

OUR 27TH YEAR!

# EPARA BEACON



VOL. 7, NUMBER 5 THE OFFICIAL NEWSLETTER OF THE EASTERN PENNSYLVANIA AMATEUR RADIO ASSOCIATION MAY 2023

## **NEXT CLUB MEETING: MAY 11TH**

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



It's been a busy month; the coax has been replaced for the 911 center's antenna and after a little troubleshooting everything is working perfectly. The radio room has been cleaned and the stations are fully operational. We still need to organize things and decide what equipment we will sell at the hamfest, but there has been tremendous progress. Martin KC3TOE, our new quartermaster, is doing a great job cataloging all the club equipment!

Our ARES group attended the open house at the 911 center to promote amateur radio and explain our role in EMCOMM as ham radio operators to the public. It was a fantastic event; I want to thank all who helped make it such a success!

We have a new committee focusing on sat comm, it will be called GOES group. Alex KD2FTA will be the chair of the group. There are some very exciting things coming from this group that will be fun and beneficial to all members! Details will be covered at the next meeting. Our EME group will now solely focus on the EME project with our goal of making our first earth moon earth contact this year.

There has been great member involvement in several areas, this is making EPARA an even better radio club. I've always said this is your club not mine, you are making it a great place for hams to learn and enjoy themselves!

Well, that's it for now.

Our next meeting will be on May 11th, hope to see you then.

Chris, AJ3C

**Sam - our newest Extra Class member!  
Congratulations!!!**



## CONTACT INFORMATION

President Chris Saunders AJ3C: <a href="mailto:aj3c@gmx.com">aj3c@gmx.com</a>	Vice President Bob Matychak W3BMM: <a href="mailto:w3bmmqth@gmail.com">w3bmmqth@gmail.com</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 : Vacant

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# WHAT'S INSIDE?

- From the President - 2
- Officers and Committees - 2
- Announcements - 4
- EPARA meeting minutes - 5
- EPARA Meeting - 9
- Test Your Knowledge - 10
- VE Testing & Classes - 11
- ARES/RACES - 12
- From the Editor - 15
- Contest Corral - 16
- Special Event Stations - 17
- Tube of the Month - 21
- KR7 Solar Update - 23
- EPARA & St. Patrick's Day! - 25
- EPARA SSTV - 28
- EPARA SatComm - 29
- Tech Corner - 31
- Antenna "Repair" Weekend - 36
- Antenna Archives #57 - 41
- Membership Application Form - 43



## *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**  
Vacant

**Assistant EC**  
Chris Saunders AJ3C  
Len Lavenda KC3OND

**Field Day Coordinator**  
Chris Saunders AJ3

**Quartermaster**  
Martin Gonzalez KC3TOE

**Membership Coordinator**  
Al Brizzi KB3OVB

**Newsletter Editor**  
Eric Weis N3SWR

**Photographer**  
Eric Weis N3SWR

**Public Information**  
Ruth Ann W9FBO

**Social Media**  
Chris Saunders AJ3C  
Eric Weis N3SWR

**Hamfest Coordinator**  
Walter Koras W3FNZ

**Technical Program Coordinator**  
Bill Carpenter AB3ME

**Lead VE**  
Chris Saunders AJ3C

**Webmaster**  
Chris Saunders AJ3C



# Announcements

AND UPCOMING EVENTS

## EPARA Club Dues!

Club dues are now past due. Contact Scott KC3IAO via his email: [KC3IAO@hobbyguild.com](mailto:KC3IAO@hobbyguild.com) and you can send him a check or pay via PayPal.

## Rookie Roundup!

Rookie Roundup is a contest aimed at Amateurs licensed for three years or less. This six-hour event is held three times per year (April, August and December). Rookies can contact anybody, while "Old Timers" make contact with only Rookies. Mentoring is a big part of this event!

All events run for 6 hours (from 1800 to 2359 UTC) on the dates shown below.

- Sunday, April 16, 2023, using SSB.
- Sunday, August 20, 2023, using RTTY.
- Sunday, December 17, 2023, using CW

## West End Fair!

The West End Fair is coming August 20th, 2023!



## 2023 ARRL Field Day is June 24-25

Field Day is ham radio's open house. Every June, more than 40,000 hams throughout North America set up temporary transmitting stations in public places to demonstrate ham radio's science, skill and service to our communities and our nation. It combines public service, emergency preparedness, community outreach, and technical skills all in a single event. Field Day has been an annual event since 1933, and remains the most popular event in ham radio.

## Murgas ARC 44th annual Hamfest and Computerfest

Event will be held Sunday July 2nd. For more info go here: <https://murgasarc.org/hamfest.htm>

## Sussex County Hamfest!

Event will be held July 16th.. For more info please go here: <http://www.scarcnj.org/hamfest.html>



- 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 Membership Meeting Minutes April 13th 2023 General Membership Meeting 7:30Pm

#### Open meeting:

Meeting called to order at 7:30 pm on April 13th, 2023 by Chris AJ3C

Declaration of Quorum.

Total attending 27. Present at 911 Center 20. Present on Zoom 7. Visitors present 1

#### Pledge of Allegiance / Moment of silence:

#### Membership Meeting – Minutes Mar 9<sup>th</sup> 2023

Secretary - W3KCF:

Meeting minutes for March 9<sup>th</sup> 2023 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 read: By Ruth Ann – W9FBO 2<sup>nd</sup> by Craig – W3WWP Motion Passed*

#### Treasurer's report:

Treasurer's report: For April 2023  
Read by Scott – KC3IAO

Bank Account 3/31/23 statement Opening Balance.: \$5260.60.

#### Income:

Dues: \$257.23.

KC3NAO, KB2YED, KN6CW, KC3VQT

Interest: \$0.23

#### Expenses:

None

Closing Balance: \$5517.83

Our PayPal Account: 3/31/23 statement opening balance: \$286.44

#### Income:

Dues: \$60.00 (W2BMM, KC3BPZ, KD5CEU)

#### Expenses

PayPal Fee: \$2.18

Closing Balance: \$344.26.

*Motion to accept by AL – KB3OVB Seconded by Faith – W3INK Motion Passed*



## **EPARA GENERAL MEMBERSHIP MEETING AGENDA**

### **Correspondence:**

West End Fair Associates sent a contract to attend the fair.

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

#### **Bill AB3ME – Program Committee**

Alex KD2FTA is scheduled to make a presentation on Brand Meister using the feature Hose Line to listen to DMR Talk Groups. Martin – KC3TOE is doing a presentation on SDRuno and the benefits of setting it up.

Chris -AJ3C stated that those interested in giving a presentation, please contact him or Bill – AB3ME.

#### **Walt – W3FNZ: EPARA Hamfest:**

Walt said the Hamfest will be held again at the Moose Lodge on September 17<sup>th</sup>, 2023. He said many radios and gear have already been donated, and the club will not have to pay anything. He then asked Eric if we could have some flyers printed up to advertise for the event.

#### **Charlie KB3JUF – ARES/RACES:**

Charlie - KB3JUF again spoke about the new equipment in the radio room. Very thankful for the donation.

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.

Ruth Ann said she had updated the preamble for the ARES Net and it would be available to all soon.

Charlie said there was a Public Safety Awareness event coming up on the 29<sup>th</sup> of April from 1100 – 1600 at the 911 Ctr

Charlie also mentioned we are in the recruitment stage. We are looking for volunteers to increase membership in our ARES group.

#### **Ruth Ann, W9FBO – PIO:**

Ruth Ann recapped what went on at the St. Patrick's Day parade. She said everyone had a great time and those watching were very receptive. It was very cold, but a total success. Chris then showed an amazing short video of the parade. Very interesting.

Ruth Ann then commented on the West End Fair. This year's event will begin on the 20<sup>th</sup> and end on the 26<sup>th</sup>. We will be looking for volunteers (2 shifts a day) to man the booth between 1400 and 2200 on each day. We discussed setting up a special event station, but it most likely won't happen until next year. Chris said he would check with West End regarding tickets. He believes we will be able to secure about 32 tickets.

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

VE sessions began on the 4<sup>th</sup> Friday of each month at 6:00pm. Training classes will be postponed until after field day, as Chris will be out of town.

#### **Chris AJ3C – Website:**

No Updates



## **EPARA GENERAL MEMBERSHIP MEETING AGENDA**

### **Bob W3BMM – Social Media:**

New EPARA Groups IO -- the club's new bulletin board on the cloud and group email service -- has been well received and active. Members are welcome to post any and all amateur radio-related questions and topics.

Bob said, "please like the site", and send him as many pictures of the parade as possible.

### **Al, KB3QVB: Membership:**

As of the start of tonight's meeting, fifty (50) members have paid their 2023 dues. Those having failed to pay their 2023 dues will be removed from the membership roster. Annual dues are past due.

### **Eric N3SWR – Newsletter:**

Eric wanted us to know that everything is well with the newsletter. Keep sharing content with him.

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

Alex KD2FTA stated that a calendar with the best EME dates was forthcoming.

He also said we are looking at the Yaesu G5500 azimuth/elevation rotator system in conjunction with the M2 antenna. Alex said this is really exciting, as it will allow all arm chair enthusiasts to participate.

Alex said he was going to schedule a zoom presentation on April 27<sup>th</sup> at 1930 regarding satcom communications; how to set up and get all those interested involved.

**To join the meeting, use the club's zoom info.**

**<https://us02web.zoom.us/j/85463346031?pwd=bU1KcVZ0aVZiVEUvdjRlUXlNNHkZkZz09>**

**Meeting ID: 854 6334 6031**

**Password: 244632**

### **Old Business:**

#### **911 Center Antenna Repair:**

Coax has been ordered and delivered. We have tentatively set up a date for repairs on the 26<sup>th</sup> of April. We will be starting at noon, weather permitting. Anyone interested in helping is welcome.

### **New business:**

**Repair antenna** - April 26<sup>th</sup> at noon. Those interested are welcome.

**Quartermaster** – Chris stated, that with Ron – N3GGT no longer involved, we needed a new quartermaster. He felt Martin – KC3TOE would make a good Quartermaster. All present agreed. Congratulation Martin.

