfalls, Recordings, and Reverse Beacon Network** - N6TV

Session 7 - **Improving your Contest Scores** - K5ZD

Session 8 - **Contest Radio Comparisons & Hybrid Architecture Explained** - NC0B

Youth DX Adventure - On Air July 14-18



The Dave Kalter Youth DX Adventure is returning to the PJ2T Contest Station in Curacao again this year.

Thanks to our host Uli - DL8OBQ and the Caribbean Contesting Consortium we will be live beginning late **July 14-18, 2019.**

Once again, we have applied for the PJ2Y special call sign that we had last year.

This year's youth team includes a veteran of the 2017 team (due to an emergency fill) of Bryant Rascoll, KG5HVO so look for some great CW contacts. Also, on the team is Audrey McElroy, KM4BUN and her brother Jack, KM4ZIA.

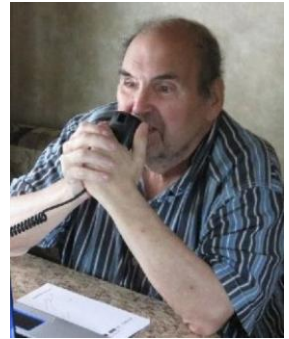
Depending on conditions we plan to be on all bands and modes, SSB, CW, FT8 and possibly some satellites.

Watch our website www.qsl.net/n6jrl for updates while on site.



HF Interference with U-Verse

Chuck, K8BBE



Operating HF without interference on U-Verse TV

Our family recently ordered a U-Verse package consisting of internet, telephone, and television. The XYL wanted a connection for television in the bedroom and living room.



A few days later, the U-Verse installer came out and placed two runs of RG-6 U coax to both locations. The internet box was placed in the living room and the television recording box was installed in the bed room. The living room television went wireless to permit relocation of the box to other locations. Since the cabled TV box required the router box to work, a splitter was installed at the demark point coming from the telephone pole.

Installation was completed by the installer. Everything worked as expected EXCEPT when I would get on any HF bands running any power, the television picture would freeze up and recording television programs were impossible.

Different engineers were commissioned to rectify the interference. It was decided that the lines from the street had not been grounded properly. A grounding process ensued but the interference was not rectified. After several attempts at fixing the interference issue, the original issue was not being addressed. Their last visit, I was told with authority that U-Verse and Ham Radio are just not compatible.

This "conclusion" was just not acceptable to me.

Placing the transceiver on 20 meters CW, running about 20 watts, I decided to reach a different conclusion from the U-Verse engineers. With the keyer sending test messages, I checked for overload on all three coax connections. The telephone line, from the street, was clean - nothing but the data noise from U-Verse. Monitoring at the router end, the U-Verse signal was blocked and hash was on the cable. The same interference happened on the TV box as well.

Hmm!!! Before the splitter, the signal was clean, but after it was split, the splitter was overloading the cable boxes. The splitter failed whether a ground was used or not.

I began to research on the installation itself; I removed the splitter and ran the signal directly to the router. Hmm!!!! Transmitter on the air, internet stayed up. I decided to move the wireless box to the bedroom using WYFI then ran an Ethernet cable from the router box to the cable box from the bedroom. The TVs were turned on in both places and tested. Both sets worked great with no internet outages.

I made a final test using 500 watts and the U-Verse signal ran clean with no interference.

My conclusion to the interference problem is that the special splitter picked up RF from my transmitter. I found that the splitter is actually not needed since the conversion is now being done via the ethernet port on the data router. The WYFI unit is connected on internet port 2 and sent to the wireless box now in the bedroom. All units communicate to each other as originally designed.

My XYL is now happy since she can record and watch programs and I can continue to work DX again.

PCARS Custom Coffee Cups - Limited Edition

PCARS has obtained a 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 in person 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.

There are a limited number of extra coffee cups and they will be for sale at \$5.00 each - **Again, see Paul for all of the details.**



Portage County Amateur Radio Service



2018 Hamvention® Club of the Year

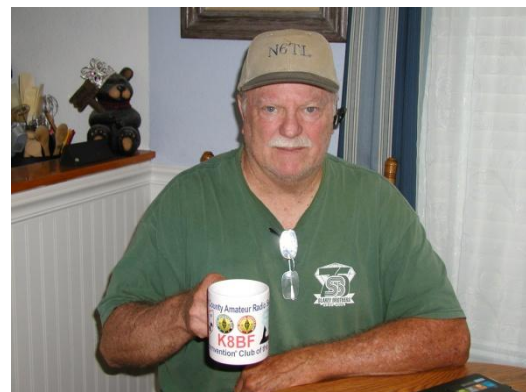
MMMM - MMMMM - GOOD To The Last Drop
It all tastes better with a PCARS cup !



Jim, AC8NT



JC, KC3JXQ



Randy, N6TL

Photos from Hamvention® 2019

Thanks to those that sent in photos taken at Hamvention 2019®.
If you were not there - you should have been ! Start making plans NOW to
attend the 2020 Hamvention®.





PCARS VE Test Sessions

Tom, KB8UUZ
PCARS VE Team Liaison

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

August 3rd, October 5th, December 7th

What to Bring to the Testing Session

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

These documents may include:

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

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

Any Questions? Contact: KB8UUZ@gmail.com



PCARS Group IO

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

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

Two things every member should do.

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



You've Got Mail



There are still a number of PCARS people out there that have not updated their e-mail address.....

Well, this is embarrassing...



Of course then the officers hear from them saying “**Hey - how come I am not getting Club E-Mails?**” Well, if you had your correct e-mail address on file - you would get all of the **important information** that is sent out to PCARS members.

Soooooooooooooooooooo - check your listing on the PCARS web site under the “**MEMBERS**” tab - sign in by clicking the “**Member Site Login**” to get access to the latest and greatest member list.

Yes, there is a login name and a password, and you got that when you joined PCARS.... Can't remember it? Ask Gene, W8NET to send you the information.

If you need to make any changes or questions about signing in to the member section on the PCARS web site - send an email to the club Secretary and 'List Master': **Gene Marsh, W8NET at: W8NET@ME.COM**

While you're looking at your e-mail address on file - double check you City, State and Ham Radio License Class on the list. If any corrections are needed - please send the information to Gene Marsh, PCARS Secretary.

Contest Calendar

July Contest Calendar	
Contest Name	Times
RAC Canada Day Contest	0000Z-2359Z, Jul 1
IARU HF World Championship	1200Z, Jul 13 to 1200Z, Jul 14
CQ Worldwide VHF Contest	1800Z, Jul 20 to 2100Z, Jul 21
North American QSO Party, RTTY	1800Z, Jul 20 to 0559Z, Jul 21
RSGB IOTA Contest	1200Z, Jul 27 to 1200Z, Jul 28

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

Contests that will be active at the PCARS Club Site in 2019	
Date	Contest
Jul 20-21	NA QSO Party RTTY
Aug 24-25	Ohio BB-QSO Party
Oct 5-6	California QSO Party
Oct 12-13	Arizona QSO Party



DX Calendar for July

[illegible]

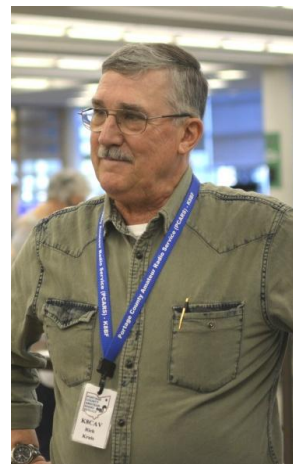
Headwaters Adventure Race Volunteers Needed

Rick, K8CAV

Portage County Coms Unit Commander

I still need volunteers to help provide communications for the Headwaters Adventure Race. This event takes place on **Saturday July 13th** in the Mantua and Hiram Township area. This event typically finishes around 1:00 PM so you'll still have plenty of Saturday left for other fun things.

Due to the heavy rainfall this year and attendant high water levels on the river there may be some modifications to this event. All volunteers will receive an OPLAN outlining the event and individual responsibilities a week before the event, and we will hold an on-the-air briefing on Tuesday July 9th at 7:00 PM on the K8IV repeater to cover the plan and any last minute changes. If you'd like to volunteer please send me an e-mail at k8cav.coms@gmail.com. Thanks!



PCARS Patches & Stickers



New PCARS logo patches (*iron on*) & stickers (stick on) are now available!!

Put the patch on your hat, your shirt, your jacket and show off that PCARS logo!! The patch is about 3".

The embroidery on the white patch is in Red, Black and Blue. Cost for a

patch is only \$2.00 each and can be obtained



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



Heading for a Grand Solar Minimum



This article in Nature forecasts that we're approaching a grand solar minimum -- similar to Maunder Minimum -- starting in 2020 and lasting for three solar cycles. I hope these scientists are wrong...

"Oscillations of the baseline of solar magnetic field and solar irradiance on a millennial timescale"
www.nature.com/articles/s41598-019-45584-3

An international panel of experts coordinated by the NOAA and NASA released its preliminary solar cycle 25 forecast in April, 2019 forecasting that cycle 25 will peak between 2023 and 2026 with a sunspot number between 95 and 130.

I hate forecasts, especially about the future...

Hamfest Calendar

07/13/19 - The Wattsburg Wireless Association will hold the 18th Annual Northwest PA Hamfest beginning 7:30 a.m. at the Greene Township Municipal Building, 9333 Tate Road. Email: hamfest@wattsburg-wireless.us . Website: www.wattsburg-wireless.us. VE exams.

