

OUR 26TH YEAR!

# EPARA BEACON



VOL. 6, NUMBER 7 THE OFFICIAL NEWSLETTER OF THE EASTERN PENNSYLVANIA AMATEUR RADIO ASSOCIATION JULY 2022

## **NEXT CLUB MEETING: JULY 14TH**

**Monroe County Public Safety Center, 100 Gypsum Rd Stroudsburg, PA 18360**

Welcome to the EPARA Beacon! This newsletter is published monthly and is the official newsletter of the Eastern Pennsylvania Amateur Radio Association. EPARA has served the amateur radio community in the Pocono Mountains for over 25 years. We have been an ARRL affiliated club since 1995. We offer opportunities for learning and the advancement of skills in the radio art for hams and non-hams alike. EPARA supports Monroe County ARES/RACES in their mission of providing emergency communications for served agencies in Monroe County. Feel free to join us at one of our meetings or operating events during the year. The club meets on the second Thursday of every month, at the Monroe County 911 Emergency Control Center. The business meeting starts at 7:30 P.M. Anyone interested is invited to participate in our meetings and activities.

**ZOOM Meeting Info: Meetings begin at 7:30PM!**

<https://us02web.zoom.us/j/85463346031?pwd=bU1KcVZoaVZiVEUvdjRsUXlNNHZkZz09>

**Meeting ID: 854 6334 6031 Password: 244632**





# From The President



**F**ield Day was an absolute success! We had a great turn out with both elected officials and served agency representatives visiting our FD site. Lots of activities, food, and friendship where the highlight of the weekend. Band conditions on Saturday were poor, but the RF gods smiled upon us on Sunday. I made over 80 contacts between midnight and 3am Sunday morning on the digital station, and Sunday afternoon Doug KG3I had a run on 40-meter phone doing an excellent job working a pileup like pro! We had two officials from the Red Cross visit, they were impressed with our operation and capabilities. They have a greater appreciation of the service we can provide them in an emergency. We also had a visit from State representative Rosemary Brown who presented us with a Citation from the PA House of Representatives recognizing June as Amateur Radio month in the Commonwealth. Rosemary was also impressed by our efforts and had a blast attempting a satellite contact with Alex KD2FTA. Everyone had a great time and learned a few things, and that was the whole point!

We are scheduled to repair the 911 center antenna on Wednesday July 6th, we will meet at 11am. We will be holding Antenna weekend on July 25th and 26th. The plan is to build an 80-meter delta loop for next Field Day. We will also be making satellite contacts so bring your satcom gear. Our grant efforts to secure funding to replace our EMCOMM trailer continue, and we will be updating the membership as we continue to make progress.

That's all for now, see you at our meeting on July 7th.

73, Chris AJ3C

## CONTACT INFORMATION

President Chris Saunders AJ3C: <a href="mailto:aj3c@gmx.com">aj3c@gmx.com</a>	Vice President Bill Carpenter AB3ME: <a href="mailto:bill47@ptd.net">bill47@ptd.net</a>
Secretary Kevin Forest W3KCF: <a href="mailto:w3kcf@outlook.com">w3kcf@outlook.com</a>	Treasurer Scott Phelan KC3IAO: <a href="mailto:kc3iao@hobbyguild.com">kc3iao@hobbyguild.com</a>
Member at Large Eric Weis N3SWR: <a href="mailto:n3swr@ptd.net">n3swr@ptd.net</a>	ARES EC Charles Borger KB3JUF <a href="mailto:KB3JUF@gmail.com">KB3JUF@gmail.com</a>

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***EPARA Net list***

- Monroe county ARES-RACES – Sunday’s 8:30 PM, 146.865 MHz, PL -100 Hz
- The Monday Night Pimple Hill repeater 8:30 PM ( Repeater freq = 447.275 with a - 5MHz offset) DMR TECH Net on TG314273\* Time Slot 2
- SPARK Information/Swap Net – Tuesday’s 8:30 PM, 147.045 MHz, PL 131.8 Hz
- The Wednesday Night EPARA Hot Spot DMR Rag Chew net at 8:30 PM, TG 3149822\* Time Slot 2 (N3IS Talk Group)
- EPARA Tech Net – Friday’s 8:30 PM, 147.045 MHz, PL +131.8 Hz

\*TG = Talk Group

- President**  
Chris Saunders AJ3C
- Vice President**  
Bob Matychak W3BMM
- Secretary**  
Kevin Forest W3KCF
- Treasurer**  
Scott Phelan KC3IAO
- Member at Large**  
Eric Weis N3SWR

\*\*\*\*\*

- ARES EC**  
Charles Borger KB3JUF
- Assistant EC**  
Chris Saunders AJ3C  
Len Lavenda KC3OND
- Field Day Coordinator**  
Chris Saunders AJ3
- Quartermaster**  
TBD
- Membership Coordinator**  
Al Brizzi KB3OVb
- Newsletter Editor**  
Eric Weis N3SWR
- Photographer**  
Eric Weis N3SWR
- Public Information**  
TBD
- Social Media**  
Chris Saunders AJ3C  
Eric Weis N3SWR
- Hamfest Coordinator**  
Bill Connely W3MJ  
Walter Koras W3FNZ
- Technical Program Coordinator**  
Bill Carpenter AB3ME
- Lead VE**  
Chris Saunders AJ3C
- Webmaster**  
Chris Saunders AJ3C



# Announcements

## AND UPCOMING EVENTS



FOR RADIO AMATEURS

### EPARA Club Dues

Club dues were due January 1st and are temporarily extended due to COVID reasons. For those that missed the chance to stay current, there are two (2) methods available to pay to help make this easy for all. Contact Scott KC3IAO via his email: [KC3IAO@hobbyguild.com](mailto:KC3IAO@hobbyguild.com) and you can send him a check or pay via PayPal.

### ARES/RACES

There is an official S.E.T planned for Sunday, October 2nd. Contact Charlie KB3JUF for further info if needed.

### 14th Annual 13 Colonies Special Event

2022 Event Dates / July 1 (9AM Eastern) to July 7 (Midnight Eastern) (July 1, 2022-1300 UTC to July 8, 2022-0400 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

All HF bands will be in play, including the WARC bands, with the exception of 60 meters. Simplex on 2 meters and 6 meters is encouraged.

The SE stations are on the east coast and, are very close to each other. It will be harder for these states to contact each other so, use of 40m-160m is encouraged.

All modes of operation may be represented -

SSB, CW, RTTY, Digital, Etc. - The mode of operation is up to the individual colony state station. Please refer to the State information pages for details.

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!.

### Hamfest!

EPARA will host its annual hamfest this year on Sunday, September 18th, 2022. There is a new location this year - the Moose Lodge # 1336 at 705 Stokes Mill Rd., East Stroudsburg. An official flyer will come shortly. There is a huge field area and extensive parking available!

### Shack Photos for our Facebook page

We are looking for shack photos from members to post on our Facebook group page, so those that are interested please send them to Bob W3BMM and they will get posted!

Rule #1 of Amateur Radio, it is a hobby, unless you figured out a way to fashion a living out of it.

Rule #2 of Amateur Radio, life is not a hobby and typically carries heavy responsibilities of everything that is not a hobby.

Rule #3 of Amateur Radio, never give up a LIFE event for a Ham event. You may make some great memories at the Ham event, but the guilt you may carry missing a LIFE event can be a terribly heavy millstone.

Rule #4 of Amateur Radio, as technology moves forward, so does Ham Radio - do what makes you happiest, experiment with other elements of Ham Radio as LIFE allows.

Rule #5 of Amateur Radio, it is only Ham Radio, when confused always refer to Rule #1 through #4.







## EPARA GENERAL MEMBERSHIP MEETING AGENDA

### EPARA General Membership Meeting Agenda June 9<sup>th</sup> 2022

General Membership Meeting 7:30Pm

**Open meeting:**

Meeting called to order at 7:30 pm on June 9<sup>th</sup> 2022 by Chris AJ3C

Declaration of Quorum.

**Total members attending: 22 Members at 911 Center: 17 - Zoom members present: 5 - Visitors present: 3**

**Pledge of Allegiance / Moment of silence:**

**Membership Meeting - Minutes May 12th, 2022**

Secretary - Kevin W3KCF:

Meeting minutes for May 12<sup>th</sup>, 2022 were posted on the EPARA website. Chris – AJ3C asked members if they had seen and read the minutes from our previous meeting. He then asked if there were any questions or objections to the minutes as they were presented. With no objections, Chris asked for a motion to accept the minutes as presented:

*Motion to accept minutes as presented: By Bob – W3BMM 2<sup>nd</sup> by AL – KB3OVV Motion Passed*

**Treasurers report: (Final Audit Tabled)**

**For the June 2022 EPARA Club Meeting.  
By Scott Phelan, KC3IAO**

**Bank Account Statement Opening Balance (5/31/22 statement.): \$3981.92**

**Expenses: \$70.00 check for P.O. Box 160 fee**

**Income:** May's meeting deposit was made after the statement closed, so it will be in the next report.  
Interest received \$0.17

**Closing Balance: \$3912.09**

**Our PayPal Account:**

5/31/22 statement opening balance of \$386.58

**Expenses: None**

**Income Dues: \$30.00**

Michael Kunz – KB6TRU

Frank Boots – W6GP

**Fees: \$2.32**

**Closing balance of \$414.26**

*Motion to accept reports by Ruth Ann – W9FBO 2<sup>nd</sup> by ED – KC3OLE Motion Passed*





**EPARA GENERAL MEMBERSHIP MEETING AGENDA**

**Correspondence:** None

**Reports of officers and committee's:**

**Bill AB3ME – Program Committee:**

Bill stated he had nothing new, but he was looking for presentation material available on the net that would be useful to the club. He also asked again for members to step up and provide some sort of presentation. Anyone interested, he asks that you send him an email at bill47@ptd.net.

Bill mentioned Chris AJ3C would be doing a presentation on Field day after the meeting.

**Charlie KB3JUF – ARES/RACES:**

Charlie reiterated that all involved in ARES need to be motivated. Make sure you attend our meetings on the 4<sup>th</sup> Friday of the month and keep your Task Books up to date. Complete any and all training required and stay enthused. Charlie also stated, please check in on the Sunday Night ARES Net.

Charlie also stated, there would be “NO ARES MEETING” in June due to Field Day

**Ruth Ann, W9FBO – PIO:**

Ruth Ann said she had sent out invitations to our state legislators inviting them to this year’s field day in June. Information packets were also sent out to local TV and Radio stations inviting them to field day.

**Chris AJ3C -- Instruction and Training:**

Our Tech class is complete and all students passed their exams. We are going try and schedule a General class for September of this year.

**Chris AJ3C – Website:**

Nothing to Report. He will be doing updates soon. Will also be updating our members list.

**Bob W3BMM – Social Media:**

Bob said that everything is going well with our social media accounts. He asked for feedback and suggestions on what information to add to the account. He also mentioned for us to visit the site and share it with others. Please leave a like when you visit.





## **EPARA GENERAL MEMBERSHIP MEETING AGENDA**

### **AL KB3OVV: Membership:**

Current membership is 69. Our 2022 Dues are due and payment can be made by check or PayPal. Any member who does not pay their dues by March 31<sup>st</sup> will be removed from the membership rolls.

**Eastern Pennsylvania Amateur Radio Association  
P.O. Box 521, Sciota, Pa 18354**

**KC3IAO@hobbyguild.com**

### **Eric N3SWR – Newsletter:**

Eric said there was nothing new and everything is good. He asked if anyone had articles or pictures they'd like to share, please send them to him at eparanewsletter@ptd.net.

### **Old business:**

#### **Sat-Com/EME Group:**

Power divider and coax assembly are complete

#### **OCF Dipole Repair:**

Replacement of the antenna rope for the OCF Dipole was started. We need to shoot a new line over the trees. We need to schedule this after field day for sometime in July. The old antenna is down.