**Quartermaster Duties:** Martin will keep an inventory of the club's equipment and see that the gear is in good condition. He'll work with others when equipment is checked out and returned. He'll be responsible for keeping the club informed on all matters pertaining to the radio room and equipment.

**Votes/New Members:** None

## EPARA GENERAL MEMBERSHIP MEETING AGENDA

### Announcements:

Club dues for 2023 are past due. If you would like to pay your 2023 EPARA dues using PayPal, please email Scott and include your Call Sign, Name, and Age. Scott will send you a PayPal Invoice you can use to pay your dues.

[KC3IAO@hobbyquild.com](mailto:KC3IAO@hobbyquild.com)

### Any Additional Announcements

Split Rock Hamfest – April 22, 2023 (<https://splitrockara.org/hamfest-2022/>)

Tonight's 50/50 Raffle was won by Walt, who received \$25

### Adjournment...

Meeting was adjourned at 2035:

*Motion to close by RuthAnn – W9FBO and 2<sup>nd</sup> by Charlie -KB3JUF Motion Passed.*

Secretary

*Kevin Forrest*

W3KCF

**The exact moment you realize  
that you can speak 17  
languages.**





AMATEUR RADIO



# EPARA MEETING



## TEST YOUR KNOWLEDGE!

What part of a packet radio frame contains the routing and handling information?

- A. Directory
- B. Preamble
- C. Header
- D. Footer

Last months answer was C. The number of states increases exponentially with each bit increase. 1 bit = 2 states, 2 bits = 4 states, and 3 bits = 8 states.

### 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



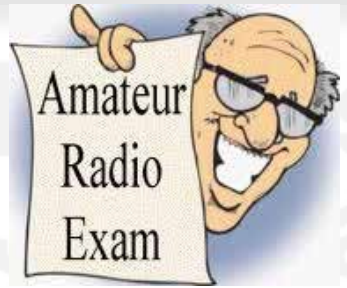
**The EPARA HOT SPOT Wednesday night DMR rag chew is here!**

**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 programing 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!**



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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!

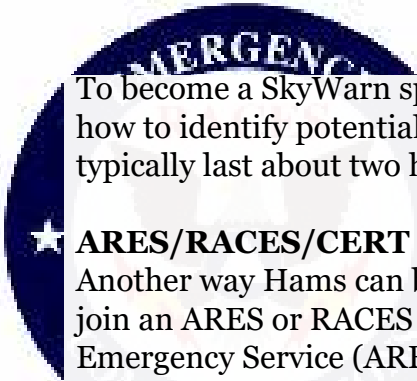
One of the missions of the Amateur Radio Service is for amateur radio operators to provide public service and emergency communications (EmComm) when needed. We act as a voluntary noncommercial communication service and pitch in to help our communities and first responders.

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/>





It's raining again.... Hmmmm What to do.....  
Drink more coffee and have at it !!

What a wild month this has been and without going into things I will only say we do face an interesting road ahead of us. I'm supposed to write something here but today I'm truly at a loss. I guess the 50 hour weeks I'm working don't help either but it is taking a toll on me. Time will tell...

My new found combo for coffee lovers is 95% Viena Roast with 5% Italian Espresso.  
WOW!! Very easy on the acid content and it will wake up the dead :)

If I recall correctly - Field Day is right around the corner. I hope to see many of you up on the mountain. We seem to have been given a few extra toys to play with and I for one would enjoy seeing some of them being used.

I spoke to Don WK2RP and he says he's doing well and has a received a good outlook from his doctors.

That's it for now, see you all at the next meeting.  
Eric N3SWR, 73



“Common sense is like deodorant. The people who need it most never use it.”  
—Anonymous

### **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

## May 2023

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 Date-Time	Finish Date-Time	Bands	Contest Name	Mode	Exchange	Sponsor's Website
1	0000	1 0100	1.8-28	K1USN Slow Speed Test	CW	Name, SPC; Max 20 WPM	<a href="http://www.k1usn.com/sst.html">www.k1usn.com/sst.html</a>
1	1300	1 1900	3.5-28	AGCW QRP/QRP Party	CW	RST, serial, class (A/B)	<a href="http://www.agcw.de/contest/qrp-qrp">www.agcw.de/contest/qrp-qrp</a>
1	1630	1 1729	3.5,7	OK1WC Memorial (MWC)	CW	RST, serial	<a href="http://memorial-ok1wc.cz">memorial-ok1wc.cz</a>
2	0100	2 0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age (OM/YL/Youth)	<a href="http://wvsac.com/rules.html">wvsac.com/rules.html</a>
2	0100	2 0300	3.5-28	ARS Spartan Sprint	CW	RST, SPC, pwr	<a href="http://arsqrp.blogspot.com">arsqrp.blogspot.com</a>
3	1300	3 1400	1.8-28	CWops Test (CWT)	CW	Name, mbr or SPC	<a href="http://cwops.org/cwops-tests">cwops.org/cwops-tests</a>
3	1700	3 2100	144	VHF-UHF FT8 Activity Contest	Dig	4-char grid	<a href="http://www.ft8activity.eu/index.php/en">www.ft8activity.eu/index.php/en</a>
4	0000	5 0300	7	Walk for the Bacon QRP Contest	CW	RST, SPC, name, mbr or pwr; max 13 WPM	<a href="http://qrpcontest.com/pigwalk40">qrpcontest.com/pigwalk40</a>
4	1700	4 2100	28	NRAU 10m Activity Contest	CW Ph Dig	RS(T), 6-char grid	<a href="http://nrau.net/nrau-contests-in-general">nrau.net/nrau-contests-in-general</a>
4	2000	4 2200	1.8-28,50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
4	2300	5 0300	All, no WARC	MIE 33 Contest	CW Ph	RS(T), age	<a href="http://www.ztv.ne.jp/isoda/33">www.ztv.ne.jp/isoda/33</a>
5	0145	5 0215	1.8-21	NCCC RTTY Sprint	Dig	Serial, name, QTH	<a href="http://ncccsprint.com/rules.html">ncccsprint.com/rules.html</a>
5	0230	5 0300	1.8-21	NCCC Sprint	CW	Serial, name, QTH	<a href="http://ncccsprint.com/rules.html">ncccsprint.com/rules.html</a>
5	2000	5 2100	1.8-28	K1USN Slow Speed Test	CW	Name, SPC; max 20 WPM	<a href="http://www.k1usn.com/sst.html">www.k1usn.com/sst.html</a>
6	0001	7 2359	28	10-10 Int'l Spring Contest, CW	CW	Name, mbr or "none," SPC	<a href="http://www.ten-ten.org">www.ten-ten.org</a>
6	0300	6 0859	3.5-28	RCC Cup	CW Ph	RS(T), mbr or ITU zone	<a href="http://rcccup.ru">rcccup.ru</a>
6	0800	6 1400	All above 902	Microwave Spring Sprint	All	6-char grid	<a href="http://sites.google.com/site/springvhf-upsprints">sites.google.com/site/springvhf-upsprints</a>
6	1200	7 1159	3.5-28	ARI International DX Contest	CW Ph Dig	RS(T), 2-letter province or serial	<a href="http://www.ari.it">www.ari.it</a>
6	1200	7 1200	3.5-28, 144	F9AA Cup, Digi	Dig	RST, serial	<a href="http://www.site.urb.asso.fr">www.site.urb.asso.fr</a>
6	1300	7 0700	1.8-28	7th Call Area QSO Party	CW Ph Dig	RS(T), 5-1r state/county code or SPC	<a href="http://7qp.org">7qp.org</a>
6	1500	7 0300	1.8-28	Indiana QSO Party	CW Ph	RS(T), IN county or SPC	<a href="http://www.hdxcc.org/inqp">www.hdxcc.org/inqp</a>
6	1700	7 2359	1.8-28, VHF	Delaware QSO Party	Ph Dig	RS(T), DE county or SPC	<a href="http://www.fsarc.org">www.fsarc.org</a>
6	2000	7 2359	3.5-28	New England QSO Party	CW Ph Dig	RS(T), New England county/state or SPC	<a href="http://neqp.org/rules">neqp.org/rules</a>
7	1000	7 1400	7	WAB 7 MHz Phone	Ph	RS, serial, WAB square or SPC	<a href="http://wab.intermip.net/Contests.php">wab.intermip.net/Contests.php</a>
8	1900	8 2030	3.5	RSGB 80m Club Champ, SSB	Ph	RS, serial	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
10	1700	10 2100	432	VHF-UHF FT8 Activity Contest	Dig	4-char grid	<a href="http://www.ft8activity.eu/index.php/en">www.ft8activity.eu/index.php/en</a>
11	1900	11 2000	3.5,7	EACW Meeting	CW	RST, mbr, name, EA province or country	<a href="http://www.eacwspain.es/eacwmeeting">www.eacwspain.es/eacwmeeting</a>
13	1200	14 1159	1.8-28	CQ-M International DX Contest	CW Ph	RS(T), serial	<a href="http://cqm.srr.ru/en/rules">cqm.srr.ru/en/rules</a>
13	1200	14 1200	3.5-28	VOLTA WW RTTY Contest	Dig	RST, serial, CQ zone	<a href="http://www.contestvolta.com/rules.pdf">www.contestvolta.com/rules.pdf</a>
13	1200	14 2359	1.8-28,50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
13	1700	14 0300	7-28	Canadian Prairies QSO Party	CW Ph	RS(T), VE4/5/6 district code or SPC	<a href="http://cpqp.ve6hams.ca">cpqp.ve6hams.ca</a>
13	2300	14 0300	50	50 MHz Spring Sprint	All	4-char grid	<a href="http://sites.google.com/site/springvhf-upsprints">sites.google.com/site/springvhf-upsprints</a>
15	0000	15 0200	1.8-28	4 States QRP Group 2nd Sun Sprint	CW Ph	RS(T), SPC, mbr or pwr	<a href="http://www.4sqrp.com/SSS/sss_rules.pdf">www.4sqrp.com/SSS/sss_rules.pdf</a>
17	1700	17 2100	1.2G	VHF-UHF FT8 Activity Contest	Dig	4-char grid	<a href="http://www.ft8activity.eu/index.php/en">www.ft8activity.eu/index.php/en</a>
17	1900	17 2030	3.5	RSGB 80m Club Champ, Data	Dig	RST, serial	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
18	0000	19 0300	14	Walk for the Bacon QRP Contest	CW	RST, SPC, name, mbr or pwr; max 13 WPM	<a href="http://qrpcontest.com/pigwalk20">qrpcontest.com/pigwalk20</a>
18	0030	18 0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or pwr	<a href="http://naqcc.info">naqcc.info</a>
18	1900	18 2000	3.5-14	NTC QSO Party	CW	RST, mbr or "NM"; max 25 WPM	<a href="http://p4ntc.nl/ntcqp">p4ntc.nl/ntcqp</a>
20	0300	21 0900	50-1296	SARL VHF/UHF Digital Contest	Dig	RST, 6-char grid	<a href="http://www.sarl.org.za">www.sarl.org.za</a>
20	0600	20 2100	3.5-28	UN DX Contest	CW Ph	RS(T), Kazakhstan district code or serial	<a href="http://undxc.kz/rules-eng">undxc.kz/rules-eng</a>
20	0800	21 1100	3.5	NZART Sangster Shield Contest	CW	RST, serial, branch no. or serial	<a href="http://www.nzart.org.nz/activities">www.nzart.org.nz/activities</a>
20	1200	21 1200	1.8-28	His Maj. King of Spain Contest, CW	CW	RST, EA province or serial	<a href="http://concursos.ure.es/en">concursos.ure.es/en</a>
20	1200	21 1200	3.5-28	EU PSK DX Contest	Dig	RST, EU area or serial	<a href="http://eupsk.club">eupsk.club</a>
20	1400	21 0200	1.8-144	Arkansas QSO Party	CW Ph Dig	RS(T), AR county or SPC	<a href="http://www.arkqp.com">www.arkqp.com</a>
20	1600	20 2159	1.8-28,50	Feld Hell Sprint	Dig	See rules	<a href="http://sites.google.com/site/feldhellclub">sites.google.com/site/feldhellclub</a>
21	2300	22 0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or pwr	<a href="http://qrpcontest.com/pigrun">qrpcontest.com/pigrun</a>
22	0800	22 1959	3.5-28	YOTA Contest	CW Ph	RS(T), age	<a href="http://www.ham-yota.com/contest">www.ham-yota.com/contest</a>
22	1900	22 2030	3.5-14	RSGB FT4 Contest	Dig	4-char grid	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
24	0000	24 0200	1.8-28,50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
25	1900	25 2030	3.5	RSGB 80m Club Champ, CW	CW	RST, serial	<a href="http://www.rsgbcc.org/hf">www.rsgbcc.org/hf</a>
27	0000	28 2359	1.8-28	CQ WW WPX Contest, CW	CW	RST, serial	<a href="http://www.cqwpw.com/rules.htm">www.cqwpw.com/rules.htm</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!