07/20/19 - The Northern Ohio Amateur Radio Society will hold **NOARFEST** from 8 a.m. to noon at Lorain County Community College-John A. Spitzer Conference Center, 1005 N. Abbe Road. Contact: Carl Rimmer, W8KRF, (216) 256-9624 (before 9 p.m.). Email: noarsfest@noars.net Website: www.noars.net . Talk-in 146.70- (PL 110.9).

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

08/10/19 - DX Engineering Hamfest with Free Flea Market

Saturday, August 10 - 9 am to Noon inside the Summit Racing Retail Super Store - 8 am to Noon, Free Flea Market in Summit Racing's North Parking Lot - 1200 Southeast Ave., Tallmadge, OH 44278. Featuring a **free** flea market, giveaways, special discounts, a Go-Kit contest, and satellite operation demonstrations. The event will take place in DX Engineering's showroom inside the Summit Racing Retail Super Store in Tallmadge, Ohio near Akron from 9 am to noon. The free flea market will run from 8 am to noon in Summit Racing's paved North parking lot. Ham Radio enthusiasts can meet and mingle with colleagues from the region, sample the latest Amateur Radio gear, and get their technical questions answered by DX Engineering's team of Elmers. Enjoy refreshments and these activities:

- * Expert demonstrations on how to contact Amateur Radio satellites. Get your questions answered from an experienced satellite operator.
- * Enter to win an ICOM IC-9700 VHF/UHF/1.2 GHz Transceiver.**
- * A \$100 DX Engineering Gift Card will be awarded to the club or individual who brings in the best functional Emergency Go-Kit. Please bring Go-Kits to the DX Engineering Showroom for judging.
- * Big discounts on open-box Amateur Radio equipment.
- * Save with Hamfest Specials on Amateur Radio gear from top manufacturers.

Talk with ARRL representatives who will be hosting a booth at the Hamfest. Amateur operators are encouraged to check in to the N8DXE Repeater at 146.985 MHz - no PL tone. Questions? Contact DXEngineering@DXEngineering.com . This is a family event for Amateur Radio enthusiasts. Appropriate behavior and acceptable Flea Market wares, please. **No purchase necessary. Drawing will be August 10 at Noon. Must be present to win.

DXE HAMFEST!	
SATURDAY, AUGUST 10	Expert satellite demos
9am - Noon DX Engineering Showroom	Open-box gear savings and Hamfest Specials
8am - Noon FREE Flea Market, North Parking Lot	Enter to win an ICOM IC-9700 Transceiver
  ARRL Sanctioned Event	Chance to win \$100 DXE Gift Card

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

PCARS	
ARRL Volunteer Examiners: serving the Amateur Radio community	
First Saturdays 10:00 am at the club site in Ravenna	
February, April, June, August, October, December	

LOL in the Age of the Telegraph



Lauren Collister
Electronics Publications Associate
University of Pittsburgh



From “LOL” to “BRB,” the internet and text messaging gave rise to a unique form of short form language – “textspeak” – in which almost all of us are well-versed. But long before the internet revolutionized communication, humans experienced a different sort of technological innovation: the telegraph.

In 1837, the first commercial telegraphs were released by Samuel Morse, William Fothergill Cooke and Charles Wheatstone, and this machine – as journalist Tom Standage argues in his book *The Victorian Internet* – mirrored the impact that the internet has had in modern times. The result was an entirely new way to wield language – one that, in a number of ways, resembles today’s textspeak.

Communicating at speeds unheard of

An 1809 drawing of the electric telegraph.
Wikimedia Commons

Using electricity, the telegraph could communicate quickly over long distances – at speeds unheard of. Soon it was developed for both government and commercial use. And because we were suddenly able to transmit interactions over large distances, new types of language were created to fit the medium.

There were several ways to communicate over these distances, including moving bars up and down or connecting one wire to each letter of the alphabet. One of the forms of communication developed for the telegraph that’s still familiar today is Morse code, which used sequences of dots and dashes (or dits and dahs) to represent letters and numbers. More than just a cipher, Morse code had its own short forms and abbreviations to make messages as concise as possible; in this way, it’s an early predecessor to today’s textspeak.



Message and data rates may apply

THE TELEGRAPHIC CODEX. IN FOUR PARTS.

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**The index of a Morse code
guide from 1879.**

<http://www.jmcvey.net>
own lingo for their personal messages.

Telegrams were written communications in Morse code sent over a wire (or, later, radio waves) across great distances, which were then translated into written English for the recipients. But if you wanted to send a telegram, companies like the Electric Telegraph Company and Western Union charged by the word, with messages of 10 words costing as much as 10 cents (or \$2 in today’s money) – significantly more than current standard texting rates!

So as you can imagine – just like with modern character-constrained mediums like Twitter – people developed short forms to get their message across in as little space (and, consequently, for as little money) as possible. Numerous guides to the telegraphic codes were published. Many of these shortenings look familiar even to us today. Take one account from an 1890 New York Times article, which was uncovered by the blog Sunday Magazine. The article details telegrams sent between two telegraph operators who had never met each other, but had developed their

You can see a short form “Hw r u ts mng?” which can be parsed as “How are you this morning?” It looks a little bit like a long text message today, or a heavily truncated tweet from one person to another.

Some codes from this era remain with us today, including the distress call SOS, which was first introduced in 1905 as part of German government radio regulations.

Throughout its history, Morse code has undergone its own evolution as different people started to use it for different purposes. In a 2008 talk, historian Jason Scott describes this evolution from the telegraph to amateur radio, a modern hobby that involves using radios to communicate with people around the world. As Morse code was adapted to be used in these new formats, there were considerable innovations in communication.

Referring to it as the “first social network,” Scott describes how amateur radio (sometimes called **ham radio**) operators sent each other messages and updates using codes. They also used this technology to send each other images over the radio using sequences of characters and codes that were intended to be decoded and printed out.

These images, sent by slow-scan television methods (which stemmed from similar technology used to send images from space exploration, often included the call signs of their sender and other jargon, and might be an early analog to online avatars or user profile images. Thus, as people immersed themselves in technological innovations, they adapted their language to new forms and uses.

HI HI: LOL of the 19th century?

Indeed, many of these patterns developed by amateur radio users are familiar to those who use textspeak or online lingo. Shortly after writing my article on the history of LOL, I received an email from Ralph Wallio, an amateur radio enthusiast.

He shared with me the existence of abbreviations in Morse code, specifically one for laughter. The sequence HI HI, •••• •• •••• ••, is a short form for laughter and is a favorite among amateur radio communicators. It could even be seen as an early predecessor to LOL.

Some sources speculate that this particular sequence originated as an attempt to imitate the sound of a person chuckling. HI HI is quite similar to traditional text representations of laughter hehe and haha, which have been in use since the time of Chaucer and Shakespeare. Wallio suggested that using HA HA in Morse code would be read as •••• •- •••• •-, which would be more time-consuming to transmit, hence the use of HI HI instead.

It turns out that Morse code today has quite a few of these short forms, and some of them will be familiar to those who chat online or send text messages today – not the forms, necessarily, but the things that are being abbreviated.

“Thank you,” which is often reduced to “TY” in text messaging and other online communication, appears at “TU” in Morse code. “Please” appears as “PLS” in Morse Code, and “PLZ” in many forms of communication online. The phonetic reductions of “You” to “U” and “Are” to “R” are represented in Morse Code as well.

Short forms have existed throughout human history of using different mediums to communicate, and the short forms themselves are representative of the possibilities that the medium affords. Some of these have withstood the test of time, and some haven’t; nonetheless, it goes to show how adaptable language is, and how communication technology almost always breeds new forms of writing.

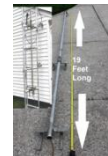
<https://theconversation.com/lol-in-the-age-of-the-telegraph-42578> Disclosure statement - Lauren B. Collister does not work for, consult, own shares in or receive funding from any company or organization that would benefit from this article, and has disclosed no relevant affiliations beyond their academic appointment. Republished for free, online or in print, under Creative Commons license.

Swap-N-Shop

For Sale: Collins Antenna / Radio Switch. By Advanced Optics which looks like the Collins S-Line gear. Switching for 5 antennas and 5 radios, 1200 Watts from DC to 500 MHz. The cabinet is the same size as a 312B-4, 312B-5 & 516F-2 - \$550 **Drake B-line (Restored)** Drake R-4B receiver, T-4XB transmitter, AC-4 power supply, MS-4 speaker (1972 very late model), EV-638 dynamic microphone, RED LED digital readout, plus 9 extra range crystals for all WARC bands, including 10 & 160 meters, cooling fan on T-4XB, plus improved A.M. transmit! Restored, aligned using sweep method, full power output & great audio. Many new parts, (filter capacitors, knobs, blue filters, etc) too much to list here. AC-4 re-built. \$1200

GIN POLE 19-Foot Long - A commercial "Gin Pole" from the 70's & 80's. 19 ft length, has 5 ft aircraft aluminum sleeve in the middle for strength. Works great with ROHN 25G/45G/55G. Hangs on the rungs and the "top" hanger is adjustable up to 6 foot from the bottom hanger. Can handle very heavy tower sections and antennas. No longer needed, since I cannot climb any more. \$500 Pick up only

Contact Jeff, WA8SAJ at (440) 951-6406 [10/02/19]



FOR SALE: IC-735, AT-150 and PS-55. Comes with the HM-12 microphone and power cable. Original Manual and all other associated paperwork included. Asking \$550. Selling as a package. **FOR SALE: Yaesu FT-726R.** With 144, 440 and 50 MHz modules installed. Also installed the Communications Specialist TE-32. Made it easier to switch PL tones. Comes with the YM-48 microphone and power cable. Original Manual and all other associated paperwork included. Asking \$350. Selling as a package.