#### **Field Day 2022: June 24<sup>th</sup>, 25<sup>th</sup> and 26<sup>th</sup>**

We will be running as an Alpha 2 station using the club call N3IS. The club will supply hamburgers and hot dogs as in the past along with water, coffee and soda. Food donations are welcome. We will have the com trailer with us. For logging, we will be using the N3JFP software on a wireless network. We are looking for coaches to help with the newbie's and GOTA participants.

Flyers will be made by Bob and his wife. He will also be operating a 2m station. In addition, we will be operating digital stations, CW and HF stations. Kevin will bring his 5<sup>th</sup> wheel.

#### **Hamfest 2022: Flier is complete and the event is submitted to the ARRL**

This year's Hamfest will be held on September 18<sup>th</sup> at the Moose Lodge. Alex -KD2FTA, Kevin - W3KCF and Ruth Ann - W9FBO have volunteered to manage the food and beverage booth.

Moose Lodge 705 Stokes Mill Rd, East Stroudsburg, PA 18301

### **Any other old business:**

Charlie said he was looking into the status of our club being present at the West End Fair. Nothing yet.

### **New business:**

### **Antenna Weekend:**





**EPARA GENERAL MEMBERSHIP MEETING AGENDA**

This year, antenna weekend will be held on the 23<sup>rd</sup> of July. Projects planned this year are a 40m Delta loop and 160m loop.

**Tonight's 50/50 Raffle: \$28.00**

Tonight's raffle was won by Walt and he received \$14.00

**Votes / New members:**

None

**Announcements:** None

**Any Additional Announcements**

**Adjournment...**

*Meeting was adjourned at 2030: Motion to close by Charlie – KB3JUF 2<sup>nd</sup> by Ruth Ann – W9FBO Motion Passed.*

**Secretary**

*Kevin Forrest*

W3KCF





# EPARA MEETING



## TEST YOUR KNOWLEDGE!

What is the purpose of a step-start circuit in a high-voltage power supply?

- A. To provide a dual-voltage output for reduced power applications
- B. To compensate for variations of the incoming line voltage
- C. To allow for remote control of the power supply
- D. To allow the filter capacitors to charge gradually

Last month's answer was, D. If both stations have the moon visible, they can communicate. But the extreme losses mean that high gain antennas, low noise receivers and narrow bandwidth signals like JT65 are required.

### What is Digital Mobile Radio (DMR)?

- A European Telecommunications Standards Institute (ETSI) standard first ratified in 2005 and is the standard for "professional mobile radio" (PMR) users. Motorola designed their MotoTrbo line of radios based upon the DMR standards
- Meets 12.5kHz channel spacing and 6.25kHz regulatory equivalency standards
- Two slot Time Division Multiple Access (TDMA)
- 4 level FSK modulation
- Cutting edge Forward Error Correction (FEC)
- Commercial ETSI/TIA specs mean rugged performance and excellent service in RF congested urban environments (no intermod and other RF "hash")
- Equipment interoperability is certified by the DMR Association



**The EPARA HOT SPOT Wednesday night DMR rag chew is here!**

**Wednesday evenings at 8:30 PM local, 0:30 UTC!**

***Tune your DMR radios to Talk Group 3149822 TS2 to join the  
N3IS EPARA Hot Spot rag chew DMR net.***

**Listen to the Tech Net Friday nights on the 147.045 repeater to learn more about joining this net and for upcoming ZOOM meetings announcements to learn more about programming your radios and hot spots!**



Anyone looking to take an exam is encouraged to contact Chris AJ3C to preregister at least one (1) week in advance of the test date. If you have any questions or to register, Chris can be reached via email [AJ3C@GMX.COM](mailto:AJ3C@GMX.COM). VE sessions are being held the 4th Friday of each month at 6pm at the Monroe County 911 training center. Seating is limited for the time being so we can follow the health guidelines set forth by the county and state.



VE sessions are back - contact Chris AJ3C for further information!





ARES/RACES meetings are now being held on the fourth Friday of each month at 7PM. The meetings are once again being held at the 911 call center. These meetings will serve as training sessions covering several aspects of amateur radio emergency communications. We will start with traffic handling and the use of Radiograms and the ICS 213 general message form. Future sessions will cover the use of several ICS forms and the setup and use of digital communication modes including Winlink, Packet Radio, APRS, and the FLDIGI software program. Meeting are open to all, you do not need to be an ARES/RACES team member to attend.



## Want to Put Your Ham Radio Skills to Good Use? Get Involved in EmComm!

One of the missions of the Amateur Radio Service is for amateur radio operators to provide public service and emergency communications (EmComm) when needed. We act as a voluntary noncommercial communication service and pitch in to help our communities and first responders.

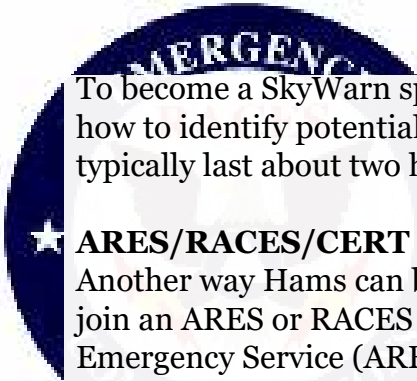
So, what organizations are out there for community-minded amateur radio operators and what can we do to help?

### Join In

One good entry point into public service and emergency communications is to join SkyWarn, a volunteer program run by the National Weather Service (NWS) with more than 290,000 trained severe weather spotters. These volunteers help keep their local communities safe by providing timely and accurate reports of severe weather to the NWS.

Not all of these weather spotters are amateur radio operators, but many are. Amateur radio communications can report severe weather in real time. When severe weather is imminent, SkyWarn spotters are deployed to the areas where severe weather is expected. A net is activated on a local repeater and SkyWarn spotters who are Hams check into that net. The net control advises the spotters when they might expect to see severe weather, and the spotters report conditions such as horizontal winds, large hail, rotating clouds, and even tornadoes.





To become a SkyWarn spotter, you must attend a class that teaches you the basics of severe weather, how to identify potentially severe weather features, and how to report them. The classes are free and typically last about two hours. Check your local NWS website for class schedules.

### ★ ARES/RACES/CERT ★

Another way Hams can become involved in public service and emergency communication is to join an ARES or RACES group. Technically, these are two separate services—the Amateur Radio Emergency Service (ARES) is run by the ARRL, while the Radio Amateur Civil Emergency Service (RACES) is a function of the Federal Emergency Management Agency (FEMA). Amateur radio operators who typically take part in one also take part in the other.

To participate in RACES, you'll need to take some self-study FEMA courses in emergency preparedness and emergency-response protocols. Classes may or may not be required to participate in ARES. These requirements are set by each individual ARES group. To get involved with either ARES or RACES, ask your local club members when they meet. You can also contact the Section Manager or Emergency Coordinator for your ARRL section. To contact them, [click here](#) and find the section that you live in.

Amateur radio operators belonging to ARES (and its predecessor, the Amateur Radio Emergency Corps) have responded to local and regional disasters since the 1930s, including the 9/11 attacks, and Hurricane Katrina and Hurricane Michael, among others.

The Community Emergency Response Team (CERT) program trains volunteers—both Hams and non-hams—how to be prepared for disasters that may impact their area. They provide basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. CERT offers a nationwide approach to volunteer training and organization that first responders can rely on during disaster situations, allowing them to focus on more complex tasks.

### What Gear Do You Need?

For most local needs, a 5-watt VHF/UHF handheld transceiver is sufficient for utilizing local repeaters to relay messages and report on conditions as they exist. Replacing the radio's stock antenna with a higher gain antenna or connecting it to a magnetic mount on a vehicle will increase range significantly.

Even better is a VHF/UHF mobile radio installed in your vehicle with 25 or more watts output and a good mobile antenna. In the event the repeater loses power, you can talk over a considerably larger area in simplex mode with the extra power and a good mobile antenna.

If you work with an ARES or RACES group, you may be asked to act as a county control station. In this capacity, you'd need both HF and VHF transceivers in a fixed location, such as your house, with a good antenna system and emergency power capabilities like a generator or batteries. This allows you to make contacts within your state and throughout the U.S.

### Helping Hams

Ham radio can play a key role in emergency situations. Here are a few examples:

- Ham radio connected firefighters and police departments, Red Cross workers, and other emergency personnel during the 2003 blackout that affected the northeast United States.
- In 2017, fifty amateur radio operators were dispatched to Puerto Rico to provide communications services in the wake of Hurricane Maria.
- Amateur radio operators provided communications in the aftermath of the Boston Marathon bombing when cellphone systems became overloaded.

- During Hurricane Katrina, more than one thousand ARES volunteers assisted in the aftermath and provided communications for the American Red Cross.
- During the devastating Oklahoma tornado outbreak that began in May 1999, amateur radio operators—giving timely ground-truth reports of severe weather—played a critical role in the warning and decision-making processes at the NWS Weather Forecast Office in Norman, Oklahoma.

Credit: <https://www.onallbands.com/want-to-put-your-ham-radio-skills-to-good-use-get-involved-in-emcomm/>







I don't know about the rest of you but I DID have a great time this year up on the mountain for Field Day!. I brought along a slow cooker filled with beer brats and sour kraut to add to the pile of donuts. All the things a diabetic could dream of were within easy reach. I took over 230 photos of us having a blast making contacts when the band conditions allowed it.

Our PA state Representative Rosemary Brown promptly showed up and read to us the citation she had prepared for us. Following that she seemed to have a fun time making a contact over the ISS repeater.

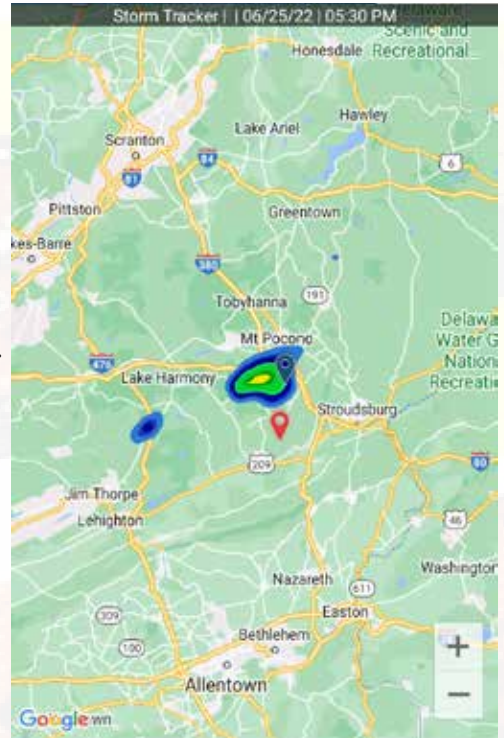
The day would not be complete without a "rain delay" as the only storm for miles decided to form over our heads and parked there for almost two hours.

As always Charlie was able to provide us with some comic relief for most of the day and of course I was there to cheer him on :)

Tonight I'm preparing for the 13 Colonies special event which starts Friday at 9am. See you there!

Cheers for now!

Eric  
N3SWR



Tell me and I forget. Teach me and I remember. Involve me and I learn.  
-Benjamin Franklin

### **Topics of Interest**

Have an idea you would like to share with your fellow hams? Interested in one of the new exotic digital modes and would like to get others interested in it too? Found a blog somewhere that you think others would find interesting? Members are encouraged to submit items of interest for publication. Submitted articles (are suggested) to be no more than a page or two in length and may be edited for content and grammar. The EPARA officers and newsletter editor reserve the right to determine which items will be included in The Beacon. The deadline for publication is the 15th of the month. The publication date will be at the end of each month. Copyrights are the property of their respective owners and their use is strictly non-profit/educational and intended to foster the spirit of amateur radio.



If you've taken pictures at an event and would like to submit them for possible inclusion in the newsletter, forward them to the newsletter editor. Please send action shots, if possible. Faces are often preferable over the backs of heads. Many hams may be way too overweight, so please consider using a wide-angled lens.

### **Disclaimer**

The Beacon is not representative of the views or opinions of the whole organization, and such views and opinions expressed herein are of the individual author(s).