04/29/2023 | HAMS for PanCAN

Apr 29-May 1, 1400Z-2000Z, N3P, New Kensington, PA. WQ3Q. 3.960 7.172. Certificate & QSL. Skyview Radio Society- N3P, 2335 Turkey Ridge Rd., Upper Burrell, PA 15068. Multiple N#P Stations across the country will be located in each of the ten ARRL sections -All stations will be on SSB. This nationwide Special Event's aim is raising awareness of pancreatic cancer research and support by the PanCAN (Pancreatic Cancer Network) during its national Purple Stride event. Each station will highlight any ham operator, or friends and family members who are diagnosed with pancreatic cancer located in that Section. Also, we'll provide access to how PanCAN helps patients with support and funding of research projects. Event Bonus stations will be located at Purple Stride locations and will offer special QSL cards. Each N#P station web page on the ARRL Special Event tab will provide QSL submission information. A Clean Sweep Certificate will be awarded for contacting all section stations. QSL card requests need SASE. For Clean Sweep certificate, include \$1 please. . rybar1949@gmail.com

05/01/2023 | Dickson County Old Timers Day

May 1-May 14, 0001Z-2359Z, W0T, Dickson, TN. Dickson County ARC. 7.235 14.280 21.400 28.450. Certificate. Suzanne Bennett, 1203 Old Highway 48 N, Cumberland Furnace, TN 37051. To celebrate Old Timers in Dickson County and entire US. QSL on request. wc4dc.org

05/05/2023 | 100 Years of Radio Communication Between Indonesia and The Netherlands

May 6-May 7, 0000Z-2359Z, PA100PCG, Radio Kootwijk, NETHERLANDS. Dutch Radio Society and Radio Club Limburg. All bands, all modes. QSL. See website, for QSL, information, NETHERLANDS. PA100M and PA100K also participating. www.qrz.com/db/pa100pcg or https://rclb.nl/km

05/05/2023 | 100 Years of Radio Communication Between Indonesia and The Netherlands

May 5-May 7, 0000Z-2359Z, PA100M, Radio Kootwijk, NETHERLANDS. Dutch Radio Society and Radio Club Limburg. All bands, all modes. QSL. See website, for QSL, information, NETHERLANDS. PA100PCG and PA100K also participating. www.qrz.com/db/pa100M or https://rclb.nl/mk

05/05/2023 | 100 Years of Radio Communication Between Indonesia and The Netherlands

May 5-May 7, 0000Z-2359Z, PA100K, Radio Kootwijk, NETHERLANDS. Dutch Radio Society and Radio Club Limburg. All bands, all modes. QSL. See website, for QSL, information, NETHERLANDS. PA100M and PA100PCG also participating. www.qrz.com/db/pa100k or https://rclb.nl/mk

05/05/2023 | Jiggy with the Piggy- Barbacue Cook off

May 5-May 6, 1200Z-2000Z, K4C, Concord, NC. Cabarrus Amateur Radio Society. 7.230 14.310 28.430. Certificate. Cabarrus Amateur Radio Society, P.O. Box 785, Concord, NC 28026. https://www.facebook.com/cabarrusars/ http://www.cabarrusars.org/ Cabarrus Amateur Radio Society P.O.Box 785 Concord NC 28026 Jiggy with the Piggy info: https://www.kannapolisnc.gov/Community/Jiggy-With-the-Piggy https://www.facebook.com/jiggywiththepiggy/ www.cabarrusars.org

05/05/2023 | NJ Knights of Columbus 127th State Convention

May 5-May 20, 0000Z-2359Z, K0C, Bridgeton, NJ. New Jersey Knights of Columbus. 28.3127 24.94127 21.2127 18.12127. Certificate & QSL. Thomas M. Perrotti, 785 Vineland Ave, Bridgeton, NJ 08302-4822. Throughout New Jersey. New Jersey Knights of Columbus, HF/50 frequencies ending in .127. QSL N2JIE, 785 Vineland Avenue, Bridgeton, NJ, 08302. The New Jersey Knights of Columbus will be holding their 127th State Convention in Wildwood, NJ on May 19-20, 2023. K0C will be operating throughout the five Catholic Dioceses in the State, as: K0C Camden, K0C Metuchen, K0C Newark, K0C Paterson and K0C Trenton. Certificate awarded for working all five dioceses. For domestic contacts:

# AMATEUR RADIO SPECIAL EVENT STATIONS!

QSL card, send SASE; for QSL card and certificate, send two dollar. For DX contacts: QSL card, send two dollars; for QSL card and certificate, send five dollars. For more information, visit K0C on QRZ.com or EMail N2JIE@arrl.net. www.qrz.com/db/k0c

05/07/2023 | The INDYCAR Grand Prix - Race One

May 7-May 13, 0000Z-2359Z, W9IMS, Indianapolis, IN. The Indianapolis Motor Speedway ARC. 3.840 7.245 14.245 18.140. Certificate & QSL. Indianapolis Motor Speedway Amateur Radio Club, P.O. Box 30954, Indianapolis, IN 46230. See the website for ALL information! w9ims.org

05/08/2023 | Nicholson Daisy Festival Special Event

May 8, 1200Z-2200Z, KD4QHB, Nicholson, GA. Athens Radio Club. 7235 14250. QSL. Bob Herrin, 252 Chandler Bridge Rd, Nicholson, GA 30565. <https://www.athensradioclub.org>

05/10/2023 | Golden Spike Special Event Station W7G

May 10, 1500Z-2300Z, W7G, Corinne, UT. Ogden Amateur Radio Club (OARC). 14.255 7.235. QSL. Ogden Amateur Radio Club (OARC), PO Box 3353, Ogden, UT 84409. [www.ogdenarc.org](http://www.ogdenarc.org), [www.qrz.com/db/w7g](http://www.qrz.com/db/w7g), or w7g.org

05/13/2023 | Commemorating Armed Forces Day and first US aircraft carrier angle deck tests in 1952

May 13, 1600Z-2300Z, NI6IW, San Diego, CA. USS Midway Museum Ship. 14.320 7.250 14.071 PSK31 DSTAR on Papa system repeaters. QSL. USS Midway Museum Ship COMEDTRA, 910 N Harbor Drive, San Diego, CA 92101. [www.qrz.com/db/ni6iw](http://www.qrz.com/db/ni6iw)

05/13/2023 | Jamestown Landing Day Event

May 13, 1400Z-2000Z, K4RC, Williamsburg, VA. Williamsburg Area Amateur Radio Club. 7.265 14.265. Certificate & QSL. . Commemorating the 416th anniversary of England establishing the oldest

English-speaking colony on the American continent in May 1607. <https://www.k4rc.net/events/special-event-stations>

05/13/2023 | Minnesota Fishing Opener

May 13, 1400Z-1900Z, N0E, Anoka, MN. Anoka County Radio Club, W0YFZ. 7.255 14.255. QSL. Anoka County Radio Club, P.O. Box 982, Anoka, MN 55303. [anokaradio.org](http://anokaradio.org)

05/13/2023 | WNY Regional Maker Faire

May 13, 1500Z-2100Z, W2M, Hamburg, NY. SouthTowns Amateur Radio Society. 3.85 7.180 14.230 28.550. QSL. Joseph Claus, 6313 Kast Place, Hamburg, NY 14075. [www.WB2ELW.net](http://www.WB2ELW.net)

