OUR 25TH YEAR!

EPARA BEACON

Vol. 5, Number 4 The Official Newsletter of The Eastern Pennsylvania Amateur Radio Association April 2021

NEXT CLUB MEETING: APRIL 8TH VIA ZOOM

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.

EPARA NETS:

Monroe county ARES/RACES – Sunday's 8:30 PM, 146.865 MHz, -PL 100.0 Hz
SPARK Information/Swap Net – Tuesday's 8:30 PM, 147.045 MHz, +PL 131.8 Hz
EPARA Tech net – Friday's 8:30 PM, 147.045 MHz, +PL 131.8 Hz

Due to the COVID-19 emergency we have moved our monthy meetings to Zoom. To join our Zoom Meeting please use the link below. Meetings begin at 7:30PM!
https://us02web.zoom.us/j/85463346031?pwd=bU1KcVZoaVZiVEUvdjRsUXlNNHZkZz09
Meeting ID: 854 6334 6031 Password: 244632

General License classes have begun. Good luck to all attending !!

From The President

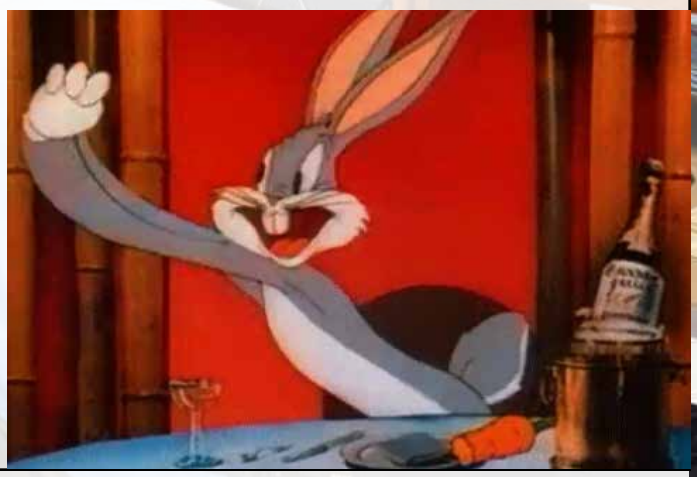
Spring is in the air! The temps have been rather nice so I've been outside doing some needed antenna maintenance. We are also now in the new solar cycle so we can look forward to the improvement of HF propagation. I have enjoyed some nice HF band openings so if you haven't been active on HF be sure to dust off the HF gear and get on the air.

EPARA is ready to get back to the fun of amateur radio in 2021! The EME antenna has been purchased and should be arriving any day now. We have signed the 10 year agreement with the parks Dept. to secure Big Pocono State Park for Field Day and Elmer/Antenna weekend. The club patches have been ordered and we expect delivery soon. So its full speed ahead!

Our VE sessions have been seeing a strong attendance boost for several months, this is very good for the hobby. April 7th we start our General License Class, I still have room for more students so contact me if you wish to attend. And lastly on April 8th we begin in person club meetings again! We will continue to offer Zoom meeting access for those who can not attend in person. The April meeting will not have a presentation afterward, instead we will have a chance to catch up with an informal gathering.

All good news for 2021 so far, I look forward to seeing many of you again!

73 Chris AJ3C



CONTACT INFORMATION

President Chris Saunders AJ3C: aj3c@gmx.com	Vice President Bill Carpenter AB3ME: bill47@ptd.net
Secretary Kevin Forest W3KCF: w3kcf@outlook.com	Treasurer Scott Phelan KC3IAO: kc3iao@hobbyguild.com
Member at Large Eric Weis N3SWR: n3swr@ptd.net	ARES EC Kevin McCauley KB3EJM: kb3ejm@yahoo.com

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What's INSIDE this ISSUE

Announcements
AND UPCOMING EVENTS

EPARA Patches:
The club patches are ready to be ordered > we need a minimum of 25 patches to make this happen and worthwhile too. Get in contact with the club to place your order please!

EPARA Club Dues
Club dues were due January 1st. 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 and you can send him a check or pay via PayPal.

General License Class!
Classes begin April 7th 2021. There are still seats available for those that are interested. Don't hesitate to contact Chris AJ3C to upgrade your license to general!!

EPARA Club Meeting
The nest club meeting WILL BE held once again at the Monroe County 911 call center! FINALLY! We will also be holding a zoom meeting from the center for those that wish to join from their homes like we have done in the past.

Big Pocono State Park
EPARA has secured the site we use for Field Day and Elmer/Antenna weekend for the next 10 years!

Squirrel fills Antenna with Acorns
https://www.youtube.com/watch?v=cZkAP-CQlhA

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 Minutes
March *11th 2021*

General Membership Meeting Minutes 7:30Pm

Open meeting:

Meeting called to order at 7:30 pm on February 11th 2021 by Chris AJ3C (Meeting via Zoom)
Declaration of Quorum.
Total members attending, 19 Visitors present: 2

Pledge of Allegiance / Moment of silence:

Membership Meeting - Minutes January 14th, 2021:
Secretary - Kevin W3KCF:

Meeting minutes for February 11th, 2021 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 by Len – KC3OND 2nd by RuthAnn – W9FBO Motion Passed

Treasurers report:

Scott, KC3IAO stated the ending balance for February 2021 was $3540.54. We had zero expenses and income of $85.00 dollars in dues and $10 dollars for a patch. There was $0.14 cents interest, leaving us with a closing account balance of $3635.68. There were also additional deposits of $100 dollars for dues and a patch., which will show up in the March report. Opening balance for PayPal was $354.13. Through PayPal, we received $60 dollars in dues and $40 for patches. PayPal fees were $4.70. This left us with a closing PayPal balance of $449.43.