# Contest Corral

July 2022

Check for updates and a downloadable PDF version online at [www.arrl.org/contest-calendar](http://www.arrl.org/contest-calendar).

Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Start - Finish Date-Time	Date-Time	Bands	Contest Name	Mode	Exchange	Sponsor's Website
1 0000	1 2359	1.8-144	RAC Canada Day Contest	CW Ph	RS(T), VE province/territory or serial	<a href="http://www.rac.ca">www.rac.ca</a>
2 0000	2 2359	1.8-28	Venezuelan Independence Day Contest	CW Ph Dig	RS(T), serial	<a href="http://radioclubvenezolano.org">radioclubvenezolano.org</a>
2 0800	3 1100	3.5	NZART Memorial Contest	CW Ph	RS(T), serial	<a href="http://www.nzart.org.nz/activities">www.nzart.org.nz/activities</a>
2 1100	3 1059	3.5-28	DL-DX RTTY Contest	Dig	RST, serial	<a href="http://www.drcg.de/dldxrtty">www.drcg.de/dldxrtty</a>
2 1400	3 1400	1.8-28	Marconi Memorial HF Contest	CW	RST, serial	<a href="http://www.arifano.it">www.arifano.it</a>
2 1500	3 1500	3.5-14	Original QRP Contest	CW Ph	RST, serial, power category	<a href="http://www.qrpsc.de">www.qrpsc.de</a>
2 1500	3 1500	50, 144, 432	TA VHF/UHF Contest	CW Ph	RS(T), serial, 6-char grid square	<a href="http://trac.org.tr">trac.org.tr</a>
2 2000	3 2000	7	PODXS 070 Club 40-Meter Firecracker Sprint	Dig	RST, SPC	<a href="http://www.podxs070.com">www.podxs070.com</a>
4 1630	4 1729	3.5,7	OK1WC Memorial (MWC)	CW	RST, serial	<a href="http://memorial-ok1wc.cz">memorial-ok1wc.cz</a>
4 1900	4 2030	3.5	RSGB 80-Meter Club Championship, CW	CW	RST, serial	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
5 0100	5 0300	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	<a href="http://arsqrp.blogspot.com">arsqrp.blogspot.com</a>
6 1200	6 1300	1.8-28	A1Club AWT	CW	RST, name	<a href="http://a1club.org/contest/awt">a1club.org/contest/awt</a>
6 1700	6 2000	144	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	<a href="http://www.ft8activity.eu">www.ft8activity.eu</a>
7 0000	8 0300	7	Walk for the Bacon QRP Contest	CW	RST, SPC, name, mbr or power; 13 WPM max	<a href="http://qrptest.com/pigwalk40">qrptest.com/pigwalk40</a>
7 1700	7 2100	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	<a href="http://nrcontest.no/index.php/nrri-contests">nrcontest.no/index.php/nrri-contests</a>
7 1900	7 2100	1.8-50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
9 1200	10 1200	1.8-28	IARU HF World Championship	CW Ph	RS(T), IARU HQ Society or ITU zone	<a href="http://www.arrl.org/iaru-hf-world-championship">www.arrl.org/iaru-hf-world-championship</a>
9 1200	10 2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
10 2000	10 2300	1.8-28	QRP ARCI Summer Homebrew Sprint	CW	RST, SPC, mbr or power	<a href="http://qrparci.org/contest">qrparci.org/contest</a>
11 0000	11 0200	1.8-28	4 States QRP Group Second Sunday	CW Ph	RS(T), SPC, mbr or power	<a href="http://www.4sqrp.com">www.4sqrp.com</a>
11 1630	11 1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	<a href="http://memorial-ok1wc.cz">memorial-ok1wc.cz</a>
13 1200	13 1300	1.8-28	A1Club AWT	CW	RST, name	<a href="http://a1club.org/contest/awt">a1club.org/contest/awt</a>
13 1700	13 2000	432	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	<a href="http://www.ft8activity.eu">www.ft8activity.eu</a>
13 1900	13 2030	3.5	RSGB 80-Meter Club Championship, SSB	Ph	RS, serial	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
16 0700	16 1459	7-28	Russian Radio Team Championship	CW Ph	RS(T), mbr code or ITU zone	<a href="http://srr.ru">srr.ru</a>
16 0800	16 1400	1.8-7	Trans-Tasman Low-Bands Challenge	CW Ph Dig	RS(T), serial	<a href="http://www.wia.org.au">www.wia.org.au</a>
16 1400	17 1400	70	IARU Region 1 70 MHz Contest	CW Ph	RS(T), serial, 6-char grid	<a href="http://www.iaru-r1.org">www.iaru-r1.org</a>
16 1800	17 0559	3.5-28	North American QSO Party, RTTY	Dig	Name, SPC	<a href="http://www.ncjweb.com">www.ncjweb.com</a>
16 1800	17 2100	50, 144	CO Worldwide VHF Contest	CW Ph Dig	4-char grid square	<a href="http://www.cqww-vhf.com">www.cqww-vhf.com</a>
17 0900	17 1600	3.5-14	RSGB International Low Power Contest	CW	RST, serial, power	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
17 2000	17 2159	14	CQC Great Colorado Gold Rush	CW	RST, SPC	<a href="http://www.coloradoqrpclub.org">www.coloradoqrpclub.org</a>
17 2300	18 0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	<a href="http://qrptest.com/pigrun">qrptest.com/pigrun</a>
18 1630	18 1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	<a href="http://memorial-ok1wc.cz">memorial-ok1wc.cz</a>
18 1900	18 2030	3.5-14	RSGB FT4 Contest	FT4	4-char grid square	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
20 1200	20 1300	1.8-28	A1Club AWT	CW	RST, name	<a href="http://a1club.org/contest/awt">a1club.org/contest/awt</a>
20 1700	20 2000	1.2G	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	<a href="http://www.ft8activity.eu">www.ft8activity.eu</a>
21 0000	22 0300	14	Walk for the Bacon QRP Contest	CW	RST, SPC, name, mbr or power; 13 WPM max	<a href="http://qrptest.com/pigwalk20">qrptest.com/pigwalk20</a>
21 0030	21 0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	<a href="http://naqcc.info">naqcc.info</a>
21 1900	21 2000	3.5-14	NTC QSO Party	CW	RST, mbr or "NM"; 25 WPM max	<a href="http://qsl.net/ntc/party.html">qsl.net/ntc/party.html</a>
23 1000	23 2159	3.5-28	YOTA Contest	CW Ph	RS(T), age	<a href="http://www.ham-yota.com/contest">www.ham-yota.com/contest</a>
25 1630	25 1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	<a href="http://memorial-ok1wc.cz">memorial-ok1wc.cz</a>
27 0000	27 0200	1.8-50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
27 1200	27 1300	1.8-28	A1Club AWT	CW	RST, name	<a href="http://a1club.org/contest/awt">a1club.org/contest/awt</a>
28 1900	28 2030	3.5	RSGB 80-Meter Club Championship, Data	Dig	RST, serial	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
30 0000	30 2359	1.8-50	Feld Hell Sprint	Dig	Mbr, SPC, grid	<a href="http://sites.google.com/site/feldhellclub">sites.google.com/site/feldhellclub</a>
30 1200	31 1200	3.5-28	RSGB IOTA Contest	CW Ph	RS(T), serial, IOTA # (if applicable)	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
30 1400	30 1800	144	WAB 144 MHz Low Power Phone	Ph	RS, serial, WAB square or country	<a href="http://wab.intermip.net">wab.intermip.net</a>
30 1400	31 2200	3.5-50, Satellite	Tennessee State Parks on the Air	All	TN park abbreviation or SPC	<a href="http://www.tnpota.org">www.tnpota.org</a>
31 1700	31 2100	7-28	ARS Flight of the Bumblebees	CW	RST, SPC, power or Bumblebee number	<a href="http://www.arsqrp.blogspot.com">www.arsqrp.blogspot.com</a>

There are a number of weekly contests not included in the table above. For more info, visit [www.qrpfoxhunt.org](http://www.qrpfoxhunt.org), [www.ncccsprint.com](http://www.ncccsprint.com), and [www.cwops.org](http://www.cwops.org). All dates and times refer to UTC and may be different from calendar dates in North America. Contests are not conducted on the 60-, 30-, 17-, or 12-meter bands. Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state. Listings in blue indicate contests sponsored by ARRL or NCJ. The latest time to make a valid contest QSO is the minute listed in the "Finish Time" column. Data for Contest Corral is maintained on the WA7BNM Contest Calendar at [www.contestcalendar.com](http://www.contestcalendar.com) and is extracted for publication in QST 2 months prior to the month of the contest. ARRL gratefully acknowledges the support of Bruce Horn, WA7BNM, in providing this service.



# AMATEUR RADIO SPECIAL EVENT STATIONS!

06/25/2022 | 150th Anniversary of Home on the Range

Jun 25-Jul 7, 1200Z-2300Z, K0R, Athol, KS. Smith County Amateur Radio Club. 14.336 7.265 3.930. Certificate & QSL. Michael G. Saft, KB0QGT, 220 E Kansas Ave., Smith Center, KS 66967.

06/30/2022 | Granite Mountain Hotshots - Wildfire Loss of 19 Granite Mountain Hot Shots June 30, 2013

Jun 30-Jul 1, 1500Z-0100Z, N7GMH, Prescott Valley, AZ. Yavapai Amateur Radio Club. 7.219 14.319 18.119 21.319. Certificate. Donald Bauer, WB7TPH, 7150 E. Acre Way, Prescott Valley, AZ 86315. [www.qrz.com/db/n7gmh](http://www.qrz.com/db/n7gmh)

07/01/2022 | Iowa Railroads on the Air IRROTA

Jul 1-Aug 31, 0000Z-2359Z, W0DBQ, Dubuque, IA. Great River Amateur Radio Club. 14.347 14.340 7.280 7.250. Certificate & QSL. IRROTA c/o the Great River ARC, P.O. Box 1384, Dubuque, IA 52004. For details see IRROTA on the Event drop-down menu at [W0DBQ.org](http://W0DBQ.org). Celebrating Iowa's rich railroad history clubs and individuals will be activating as many of the 387 remaining railroad depots (active and inactive) as possible during July and August 2022. Certificates to any clubs or individuals activating five depot/stations. QSL cards for any confirmed hunter contacting an activator by sending a SASE. [W9UPK@arrl.net](mailto:W9UPK@arrl.net) or [www.w0dbq.org](http://www.w0dbq.org)

07/02/2022 | Colonial Williamsburg Special Event

Jul 2, 1400Z-2000Z, K4RC, Williamsburg, VA. Williamsburg Area Amateur Radio Club. 7.265 14.265. Certificate & QSL. QSL Manager, K4RC, P.O. Box 1470, Williamsburg, VA 23187. Celebrating the 246th anniversary of the signing of the Declaration of Independence in 1776. [info@k4rc.net](mailto:info@k4rc.net) or [k4rc.net](http://k4rc.net)

07/04/2022 | Independence Day Observance

Jul 4, 1600Z-2130Z, W5KID, Baton Rouge, LA. Baton Rouge Amateur Radio Club. 7.040 7.250 14.040 14.250. QSL. USS KIDD Amateur Radio

Club, 305 S. River Road, Baton Rouge, LA 70802. Operation aboard the USS KIDD (DD-661). WW II Fletcher class destroyer. [www.qrz.com/db/w5kid](http://www.qrz.com/db/w5kid)  
07/05/2022 | Whiskey Rebellion

Jul 5-Jul 9, 0000Z-2300Z, W3R, Prosperity, PA. Washington Amateur Communications. 14.280 7.,280 18.160. Certificate & QSL. Bill Steffey, NY9H, 401 Bells Lake Rd., Radio Hill, Prosperity, PA 15329. Event info and background on the "Original" Whiskey Rebellion at [www.whiskeyrebellionfestival.com](http://www.whiskeyrebellionfestival.com) & [www.wa3com.com](http://www.wa3com.com)

07/06/2022 | 100 Years of Thales Nederland B.V.