Contact: Bob Davet, W8RID, davet102@gmail.com 330-425-7313 [10/02/19]

FOR SALE: ICOM 703 QRP rig with built in HF tuner. Radio has the 250 Hz and 500 Hz filters, microphone, power cable and separation kit. Also a Samlex power supply. \$600

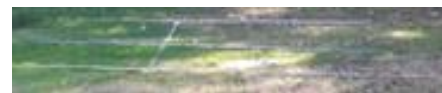
Contact Dave, WV8P - vv8p@roadrunner.com

FOR SALE: One beams for sale. Was made *BEFORE* MFJ started making Cushcraft antennas. **Cushcraft Ten-3** Three element **10 meter beam**. Cost new \$299.95 - **Sell for \$150.00.** This beam helped me make 7,651 ten meter contacts. This beam was on a tripod on my roof. Great shape & ready to use. Had the roof replaced and took down the antennas. Will be putting up tower and Opti-Beam antennas - if the ground ever dries out.....

ICOM IC-7610 - Brand New, *still in the box*. Decided to upgrade antennas instead of radio. Un-opened box **\$2650.** **RC-28 - Remote Encoder** for the IC-7610 to easily operate the second VFO - Brand new - **\$225**

8 Switch Memory External Keypad for the IC-7610/7850/7851. Instant access to the 8 stored outgoing messages. Made in Germany by DM2RM. Brand new - \$65

Contact Tom "Parky", KB8UUZ at kb8uuz@gmail.com [10/02/19]



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

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

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

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

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

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

FOR SALE: Bird Watt Meter Slugs: 2500H (2500 Watts 2-30 MHz) \$110. 5000H (5000 Watts 2-30 MHz) \$125. Any of the following for \$50.00 - 5A (5 Watts 25-60 MHz) - 10A (10 Watts 25-60 MHz) - 50 D (50 Watts 200-500 MHz) - 500E (500 Watts 400-1000 MHz). **Alpha 77DX Amplifier** with all of the Dick Byrd upgrades. These upgrades include the following; higher voltage plate transformer providing 4300 Volts idle, 7500 Volt rectifiers, 5000 Volt 35 µf filter capacitor, 15,000 Volt DC blocking capacitor, wide spaced loading capacitors like are used in the 77SX, all new step start components, large 10x38mm fuse holders, all new electrolytic capacitors on timer & QSK boards as well as LED lighting for the meters. This amplifier has ZERO HOURS since being upgraded as it was my back-up amplifier. **AEA MM-3 MORSE MACHINE** Memory Keyers in mint condition. These are the best

memory keyers ever made with speeds up to 99 WPM. They provide two banks or 10 memories each, automatic serial number insertion for contesting, work as a random code/word generator, QSO simulation where you can have a practice QSO with the keyer and also contest QSO simulation as well. They will work from 12 Volts DC as well as the included AC adapter. Includes manual \$200 each. **ICOM IC-718** 160-10 meters, Mars Mod, full output, few minor scratches, power cord & microphone. \$400.00

If not sold prior to Breeze Shooters Hamfest all of these items will be available at Breeze Shooters.

Contact James. KD8VT - 330-206-4909 [09/02/19]

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 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: [11/02/19] indicates the ad will run until Nov 2, 2019.

PCARS Thursday 2 Meter Nets

Greg, KA8TOA
Net Control Coordinator



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

Don't forget - 4th Thursday is NET NIGHT at the Club Site !!

We will not have a net on Thursday July 4th.

Please enjoy the nations birthday weekend. 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. I am still looking for a couple more operators to run the nets ? If interested please contact me.

Field Day was excellent for weather and operating. A lot of visitors showed up. Thanks to the committee for all there hard work and the volunteers who showed up to set up and tear down.

July	
4	No Net
11	KA8TOA
18	WB8LCD
25	K8IV

August	
1	KE8BWA
8	KB8UHN
15	WB8LCD
22	WB2DFC
29	N8QE

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 !



Tech Note - Injection Attenuators & Fox Hunting

Jim, AC8NT

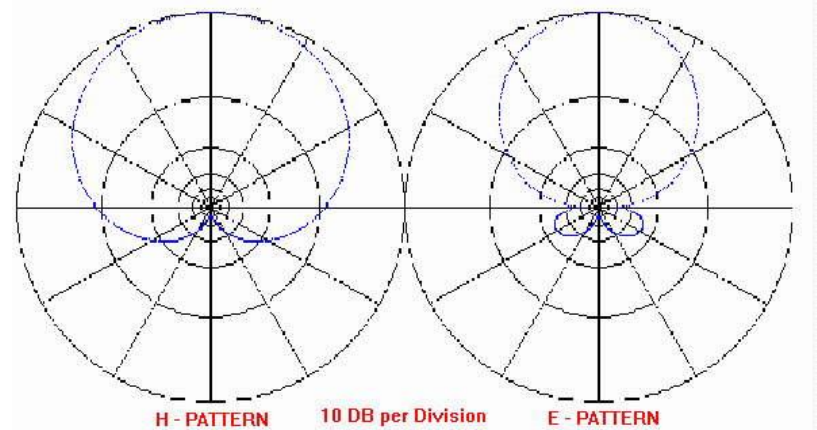


Fox hunting can be great fun and a great way to introduce kids to ham radio. Building a tape measure Yagi; adding an inexpensive handheld and purchasing or building the fox transmitter to find, are all the elements necessary to create a fun learning experience. At Field Day we held a short training session on Fox Hunting. One of the problems you find in fox hunting is that as you get close to the transmitter, the antenna becomes almost omni-directional and makes finding the final location of the fox very difficult. Why?

The tape measure Yagi has a pattern similar to that shown in Figure 1. As expected the largest gain is forward. But as you can also see there is gain to the sides of the antenna. The front to side ratio is relatively small so when the fox is at some distance, the signal will seem strongest when the antenna is pointed at the fox. If you were to rotate the antenna so the side was pointed toward the fox, the signal would seem much weaker. If you were using a field strength meter the meter would show the highest reading when pointed directly at the fox and a lower reading when you point the antenna 90 degrees to the direction of the fox. This is why you can generally get pretty close to the fox using a Yagi antenna.

Figure 1

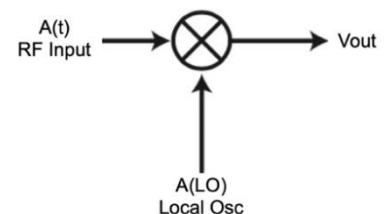
The problem comes when you get close to the fox. Here the meter will often peg or the signal will be very loud. As you get even closer, the meter will peg when the antenna's side is pointed toward the fox. This is the result of the gain from the side of the antenna. If we had a RF "volume control" on the meter, we could reduce the signal to the point where the meter is no longer pegged when the antenna is oriented in any direction and continue with the hunt. It would still indicate the biggest reading when directly pointed at the fox.



As part of that training session we had at Field Day, we showed how an injection attenuator could be used to improve the performance of the tape measure Yagi we were using by creating such a RF "volume control". An injection attenuator is actually a simple RF mixer circuit used to control the amplitude of the received signal going to the handheld receiver or field strength meter. Several of the attendees asked just how this circuit worked. Here is a simplified explanation. It is not intended to be a design course.

Figure 2 shows a block diagram of a mixer. Its purpose is to mix a RF input $A(t)$ and the LOC OSC input $A(LO)$ signals to produce an output V_{out} of two signals one equal to the sum of the two frequencies and one equal to the difference of the two frequencies. As an example, if RF IN is 144 MHz and LOC OSC is 4 MHz, RF OUT will contain two sideband frequencies of 140 MHz (the difference) and 148 MHz (the sum).

Figure 2



To accomplish this the two input frequencies are actually multiplied together to produce the sidebands. In Figure 3 the basics of the math is given. In this analysis V_R is the RF input and V_L is the local oscillator. For our discussion the important part of the analysis is the first term of the output shown by the dashed box. $A(t)$ is the amplitude of RF Input (the signal coming from our antenna) and A_L is amplitude of LOC OSC (contained in our attenuator box). V_{out} will contain the sideband signals. Using the example above the two output frequencies will be 140 and 148 MHz. The output of each of these signals will be $A(t)A_L/2$.

$$v_R = A(t)\cos(\omega_0(t)+\phi(t))$$

$$v_L = A_L \cos(\omega_L t)$$

$$v_{out} = v_R \times v_L$$

$$\text{Using } \cos(A+B) = \cos A \cos B - \sin A \sin B$$

$$v_{out} = \frac{A(t)A_L}{2} \{ \cos\phi(\cos(\omega_L+\omega_0)t+\cos(\omega_L-\omega_0)t) - \sin\phi(\sin(\omega_L-\omega_0)t+\sin(\omega_L+\omega_0)t) \}$$

Figure 3

As I hope you can see, we can vary the output of the mixer by changing the amplitude of the signal A_L . This makes this mixer circuit an RF volume control for the sideband signals. If I increase the output of the local oscillator the amplitude outputs of the sidebands will increase; and if I decrease the output of the local oscillator the outputs of the sidebands will decrease.