05/13/2023 | Yonkers Amateur Radio Club 75th Anniversary

May 13, 0200Z-1100Z, W2YRC, Yonkers, NY. Yonkers Amateur Radio Club. 14.275 28.375 7.275 21.375. QSL. Gil Lugo, WC2Y, 33 Tyndale Place, Yonkers, NY 10701. [info@yarc.org](mailto:info@yarc.org) or [www.yarc.org](http://www.yarc.org)

05/14/2023 | National Police Week - Honoring Our Fallen Heroes

May 14-May 20, 0001Z-2359Z, K3FBI/0-9, Fredericksburg, VA. FBI Amateur Radio Association. 7.275 7.060 14.275 14.060. Certificate. E-certificate only, see website for, deails. Multiple club members operating K3FBI/0-9 from around the nation. Multiple bands and modes. Honoring all Law Enforcement who have paid the ultimate sacrifice to protect and serve. Downloadable PDF Certificate 4-6 weeks after the event. [www.qrz.com/db/k3fbi](http://www.qrz.com/db/k3fbi)

05/15/2023 | Dog Island IOTA DXpedition NA-085

May 15-May 25, 0000Z-0059Z, K4D, Dog Island, FL. K5TEN . 14.260 21.280 28.310 50.130. QSL. Bruce Brady, 208 Mount Tabor Road , Hot Springs National Park, AR 71913. IOTA NA-085/FL005S is a rare island off the coast of Florida. QSL to K5TEN. SASE required. See [qrz.com](http://qrz.com) for details. [k5ten@aol.com](mailto:k5ten@aol.com)

# AMATEUR RADIO SPECIAL EVENT STATIONS!

05/20/2023 | 75th Anniversary of the Quarter Century Wireless Association

May 20-May 21, 0001Z-2359Z, WQ4CWA/75, Virginia Beach, VA. QCWA Chapter 119, Tidewater Virginia. 7.210 14.245 21.300 28.493. QSL. Jim Geisinger, 252 Rocky Mount Road, Virginia Beach, VA 23452. Operations will be as available from members' home stations. Expect modes other than sideband on all bands as propagation allows. QSL arrangements will be announced at a later time.  
<https://www.qcwa.org/chapter119.htm>

05/20/2023 | Nuclear Ship Savannah - National Maritime Day

May 20, 1300Z-2100Z, K3S, Baltimore, MD. Nuclear Ship Savannah ARC. 7 14 21 28. QSL. ULIS FLEMING, 980 PATUXENT ROAD, Odenton, MD 21113. Operating from the ship. Please check the spotting networks since we may be operating anywhere on 40, 20, 15, or 10m SSB or CW.

05/20/2023 | W6SFM On-Air Bug Roundup

May 20-May 22, 0000Z-0000Z, W6SFM, Sacramento, CA. Samuel F. Morse Amateur Radio Club. 3.533 7.033 14.033 21.033. QSL. Bob Kehr, 13989 Sutter Highland Dr, Sutter Creek, CA 95685. The Samuel F. Morse Amateur Radio Club -- a CW enthusiast club based in Sacramento, California -- invites you to a special time bringing bug operators together on the air. This 48-hour event is not a contest; rather it is a time dedicated to celebrating our CW and Bug key heritage. In the same spirit as ARRL's Straight Key Night, participants are encouraged to get on the air and simply make enjoyable, conversational CW QSOs using a Bug style key as the sending instrument. There are no points scored in this event, and all who participate are winners. This is an opportunity to exercise, share, and exhibit your personalized fist. Amateur radio operators of all ages and levels of experience are encouraged to participate. Once the event begins, simply Call "CQ BR" so folks know you are a Bug Roundup participant. Grab that bug, clean those contacts, and let'er fly! We want to hear that "Banana Boat / Lake Erie Swing" or that commercial KPH/

WCC quality fist. CQ BR will generally be found around x.x33 on 10-15-20-40-80, as band conditions allow. w6sfm.org

05/21/2023 | National EMS Week

May 21-May 27, 0000Z-2359Z, N4E, Gainesville, FL. W.T. Loften High School Amateur Radio Club. 7.030 14.200 21.340 28.300. QSL. W.T. Loften High School, 3000 East University Avenue, Gainesville, FL 32641. Our Fire/EMS Academy students look forward to contacting people and passing along important safety tips. bobw4gj@gmail.com

05/22/2023 | The Indianapolis 500 - Race Two

May 22-May 28, 0000Z-2359Z, W9IMS, Indianapolis, IN. The Indianapolis Motor Speedway ARC. 3.840 7.245 14.245 18.140. Certificate & QSL. Indianapolis Motor Speedway Amateur Radio Club, P.O. Box 30954, Indianapolis, IN 46230. See the website for ALL information! w9ims.org

05/26/2023 | Vietnam Veterans Memorial Special Event Station

May 26-May 27, 2200Z-2200Z, K9V, Columbia City, IN. Whitley County Amateur Radio Club. 14.270. QSL. Vietnam Veterans Memorial Special Event Station, P.O. Box 652, Columbia City, IN 46725. wc9ar@arrl.net

05/27/2023 | Celebrating Marie Doro's Birthday

May 27, 1200Z-2000Z, KC3TKC, Loysville, PA. Perry County Amateur Radio Club. 14.274 21.280 7.240 146.550. Certificate. Perry County Amateur Radio Club, Send QSO information and email address to, events@perrycountyarc.org. No paper QSL cards, printable certificates available. events@perrycountyarc.org or www.qrz.com/db/kc3tkc

05/27/2023 | Strange Antenna Challenge

May 27-May 29, 0500Z-2359Z, K0S, Springfield, MO. Erik Weaver, N0EW. 14.350. QSL. Erik Weaver, 4857 E Farm Road 136, Springfield, MO 65809.

05/29/2023 | Memorial Day Remembrance

# AMATEUR RADIO SPECIAL EVENT STATIONS!

May 29, 1500Z-2030Z, 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 Rd., Baton Rouge, LA 70802. CW, SSB, FT8 Operation aboard the USS Kidd (DD-661), a World War II Fletcher-class destroyer. [www.qrz.com/db/w5kid](http://www.qrz.com/db/w5kid)

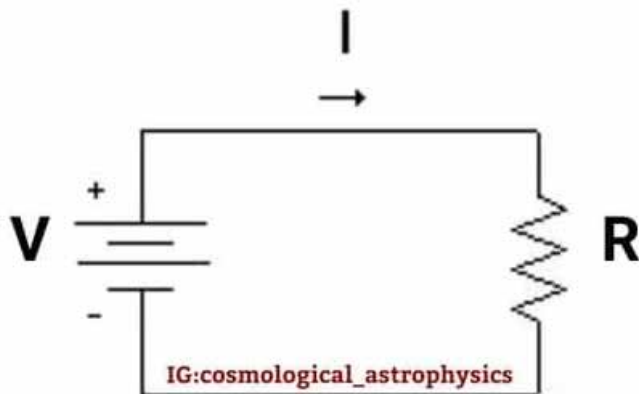
05/29/2023 | Memorial Day Special Event

May 29, 1800Z-2100Z, N3TAL, Glenarden, MD. American Legion Post 275. 7.275Mhz +/- LSB. QSL. American Legion Post 275 ART, 8201 Martin Luther King Jr Hwy, Glenarden, MD. [n3tal.275@gmail.com](mailto:n3tal.275@gmail.com) or [www.qrz.com/db/n3tal](http://www.qrz.com/db/n3tal)

05/31/2023 | 1889 Johnstown Flood Anniversary

May 31-Jun 4, 1000Z-1800Z, N3N\*, Johnstown, PA. Cambria County Dept. Emergency Services. 1.870 3.850 7.073 7.240; 20 15 meters and tech portion 10 meters . Certificate. Des Warzel, PO Box 116, Twin Rocks, PA 15960. \*KC3ULO, ND3L, and N3YFO also operating. Certificate via operator's QRZ email; will send back via E-MAIL; or direct with SASE. [dustydes@aol.com](mailto:dustydes@aol.com)

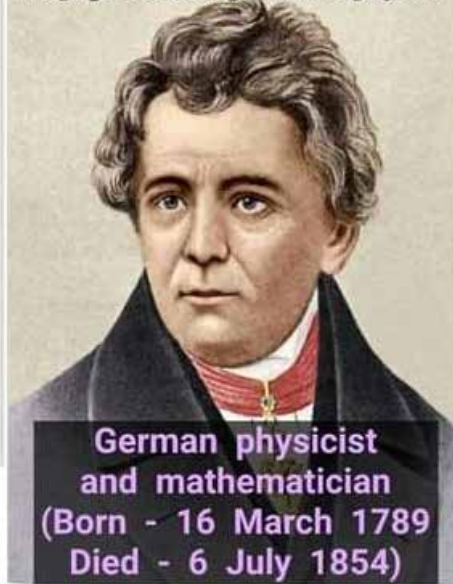
## Scientist of the Day



$$V = IR$$

(Ohm's Law)

Fb/page/Cosmological Astrophysics



German physicist and mathematician  
(Born - 16 March 1789  
Died - 6 July 1854)

## Georg Simon Ohm

The **man** who discovered one of the most fundamental laws of **electricity**.

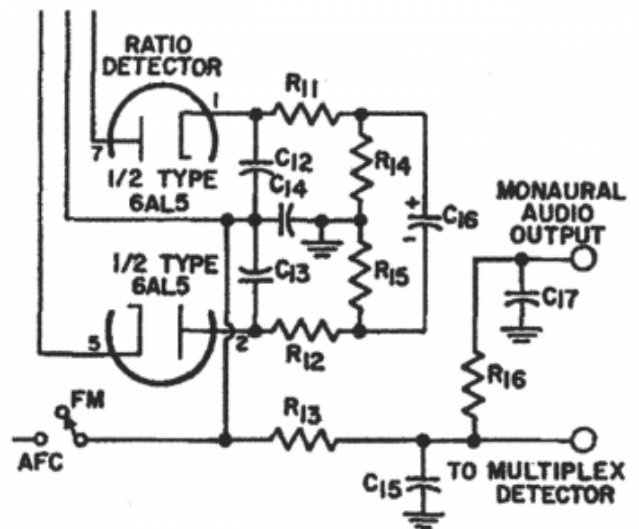
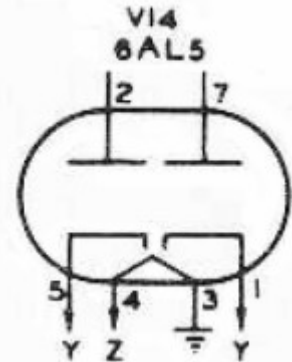
Cosmological Astrophysics

By Radha Mohan.