Jul 6-Dec 31, 1000Z-2359Z, PA100THALES, Many cities, NETHERLANDS. PA100THALES Team. all bands, all modes. QSL. Email, [pa100thales@qsl.net](mailto:pa100thales@qsl.net), for information, NETHERLANDS. This is an operating event. [www.qsl.net/pa100thales](http://www.qsl.net/pa100thales)

07/07/2022 | World Games - 2022 Birmingham

Jul 7-Jul 17, 0000Z-2359Z, W4G, Birmingham, AL. Birmingham Amateur Radio Club. 7.2 MHz. QSL. Birmingham Amateur Radio Club - W4G, PO Box 603, Birmingham, AL 35201. Look for W4G on various spotting sites. We will be operating all bands and modes - including satellites. [w4cue.com/w4g](http://w4cue.com/w4g)

07/09/2022 | RMRA 50th Anniversary Celebration

Jul 9, 1700Z-2100Z, W9BCC, Wausau, WI. Rib Mountain Repeater Association. 14.315 7.282 146.820 146.730. QSL. Eqsl or Rib Mountain Repeater Association, 1810 Perry Drive, Schofield, WI 54476. <https://rmra.club>

07/12/2022 | Bladensburg World War I Peace Cross

Jul 12, 1800Z-2200Z, N3TAL, Lanham, MD. American Legion Post 275 ART. 7.275mhz +/- 5 khz. QSL. American Legion Post 275 ART, 8201 Martin Luther King Jr. Hwy, Lanham, MD 20706. [wa3dvo@verizon.net](mailto:wa3dvo@verizon.net)

07/13/2022 | Celebrating 149th Annual Old Soldiers and Sailors Reunion

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 QRM \_\_\_\_\_ QRN \_\_\_\_\_  
 DATE GMT RS 2WAY MHZ QSL



# AMATEUR RADIO SPECIAL EVENT STATIONS!

Jul 13-Jul 18, 0600Z-2200Z, K0E, Erie, KS.  
W0SDK. 14.250 7.250. QSL. Shannon Kofoid,  
W0SDK, 226 N. Grant, Erie, KS 66733.  
07/16/2022 | Bird 80th Anniversary

Jul 16, 1400Z-2000Z, W8B, Solon, OH. Bird.  
14.330 7.280 14.130 7.115. QSL. Bird Special Event  
Station, 30303 Aurora Rd, Solon, OH 44139. Also  
70th anniversary of the Bird 43. W8b@k8md.com  
07/18/2022 | XACOBEO - From Galicia to the  
World

Jul 18-Jul 25, 0000Z-2359Z, AO2022XAC  
+, Galicia, SPAIN. URE Territorial Council of  
Galicia. 6, 10, 12, 15, 17, 20, 30, 40, 80, and 160  
meters on SSB, CW and MGM. Certificate. Email,  
galiciaxacobeo2022@ure.es, for rules, SPAIN. Look  
for these call signs: AO1XCF, AO1XFM, AO1XVP,  
AO1XCI, AO1XCP, AO1XCN, AO1XAU, AO1XCV,  
AO1XCU, and AO1XPC. This is an operating event.  
galiciaxacobeo2022@ure.es  
07/19/2022 | Warrick County 4H fair

Jul 19-Jul 23, 1800Z-2000Z, W4H, Boonville,  
IN. Warrick ARES/RACES. 14.320 SSB. QSL. Steve  
Connaughton, 7677 Jenner Rd., Chandler, Chandler,  
IN 47610. Celebrating the Warrick County Indiana  
4H fair. Additional frequencies modes may be  
used depending on band and weather conditions.  
Operating times will be mostly late afternoons and  
evenings. www.warrickaresraces.org  
07/20/2022 | Apollo 11 Moon Landing  
Commemoration

Jul 20, 1330Z-2000Z, K2CAM, Garden City, NY.  
Long Island Mobile Amateur Radio Club. 14.240  
7240. QSL. LIMARC, P.O. Box 392, Levittown, NY  
11756. Remembering the 1969 Moon Landing of  
Apollo 11. It recognizes the contributions of the  
aerospace industry on Long Island. Located at  
the Cradle of Aviation Museum. K2CAM will be  
operated by the Long Island Mobile Amateur Radio  
Club. Will be operating SSB, PSK31, and FT8. www.  
qrz.com/db/K2CAM or www.limarc.org  
07/21/2022 | 70th Anniversary of 7.3 Earthquake

Jul 21-Jul 22, 1400Z-0200Z, K6E, Bakersfield, CA.  
N6AJ. 14.275 18.100. QSL. Sharon Godley, 2701  
Fordham St, Bakersfield, CA 93305. Remembering  
the 7.3 in Bakersfield and Tehachapi, California in  
1952 We be on different bands and modes. Special  
QSL card Updates on QRZ (N6AJ). n6aj@arrl.net or  
www.qrz.com/db/n6aj

07/22/2022 | Long Beach Catalina Ski Race

Jul 22-Jul 24, 0000Z-0000Z, K8S, Long Beach, CA.  
Long Beach Boat and Ski Club. 449.78 449.180  
146.895. Certificate. Rod La Rocque, 340 El Rancho,  
Moose Pass, AK 99631. rodneyd44@yahoo.com  
07/23/2022 | 100th Anniversary of Three RI  
Broadcast Stations

Jul 23, 1400Z-1700Z, N1EPJ, East Greenwich, RI.  
Massie Wireless Club at New England Wireless  
& Steam Museum. 7.058 14.058 7.25 14.30. QSL.  
Massie Wireless Club N1EPJ, P.O. Box 883, East  
Greenwich, RI 02818. WJAR, WEAN, and WKAD  
NEWSM.ORG  
07/23/2022 | RRC Kiska Island Expedition - 80th  
Anniversary of the Japanese Invasion of the Aleutian  
Islands

Jul 23-Aug 3, 0000Z-0000Z, K7K, Homer, AK.  
Russian Robinson Club. 7242 14242 18142  
21342. QSL. Richrd J. Moen, 2935 Plymouth Dr.,  
Bellingham, WA 98225.  
07/23/2022 | USCG AUX/ Sea Scouts Safety at Sea  
Day

Jul 23, 1200Z-2100Z, N9E, Lorain, OH. USCG AUX  
09E-06/BSA Sea Scouts. 14.270 14.290 7.180 7.290.  
QSL. CGAUX Radio Officer, CGSTA Lorain, 110  
Alabama Ave., Lorain, OH 44052. W8TWL@arrl.  
net  
07/25/2022 | EAA Airventure 2022, World's largest  
Airshow.

Jul 25-Jul 31, 1330Z-2030Z, W9ZL, Appleton, WI.  
Fox Cities Amateur Radio Club. 7.250 14.270 50.150.

FIC  PORTABLE  
 on \_\_\_\_\_ MHz RST \_\_\_\_\_  
 QRM \_\_\_\_\_ QRN \_\_\_\_\_  
 DATE GMT RS 2WAY MHZ QSL



# AMATEUR RADIO SPECIAL EVENT STATIONS!

Certificate. W9ZL Special Event Station, PO Box 2346, Appleton, WI 54912. www.fcarc.club  
07/25/2022 | Orleans County 4H Fair

Jul 29-Aug 21, 1600Z-2000Z, W9ISF, Indianapolis, IN. Indiana State Fair ARC. 7.245 14.245 18.150.  
QSL. Indiana State Fair ARC, 7405 E. County Road 900 N, Brownsburg, IN 46112.

Jul 25-Jul 31, 1200Z-0200Z, W4H, Albion, NY.  
Orleans County Amateur Radio Club. 7.030 7.175 14.074 14.275. QSL. Orleans County Amateur Radio Club, 14064 W County House Rd., Albion, NY 14411. Orleans County (NY) 4 H Fair Special Event  
Please QSL by September 30, 2022 ocarc.us  
07/29/2022 | Indiana State Fair

## 14th Annual 13 Colonies Special Event




73'

- ★ K2A/NY
- ★ K2B/VA
- ★ K2C/RI
- ★ K2D/CT
- ★ K2E/DE
- ★ K2F/MD
- ★ K2G/GA

- ★ K2H/MA
- ★ K2I/NJ
- ★ K2J/NC
- ★ K2K/NH
- ★ K2L/SC
- ★ K2M/PA



THIS CERTIFICATE CERTIFIES THAT ARS HAS PARTICIPATED IN THIS ON - AIR AMATEUR RADIO EVENT HONORING THE ORIGINAL THIRTEEN COLONY STATES, OUR INDEPENDENCE, & OUR ACTIVE MILITARY / VETERANS, 

CONTACTS



**CLEAN SWEEP**



2022 Event Dates / July 1 (9AM Eastern) to July 7 (Midnight Eastern)  
(July 1, 2022-1300 UTC to July 8, 2022-0400 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

FJG  PORTABLE  
 on \_\_\_\_\_ MHz RST \_\_\_\_\_ QRM \_\_\_\_\_ QRN \_\_\_\_\_  
 DATE GMT RS 2WAY MHZ QSL



## The 84 / 6Z4 - Full Wave Rectifier

The type 84 tube was originally developed by Sylvania and first marketed by Philco in 1933. It was made with the S12 size bulb, by manufacturers such as Arcturus (with blue glass), Ken-Rad, National Union, Philco, and Sylvania. It was sold originally in March 1933. The companies listed above made the tube with the ST12 bulb and tubes of later manufacture had the double brand 84-6Z4.

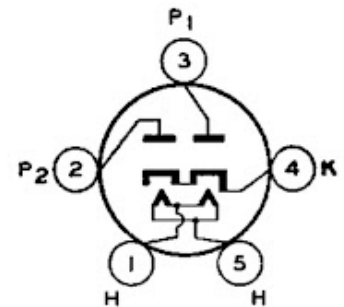
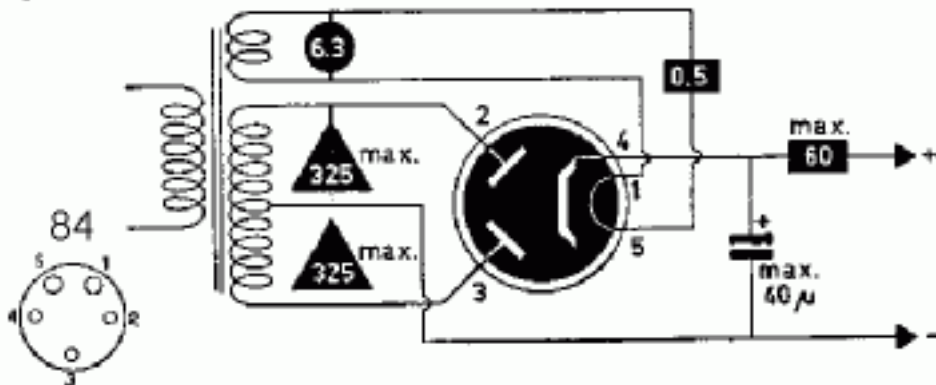


The type 84 insulated cathode “kenotron” (vacuum tube) rectifier was the technological breakthrough that made car radios practical. Finding a ceramic material that could efficiently transfer heat from the heater to the cathode, whilst maintaining a breakdown voltage in excess of 300 Volts, and also run red-hot for years without emitting gases that would ruin the vacuum, took some doing. It also allowed the development of the low-cost AC/DC “All American Five” concept.

Also known by US military identifier VT-84.