How do we use this?

Normally if the fox signal is set to 144 MHz, we would set our handheld to a frequency of 144 MHz. As we got close to the fox the signal would be loud with the antenna pointed in any direction. At this point we would turn on our injection attenuator and change our receive frequency to either 140 or 148 MHz, one of the two sidebands generated by the attenuator. Now we are listening to the sidebands. The knob on the attenuator controls the amplitude of the local oscillator. Turning the knob “down” reduces the amplitude of the local oscillator and as a result reduces the signal going to our handheld. You keep turning the knob “down” as you get closer and finally find the fox.

Implementation

Good news, you can buy this circuit all built up from kc9on.com for under \$20. It is shown in Figure 4 below.

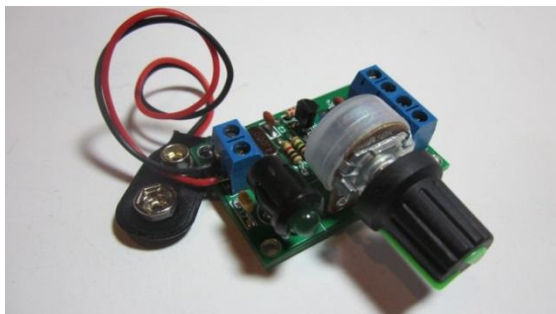


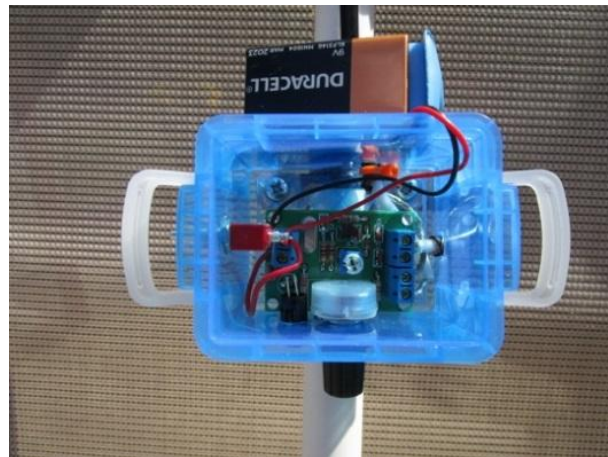
Figure 4

All you need to do is attach the coax coming from the antenna; attach the coax going to the handheld; and mount in a small box. The installation on my tape measure antenna is shown below in Figure 5.



Figure 5

If you are planning to fox hunt, I strongly recommend hooking up one of these devices. It will make the sport a lot more fun. With very little practice you will easily be able to trap the elusive fox.



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



PCARS Flex Net - July 10th

Deron, N8XTH



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

Flex Net in July will be on Wednesday, July 10, 2019 at 8:00 pm eastern. This month's net will be on 2 meters FM Simplex. We will announce the frequency via a QST e-mail to go out prior to the net. Also, we will have someone on the 146.895 repeater to help anyone find the net.

If you need an antenna for your 2 meter setup, here is a weblink to a few very simple and CHEAP plans I would encourage you to check out. <http://webclass.org/k5ijb/antennas/Two-meter-verticals.htm>

Operating FM simplex is fun and simple with a very small investment.

After the net, we ask that you please send a QSL card to each and every person you contact. You can use the Squirrel Buro QSL box that is located at the clubsite and at club meetings to exchange cards. Please remember to use UTC time/date on all of your QSL's.

If you would be interested in being a Net Control station for the Flex Net please e-mail Deron, N8XTH at deronmb@gmail.com

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

10-Jul-2019	2m FM Simplex	9-Oct-2019	15m
14-Aug-2019	40m	13-Nov-2019	10m
11-Sep-2019	20m	11-Dec-2019	20m

There will be two parts to the net. The first is a quick check in and social time (This net is **not** designed to take the place of the weekly Thursday night nets on 146.895). The second part will be devoted to the PCARS A-to-Z Award where you will be given the chance to work different PCARS members in order to earn the award. (Information on the award was in the April 2019 newsletter.)

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

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



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



Charlie the Tuner's HF High-Lites

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



Greetings to all DXers:

Well, here we are in July and it's hot and humid. I've been out in the sun working on the dismantling of my damaged towers and antennas. I'm pleased to say the both towers are now apart and stacked. And the remaining Log Periodic is almost completely disassembled and stored. I plan to start on digging the holes for the two 45G towers in the next week. If all goes according to plan, I should be up and running by September. That will allow me to start working DX once again. I can't wait.

And speaking of can't waiting to work DX, how about we look at what's in store for the next few months.

As always, thanks to the Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn PacketCluster Network, the AB5K's AR Cluster Networks, NJ1Q & W1AW, NG3K & ADXO, W3UR & The Daily DX, K4ZW, WB6RSE, N7NG, K8GG, K8GI, K8YSE, W8GEX & 60m DX News, W9ILY, CX3ZAN, DL1SBF, DL7UXG & The DX News Letter, DxCoffee.com, DXNews.com, DX-World.Net, F5NQL, F6AJA & Les Nouvelles DX, I1JQJ/IK1ADH & 425 DX News, OZ6OM & 50 MHz DX News, Sixitalia Weekly, and VA3RJ & ICPO for the following DX information.

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

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

E4, PALESTINE (Update). Janusz, SP9FIH, will once again (for the 4th time) be active as E44WE from Bethlehem (KM71OQ) between July 6th and August 6th. Activity this time will be on 80/30/20/6 meters using SSB, some RTTY and possibly FT8 (F/H). QSL via his home callsign or ClubLog's OQRS. For more details and updates, see: <http://www.e4.dxpeditons.org>

5R, MADAGASCAR. (Reminder) Giovanni, IZ2DPX, will be active as 5R8PX from Nosy Be Island (AF-057), Madagascar, between, August 3-17th. Activity will be on various HF bands using SSB and the Digital modes. Equipment is an IC-706 (w/100w) into a vertical. QSL via IK2DUW/HE9ERA, direct, by the Bureau, Clublog or LoTW. For updates, watch: <https://iz2dpx.jimdo.com>

5W, SAMOA. Operators Hrane/YT1AD and Dusko/ZL3WW are currently active as 5W7A from Upolu Island (OC-097). The length of their stay is unknown at this time, but they are there preparing for the ZK3A DXpedition which takes place between October 2-11th (See ZK3 below). QSL 5W7A via YT1AD.

5X, UGANDA. Anders, SM0HPL, is once again active as 5X7W from Kampala until July 6th. Activity limited to his spare time (due to his job) on 20-10 m (possibly 30m) using CW, JT65 and FT8. QSL via SM0HPL, ClubLog or LoTW.

8Q, MALDIVES. Gil, IZ2DLV, will once again be active from as 8Q7GB Nika Island in the Maldives between August 6-18th. Activity will be holiday style on 80-15 meters using CW, SSB and FT8. QSL via LoTW.

9G, GHANA. A group of Slovenian operators will be active as 9G5W from Kokrobite between November 16-27th. Operators mentioned are Tine/S50A, Leo/S50R, Marko/S51DS, Tone/S51TC, Sergej/S51ZJ, Peter/S54W and Renato/

S57UN. Activity will be on 160-10 meters using CW, SSB and RTTY. They plan to be in the CQWW DX CW Contest (November 23-24th). Their equipment contains 3x Kenwood TS-590SG with various verticals for 160/80/40/30m, and two SpiderBeams for 20-10m. QSL via S59ZZ or ClubLog's OQRS. Log will be uploaded to LoTW (usually 6 months later). For more details and updates, see: <https://www.ghana.si>

9H, MALTA. Andrea, IK0PUL, will be active as 9H3IK from Malta (EU-023) between July 5-12th. Activity will be holiday style on 30/20/17 meters using CW and SSB, with wire antennas and 100 watts. QSL via IK0PUL, direct, by the Bureau or LoTW. There will be a log search on ClubLog.

9X, RWANDA. Harald, DF2WO, will once again be active as 9X2AW from Kigali between November 4-16th. He is currently preparing his 160m antenna and will build a Hexbeam with Bamboo Sticks for working on 20/17/15/12/10 meters using mainly Digital modes (FT8, PSK31, JT65 and RTTY), CW and SSB. QSL via M0OXO or his OQRS.

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

CY0C SABLE ISLAND DXPEDITION (Update). Ops Dan/WA4DAN, Jay/K4ZLE, Will/AA4NC, Lee/WW2DX, Pat/N2IEN, Lou/N2TU, Bill/K5DHY and possibly more "To Be Determined" (TBD) will be active as CY0C from Sable Island (NA-063) between Oct 5-12th, 2020. Activity will be on 160-6 meters using CW, SSB, FT8, EME and the Satellites. QSL via WA4DAN or ClubLog. For more details and updates, watch: <http://cy9c.com/sable-2020.html>

CY9C ST. PAUL ISLAND (Update). Operators Murray/WA4DAN, Pat/N2IEN, Lee/WW2DX, Will/AA4NC, Bill/K5DHY, Dan/W4DKS and Phil/VA3QR will be active as CY9C from St. Paul Island (NA-094) between July 31st and August 7th, 2019. Activity will be on 160-6 meters using CW, SSB, FT8, EME and the Satellites. QSL via WA4DAN or ClubLog. For more details and updates, watch: <http://www.CY9C.com>

D4, CAPE VERDE. Harald, DF2WO, active as D44TWO from Praia, Santiago Island (AF-005), Sept 29th and Oct 13th. Activity will be holiday style on 160-10 meters using CW, SSB and the Digital modes. He works mostly on the Digital modes (FT8, PSK31, JT65 and RTTY) and slow CW. Equipment is a FT-450D into a homemade HEX BEAM and a dipole for 40 meters. QSL via M0OXO (OQRS available).