## 6AL5 Dual Diode

The 6AL5 combines two independent diode units in the 7 pin miniature construction. Its high permeance permits high efficiency in either FM or AM detector service.

- Substitutes: 5726, 6663, 6EB5
- EIA Base: 6BT
- Filament Voltage: 6.3V
- Filament Current: 300mA
- Diode Peak Inverse Plate Voltage: 330V
- Diode Peak Plate Current (per plate): 54mA
- 





# 6AL5—3AL5—12AL5

## TWIN DIODE

6AL5  
3AL5  
12AL5  
ET-T882  
Page 1  
8-54

### DESCRIPTION AND RATING

The 6AL5 is a miniature high-perveance twin diode in which separate cathodes are provided for the two sections. The 6AL5 is suited for a wide variety of applications which include service as a detector in FM and television circuits, automatic-gain-control rectifier, or a low-current power rectifier. Each diode can be used independently of the other or combined in parallel or full-wave arrangements. The resonant frequency of each section of the 6AL5 is approximately 700 megacycles.

The 3AL5, 6AL5 and 12AL5 are alike except for heater ratings and heater-cathode voltage ratings. In addition, the 3AL5, as a result of its controlled heater warm-up characteristic, is suited for use in television receivers which employ series-connected heaters. When the 3AL5 is used in conjunction with other 600-milliamperre types which exhibit essentially the same heater warm-up characteristic, heater voltage surges across the individual tubes are minimized during the warm-up period.

### GENERAL

#### ELECTRICAL

Cathode—Coated Unipotential

	3AL5	6AL5	12AL5
Heater Voltage, AC or DC	3.15	6.3	12.6 Volts
Heater Current	0.6	0.3	0.15 Amperes
Heater Warm-up Time*	11	..	.... Seconds

#### Direct Interelectrode Capacitances

	With Shield†	Without Shield
Plate-No. 1 to Cathode-No. 1, Heater, and Internal Shield	3.2	2.5 μμf
Plate-No. 2 to Cathode-No. 2, Heater, and Internal Shield	3.2	2.5 μμf
Cathode-No. 1 to Plate-No. 1, Heater, and Internal Shield	3.6	3.4 μμf
Cathode-No. 2 to Plate-No. 2, Heater, and Internal Shield	3.6	3.4 μμf
Plate-No. 1 to Plate-No. 2, maximum	0.026	0.068 μμf

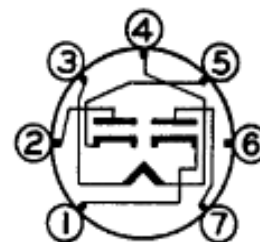
#### MECHANICAL

Mounting Position—Any

Envelope—T-5½, Glass

Base—E7-1, Miniature Button 7-Pin

### BASING DIAGRAM

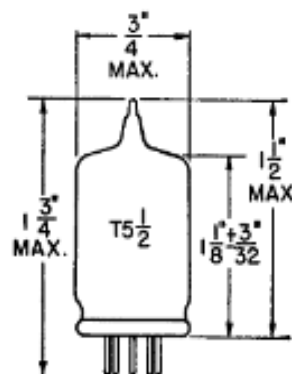


RETMA 68T

### TERMINAL CONNECTIONS

- Pin 1—Cathode (Section 1)
- Pin 2—Plate (Section 2)
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—Cathode (Section 2)
- Pin 6—Internal Shield
- Pin 7—Plate (Section 1)

### PHYSICAL DIMENSIONS



RETMA 5-1



Supersedes ET-T269C dated 1-50 and ET-T703 dated 12-49

Again this week sunspot numbers and solar flux were higher than the week before.

Average daily sunspot numbers more than doubled, from 70.6 to 146.9, and average daily solar flux increased from 141 to 164.5. Both figures represent a substantial increase in solar activity.

Planetary A index averages went from 7.6 to 8.1, while middle latitude A index advanced from 6.4 to 7.3.

Three new sunspot groups emerged on April 13, one more on April 16, and another on April 17.

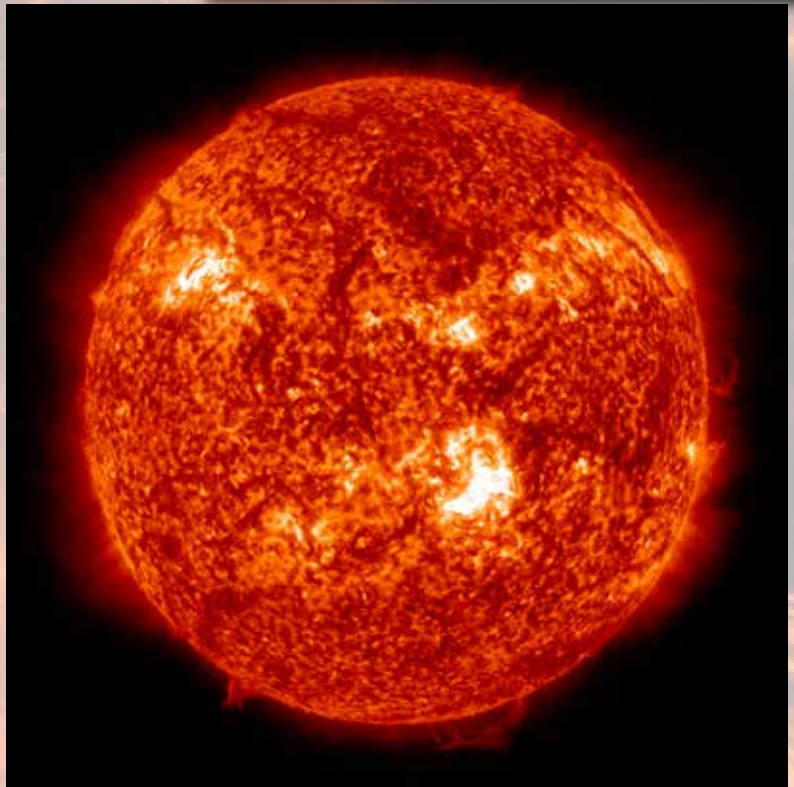
Predicted solar flux over the next few weeks is 145, 140 and 135 on April 21-23, 130 on April 24-25, 125 on April 26-27, 160 on April 28-29, 165 on April 30, 172 on May 1-3, 170 on May 4, 172 on May 5-7, 178 on May 8, 182 on May 9-12, then 175, 178 and 170 on May 13-15, 168 on May 16-17, 175 on May 18, then 172 on May 19-21, then 168 and 162 on May 22-23, 160 on May 24-26, 165 on May 27, and 172 on May 28-30.

Predicted planetary A index is 20, 16, 12 and 8 on April 21-24, 5 on April 25-27, 15 on April 28-30, then 12 and 10 on May 1-2, 8 on May 3-4, 5 on May 5-6, 12 on May 7, 5 on May 8-10, then 8 on May 11-12, 5 on May 13-18, then 10, 8, 5 and 5 on May 19-22, 15 and 18 on May 23-24, 15 on May 25-27, then 12 and 10 on May 28-29.

Weekly Commentary on the Sun, the Magnetosphere, and the Earth's Ionosphere - April 20, 2023 from OK1HH.

“Of the fifteen sunspot groups observed over the past week, AR3272 and AR3282 were the source of most of the flares. Both had a beta-gamma magnitude configuration. 61 C-class flares and 4 M-class flares were observed.

The partial halo CMEs on 15 and 16 April were the source of particles that reached Earth on 18 April, when the solar wind speed increased abruptly at 1308 UTC and a geomagnetic disturbance developed.



# Propagation

**Across**

- 1. "WRTC grand \_\_\_" - working all 1x1 calls
- 5. Parts supplier McMaster-\_\_\_
- 9. Sword handles
- 14. Digital music std.
- 15. Silent Key article, briefly
- 16. Fill with joy
- 17. Antenna restrictions might be on this
- 18. A craving for that last multiplier, say
- 19. Northern city with F call prefix
- 20. DXers' mood swings?
- 23. Decades over S9
- 24. Sharpens
- 26. Early term for static crash (1920's)
- 28. Nothing more, on CW
- 30. Ocean
- 32. "Air" for an early ham
- 33. \_\_\_ gum - a thickening agent
- 34. Hams xmit and rcv with them
- 35. The way, for signals
- 38. A non-radio bug
- 39. A hamfest of the Internet
- 40. Type of eel
- 41. Code inventor, for short
- 42. A comfortable ham shack might be here
- 43. Law school course
- 44. VK animal
- 47. Baseball glove
- 48. A six or ten meter DXer's hope
- 54. Do this on your meter to measure line voltage
- 56. Board here, for going /MM
- 57. Capacitor dielectric material
- 58. CW predecessor
- 59. Medical breakthrough

1	2	3	4		5	6	7	8		9	10	11	12	13
14					15					16				
17					18					19				
20				21					22					
			23						24				25	
	26	27					28	29				30		31
32						33					34			
35						36					37			
38						39					40			
41						42					43			
	44		45	46					47					
			48				49	50				51	52	53
54	55						56					57		
58							59					60		
61							62					63		

- 60. Vy much
- 61. DC power sources, briefly
- 62. Cluster item
- 63. Maine prefix, possibly

**Down**

- 1. Tiny parts (abbr.)
- 2. In \_\_\_ of (instead of)
- 3. Gulf of \_\_\_, off the 70 coast
- 4. Where not to change horses
- 5. VK was once a British one
- 6. Borders on
- 7. A microprocessor type, briefly
- 8. Non-military RATT
- 9. "\_\_\_ radio" (testing, sometimes)
- 10. SETI call answerer

- 11. Calling CQ TEST one minute before the contest begins
- 12. Kind of logic ckt
- 13. You can do it with ATV
- 21. Lively
- 22. Boorish sort
- 25. Told someone to wait, on CW
- 26. Winning several contests in a row
- 27. It might increase your amplifier's blower speed
- 28. Holy book, in HZ-land
- 29. R-rated, maybe
- 31. Grayish
- 32. Oval insulators
- 33. Jeer
- 34. A contester, in a broader sense
- 36. Fragrant wood
- 37. Ham it up, in a way

- 43. FCC license, slangily
- 45. Like an untouched Heathkit
- 46. Freezes a digital VFO
- 47. Prefix with chip or wave
- 49. They feed DSP ckts, usually
- 50. Arrange, as hair
- 51. Prefix with watt
- 52. Clickable image
- 53. Gourmet cracker spread
- 54. Particularly slim type of AM
- 55. 3-land ARRL section



More GREAT pictures from our St. Patrick's Day parade!