$R_t = \text{min. } 65\Omega$

www.radiomuseum.org







84/6Z4



## FULL-WAVE HIGH-VACUUM RECTIFIER

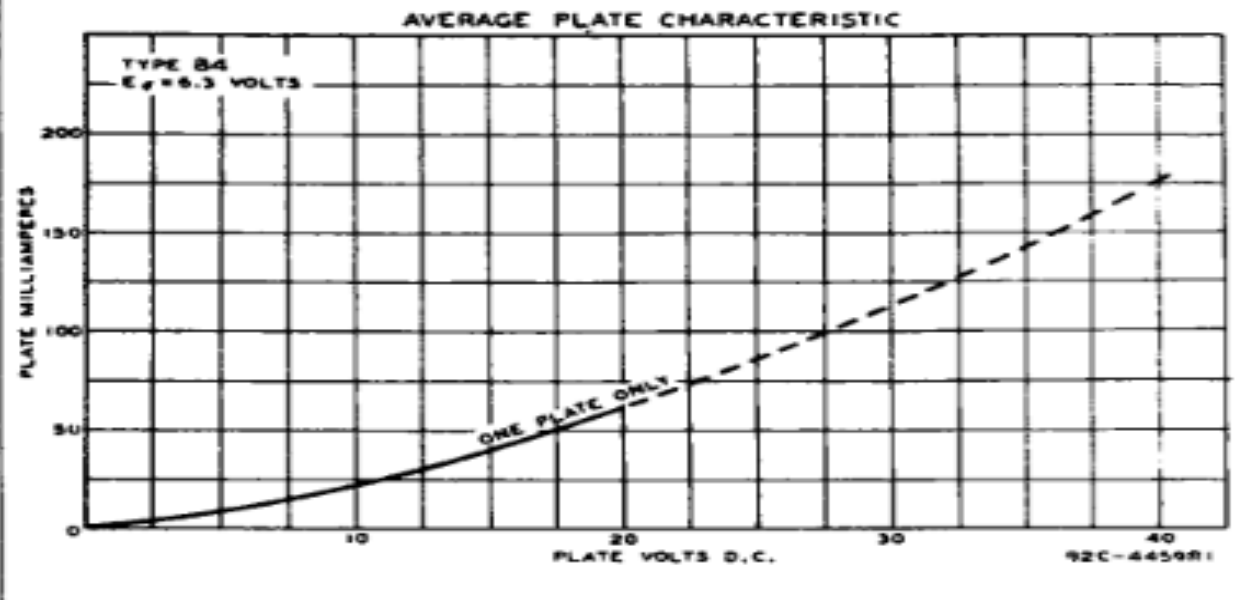
Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.5	amp.
Maximum Overall Length		4-3/16"
Maximum Diameter		1-9/16"
Bulb		ST-12
Base		Small 5-Pin
Pin 1 - Heater		Pin 4 - Cathode
Pin 2 - Plate		Pin 5 - Heater
Pin 3 - Plate		
Mounting Position	BOTTOM VIEW (5D)	Any



### FULL-WAVE RECTIFIER

Peak Inverse Voltage	1250 max. volts
Peak Plate Current per Plate	180 max. ma.
D-C Heater-Cathode Potential	450 max. volts
<i>Typical Operation with Condenser-Input Filter:</i>	
A-C Plate Voltage per Plate (RMS)	325 max. volts
Total Effective Plate-Supply Impedance per Plate <sup>▲</sup>	65 min. ohms
D-C Output Current	60 max. ma.
<i>Typical Operation with Choke-Input Filter:</i>	
A-C Plate Voltage per Plate (RMS)	450 max. volts
Input-Choke Inductance	10 min. henries
D-C Output Current	60 max. ma.

- The heater voltage should never fluctuate to exceed 7.5 volts.
- ▲ When a filter-input condenser larger than 40  $\mu$ f is used, it may be necessary to use more plate-supply impedance than the minimum value shown to limit the peak plate current to the rated value.



FEB. 2, 1940

RCA RADOTRON DIVISION  
RCA MANUFACTURING COMPANY INC

DATA

14 OF

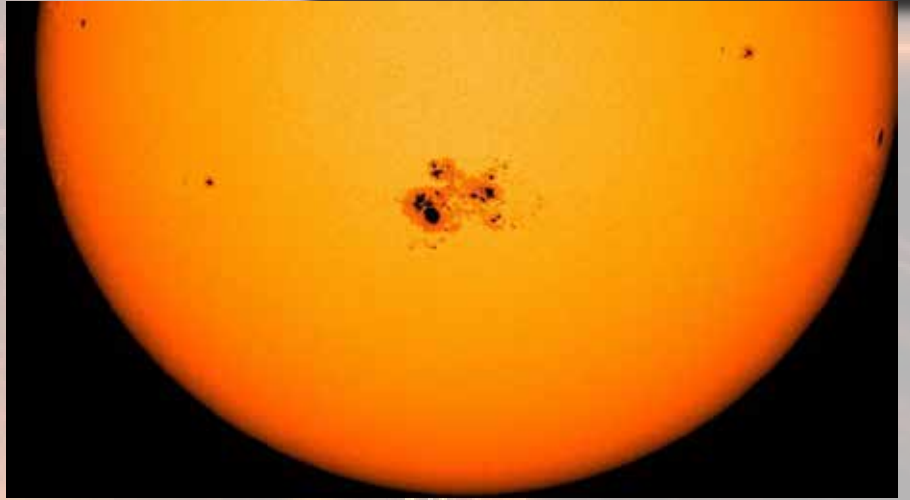
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A-814 etrode for a trans- real pabil- out- teleg- rly 90 plate- phony witch- re em- lifying their ve 814 ver, it n the 90 and ing on esired. ion, a even

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Solar activity was up, up, up this week, with average daily sunspot numbers increasing from 74.4 to 134.1, and average daily solar flux from 120.3 to 157.3.

To get some perspective, I averaged the weekly averages for sunspot number and solar flux from this bulletin and the previous three, then compared them to the bulletins from one year earlier.



A year ago, the averages for 2021 Propagation Forecast Bulletins ARLP017 through ARLP020 were 28.9 for sunspot numbers and 75.9 for solar flux. A year later, the averages are 96.6 for sunspot numbers and 138.4 for solar flux.

This documents a substantial increase in solar activity and is another illustration of how this cycle is progressing faster than the official cycle prediction by the experts.

Geomagnetic indicators were higher this week. Average daily planetary A index went from 5 to 9, while middle latitude A index increased from 4.6 to 9.6, compared to the previous reporting period, which always runs from Thursday through the following Wednesday.

Spaceweather.com reported on Wednesday that big sunspot AR3014 doubled in size, and presented this movie from NASA, showing 24 hours of activity:

<https://bit.ly/3G1m2ff>

On Thursday, Spaceweather.com presented this movie of a massive jet of plasma projecting from our Sun's southwestern limb:

<https://bit.ly/3sOEdQe>

Predicted solar flux in Thursday's prediction begins about 8 points lower than the Wednesday forecast, at 172 on May 20, 170 on May 21-24, then a decline from 168, 166, 150, 136, and 138 on May 25-29, then the predicted values revert back to the Wednesday forecast at 140 on May 30-31, 143 on June 1-3, 140 and 136 on June 4-5, 138 on June 6-7, then 140 and 150 on June 8-9, 154 on June 10-12, 152 on June 13-14, then 150 and 148 on June 15-16, 140 on June 17-18, 145 on June 19, 142 on June 20-21, then 138 on June 22 and 136 on June 23-24.

Predicted planetary A index is 12 on May 20, 8 on May 21-22, 5 on May 23-26, 15 and 8 on May 27-28, 5 on May 29 through June 9, 8 on June 10, 14 on June 11-12, 8 and 5 on June 13-14, 8 on June 15-16, 5 on June 17-19, 18 on June 20, then 15 on June 21-23, 8 on June 24, and 5 for at least the following ten days.



## A huge solar eruption may be headed toward the Earth



Astronomers have noticed a massive solar eruption but are not very sure if it is headed towards the Earth, *Newsweek* reported.

Over the past few weeks, the solar surface has had some interesting activity. Sunspot AR3038, which is facing the Earth and was expected to die, has instead become larger and is now three times the size of the Earth. Astronomers have been waiting for solar flares to erupt from this sunspot.

However, what has occurred instead is a coronal mass ejection or CME, which is much more powerful than a solar flare since it is packed with large amounts of plasma and magnetic flux. The only issue is that the CME isn't from Sunspot AR3038. Instead, astronomers do not really know where it came from.

### How do we know if there was a CME?

The eruption was spotted on Sunday by a CME spotting software from the European Space Agency's (ESA) tool called Computer Aided CME Tracking (CACTus). According to the tool's website, the algorithm works autonomously. It uses data from the Large Angle and Spectrometric Coronagraph Experiment (LASCO), a collaboration between the ESA and NASA to study the Sun.

Since CACTus' list of CME is automatically generated, astronomers use other instruments looking at the Sun to confirm the events. One such instrument is NASA's Solar Dynamics Observatory (SDO), which even brought us images of sunspot AR3038, last week.

Unfortunately, a widespread power shutdown at Stanford University, where SDO's instruments store data, has been unavailable. This has made it difficult to ascertain the exact location of the CME eruption and whether it is headed towards Earth.

## What happens next?

Unlike solar flares that can cause short-duration radio blackouts, CMEs can cause massive outages since the magnetic forces in the eruption interact with the Earth's own magnetic field.

A geomagnetic storm caused by a CME can cause entire electrical grids to collapse and interfere with radio communication for days. Even navigational systems can be majorly affected after high-energy CMEs. Fortunately, these storms occur rarely.

Solar flares travel rapidly and if directed towards the Earth, within minutes. A CME, though can take days before it hits the Earth. So, the eruption noticed on the solar surface on Sunday could reach Earth by June 28th or June 29th, astronomers told Newsweek.

With the SDO offline, astronomers now need to look at other coronagraph-capable instruments to determine with the eruption is headed towards the Earth or not. Factors such as the positioning of these instruments could significantly impact the calculations done with these instruments.

The only solace that astronomers now have is that even if the CME was directed toward Earth, it might not be powerful enough to cause widespread outages. However, it stresses how critical instruments need to be online at all times, for you never know when a solar storm can hit you.

With the Sun now in an active phase of its solar cycle, the lesser the downtime, the better prepared we will be.

Credit: [A huge solar eruption may be headed toward the Earth \(interestingengineering.com\)](http://interestingengineering.com)



## Commonwealth of Pennsylvania



### The House of Representatives

### Citation

**Whereas**, *The House of Representatives of Pennsylvania is recognizing the month of June 2022 as Amateur Radio Month in this Commonwealth; and*

**Whereas**, *Amateur radio operators are celebrating more than a century of the miracle of the human voice broadcast over airwaves. Amateur radio continues to provide a bridge between peoples, societies and countries by creating friendships and the sharing of ideas. These operators have provided countless hours of community services in emergencies and to other local organizations throughout the decades, and these services are provided wholly uncompensated. Amateur radio operators also provide services to emergency response organizations in this Commonwealth; and*

**Whereas**, *Amateur radio operators, also known as hams, demonstrate their value in public assistance by providing free radio communications for local parades, bike-a-thons, walk-a-thons, fairs and other charitable public events. Hams also serve as weather spotters in the Skywarn program of the National Weather Service. The American Radio Relay League is the leading organization for amateur radio in the United States.*

**Now therefore**, *the House of Representatives of the Commonwealth of Pennsylvania recognizes the diligence of amateur radio operators across this Commonwealth and appreciates the services they provide for the betterment of their communities;*

**And directs** *that a copy of this citation, sponsored by the Honorable Rosemary M. Brown, be presented in recognition of Amateur Radio Month.*

  
\_\_\_\_\_  
Rosemary M. Brown, Sponsor

  
\_\_\_\_\_  
Bryan Cutler, Speaker of the House

Attest:

  
\_\_\_\_\_  
Brooke Wheeler, Chief Clerk of the House



## N3IS's Contest Summary Report for ARRL-FIELD-DAY

Total Contacts = 364      Total Points = 500

Operating Period: 2022/06/25 18:08 - 2022/06/26 16:45

Avg Qs/Hr (breaks > 30 min deducted): 21.3

### Total Contacts by Band and Mode:

Band	CW	Phone	Dig	Total	%
80	0	0	27	27	7
40	0	86	66	152	42
20	0	62	36	98	27
15	0	19	4	23	6
10	0	5	0	5	1
6	3	25	0	28	8
2	0	29	0	29	8
1.25	0	1	0	1	0
70	0	1	0	1	0
<b>Total</b>	<b>3</b>	<b>228</b>	<b>133</b>	<b>364</b>	<b>100</b>

### Total Contacts by Operator:

Operator	Total	%
KG3I	121	33
AJ3C	86	24
W3BMM	62	17
AB3ME	37	10
KD2FTA	36	10
W9FBO	15	4
N3GGT	5	1
N3IS	2	1

Total = 8

### Total Contacts by Country:

Country	Total	%
USA	349	96
Canada	12	3
Puerto Rico	2	1
Hawaii	1	0

Total Contacts by State \ Prov:



# Field Day Stats

State	Total	%
PA	68	19
NY	25	7
OH	21	6
VA	21	6
NJ	20	5
FL	15	4
MD	13	4
IL	12	3
NC	11	3
IN	10	3
TX	10	3
MI	9	2
ON	9	2
WI	9	2
MA	8	2
MN	8	2
TN	7	2
CT	6	2
AZ	5	1
MO	5	1
AL	4	1
IA	4	1
ID	4	1
KS	4	1
LA	4	1
ME	4	1
OK	4	1
WV	4	1
CA	3	1
DE	3	1
KY	3	1
NH	3	1
OR	3	1
QC	3	1
RI	3	1
SD	3	1
AR	2	1
CO	2	1
GA	2	1
VT	2	1
HI	1	0
MS	1	0
NM	1	0
NV	1	0
UT	1	0
WA	1	0

Total = 46

# FIELD DAY

## A Mirror of Amateur Radio History

Steeped in tradition and mystery, today's Field Day evolved from humble beginnings in the Golden Age of Radio. Anything but stable, Field Day rules and practices have changed radically since the 1930s.