D6, COMOROS [edited] D68CCC COMORES 2019 THE NEW ADVENTURE OF MDXC GUYS -- On the road again, and also this time on the road to Africa to reach their next QTH not far from Moroni. Antonio, IZ8CCW, and the co-leader Gabriele, I2VGW, announce to the DXer Community the new adventure with the international MDXC team: Comores Islands 2019. The license is already in the leader's hands as D68CCC and they planned to be on air from Oct 20th to Nov 1st. They are confident to give to a lot of DXers the possibility to work this country on the Low Bands, WARC and especially on the Digital modes. At the moment the team is already built by experienced operators: 20 people coming from 8 Countries. On the air will be 5 stations, any mode, around the clock. For any further news and updates please stay tune: the official web site of this new great adventure is coming. Of course any donation and sponsorship will be appreciated by the entire team! Mediterraneo Dx Club ["support DXpedition"] (www.mdxc.org)

FH, MAYOTTE ISLANDS. Willi, DJ7RJ, will once again be active as FH/DJ7RJ from Mayotte between October 15th and November 3rd. Activity will be on 160-10 meters with a focus on the lower bands using CW and SSB. QSL via his home callsign, direct or by the Bureau. NO LoTW or ClubLog.

FK, NEW CALEDONIA. Thomas, F4HPX, will be active as FK/F4HPX from Noumea, New Caledonia (OC-032), sometime during the first half of November. Activity will be holiday style on various HF bands using a FT-891 and KX2 into a simple wire antenna plus an Alpha EZ Military stick. He also plans to be active for a few days from Pins Island. QSL via F4HPX, direct, by the Bureau, ClubLog, LoTW or eQSL.

HL, REPUBLIC OF KOREA, Special event HL18FINA will be QRV from Jul 1 to Aug 18 to celebrate the Federation Internationale de Natation's 18th World Championships and World Masters Championships. QSL via HL4CCM.

JW, SVALBARD. Freddy, ON6FDP, will be active as JW/ON7SA from Svalbard (EU-026) during the RSGB IOTA

Contest (July 27-28th) as a Single-Op/ Non-Assit entry. QSL via ON6FDP.

MD, ISLE OF MAN. Dave, WJ2O, will be active as MD/WJ2O between July 11-17th. Activity will include the IARU HF World Championship (July 13-14th) as a Single-Op/All-Band/Mixed-Mode/High-Power entry. QSL via N2ZN.

MD, ISLE OF MAN. Members of the NB DX Team will be active as MD/OP2D from Isle of Man (EU-116) between Sept 21-27th. Operators mentioned are Erik/ON4ANN (Team Leader), Erik/ON4CCV, Cedric/ON4CKM, Rudi/ON6MI, Andre/ON4DTO, Patrick/ON4DCU, Willy/ON2BDJ, Luc/ON4AAQ, Yvo/ON5CD and Walter/ON8CW. Activity on 80-10 meters. QSL via M0URX direct (2 USDs and a SAE. No IRCs) or via his OQRS (<http://m0urx.com/oqrs/>). Bureau cards via OQRS ONLY. For more details or updates, see: <http://users.telenet.be/on4ann/MD>

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

OH0, ALAND ISLANDS. Bert, DK3BK, will be active as OH0UDG from the Aland Islands (EU-002) between August 3-17th. Activity will be on various HF bands and modes. QSL via M0OXO or OQRS.

T6, AFGHANISTAN. Robert, S53R, will once again be in Kabul starting June 24th, and will be there for two years working with the UN World Food Program. Activity will be limited to his free time, but he plans to be on 160-6 meters using CW, SSB and the Digital modes. His callsign is not known at this time, but he was active in 2002 from Afghanistan as YA5T. Since then, the prefix YA was abandoned in 2005.

T33, BANABA ISLAND. Members of Rebel DX Group to activate Banaba Island (OC-018) sometime within a month or so. Watch the T33T (Banaba Island) on the QRZ.com Web pages, the Rebel DX Groups Web and FaceBook pages for updates: <https://www.rebeldxgroup.com> <https://www.facebook.com/rebeldxgroup> Also, keep an eye on 3Z9DX tracker at: <https://share.findmespot.com/shared/faces/viewspots.jsp?glId=0tARRAqk3ftzEN8piDb2UOWqGmOX349o>

TF, ICELAND (Satellite OP! WW Loc. HP95 IP15 IP25 IP03 HP03). Adam, K0FFY, will be on holiday in Iceland between July 13-19th. He announced his tentative schedule to activate the following WW Loc. As follows: HP95 Jul 13th, IP13 & IP15 between July 14-15th, IP25 on July 16th, IP03 or HP93 between Jul 17-18th, and HP94 on Jul 19th. There was no announcement of him getting a TF callsign, but watch Twitter for updates: https://twitter.com/K0FFY_Radio

ZB, GIBRALTAR, Members of the Gibraltar Amateur Radio Society will be QRV as ZB2IG19 from July 5 to 31 for the XVIII NatWest International Island Games. QSL via bureau.

IOTA NEWS...

AF-018. Op Raffaele, IH9YMC, will be active from **Pantelleria Island** (IIA TP-001, MIA MI-124, WW Loc. JM56XT), African Italy, during the RSGB IOTA Contest (July 27-28th) Single-Op entry. He will also be active during the CQWW DX SSB Contest (October 26-27th) as a Single-Op/Single-Band (??m) entry. QSL for both contests are via eQSL.

AS-040. Operators Yasu/JA6WJL and Nagaisi/JA6WIF will be active as JA6WJL from **Fukue Island** during the RSGB IOTA Contest (July 27-28th) as a Multi-1 entry. QSL via JA6WJL or LoTW. The operators will be on the island between July 26-29th. Activity outside of the contest will be on 160-10 meters using CW, SSB and some RTTY.

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

EU-008. Members of the Cockenzie & Port Seton Amateur Radio Club will once again activate GM2T from the **Isle of Tiree** (IOSA NH04, SCOTIA DI10, WLOTA 2232, WAB NM04), the most westernly part of Scotland's Inner Hebridean

Islands, during the RSGB IOTA Contest (July 27-28th) as a Multi-Op/2-TX/Island-DXpedition entry. Operators mentioned are: 2M0NQT, Brian/G3UJE, Cambell/MM0DXC, Bob/GM4UYZ, Geoff/MM5AHO, Brian/M0RNR, John/MM0JXI, Steve/MM0GZA, Cephas/MM0INS, Craig/MM0NBW, Al/MM0XAB, W/MM3NQT, Ellis/GM4GZW and Lon/WA6AEE. QSL via LoTW, eQSL or Bureau. ADDED NOTES: Activity depends if the CalMac ferries are operating. For more info, see: <http://www.cpsarc.com>

EU-010. Look for GM7V to be active again from the Island of Benbecula in the **Outer Hebrides** during the RSGB IOTA Contest (July 27-28th) as a Multi-2 entry. Operators mentioned are John/MM0CCC, Chris/GM3WOJ, Stewart/GM4AFF, Tom/GM4FDM and Keith/GM4YXI. Please QSL via Steve, N3SL.

EU-042. Mike, DG5LAC, will once again be active as DG5LAC/P from **Hooze Island** (WWFF DLFF-013 Wadden Sea) during the RSGB IOTA Contest (July 27-28th) as a Single-Op/Mode-SSB/12-Hrs/DXpedition/High-Power entry. QSL via DG5LAC, direct, by the Bureau, ClubLog's OQRS, LoTW, eQSL or ClubLog's OQRS.

EU-055. Members of the Haugaland group of NRRL (LA4C) will be active as LM450C from **Utsira Island** during the RSGB IOTA Contest (July 27-28th) as a Multi-2 entry. LM450C is a special event callsign for the Haugaland group to celebrate their 50th anniversary. Operators mentioned are Morten/LA7XIA, Christian/LA8OM, Knut/LA9RY, Odd Arne/LB3AI, Bjorn/LA1CO and Peter/LB0K. QSL via the Bureau or LoTW.

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

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

EU-124. Philip, MW0DHF, will once again be active as MW0DHF/P from **Holy Island**, on the northwest coast of Anglesey North Wales, during the RSGB IOTA Contest (July 27-28th) as a Single-Op/All-Band/ DXpedition/High-Power entry. QSL via his home callsign, direct or by the Bureau.

EU-130. Paolo, IV3UHL, active as IV3UHL/P from Marinetta or **S.Andrea Islands** during the RSGB IOTA Contest (July 27-28) as a Single-Op/CW-Mode entry. Using 100 watts into a Multi-band vertical antenna. QSL via IV3UHL.

NA-068. Mikhail, VE7ACN, will be active as VE7ACN/VE9 from **Miscou Island** between August 11-18th. Activity will be on various HF bands. QSL via VE7ACN, direct, by the Bureau, ClubLog's OQRS or LoTW. For more details and updates, watch: <https://www.ve7acn.com>

NA-112. Brian, K4BRI, active as K4BRI/p from **Bald Head Island** in NC between July 30-31. Activity will be mainly on 20 m CW and SSB. He may also be on other bands depending on propagation. QSL via his home callsign.