**Jeter**

**EPARA K9 Division**

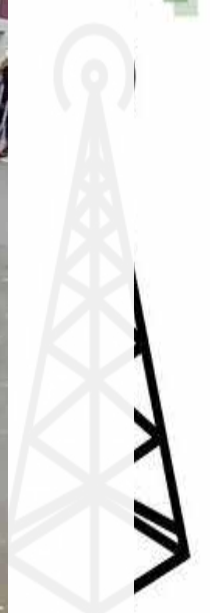
Pause (Ctrl+P)



**Mike W3MIK**

**Float Driver**

Pause (Ctrl+P)



Sam KC3UTB

Youngest EPARA Member

Pause (Ctrl+P)

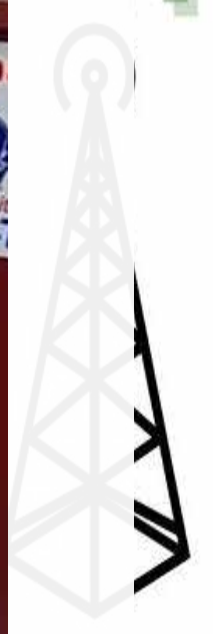


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2023

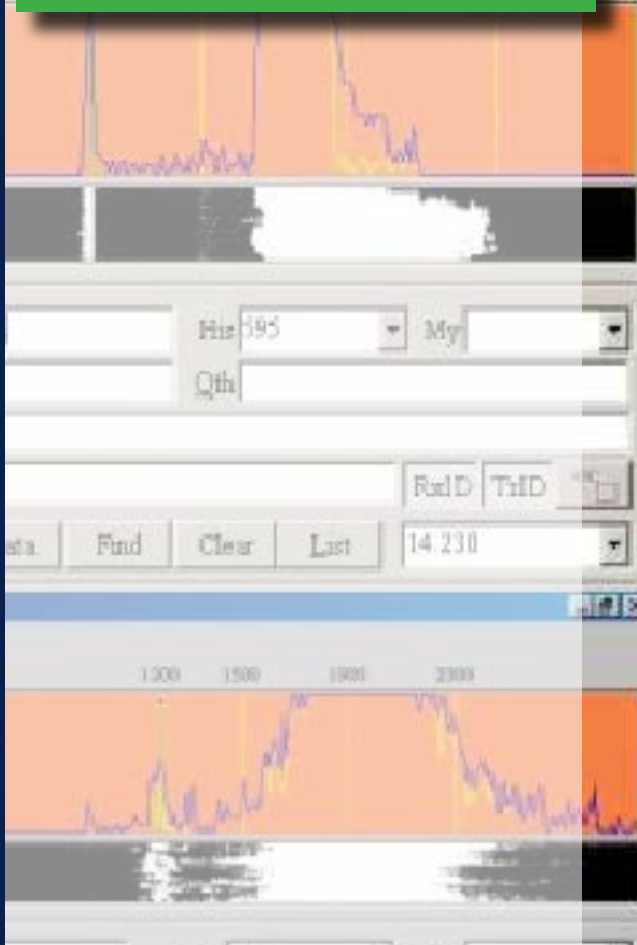
St. Patrick's Day



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# EPARA SSTV!!



WL7LP - Russ  
MMSSTV Ver 1.11  
November 2022  
East Pennesyl

TX Mode

- Auto
- Robot 36
- Robot 72
- AVT 90
- Scotie 1
- Scotie 2
- Scotie DX
- Martin 1
- Martin 2
- SC2 180

DSP





## International Space Station Operations Extended Through 2030

The International Space Station partners have committed to extending the operations of this unique platform in low Earth orbit where, for more than 22 years, humans have lived and worked for the benefit of humanity, conducting cutting-edge science and research in microgravity. The United States, Japan, Canada, and the participating countries of the European Space Agency (ESA) have confirmed they will support continued space station operations through 2030 and Russia has confirmed it will support continued station operations through 2028. NASA will continue to work with its partner agencies to ensure an uninterrupted presence in low Earth orbit, as well as a safe and orderly transition from the space station to commercial platforms in the future.

Since its launch in 1998, the [International Space Station](#) has been visited by 266 individuals from 20 countries. The space station is a unique scientific platform where crew members conduct experiments across multiple disciplines of research, including Earth and space science, biology, human physiology, physical sciences and technology demonstrations that could not be done on Earth.

## EPARA SATComm Committee is Formed

On April 27<sup>th</sup> there was a special Zoom meeting to bring club members together interested in EME and Satellite communications. The purpose of the meeting was to formulate a way forward for the club to begin to use the 9700 ICOM along with satellite tracking equipment and further club participation in satellite and Earth Moon Earth (EME) communications. Proposals were provided for the recently formed SATComm group to form a committee and to provide a vision for moving these activities forward.

### The EPARA SATComm Vision

**To promote, support, and nurture the EPARA vision of "In Search Of Amateur Radio Excellence" through the use of amateur radio satellite communications**

- The vision takes club technicians through a series of Elmer guided activities for club members that don't have a General license
  - Become proficient and fluid in the use of voice protocols and QSOs with other HAMs using more advanced equipment
  - Go beyond FM repeater use
  - Become proficient with packet, digital and other modes
  - Generate an interest for STEM students and promote club membership to the general public
- **EME requires a higher level of operating sophistication**
  - Great opportunity for members who become proficient with SATComm equipment and modes
  -

Club members with a General or Extra class license are encouraged to participate as well!

The first proposal was for the separation of the two activities since they use the same equipment but operate in a different set of circumstances and modes. This resolution passed, with the SATComm group being a subcategory of the EME - SATComm group.

The second series of proposals were for the committee chairs and responsibilities. Bob W3BMM will continue to head up the EME activities for the group, and Alex KD2FTA will be the committee chair for SATComm group. Martin KC3TOE has already been appointed as Quartermaster for the club, and John K3WH will be the Chief Elmer for SATComm.

The meeting was hosted by our Club President Chris AJ3C, and attended by, Bill AB3ME, Dan KD3CEU, John K3WH, Martin KC3TOE, Bob W3BMM, Brad KF6FOK, Kevin W3KCF, Chris W2BSA, and Roy W0ROY.

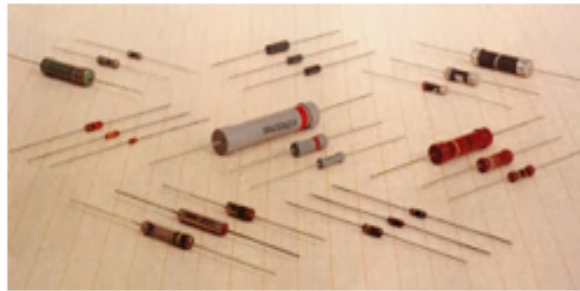
The SATComm group will also be "officially" known as the GOES team. I'd like to thank all who participated, and we're looking forward to an exciting field day as we all become versatile in the use of the equipment. More announcements to come, so stay tuned!

73, Alex KD2FTA

## Understanding the language of a Resistor

Resistors are the most commonly used component in electronics and their purpose is to create specified values of current and voltage in a circuit. A number of different resistors are shown in the photos. (The resistors are on millimeter paper, with 1cm spacing to give some idea of the dimensions).

fig1a shows some low-power resistors, while fig1b shows some higher-power resistors. Resistors with power dissipation below 5 watts (most commonly used types) are cylindrical in shape, with a wire protruding from each end for connecting to a circuit (fig1a). Resistors with power dissipation above 5 watts are shown below (fig1b).

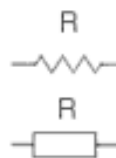


**fig1a. Some low-power resistors.**



**fig1b. High-power resistors and rheostats.**

The symbol for a resistor is shown in the following diagram (upper: American symbol, lower: European symbol.)



**Fig. 1.2a: Resistor symbols**

The unit for measuring resistance is the **OHM**. (the Greek letter  $\Omega$  - called Omega). Higher resistance values are represented by "k" (kilo-ohms) and M (meg ohms). For example, 120 000  $\Omega$  is represented as 120k, while 1 200 000  $\Omega$  is represented as 1M2. The dot is generally omitted as it can easily be lost in the printing process. In some circuit diagrams, a value such as 8 or 120 represents a resistance in ohms. Another common practice is to use the letter E for resistance in ohms. The letter R can also be used. For example, 120E (120R) stands for 120  $\Omega$ , 1E2 stands for 1R2 etc.

### 1.1 Resistor Markings

Resistance value is marked on the resistor body. Most resistors have 4 bands. The first two bands provide the numbers for the resistance and the third band provides the number of zeros. The fourth band indicates the tolerance. Tolerance values of 5%, 2%, and 1% are most commonly available.