**Be** careful when you start to search *QST* archives for the answer to a simple question—it can become an obsession! That's the lesson I learned when, following my participation in Field Day this year with the Potomac Valley Radio Club (W3AO—7A MDC), I was asked whether I thought we had set a new Field Day record. Because I volunteer at the Historical Electronics Museum in Linthicum, Maryland, which happens to have a nearly complete set of *QST*'s in its library, I figured I would spend a lunch hour at the museum and dig up the 7A and overall Field Day records. In pursuing this goal I quickly learned that: (1) this is *not* a simple question; (2) the history of Field Day reflects the history of communications technology in general and ham radio in particular; and (3) old *QST*'s are fascinating!

Here is a chronology of Field Day starting from the first outing in 1933. In the process of piecing this together, I learned (or relearned) much about what has happened to ham radio in the past 66 years.

### 1933: Field Day #1 QSO Leader Uses 1x4 Call Sign to Save Time

Great ideas often have humble beginnings, and Field Day is no exception. A one-column announcement in the June 1933 *QST* states that, for 27 hours starting the second Saturday in June at 4 PM local time (no daylight savings yet!), there would be an opportunity for "portables" to go into the field to contact as many stations as possible. Says

F. E. Handy, W1BDI, in the announcement, "The real object of this contest is to test 'portables' wherever they may be available.... If successful, we want to make it an annual affair." To score the event, each QSO with fixed stations will count 1 point, contacts with other portables count 2 points, and DX contacts count 3 points. Multiply QSO points by the total number of ARRL sections, plus countries worked. No mention is

made of a required exchange, which clearly must include an ARRL section!

The September 1933 *QST* announces that the winner of the First Annual Field Day is a non-club group signing W4PAW. Club members made 62 QSOs and had a multiplier of 28 sections/countries for a grand total of 1876 points. The Central Illinois Radio Club, W9ZZAL, tops the QSO totals with 98! What's the "ZZ" all about? Until 1933 it had been necessary to get a special license to operate portable, and these licenses all had suffixes starting with ZZ. In 1933 the FCC allowed portable operation under a home call sign. Why did the CIRC use their old call sign? Well, operating portable under the new rule called for an even longer station ID—your call sign followed by the break sign (double dash) *three times*, followed by the call area (1 through 9)!

### 1934: 60 W is QRO!

It looks like Handy's wish is coming true—there *will* be a Field Day number 2! The Field Day period remains the same, although the chosen weekend in June will range from the first to the third for a long time to come, eventually settling on the fourth full weekend of the month.

The characteristics of today's competition are beginning to be established. Emphasis is shifted to the total number of stations contacted—the multiplier for sections and countries has been removed. At this point, multi-band contacts are not permitted. DX contacts, while still allowed, receive no special point advantage. The scoring system begins to resemble Field Day as we now know it,



By the '50s Field Day had grown into a major event worthy of its own *QST* cover.



## International Field Day— June 10th–11th

**C**LUBS, 56-mc. operators, all hams with licenses for portable stations, attention! Starting Saturday at 4 p.m. local time (June 10th) and ending Sunday at 7 p.m. local time (June 11th), all U. S. A. and Canadian station owners are invited to schedule "field activities," excursions with concentrated operation of portable transmitters and receivers. Only portable stations, actually in the field, away from the "home" address are eligible to submit field day scores.

The object will be for each "portable" station to work as many other amateur stations as possible—each to count one point toward a score. Any or all amateur frequency bands may be used, voice or c.w. telegraph likewise. The "total" of such points may be multiplied by the number of A.R.R.L. Sections worked. Contact with another portable station at any point except its base, or home address, will "rate" double credit, or two (instead of one) points. Two-way work with a foreign station shall entitle the operator of the "portable" to triple credit, or three (instead of one) points, in addition to which each foreign country (prefix) may be added to the number of Sections to increase the "multiplier." The R.S.G.B., N.V.I.R. and R.B. are sponsors of similar national field days in Europe, and we hope this may assume an international complexion. All amateurs with licensed portable stations are invited to take part . . . each such station will please report its power and frequency band used, and its log of operation and score for the period given, within the week following the Field Day. Also, gang, don't forget to comply with F.R.C. regulations for portable station operation. Notify your Radio Supervisor of the approximate location and time of intended operation of the "portable" by postal or letter, just in advance of the "field" radio work. We shall be interested to know how many clubs plan outings, and also suggestions for a similar activity for 1934 (if you want one) will be welcomed.

Besides offering an opportunity to get out in the open in this fine spring weather, the real object of this contest is to test "portables" wherever they may be available. If successful we want to make it an annual affair. — F. E. H.

The first Field Day was announced in the June 1933 QST by F. Edward Handy, W1BDI.

with 3-, 2-, or 1-point multipliers per QSO depending on power output. The technology of the '30s is highlighted by the fact that the breakpoints are set at 20 W and 60 W! As technology changes these breakpoints are modified many times throughout the years to come.

The desire to encourage operation independent of public mains is also expressed by a 2X multiplier if either the receiver or transmitter is independent of public mains (3X if both are independent). The 3X multiplier is destined to last 37 years until it's removed in 1971! No special exchange is needed. The ops must simply indicate whether their sta-

tions are portable. At this early time in Field Day history, only portables are listed in the scores.

### 1936: The Year with Two Field Days!

The June 1936 Field Day is so popular a second one is held on August 22-23 with identical rules. Participation in both Field Days is about the same, as winning contact totals in June and August are 143 and 136, respectively.

### 1937: The "Field Day Message" is Born

The special Field Day of August 1936 apparently becomes Field Day number 4, as the Fifth Annual Field Day is announced for June 19-20. In a battle that continues to the present between creative rules interpretation and the "spirit of the law," the League outlaws "manufactured contacts with stations of the same field group." The Field Day message bonus, another venerable Field Day tradition, is born as 10 points (before multiplier) are awarded for a single properly formed and serviced message to League Headquarters stating the number of ops, location, "conditions," and power. Multipliers and QSO points are unchanged. For the first time, the winning QSO total exceeds 200 (204), with a breathtaking average rate of 7.5 QSOs per hour.

### 1938: I'm Not Ready to QRT!

The contest period is extended to 26 hours—from 4 PM Saturday to 6 PM Sunday.

### 1939: Everyone Form a Circle

For the first time, the area within which all equipment must be located is defined as a restrictive 100-foot radius. Do they mean this to include your 160-meter dipole?

### 1940: Modern Field Day Rules Emerge

Significant changes are afoot. For the first time, a station can be contacted on multiple bands. Results are grouped by the number of simultaneous transmitters used. The 100-foot circle expands to 500 feet, giving those multi-transmitter teams a little breathing room. Home stations are encouraged to work Field Day stations, and their scores will be listed, but no multipliers are allowed (a rule that never changed). The Field Day message to ARRL HQ now earns 25 points, points are given for Field Day handling of other teams' messages, and both home and portable stations get one point for each message copied and one point for a message passed on. From 1933 to 1980 message points will be changed no less than 12 times!

### 1941: Field Starts Simultaneously Across the Country (by Accident?)

The Field Day period now starts at 4 PM EST across the country. Strangely, this change may have come about by accident. To smooth the FCC approval every portable station needs for Field Day operation, the League

## HIGH CLAIMED-SCORES — 1946 FIELD DAY

As this issue goes to press, Field Day logs have been received from 104 club groups, 53 nonclub groups and individuals, and 45 home stations.

We are passing along the highest claimed-scores so far reported. These are subject to checking, and should not be considered a final tally.

### CLUB GROUPS

(Listing shows club name, call used in FD, claimed-score, and number of simultaneously-operated transmitters.)

Jersey Shore Amateur Association . . . . .	W2FC/2	9621-8
Frankford Radio Club . . . . .	W3BFS/3	8568-7
Tri-County Radio Association . . . . .	W2RHK/2	6921-8
Northwest Amateur Radio Club . . . . .	W9IT/9	6363-5
Meamouth County Amateur Radio Association . . . . .	W3AC/2	6237-7
Motor City Radio Club . . . . .	W8ONK/8	4500-3
St. Paul Radio Club . . . . .	W9KCY/8	4338-6
Greater Cincinnati Amateur Radio Assn. . . . .	W8JIN/8	4320-2
Four Lakes Amateur Radio Club . . . . .	W9RNX/9	4239-3
Somerset Hills Radio Club . . . . .	W3ED/2	3978-5
York Road Radio Club . . . . .	W3IU/3	3879-6
Steel City Amateur Radio Club . . . . .	W8TUD/3	3870-5
Palomar Radio Club . . . . .	W6BKE/6	3756-6
Mountaineer Amateur Radio Association . . . . .	W8BOK/8	3555-6
Mon Yough Amateur Transmitters Association . . . . .	W8OC/8	3267-2
Amateur Transmitters Assn. of Western Pa. . . . .	W8BSO/3	3249-4
Wisconsin Valley Radio Association . . . . .	W9RQM/9	3060-2
Narragansett Assn. of Amateur Radio Ops. . . . .	W1LWA/1	3051-1
Minneapolis Radio Club . . . . .	W9OBM/8	2961-3
Northern Nassau Wireless Association. W2FJV/2		2907-5
Tulsa Amateur Radio Club . . . . .	W5IAS/5	2875-4
Kalamazoo Amateur Radio Club . . . . .	W8DM/8	2817-3
Beacon Radio Amateurs . . . . .	W3ATR/3	2707-2
Lancaster Radio Transmitting Society. W3LN/3		2694-1
Delaware Valley Radio Association . . . . .	W3AQ/2	2538-3
Milwaukee Radio Amateur Club . . . . .	W8EYT/8	2538-3
Cuyahoga Radio Association . . . . .	W8GW/8	2529-2
York Radio Club . . . . .	W9GY/9	2502-3
Bridgeport Amateur Radio Club . . . . .	W1MWN/1	2457-3
Cahokia Amateur Radio Club . . . . .	W9TCK/9	2427-3
So. Lyme Beer, Chowder and Propagation Soc. . . . .	W1EE/1	2371-1
North Newark Amateur Radio Club . . . . .	W2PY/2	2322-3
Greater Cincinnati Amateur Radio Assn. . . . .	W8SLO/8	2313-1
Racine Megacycle Club . . . . .	W9PWJ/9	2214-3
Joliet Amateur Radio Society . . . . .	W9HVE/9	2181-3
Fort Worth Kiloyde Club . . . . .	W5AA/5	2142-2
New Haven Amateur Radio Association . . . . .	W1GB/1	2106-4
South Hills Brass Pounders and Modulators . . . . .	W8BK/3	2061-2
Toledo Radio Club . . . . .	W8AEF/5	2061-3
Iowa City Radio Club . . . . .	W9IFB/8	2040-3

### NONCLUB GROUPS & INDIVIDUALS

(Listing shows call used by each group, number of operators, claimed score, and number of simultaneously-operated transmitters.)