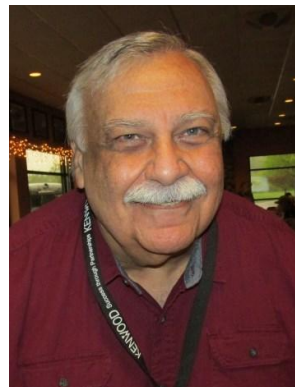
NA-143. Joe, K5KUA, will once again be active as K5KUA/5 from Galveston Island (USI TX-001S, Galveston County, Texas) during the RSGB IOTA Contest (July 27-28th) as a Single-Op/Island-Fixed/Low Power entry. Operations will be mostly CW and some SSB. QSL via his home callsign, direct, by the Bureau or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

SA-100. Operators CA1DBD, CA1FCS, CE1DN, CE3WW, I2YDX, IT9YRE, K9AJ, XQ1CR and XQ1FM will be active as 3G1DX from **Pajaros Rocks** for 3 days sometime around October 18-23rd. This will depend on the swells around the island. They plan to work hard during the day hours, but they are not sure during the evening hours due to the high tides. Activity will be mainly SSB and CW, using two stations. QSL via XQ4CW. There will be many more islands on the air during the RSGB IOTA Contest (July 27-28th) but there was not enough room to list them all.

I know that a lot of the above is carry over from last month's DX listings, but it just goes to show you that there are a lot of opportunities in the next several months to work DX, especially for those who are hunting islands. And as I said last month, turn on your rigs and get those ether wobblers working and work some DX. Until next month, **73 and Gud DX!!**

DX and Contest Special Interest Group

Chuck, W8PT



During our recent DX/Contest Special Interest Group meeting, we discussed PCARS' participation in the upcoming North American QSO Party - RTTY mode contest that takes place on the weekend of July 20-21st.

With George K3GP as our RTTY Guru once again, it was decided that we would play in this one again. There will be a full announcement regarding when ops should get to the club site for a brief refresher on RTTY operation using our IC 7300's.

So for all those who had BIG FUN last time we operated RTTY, here's another chance to develop additional on air time in RTTY.

CW/QRP & Linux Special Interest Groups

Terry, KB8AMZ



CW & QRP SIG

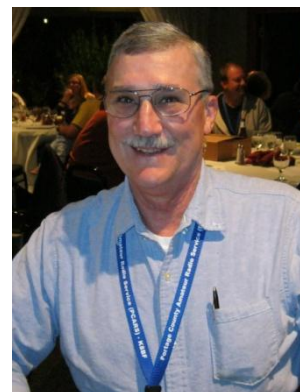
July 9th will be our next meeting at the club site in Ravenna at 7 pm. The group has decided to get on the air. I will have at least 2 transceivers set up. If you will be transmitting via CW and have problems with the club iambic key I suggest you bring your own key. With the 7300 (and many other radios) to use a Straight key you use the tip and Ground on a Stereo 1/4" connector. The ring is unused. We have adaptors that might work.

Linux for Hams SIG

The next Linux for Hams SIG will be Tuesday July 30 at 7 pm. Please bring your Raspberry Pi and peripherals for another application install and configuration. More stuff to learn.

Digital Special Interest Group

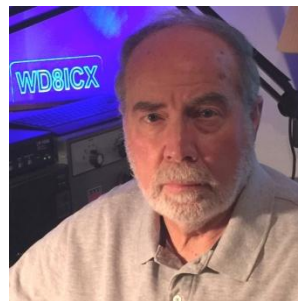
Rick, K8CAV



After using fldigi with flmsg for several months, we have all (most? Haha) of the bugs worked out and are getting them to work together. This month's Digital SIG meeting on Tuesday July 2nd at 7:00 PM at the club site in Ravenna will have a presentation on how to set up and use these two programs together, and will have a hands-on demonstration and exercise passing some traffic using predefined message forms in flmsg. As always, we'll be available to answer questions or help with any issues you may be having with digital communications.

South Mill - K8JLY Tour in September

Gary, WD8ICX



Plan to attend a tour of **ARS K8JLY**, a museum of antique amateur radio's and related equipment in the historic Smith Mill located in Jackson Township just north of Massillon. Constructed in 1925, the building features radio's from the 1920 and 30's plus amateur radio's built by Johnson Viking, Globe Electronics, Hallicrafters, Allied Radio Knight kits, military radio's, Thordarson, National, photographs of amateur stations, and just about every Heathkit

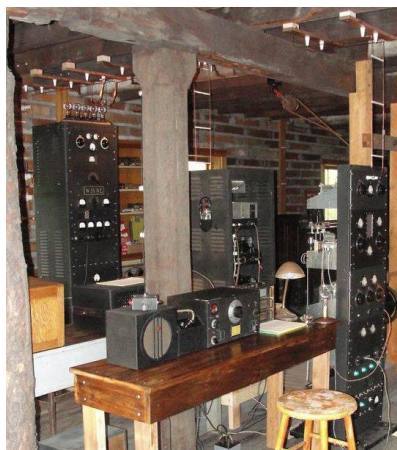
radio made plus a radio repair shop for antique radio's. The museum is owned by Cid Vance, K8JLY, and you can see some pictures and read about his museum on his QRZ web page.



The date for the club tour will be **Saturday, September 14, 2019 at 10AM**. The museum is located at 4442 Erie Ave. N.W., Massillon.

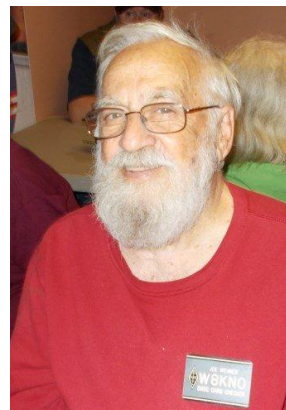
Directions from the north: go south on Route 21 to Massillon, turn east (left) at the first traffic light onto Lake Ave. then at the first traffic light on Lake Ave. turn north (left) onto Rt. 236 (Erie Ave.). Drive north on Erie Ave. and just past Smithview Ave. on your right is the museum also on your right. On Google Maps the museum is called: Towpath Treasures & Crafts. There is limited parking so

car pooling is recommended. If you have any questions, contact me at: gmarks@neo.rr.com



Paper Chase - Shoot for the Moon

Joe, W8KNO



Joint Session of Congress May 25, 1961



President Kennedy said these words, *"Space is open to us now; and our eagerness to share its meaning is not governed by the efforts of others. We go into space because whatever mankind must undertake, free men must fully share. I therefore ask the Congress, above and beyond the increases I have earlier requested for space activities, to provide the funds which are needed to meet the following national goals: First, I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the Earth. No single space project in this period will be more impressive to mankind or more important for the long-range exploration of space and none will be so difficult or expensive to accomplish."*

Rice Stadium September 12, 1962

President Kennedy said these words, *"We choose to go to the Moon! We choose to go the moon ... We choose to go to the moon in this decade and do other things, not because they are easy but because they are hard; because the goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one we intend to win, and others too."*

I do not remember hearing or seeing these words spoken but I remember hearing and seeing the result of the effort. On July 20th, my wife and I returned her cousin's fiancé to Keyes Air Force Base and listened to the progress of Apollo 11 on the AM radio. Upon returning home to Brockton, Massachusetts; I turned the television on watched the historic video of Neil Armstrong setting foot on the moon and hearing the famous words **"one small step for man - one giant leap for mankind."** If were unable to see this, you can watch it on YouTube.

There are thirteen special events listed in QST and on arrl.org commemorating the lunar landing. Here are just three that are here in Ohio:

07/08/2019 | 50th Anniversary of First Moon Landing

Jul 8-Jul 24, 0000Z-2259Z, N8A, West Chester, OH. Midwest VHF/UHF Society. 10368.100. Certificate. Tom Holmes, N8ZM, 1055 Wilderness Bluff, Tipp City, OH 45371-9221. Plan to work 10 GHz EME when moon at best position for good DX. Contact for schedules and exact frequency. n8zm@mvus.org

07/14/2019 | 50 Years - First Man on the Moon

Jul 14-Jul 28, 1700Z-2000Z, N1A, Milford, OH. Milford Amateur Radio Club. SSB: 28.350 14.260 7.240 3.840; CW: 14.045, 7.045, 3.545; FT8 standard frequencies. QSL. Milford Amateur Radio Club, P.O. Box 100, Milford, OH 45150-0100. Email qsl@w8mrc.com for QSL requests. www.w8mrc.com

07/20/2019 | Honoring the 50th Anniversary of the Apollo 11 Moon Landing

Jul 20, 1400Z-2000Z, K8QYL, Wapakoneta, OH. Reservoir Amateur Radio Association. 14.250 7.250. QSL. Rich Spencer, W8GZ, 05925 Vogel Rd., Saint Marys, OH 45885. From the Neil Armstrong Air and Space Museum



From the Ohio Section Manager



Scott, N8SY
ARRL Ohio Section Manager



Hey Gang...

Wow.. Was this weekend ever a blur for sure. I did get to 12 Field Day sites in a little over 18 hours that I was on the road and visiting with you. I put 543.6 miles on the car. I'm planning on taking it in for an oil change and wash job just as soon as I can get it scheduled.



I do want to thank everyone for their generosity. It's really great to just pop in on someone's event and then be invited to sit down with them and share a steak or pull pork sandwich. I probably won't be eating for a week! I know that I've gained back at least 10 pounds from all the food for sure.