The following table shows the colors used to identify resistor values:

COLOR	DIGIT	MULTIPLIER	TOLERANCE	TC
Silver		x 0.01 Ω	±10%	
Gold		x 0.1 Ω	±5%	
Black	0	x 1 Ω		
Brown	1	x 10 Ω	±1%	±100*10 <sup>-6</sup> /K
Red	2	x 100 Ω	±2%	±50*10 <sup>-6</sup> /K
Orange	3	x 1 kΩ		±15*10 <sup>-6</sup> /K
Yellow	4	x 10 kΩ		±25*10 <sup>-6</sup> /K
Green	5	x 100 kΩ	±0.5%	
Blue	6	x 1 MΩ	±0.25%	±10*10 <sup>-6</sup> /K
Violet	7	x 10 MΩ	±0.1%	±5*10 <sup>-6</sup> /K
Grey	8	x 100 MΩ		
White	9	x 1 GΩ		±1*10 <sup>-6</sup> /K

\*\* TC - Temp. Coefficient, only for SMD devices

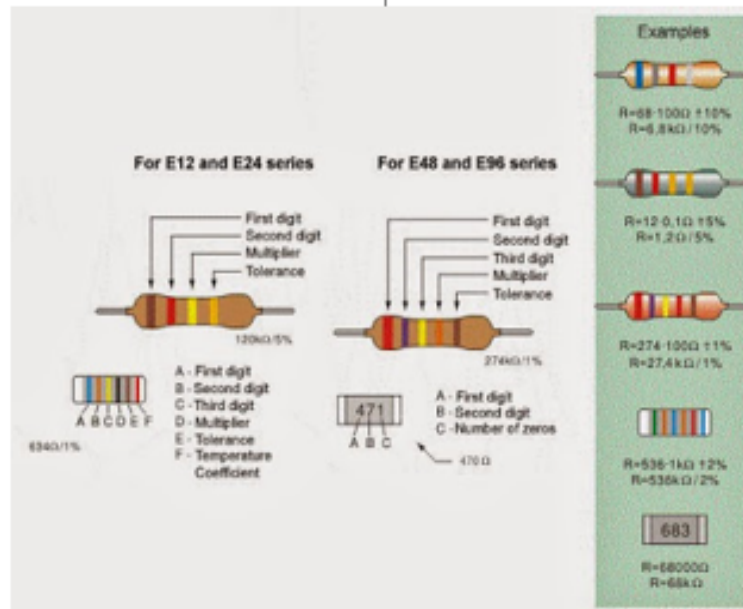


Fig. 1.2: b. Four-band resistor, c. Five-band resistor, d. Cylindrical SMD resistor, e. Flat SMD resistor

The following shows all resistors from 0R1 (one tenth of an ohm) to 22M:







## NOTES:

The resistors above are "common value" 5% types.  
The fourth band is called the "tolerance" band. Gold = 5%  
(tolerance band Silver = 10% but no modern resistors are 10%!!)  
"common resistors" have values 10 ohms to 22M.

### RESISTORS LESS THAN 10 OHMS

When the **third** band is gold, it indicates the value of the "colors" must be divided by 10.  
Gold = "divide by 10" to get values 1R0 to 8R2  
See 1st Column above for examples.

When the **third** band is silver, it indicates the value of the "colors" must be divided by 100.  
(Remember: more letters in the word "silver" thus the divisor is "larger.")  
Silver = "divide by 100" to get values 0R1 (one tenth of an ohm) to 0R82  
e.g.: 0R1 = 0.1 ohm 0R22 = point 22 ohms  
See 4th Column above for examples.

The letters "R, k and M" take the place of a decimal point. The letter "E" is also used to indicate the word "ohm."  
e.g.: 1R0 = 1-ohm 2R2 = 2 point 2 ohms 22R = 22 ohms  
2k2 = 2,200 ohms 100k = 100,000 ohms  
2M2 = 2,200,000 ohms

Common resistors have 4 bands. These are shown above. First two bands indicate the first two digits of the resistance, third band is the multiplier (number of zeros that are to be added to the number derived from first two bands) and fourth represents the tolerance.

Marking the resistance with five bands is used for resistors with tolerance of 2%, 1% and other high-accuracy resistors. First three bands determine the first three digits, fourth is the multiplier and fifth represents the tolerance.

For SMD (Surface Mounted Device) the available space on the resistor is very small. 5% resistors use a 3-digit code, while 1% resistors use a 4-digit code.

Some SMD resistors are made in the shape of small cylinder while the most common type is flat. Cylindrical SMD resistors are marked with six bands - the first five are "read" as with common five-band resistors, while the sixth band determines the Temperature Coefficient (TC), which gives us a value of resistance change upon 1-degree temperature change.

The resistance of flat SMD resistors is marked with digits printed on their upper side. First two digits are the resistance value, while the third digit represents the number of zeros. For example, the printed number 683 stands for 68000Ω, that is 68k.

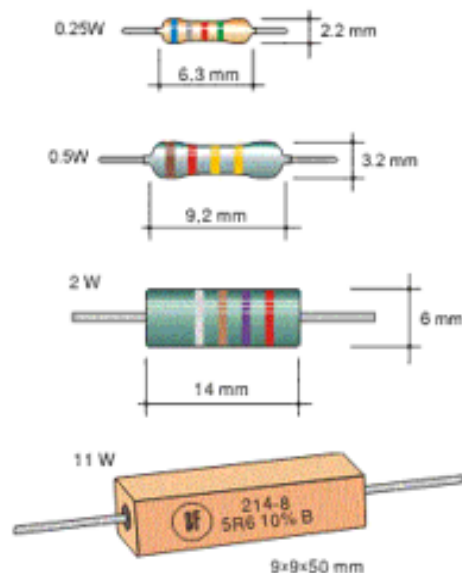
It is self-obvious that there is mass production of all types of resistors. Most commonly used are the resistors of the E12 series, and have a tolerance value of 5%. Common values for the first two digits are: 10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68 and 82.

The E24 series includes all the values above, as well as: 11, 13, 16, 20, 24, 30, 36, 43, 51, 62, 75 and 91. What do these numbers mean? It means that resistors with values for digits "39" are: 0.39Ω, 0.39Ω, 0.39Ω, 0.390Ω, 0.39kΩ, 39kΩ, etc. are manufactured. (0R39, 0.3R9, 0.39R, 0.390R, 0.3k9, 0.39k)

For some electrical circuits, the resistor tolerance is not important and it is not specified. In that case, resistors with 5% tolerance can be used. However, devices which require resistors to have a certain amount of accuracy, need a specified tolerance.

## 1.2 Resistor Dissipation

If the flow of current through a resistor increases, it heats up, and if the temperature exceeds a certain critical value, it can be damaged. The wattage rating of a resistor is the power it can dissipate over a long period of time. Wattage rating is not identified on small resistors. The following diagrams show the size and wattage rating:



Most commonly used resistors in electronic circuits have a wattage rating of 1/2W or 1/4W. There are smaller resistors (1/8W and 1/16W) and higher (1W, 2W, 5W, etc.).

In place of a single resistor with specified dissipation, another one with the same resistance and higher rating may be used, but its larger dimensions increase the space taken on a printed circuit board as well as the added cost.

Power (in watts) can be calculated according to one of the following formulae, where  $U$  is the symbol for Voltage across the resistor (and is in Volts),  $I$  is the symbol for Current in Amps and  $R$  is the resistance in ohms:

$$P=U \cdot I$$

$$P=R \cdot I^2$$

$$P=\frac{U^2}{R}$$

For example, if the voltage across an 820Ω resistor is 12V, the wattage dissipated by the resistors is:

$$P = \frac{U^2}{R} = \frac{12^2}{820} = 0,176 \text{ W} = 176 \text{ mW}$$

A 1/4W resistor can be used.

In many cases, it is not easy to determine the current or voltage across a resistor. In this case the wattage dissipated by the resistor is determined for the "worst" case. We should assume the highest possible voltage across a resistor, i.e., the full voltage of the power supply (battery, etc.).

If we mark this voltage as  $V_B$ , the highest dissipation is:

$$P = \frac{U_B^2}{R}$$

For example, if  $V_B=9V$ , the dissipation of a  $220\Omega$  resistor is:

$$P = \frac{9^2}{220} = 368 \text{ mW},$$

A 0.5W or higher wattage resistor should be used

Posted 25th November 2013 by [Sunday Efeh](#)