W9ERU/9 . . . . .	10-2574-3	W1BDI/1 . . . . .	5-1428-1
W9RCQ/1 . . . . .	1-2115-1	W7RT/7 . . . . .	1-1424-1
W8PNU/8 . . . . .	4-1978-2	W8KYW/3 . . . . .	9-1368-2
W6STA/6 . . . . .	3-1876-2	W9VPD/9 . . . . .	4-1233-2
W2FBA/2 . . . . .	2-1827-1	W8UPF/4 . . . . .	5-1170-2
W9PEK/9 . . . . .	11-1512-2	W8VMF/3 . . . . .	4-1134-1
W8FBC/8 . . . . .	3-1467-1	W1GKJ/1 . . . . .	4-1116-1
W8AYE/9 . . . . .	7-1431-3	W1JWG/1 . . . . .	2-1057-1
W1LLX/1 . . . . .	2-1428-1		

High claimed scores from the first post-World War II Field Day.

informs the FCC of the Field Day period. In aptly numbered announcement 73-D, the FCC refers to a single operating period for all stations. My guess is that the League's communication to the FCC lists the period from 4 PM EST June 7, to 6 PM EST June 8, inadvertently establishing a single starting time.

Last year's change to allow contacts on multiple bands was apparently unclear, so this year's rules make a point to state that phone and CW are separate "bands" for the purposes of Field Day contacts. Also, even in these early days stations must be complaining about being in "black holes" as far as contesting is concerned. In response, an overall 1.5X mul-



tiplier is established for the Northwest, Pacific, Rocky Mountain, Southwest and West Gulf areas "to assist in equalizing contact opportunity...in these less populous areas." This West Coast handicap remains until 1950.

### 1942-1945: "Closed for the Duration"

As is the case with so many activities, Field Day posts a "Closed for the Duration" sign during WW II. In fact, so does all ham operating.

### 1946: The Post-War Era—A VHF-Only Category Debuts

Field Day returns after the war with virtually no changes. Starting time is back to local time (more evidence that the 1941 change was inadvertent). For the next three Field Days there is a VHF-only score listing designed "to lend point to the participation of VHF Emergency Corps networks that may wish to arrange special activities or simulated tests on these dates."

### 1948: CQ Field Day on 11 Meters?

Eleven meters is now available to hams (for a while) and it counts as a Field Day band. There are no CW/phone subbands on 11 meters, but phone and CW count separately here, too. The period is shortened to 24 hours, starting at 4 PM local time. Each station worked is now worth one point (regardless of whether fixed or portable). The 2X multiplier for transmitters that are independent of commercial mains is dropped. Battery operation now is recognized with a 1.5X multiplier.

### 1949: Field Day Mobile Operation Comes of Age

The growing interest in mobile operation results in some significant rules changes. This year, four categories are recognized: (1) Club and group (no battery multiplier); (2) One or two operators; (3) Mobile; and (4) Home stations. Also, the Club Aggregate Mobile listings are established whereby clubs can compete with teams of mobile stations. This special listing will last until it's quietly dropped in 1978. In other changes, a specific exchange of signal report and ARRL section is required for the first time, and the Field Day message now goes to the Section Communications Manager (today's SM) or the SEC rather than to HQ.

### 1950: Modern Field Day Classes are Established

The four classes offered last year are modified and labeled with letters for the first time: A—Club or non-club portable; B—Unit or individual portables (1 or 2 ops); C—Mobile; and D—Home. The Field Day "circle" is increased to 1000 feet. The wording last year said "25 points for each such [Field Day] message." What was meant, we learn, was 25 points for each team's *single* Field Day message (some stations, not unexpectedly, had cranked out a pile of Field Day

messages looking for 25 points *each*).

### 1951: Duck, Cover and Turn on Your CONELRAD Monitor

Says June 1951 *QST*: "At a time when civil defense is organizing, the Field Day provides an unparalleled opportunity for mass testing of our emergency facilities." To encourage emergency preparedness, home stations on emergency power will be listed separately as Class D, while home stations on commercial power will be listed as Class E.

### 1952: "Having a Wonderful Time, Wish You Were Here"

The 1950 rule that allowed one point for any message originated during Field Day has resulted in some groups cranking out meaningless "rubber stamped" messages during Field Day to generate points. Because the emphasis is on contact totals and not message generation, the League responds by eliminating the bonus points for message origination after a trial of only two years.

### 1957: Simultaneous Start Returns

Field Day starts at 4 PM EST and ends at 4 PM PST, as usual, but now everyone can operate any 24 consecutive hours of the 27-hour period. The purpose of the change is to "encourage long-distance QSOs." For the first time, more than 10,000 hams participate, a 430% increase over the first postwar event in '46.

### 1963: Will "Manufactured" Contacts Ever be Eliminated?

Although contacts with other members of a Field Day group were outlawed way back in 1937, some creative types have determined that the rules don't ban those who are not "Field Day operators" from using the Field Day transmitters to work the group for points. The League counters by allowing a



If you think computer logging is a modern development, check out the key-punching station at the 1966 K2INO/3 Field Day effort. The cards containing the contact data were processed by an IBM 1401 computer at Johns Hopkins University after the event. K0OVZ is shown operating the key punch while WA2BUJ hunts for contacts.

Field Day transmitter to be used only under one call sign.

### 1966: The Modern "Bonus Era" Begins

The simple Field Day message bonus concept, around since nearly the first Field Day, is expanded, bringing the beginnings of a wonderful aspect that one wag, who shall remain nameless (KE3Q), has characterized as "part radio contest, part scavenger hunt." Publicity is emphasized and 100% freedom from commercial power is stressed by a 500-point post-multiplier bonus for achieving at least two of the following three: (1) Use of no commercial power anywhere; (2) Publicity; or (3) Originating a message to the SCM or SEC.

### 1968: The Field Day Period is the Field Day, Period

A major change is adopted that makes setup within the 27-hour period *mandatory*, and the starting time is advanced two hours to 1900Z to accommodate the change. All home stations, emergency powered or on commercial mains, now compete in a single D category. The 1.5X multiplier for battery power now applies to categories A, B and C. Bonuses provide for 200 points each for publicity, 100% emergency power and/or message origination. Lastly, and largely ignored, the exchange is now section only—but in practice many can't resist sending a signal report anyway!

### 1969: An Idea Whose Time Has Not Come

Last year's mandatory setup within the 27-hour event period was not popular, so it is now optional (that is, ops can use the entire 27 hours if they start setup within that period). (Personal note: This was the year of my first Field Day victory—1A with WA3EPT/3, Johns Hopkins University Students and Alumni.)

### 1970: Increasing Novice Participation

To further encourage beginners, a "free" Novice station (set up and run by Novices) is allowed for groups running three or more transmitters. The League continues to battle with creative rules interpretation (or, depending on your viewpoint, technology advancements) by outlawing "octopus" hardware for interleaving transmissions to avoid moving to a higher transmitter category. (We had made great use of that technique in our '69 1A win.) On another note, I guess we are getting better at setting up, because the starting time is advanced yet another hour to 1800Z.

### 1971: Why Old-Timers Can't Remember Whether Home Emergency Power is Class D or E

After three years of being combined, Classes D and E are separate once again. The designators, however, are reversed. Class D is for home stations on commercial power,



while Class E encompasses home stations on emergency power. (I guess the feeling is that E for Emergency makes more sense.)

Major changes in the scoring system reduce points across the board. The 3X multiplier for 100% emergency power is eliminated and replaced by a requirement that all A and B transmitters now *must* be on emergency power. The 1.5X multiplier for battery operation is eliminated and replaced with limiting the QRP multiplier to battery operation only. The power multiplier now applies to the maximum power used at any time during the period. The four-QSO multiplier categories are reduced to three with a maximum of 3X for QRP/battery. Bonus points are now as follows: 100 points per transmitter for 100% emergency power; 50 points for publicity; 50 points for message origination; and 5 points per message relayed. Last, in a surrender to habit, the signal report is returned to the exchange!

### 1972: Batteries are on Their Own

Ops using battery power no longer compete with ops using non-battery sources. Scores are listed separately.

### 1973: The Space Age Comes to FD

The repeater rule is waived for OSCAR 6 contacts and a 50-point satellite bonus is instituted.

### 1974: The Energy Crisis Strikes FD

A 100-point bonus is added for making natural power QSOs. The 15-minute rule for band changes further discourages tricky techniques for counting two transmitters as one.

### 1975: Is SSB Taking Over?

SSB is demonstrating its superiority to "conventional" AM, and phone QSO rates

are so high that the mode threatens to dominate Field Day. To compensate, the 2X rule for CW QSOs is instituted on a trial basis (personal note: Hooray!).

### 1976: The 10,000 QSO Mark is Broken

Field Day results show the many unusual prefixes permitted by US amateurs celebrating the Bicentennial. W1VV/1 celebrates with 10,010 contacts! In doing so, the group surpasses the 1933 QSO record in its first 15 minutes of operation.

### 1977: Bring on the Techs!

Technician amateurs are now permitted to set up and operate the Novice station. Also, we have apparently solved the energy crisis because the natural power bonus is gone! The 2X rule for CW is "permanent."

### 1980: 1A CT

RST is replaced with category and class in the exchange. FCC and Field Day rules no longer require portable call sign designators. Set-up time is tightened—nothing can be installed prior to 24 hours before the start of the Field Day period. Natural power was judged to be politically correct and too much fun to be eliminated—so it's back as a 100-point bonus. The satellite and Field Day message bonuses advance to 100 points. Copying the WIAW message is worth 100 points for the first time.

### 1981: 1001001

Computers are becoming ubiquitous and, as a result, packet radio is soaring in popularity. Field Day enters the digital era by providing a 100-point bonus for a single packet QSO, permitting one "free" packet station and waiving the repeater rule for packet to allow digipeaters and nodes to be used. The 15-minute rule is eliminated at VHF and above. The Yankee Clipper Contest Club and The Wireless Institute of the Northeast combine using call sign W2RQ to turn in a QSO total of 11,201—unbeaten 18 years later!

### 1984: We Finally Get it Right

Over the years we've had a heck of a time settling on the best way to score battery, low, medium and high power categories. Here's another try: The power breakpoints are adjusted so that the 5X multiplier applies to 5 W instead of 10 W (for battery or equivalent), and 2X applies to <150 W rather than <200 W. (These definitions will stick for at least the next 16 years! In particular, the 5X multiplier for QRP/battery turns out to be a good equalizer—the change will result in overall first place finishes by the entrants in this category in eight of the next 16 Field Days.)

### 1993: VHF Becomes a Major Field Day Factor

The growing influx of Technician licensees changes Field Day in a big way—



Another Field Day retrospective graced the December 1999 QST.

there is now a 100-point bonus for making 10 VHF/UHF contacts and one "free" VHF/UHF station is permitted for Classes A and B.

### 1994: I Guess They Don't Need a 1.5X "Equalizer" Anymore


K6CAB (Conejo Valley ARC) logs the modern Field Day record score of 30,150 by operating in the 15A battery category with 3460 5-W QSOs!

### 1998: No More "Zero A" Entries

This year digital modes go from special handling to "mainline" modes. Although the "free" packet station and packet bonuses are eliminated, digital modes (including RTTY and PSK31) are added as a third mode on every band. Perhaps motivated by the "0A" tongue-in-cheek entry made by one station working exclusively on packet via the internet (thus *no* transmitters!), nodes and digipeaters are now outlawed for Field Day contacts. Finally, VHF/UHF has become such a mainstay that the 100-point bonus for 10 contacts is no longer needed.