Sliding down the band a bit... I want to make sure that all of you know that you need to get signed up in ARES Connect right NOW, if you haven't already. I know that this must sound like a broken record to most of you, but you won't believe how many folks I met over the weekend that told me they

haven't heard of ARES Connect yet.

I also hear from those same folks... "why do I need all this training?" Well, I gotta' tell you, after traveling around the state this weekend and seeing for myself all the destruction and standing water, it should be real clear to everyone that there is still a need for our services all over the state yet.

Here in the Ohio Section we only require our Level 2 volunteers to have the 4 basic courses, IS 100, 200, 700 & 800. For our Level 3 volunteers we do require the additional ICS 300 / 400, or the equivalent professional series courses IS 120, 230, 240, 241, 242, 244 & 288. These equivalent courses are all on-line classes just like your basic 4 NIMS courses are and being offered as an alternative way for you to get credit for taking the professional series courses in the event you just cannot get scheduled into an ICS 300/400 class. By the way, if you decide to take these 7 on-line courses and complete them all, you will want to take just one more class **IS-235**. By completing this additional course, you will get a really great looking certificate from FEMA recognizing that you have completed the entire Professional Series courses. I do hope that this clears up the confusion that has been going around lately. As we have stated on the website and in this newsletter many times "We don't want anyone left behind." Yes, the Ohio Section is extremely lucky to have the relationships that we do with Law Enforcement, EMA, fire and other government agencies, that's why we've partnered with EMAO, OP3 and Ohio VOAD to show our support for them and our Ohio citizens.

Whelp... That's going to do it for this time around. Stay safe, enjoy the sunshine while we have it, and most of all... have FUN!!

Announcing the World Wide Digi Contest

Tim, K3LR



The World Wide Radio Operators Foundation ("WWROF"), in collaboration with the Slovenia Contest Club ("SCC"), is pleased to announce the first annual World Wide Digi DX Contest ("WW Digi"). The new contest taps into the excitement being generated by the new digital modes pioneered by Joe Taylor K1JT and the WSJT-X development team. The contest will occur over 24 hours on August 31 and September 1, 2019 using the FT4 and FT8 modes on the 160, 80, 40, 20, 15, and 10-meter bands.



World Wide Digi DX Contest

Home Rules ▼ Plaques Results ▼ Logs ▼ Contact Us

Home

Welcome

Welcome to the official web site of World Wide Digi DX Contest.

WW Digi is a collaboration between the World Wide Radio Operators Foundation (WWROF) and the Slovenia Contest Club (SCC).

World Wide Digi DX Contest

31 August - 1 September, 2019

Starts: 0000 GMT Saturday
Ends: 2359 GMT Sunday

WW Digi (<https://ww-digi.com/>) will utilize a distance-based scoring system to measure operators' abilities in making DX contacts across the 6 HF amateur radio bands. Contacts will earn points based on the distance between grid square centers of the two stations. This will encourage operators to seek out long distance weak signal contacts that highlight the technical advantages of the new digital modes.

To encourage activity across all bands, a multiplier will be given for each new 2-character grid field contacted

on each band. The final score will be the product of the total contact points times the number of grid fields contacted. There should be plenty of strategy required to balance distant QSOs and the need to work all available grid fields. Single and multi-operators are welcome to operate as much or as little of the 24-hour contest period as they wish.

The contest has been designed to enable making contacts utilizing standard WSJT-X software behavior, making it easy for non-contesters to participate. At the same time, the contest supports some new techniques that will encourage operating innovation, such as permitting stations to work up to three "QSO streams" on a band at one time. Robotic operation is specifically prohibited in order to keep the human element as part of the game. The full rules and other information are available on the WW Digi DX contest web site at <https://ww-digi.com>

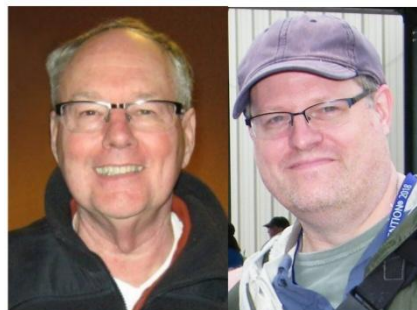
It is fitting that the World Wide DX contest series be expanded with a fourth mode, Digi, to support evolution into ham radio's future. Accordingly, with WWROF's sponsorship of the World Wide Digi DX Contest, there will now be similar worldwide DX contests at the end of four successive months, August through November.

Serious contesters and casual participants alike can make ham radio history and have fun as the hobby pioneers the exciting world of digital communication. WWROF hopes the WW Digi DX Contest will attract new digital operators into contesting.

Plaques will be awarded for top scorers. Please contact the WW Digi Contest Director Ed Muns, W0YK at plaques@ww-digi.com to sponsor an award. Electronic certificates will also be available for download for anyone that submits a log. The goal is to have results available on the web site within 90 days after the end of the contest.

Setting Digital Time

*Jim, AC8NT
JC, KC3JXQ*



Setting “Time” in Field Operations

A lot of the new digital modes including FT8 and FT4 require your computer clock to be relatively accurate. Most newer computers have pretty good clocks that remain accurate for long periods. However, the newer digital modes require clock accuracy between the two stations to be within 2 seconds to work effectively. At Field Day this year we had a clock problem. The VHF station was operating FT8 on six meters without much luck. Rick K8CAV and I checked the setup and found no electronic problems. We monitored six using the Flex station to show there was activity and valid decodes, but the six meter station was showing no decodes. Rick, Doug WA8UWV and I huddled and thought time might be the problem. Rick set his watch using Doug’s GPS app on his cell phone and found the clock on the VHF station to be 10 seconds off. Once set correctly they were getting contacts.

I have had this problem a few times when operating in the field or at events. Often I have not had internet connectivity, so using an internet based time server was not possible. There are many solutions to the problem of setting time in the field but here are two that maybe you should consider. One I implemented and one my son JC KC3JXQ implemented.

I implemented the USB GPS module solution

This was very easy. First you purchase a USB GPS module. I purchased the GlobalSat BU-353-S4 USB receiver from Amazon for \$33. I then downloaded VK4ADC’s free GPS2Time program. This system provides several nice features. It will sync your PC’s clock at a period you set (say every 15 minutes). It will also provide an up to 10 character grid square, as well as, Lat, Long and altitude. I plan to use the grid square feature in the next CFARC 2 meter contest. You plug the receiver into your laptop, follow the startup instructions for the program and you are up and running. We used this system at our Flex station to make sure our FT8 worked smoothly. This low cost solution works well.

JC implemented a solution using his GPS enabled handheld

The Kenwood TH-D74A is a HT that has a pile of features that come in handy in the field. One of them is the ability to communicate with a laptop over Bluetooth and feed the position and time data that is coming from the internal GPS. The position data is a story for another article, but the time is a great thing to be able to pull directly from the unit.

It’s relatively trivial to get the Bluetooth connection set up with Windows 10. Simply start up the Bluetooth discovery process on the HT and on the laptop and the two should pair quickly. One might be skeptical of such a statement, but in semi-controlled field conditions, KC3JXQ has reported a 100% success rate.

With the pairing verified, startup GPS2Time and select the COM port associated with the HT. This can be found under the device manager or through trial and error. Once the correct port is selected, wait a moment and the position and time data will start to flow. Then the application can set the computer’s clock and all should be well.

This solution works particularly well given that the HT is almost always on hand when in the field with another rig.

Either of these solutions will be more than adequate to keep the computer’s clock in line as most of them shouldn’t drift too far in a given 24 hour period. But it certainly doesn’t hurt to have it double checked every now and then when operating in the field when batteries start to run low, temperatures vary and laptop performance ebbs and flows.



World Scout Jamboree Gears Up to Get On The Air

From the ARRL

Amateur Radio will be a part of this summer's 24th World Scout Jamboree in West Virginia, the first World Jamboree held in North America since 1983. The Jamboree has chosen the theme "Unlock a New World." Thousands of Scouts and Scout leaders from some 200 countries are expected to attend. The Jamboree's Amateur Radio Exhibit will use the call sign [NA1WJ](#) -- North America's 1st World Jamboree. It will be on the air during the event, **July 22 until August 2**, at the Summit Bechtel Reserve, hosted by Canada, Mexico, and the US. Amateur Radio testing is expected to begin as early as July 14. Operating frequencies will be posted in real time via [Facebook](#) and [Twitter](#) or via an [NA1WJ email group](#).



"The goals of the Amateur Radio station at the World Scout Jamboree are to introduce Amateur Radio to Scouts and Scout leaders through hands-on participation in two-way communication with other stations across the globe. This activity will also serve as the Amateur Radio voice of the Jamboree," the [World Scout Jamboree Amateur Radio Exhibit Operational Vision document](#) states. Other facets of Amateur Radio at the Jamboree will include Amateur Radio direction finding (ARDF), Amateur Radio satellite contacts, and a scheduled Amateur Radio on the International Space Station (ARISS) contact with an ISS crew member.

"We also expect to launch one or two balloons with Amateur Radio payloads and track them as they cross the Atlantic," the vision document continues.

Organizers are encouraging radio amateurs around the globe to get on the air during the World Jamboree to help NA1WJ demonstrate Amateur Radio for Jamboree visitors.

The 2019 World Scout Jamboree operation at the Summit Bechtel Scout Reserve will take advantage of lessons learned by the K2BSA Amateur Radio operation during the 2013 and 2017 USA National Jamborees. It will also take advantage of the existing infrastructure, which includes three VHF/UHF repeaters installed by Icom America, as well as the utility poles for installing antennas. K2BSA ham gear stored in West Virginia includes antennas, rotators, and cables.