<http://embeddedtec.blogspot.com/>





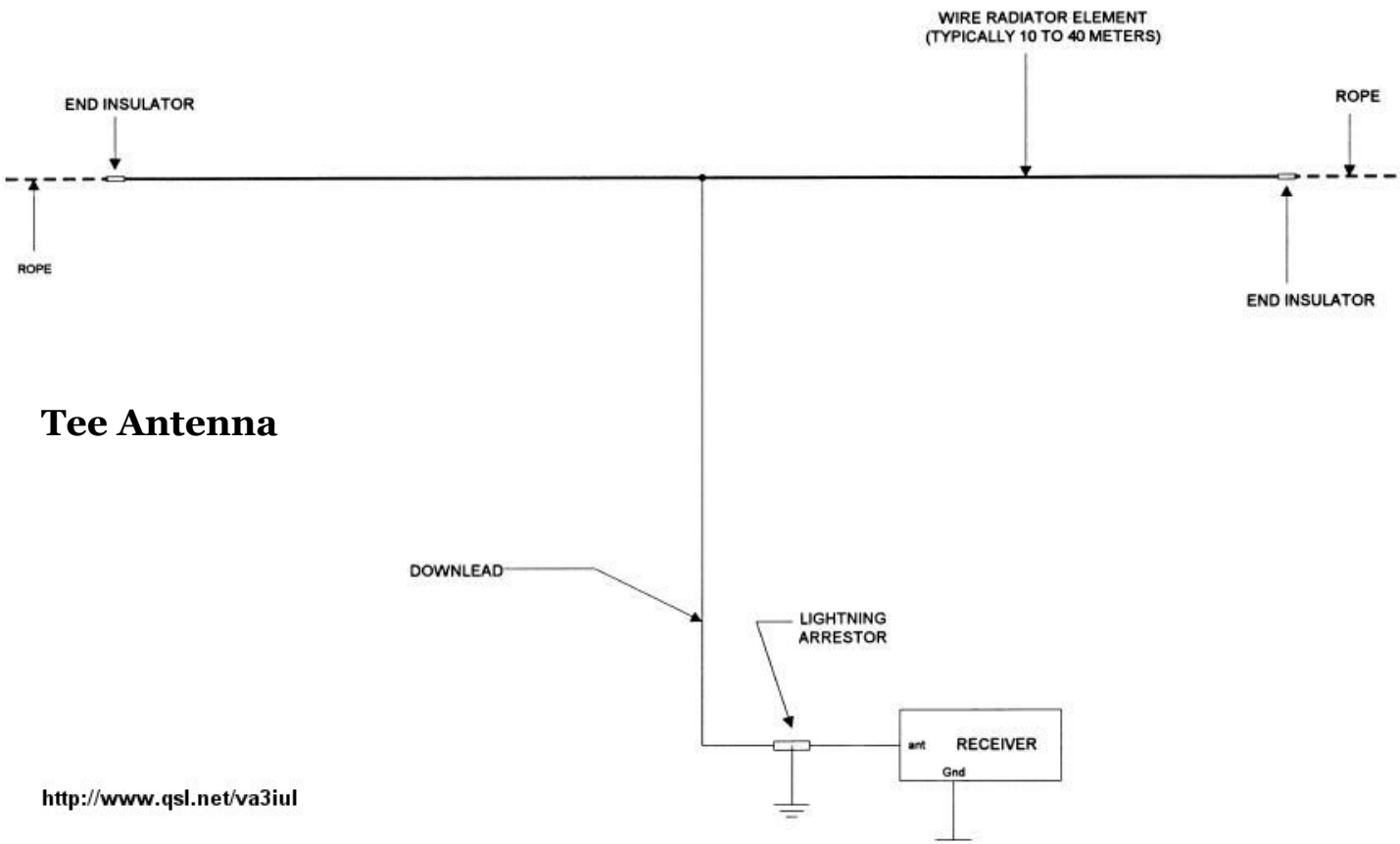




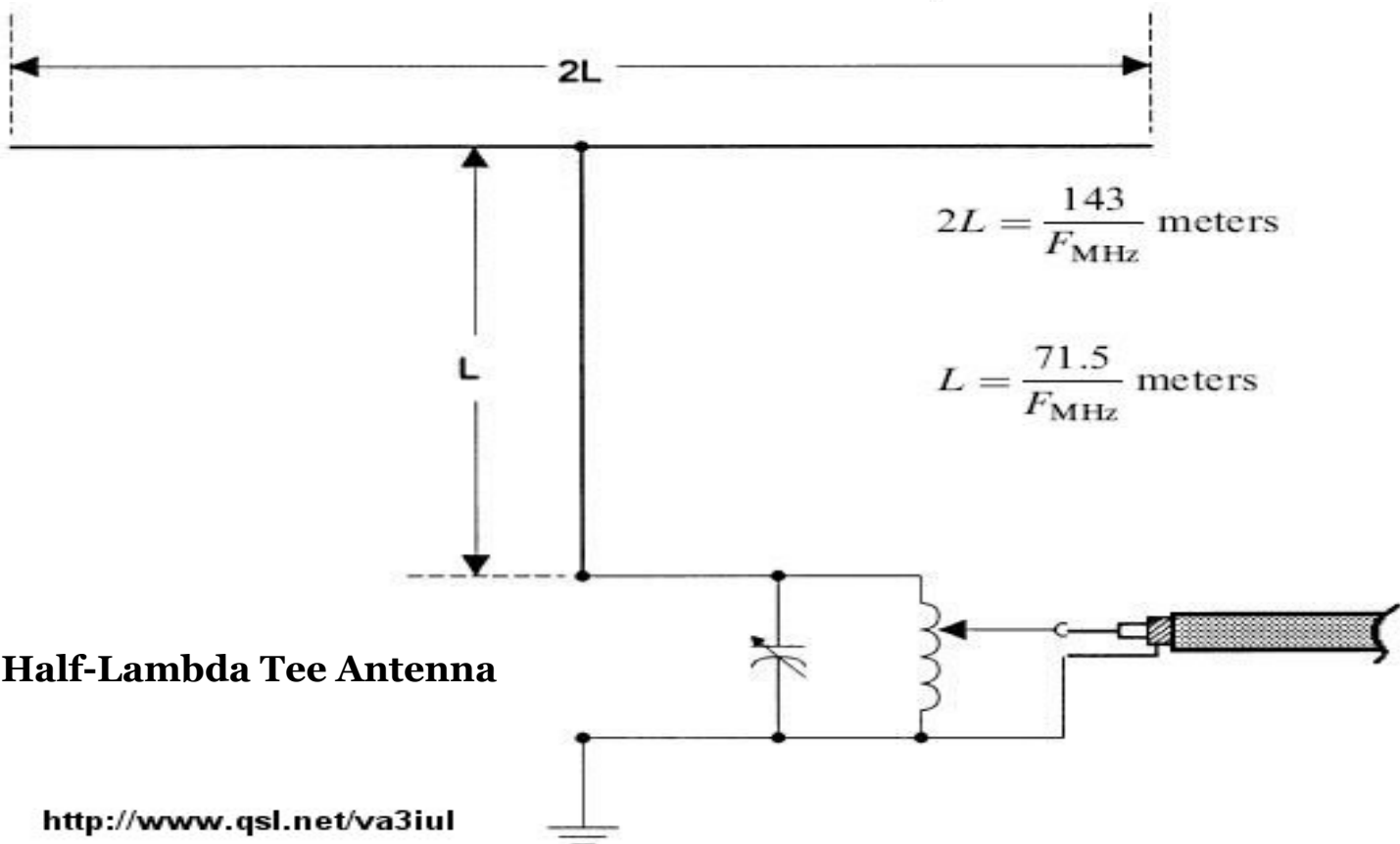






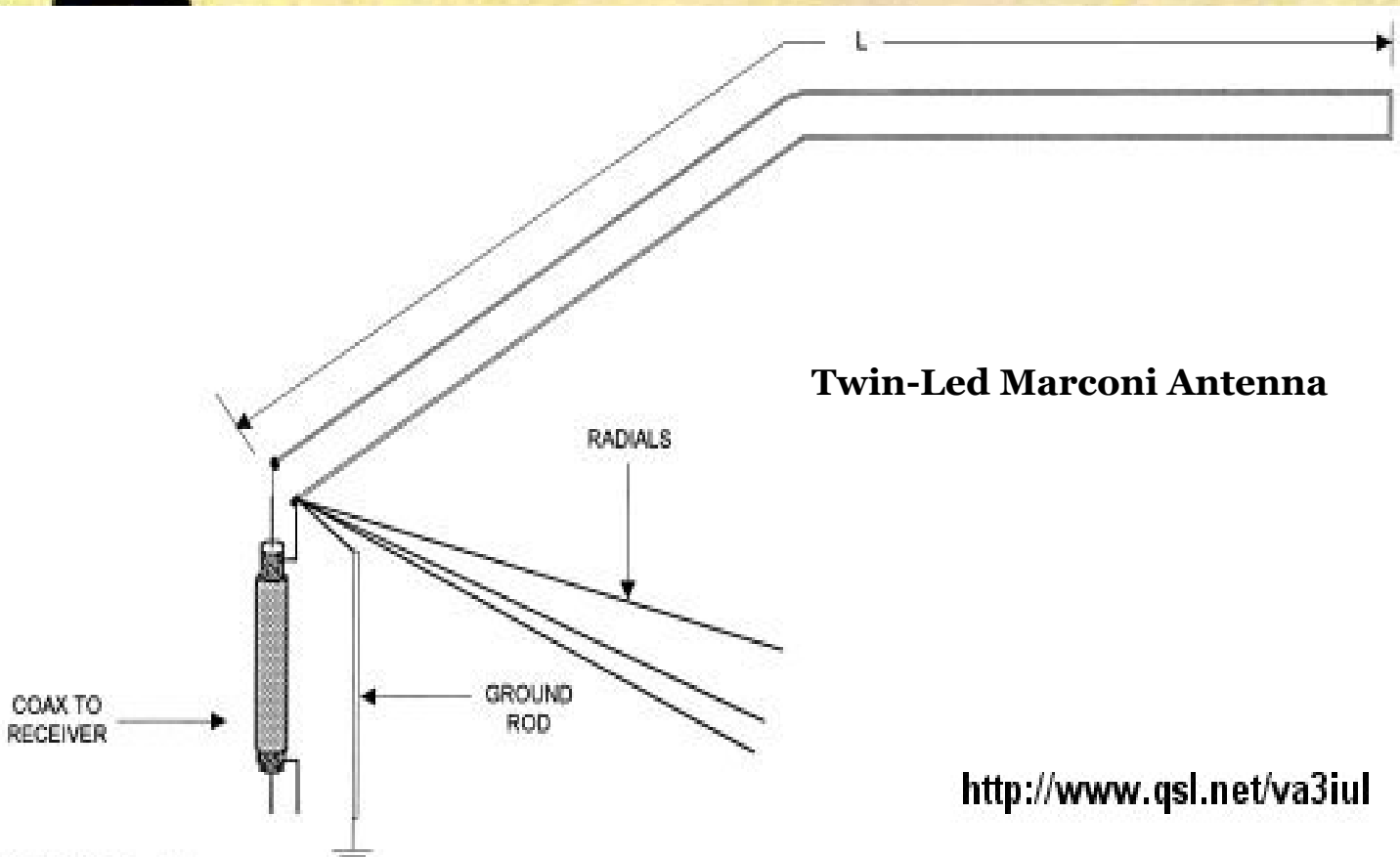


<http://www.qsl.net/va3iul>



### Half-Lambda Tee Antenna

<http://www.qsl.net/va3iul>



Twin-Led Marconi Antenna

<http://www.qsl.net/va3iul>

S	L	A	M		C	A	R	R		H	A	F	T	S
M	I	D	I		O	B	I	T		E	L	A	T	E
D	E	E	D		L	U	S	T		L	I	L	L	E
S	U	N	S	P	O	T	C	Y	C	L	E	S		
				T	E	N	S			H	O	N	E	S
	S	T	R	A	Y		Q	R	U			S	E	A
E	T	H	E	R		G	U	A	R		S	T	N	S
G	R	E	A	T	C	I	R	C	L	E	P	A	T	H
G	E	R	M		E	B	A	Y		M	O	R	A	Y
S	A	M			D	E	N			T	O	R	T	S
	K	O	A	L	A			M	I	T	T			
		S	P	O	R	A	D	I	C	E	S	K	I	P
S	E	T	A	C		D	O	C	K		M	I	C	A
S	P	A	R	K		C	U	R	E		A	L	O	T
B	A	T	T	S		S	P	O	T		N	O	N	E

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:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sponsored or Reviewed by: \_\_\_\_\_ Callsign: \_\_\_\_\_

Membership Rates,

Membership: \$20.00 per year Spouse: \$10.00 per year

Full time Student: \$15.00 per year Senior:(Over 62 years of Age): \$15.00 per year