So, that brings us up to date. Oh, I nearly forgot why I started all of this. Scores are fairly comparable from 1975 on—the year that the 2X multiplier went into effect for CW. With that definition, the Potomac Valley Radio Club team *did* set a modern record for 7A. In fact, our 26,324 claimed score is the highest non-battery score ever recorded in any category under the modern rules—beating N1FD's record set in 1998 by the narrow margin of 50 points!

Now, I wonder how the DX Contest got started...

You can contact Rol at 6021 Lawyers Hill Rd, Elkridge, MD 21227-5207; [anders@erols.com](mailto:anders@erols.com). 



In 1976 the Indianapolis Power & Light ARC made a natural-power contact. Gary, K9LNX, operated the radio while Ron, WB9DKL, supplied the muscle. Mike, WA9BWY, assisted by holding the bike in place.



















































# Field Day 2022!

























# Field Day 2022!

























## Programming Your Radio for the ISS Crossband Repeater



As of September 2, 2020, the new FM cross band repeater on board the International Space Station is activated. This is great news as it has been quite a while since anything significant has happened with Ham radio on board the ISS. Early reports indicate that the receiver is quite sensitive and can be used with just a handheld such as a Baofeng.

If you have never done any space communications via ham radio, there are some things to get acquainted with. The most important one is Doppler Shift. This can be a bit tricky. What is happening is that as ISS is moving and transmitting, you have to have to adjust your receive/downlink frequency. It is the same phenomenon as a passing train blowing its whistle, and you hear the tone of the whistle drop as it passes by you. In the case of the ISS, what you have to do is to listen a little bit higher when it is coming at you. As it is more overhead, you will hear it become noisy in your receiver. Just tune down 5 kHz, and you will hear it. As the ISS moves away from you, you will have to tune down another 5 kHz.

The new cross band repeater on the ISS has an uplink frequency of 145.990 MHz and a downlink frequency of 437.800 MHz. In order to access the cross band repeater, it requires a 67 Hz tone on your radio. Also this is an FM repeater.

The best way to handle Doppler is to pre-program the frequencies into your radio. I use the Chirp program. It's free and open source. This is what I use for my Yaesu FT-857D as well as my various handhelds like my Baofeng radios. You can download Chirp here if you don't already have it.



## BIG BANG

### HF Wire Antennas for Field Day or Any Day

Having used simple wire dipoles and verticals for many years, I have found that too many of my great expectations were in reality, just duds. As I get wiser... well hopefully, I realize that some well-worn antenna configurations are the easiest and loudest lash-ups tried so far. Strangely, few antenna gurus tell the whole story, but that has changed of late.

OK, so what's so great about this antenna? Well actually a family of antennas were you pick the configuration that suits your immediate need, like field day, or QRP at the campground.

How about:

- easy hang from one or two tree limbs or supports
- same DX performance as a dipole at twice the height
- little of the ground loss inherent in the popular low impedance fed vertical and no extensive ground radial system required
- gain similar to a two, maybe even a three element Yagi
- very inexpensive to put together

OK, now what's the down side?

- you have to build a simple impedance transformer to drive it
- single band, unless you get creative
- unlike the Yagi, very difficult to rotate

In a nutshell, each antenna is an end fed (high impedance) wire of at least one-half wavelength and configured as a vertical dipole, inverted ground plane, half square, or bobtail curtain. They all use the same parallel resonant impedance transformer to create about 4,000 ohms at the feed point.

The vertical dipole or inverted ground plane has an Omni-direction pattern, low take off angle, and low loss.

The half square or bobtail, has bi-directional broadside gain with pattern nulls in the opposite directions.

The impedance transformer usually rests on the ground where it connects to the co-ax feed line and an end of the antenna wire (see figure). Ground the co-ax shield to a short ground stake at this point.

You can achieve the bang of a horizontal dipole at a one half wavelength height (required for low angle DX performance), at half the physical height when you configure your wire as a half square. But, if you have the space, add more wire (remember, same physical height) and make a bobtail. The pattern azimuth curves narrow, the nulls off the horizontal ends deepen, and the broadside gain jumps.

An impedance transformer set to resonance drives any of these antennas. I made mine from 10.5 feet (3.25m) of 12 AWG solid copper bare wire. Make the coil inside diameter about 1.5 inches (4cm). Evenly space windings the width of the wire. For low power operation, almost any air variable capacitor of at least 30 pf can be used to resonate on the 30 or 20 meter band. The 50 ohm co-ax tap will be found at approximately one quarter of the total number of turns as



measured from the bottom. To keep mine dry, I mounted the circuit in an inverted plastic ice cream container with the snap-on lid screwed to a wooden plank for stability. The plank and the co-ax rest on or at ground level.

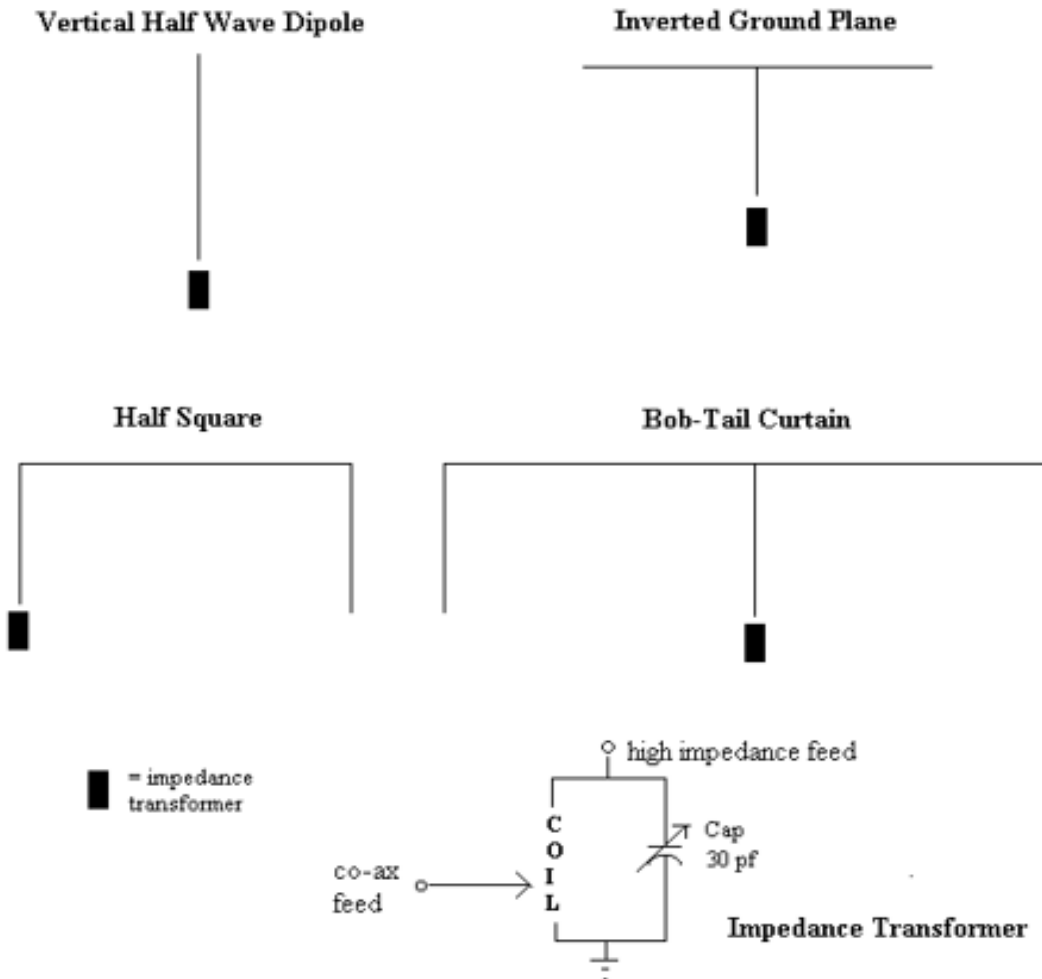


Fig 1 (C) Greg Hollinger VE3NXB

To create a "no tune" installation at your site, pre-resonate the transformer on the bench. Temporarily place a 4 to 4.5 K ohm, one watt or greater carbon resistor between the top and bottom of the coil. This is a dummy load. Connect an antenna analyzer to the co-ax feed point. Set your frequency on the analyzer and adjust the capacitor for minimum SWR, then adjust the tap point for 1:1. When you finish your antenna installation, the transformer will still show a nicely matched impedance on the co-ax. If not, you measured your wire incorrectly. Note that the very high impedance at the top of the coil will vary considerably if your hand, metal, or something like a tree branch comes close. Using moderate to high power creates very high RF voltage, so protect people and animals from contact.

To determine length for 12 AWG insulated wire, use the following formulas:

- Vertical dipole  $468/\text{freq. in MHz}$
- Inverted ground plane  $468/\text{freq.}$  for the horizontal wire,  $253/\text{freq.}$  for the vertical wire
- Half square and bob tail  $450/\text{freq.}$  horizontal,  $260/\text{freq.}$  vertical



The formulas differ from the norm for the half square and bobtail to maintain a close match to the impedance transformer and be somewhat inductive. This positions the array for optimum gain as described by **L. B. Cebik, W4RNL** in his article, "Power and Antenna Gain on 60 Meters" that appears on page 36 of the February, 2004 issue of QST magazine. Although Cebik presents his antenna data using the new American 60 meter band, it is applicable to all. Here you will also find gain figures and comparisons for these antennas. His work illustrates the performance achievable.

Over the past ten years or so, I have used all of these easy to assemble wire antennas and made many transformer circuits. You will find that one transformer design may be adjusted for resonance on 2 adjacent amateur bands. I currently have a 30 meter vertical dipole in the back yard. When I find the best positioned tree branches, I will expand it into a half square with one of the 3.41 dB gain lobes (referenced to the dipole) directed towards Europe. If I had the space, a bobtail would have 4.91 dB gain, but make positioning more critical. As it stands, this vertical outperforms my ground mounted Butternut HF6V which has good 30 meter DX 'ability.

#### To sum-up

If you are using an inefficient antenna, like a ground mount vertical, but looking for better performance; a small half square mono-band wire array, may be the coolest BIG BANG - HF fireworks display.

Oh, almost forgot... I mentioned being creative earlier. Here is one way to make the wire do more.

A 20 meter half square will function as a low 40 meter horizontal dipole with the ends folded down. Using an impedance transformer resonant on 40 meters, the dipole will produce mostly omni-directional vertical radiation and work nicely for contacts out to 500 miles (800km) or so.

Credit: [http://www.kwarc.org/tech/big\\_bang\\_ve3nxb.htm](http://www.kwarc.org/tech/big_bang_ve3nxb.htm)





MEMBERSHIP APPLICATION

**E P A R A**

Eastern Pennsylvania Amateur Radio Association

Address: PO Box 521, Sciota, PA 18354

Email: [N3IS@qsl.net](mailto:N3IS@qsl.net)

Website: [www.qsl.net/n3is](http://www.qsl.net/n3is)



Date: \_\_\_\_\_

Name: \_\_\_\_\_ Callsign: \_\_\_\_\_

License: Novice Technician General Advanced Extra

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Home Phone: \_\_\_\_\_

Cell Phone: \_\_\_\_\_

Email: \_\_\_\_\_

\* Note: We do not publicize your phone or email information.

ARRL Member: \_\_\_\_\_ Skywarn Spotter: \_\_\_\_\_ ARES/RACES Member: \_\_\_\_\_ VE: \_\_\_\_\_

**Interests:**

DX \_\_\_\_\_ Contest \_\_\_\_\_ CW \_\_\_\_\_ QRP \_\_\_\_\_ Digital Modes \_\_\_\_\_ Antique Radio Equipment \_\_\_\_\_

Building Antennas \_\_\_\_\_ Electronic Repairs \_\_\_\_\_ Elmering \_\_\_\_\_ Kit Building \_\_\_\_\_ EmComm: \_\_\_\_\_

Others: \_\_\_\_\_

How did you get interested in Ham Radio?

\_\_\_\_\_

Please list any relevant qualifications or assets you have or are willing to share/contribute to the club.

Use reverse side if needed:

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Membership Rates,

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