Evening operation from NA1WJ will involve at least two operators using the buddy system. VHF/UHF repeaters will offer full coverage of the Jamboree area via handheld transceivers, facilitating networking as well as emergency communication. The exhibit will include an Amateur Radio station with the special event call sign W8J.

The demonstration station will include multiple operating positions offering a variety of modes. These include six stations with 100 W HF transceivers, computer logging software, and large screen computer displays; two VHF/UHF stations for demonstrations and repeater monitoring,



and two satellite communication systems. The antenna farm will include two HF directional antennas, three HF dipoles, three HF vertical antennas, VHF/UHF verticals and satellite antennas with azimuth and elevation control, a trailer-based crank-up tower, a five-band Yagi, a 40-meter rotatable dipole, and a 6-meter Yagi.

Each station will be able to accommodate four participants at a time, plus one control operator. The goal is to give each participant up to about 10 minutes of operating time.

PCARS Ham Radio License Plates Wanted !!!

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

We have 71 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.

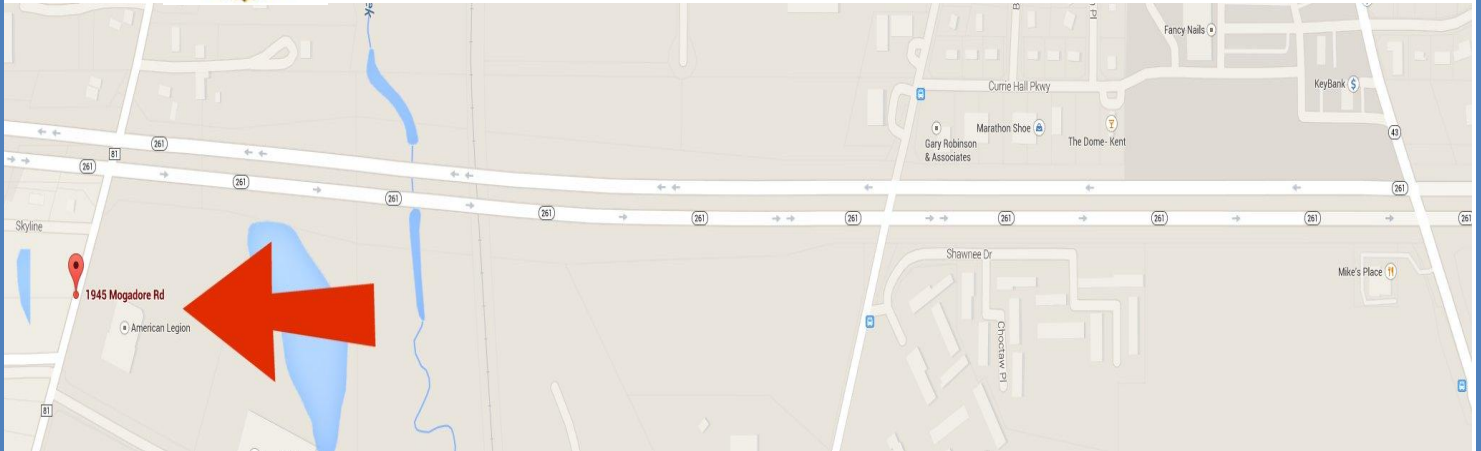


PCARS Meetings

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



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



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

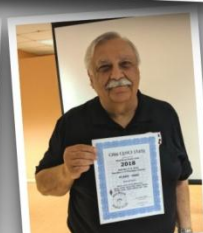
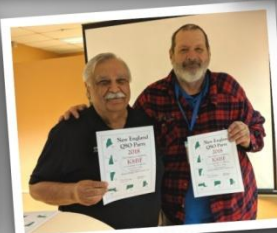


*The picture on the left shows
The American Legion Post 496
as viewed from Mogadore Road.
(looking East)*

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

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

Photos from the PCARS June Meeting



PCARS - June 10, 2019



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





The Annual 13 Colonies Special Event

GB13COL

K2Z Bonus Station

WM3PEN

NY - K2A

VA - K2B

DE - K2E

MA - K2H

NH - K2K

RJ - K2C

MD - K2F

NJ - K2I

SC - K2L

CT - K2D

GA - K2G

NC - K2J

PA - K2M

<http://www.13colonies.net/>



THE ORIGINAL 13 COLONIES SPECIAL EVENT GROUP PRESENTS THE 11TH ANNUAL:

4th Of July Week - 13 Colonies Special Event

JULY 1ST - JULY 7TH, 2019



K2A - NY.

K2B - VA.

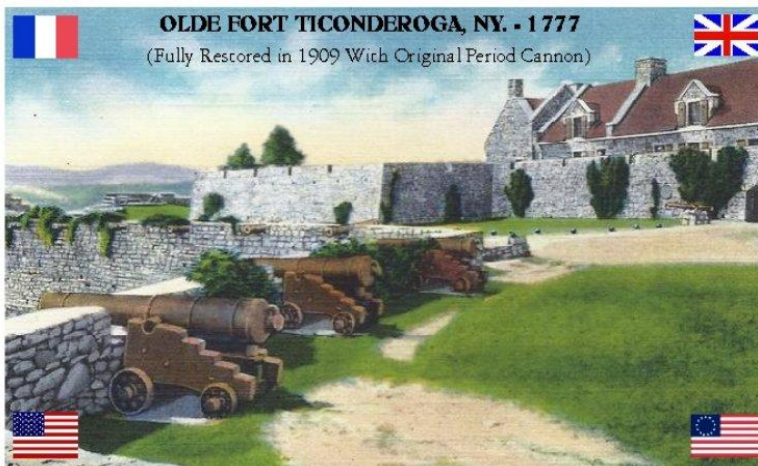
K2C - RI.

K2D - CT.

K2E - DE.

K2F - MD.

K2G - GA.



OLDE FORT TICONDEROGA, NY. • 1777

(Fully Restored in 1909 With Original Period Cannon)

K2H - MA.

K2I - NJ.

K2J - NC.

K2K - NH.

K2L - SC.

K2M - PA.

KU2US



Manager's
Bonus
Station

CONTACTS



All 13 Colony States
Clean Sweep

THIS IS TO CERTIFY THAT ARS: **KU2US** HAS PARTICIPATED
IN THIS 4TH OF JULY WEEK CELEBRATION HONORING THE ORIGINAL
13 COLONY STATES & THE INDEPENDENCE OF OUR NATION IN 1776



WM3PEN



SAMPLE



GB13COL

73'



KEN VILLONE-KU2US: MANAGER: Ken Villone



2019 Event Dates / July 1 (9AM Eastern) to July 7 (Midnight Eastern)

(July 1, 2019-1300 UTC to July 8, 2019-0400 UTC)

YOU DO NOT NEED ALL 13 COLONIES TO GET THE CERTIFICATE

YOU DO NOT NEED TO GET THE 2 BONUS STATIONS FOR A CLEAN SWEEP

Spotting

If you work a colony station, you are encouraged to spot it for others.

We suggest **DX Summit**.

The 13 Colonies Special Event is a not for profit event. All donations are used to fund the next years event, and to defray any expenses occurred.

All donations are used for operating costs, supplies, equipment, and 13 Colony Group initiatives. Donation is voluntary. If you have difficulty with a donation, tell us on your log sheet, and we will send you the certificate earned-No Questions Asked!.



Mobile Cruise-In 2019

So you think that you have one of the best amateur radio mobile installations to be found? Well here is your chance to show off that mobile rig and have the opportunity to compare it to dozens of others: HF, VHF, UHF, you name it.

Thursday, August 15, 2019, 6:00 - 8:00 pm

The Portage County Amateur Radio Service (PCARS) will be sponsoring the **10th annual**

Amateur Radio Mobile Cruise-In Night at the

A&W Restaurant - 769 East Main Street in Ravenna.

Hams from all over Northeast Ohio will be cruising in to check out the wide variety of mobile radio setups and get some ideas for their own vehicles.

Prizes awarded for:

1st Neatest Installation

2nd Most Bands Covered

Enjoy an evening of ham radio fellowship and fun and get to know other hams from throughout the area.



More information contact
Jim, AC8NT, at
jawilson@j3solutions.com



Thanks & 73



Parky, KB8UUZ
PCARS Newsletter Editor



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

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

AC8NT, AC8QG, KB8UUZ, WA8AR, K8CAV, K3GP, K3LR, K8BBE, WB2DFC, N8NB, WB8LCD, K8KSU, K8SRR, KA8TOA, KD8SNM, N8FUM, WA8SAJ, WA8UWV, WA8ZIP, N8XTH, W8PT, KB8AMZ, K8CAV, WD8ICX, W8KNO, N8SY, KC3JXQ, The ARRL, Lauren Collister, Youth DX Adventure, Ham Radio Web, Nature Journal and the World-Wide Web.

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

Parting comment from John, KD8MQ “I must've forgotten to pay my 10 Meter bill. The band is as quiet as a church mouse.”



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

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



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

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

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

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



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



**PCARS
Active
Volunteer
Examiner
Team
Members**

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



THE RADIOGRAM

PCARS Incorporated
Nov. 1, 2005

First Meeting
Nov. 14, 2005



ARRL Affiliation
April 20, 2006



Special Service Club
March 22, 2010

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

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



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



NLC