Scott stated, at this time, we currently have 26 patches purchased, and 35 paid memberships.

Dues can be submitted either by sending a check to the club's PO Box, or through PayPal by emailing Scott – KC3IAO:

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

KC3IAO@hobbyguild.com

Motion to accept reports by Darryl – N3OAI 2nd by Eric – N3SWR Motion Passed

Correspondence:
None

EPARA GENERAL MEMBERSHIP MEETING AGENDA

Reports of officers and committee's:

Bill AB3ME – Program Committee:

Bill said we are going to have a presentation by Donald – WK2RP tonight showing us how we can utilize Arduino Raspberry Pi, to control some amazing aspects of amateur radio.

Bill asked RuthAnn how things were going with the Rotarians? She asked if he was able to contact Craig. He said no, so she said she would reach out and send Craig an email. She told Bill, she would send him the zoom link for their next meeting and he could listen in. Our club is interested in seeing if they'd be interested in doing a presentation, on how Ham Radio is involved in Rotary.

Charlie KB3JUF – ARES/RACES:

Charlie indicated that he and Len were able to get the radio station located at the Red Cross facility in Stroudsburg up and running. He then mentioned RuthAnn was our newest ARES Member.

Next, he asked Chris -AJ3C if he could update the information regarding ARES on our website as it was outdated. Charlie said he would like the old link to the application removed and have those interested in becoming members come to a meeting so he could explain the process and what training courses are required for each level.

Charlie then stated we were going to get together with Wayne County ARES and participate in an exercise on the 3rd of April. He highly recommends that all members try to participate.

He then emphasized that all members get involved and start checking into other ARES Nets to gain experience and see what is going on around the area.

ARES Meeting Friday March 26th after the VE Session (7:30pm)

Chris AJ3C – Instruction and Training:

A general class is planned to start on the 7th of April. At this time, we have 4 students that are interested in attending.

Classes will be held at the 911 Center – 7:00pm to 9:00pm (Wed - 10 classes)

PIO

With Donald moving out of the area, the PIO (Public Information Officer) position is available and has not been filled. RuthAnn – W9FBO has shown interest in the position.

Chris AJ3C - Website

Membership list and website will be updated after the meeting.

Al, KB3OVB: Membership:

Chris – AJ3C went over the membership. Current membership is currently at 65 members. Just a reminder that dues are now due. 43 members have paid and 26 members have not. They have until the 31st of March to renew or they will be dropped from the membership rolls.

EPARA GENERAL MEMBERSHIP MEETING AGENDA

Eric N3SWR – Newsletter and Communications:

Eric stated he was working on new stuff for the newsletter, but it was a lot me difficult because of the pandemic and not being able to meet in person. Eric also asked for articles on Sat-Com.

Sat-Com Group:

Bob – W3BMM asked Chris if the club had purchased the new antenna yet. Chris said he would be doing that on the 12th of this month. A question was asked about EME (earth moon earth) and Chris said we were working on that. We'll have the antenna (14.8 dbd gain), a 200w linear amp and will utilize JT65 to attempt this venture on field day.

Bob asked those that are interested and are not on the mailing list, to please send him your email so he could add you to the list when new things occur.

QSA Today is holding a virtual Ham Expo (13th March), featuring representative's from AmSat. The cost is $10 dollars. Donald commented the cost was going up on the weekend to $12.50, but that gives you 30 days access to all the recordings from around 80 speakers.

Email: W3BMMQTH@gmail.com

Old business:

Embroidered Patches:

We are still accepting orders for club patches. We have 26 prepaid orders at this time. Chris will contact the vendor and start the process of having them readied for delivery. For those still interested in purchasing patches, the cost of a patch is $10. PayPal is setup, so if you are interested, contact Scott KC3IAO

Tech Net on DMR:

EPARA will be starting a Tech Net on the KG3I DMR repeater, the net will be on Monday nights at 8:30 PM. A new talk group has been established on the KG3I repeater, the Talk Group is 314273 and is on time slot 2. The new net started on Monday Feb 8, 2021. We are also working on a new digital net to utilize 80m.

Any Other Old Business
None

New business:

Meetings:

Gov Wolf has relaxed indoor gathering restrictions so it is possible to resume meetings at the 911 Center. EPARA meeting will be held at the 911 Center on April 8th at 7:30pm.

Big Pocono State Park:

We are processing the agreement for use of the Big Pocono State Park for field day in June and Antenna/Elmer weekend in July. The agreement will be valid for 10 years and cost $50 dollars. Chris is not sure if it's $50.00/year or if it's $50.00 for the entire 10 years.

2021 Hamfest

EPARA GENERAL MEMBERSHIP MEETING AGENDA

The EPARA hamfest will be held on September 19th 2021. We need to secure rental of the American legion Hall in East Stroudsburg. Chris AJ3C will be contacting Walt W3FNZ to start the process. I hope to have this confirmed asap and the new Hamfest flier completed by the Splitrock Hamfest in May.

Any Other New Business

None

Votes / New members:

Peter-KC3RES (General), John-KA2ABV (General), George-KC3RER (General), and Lois Tannows – No Call.
A vote was taken to approve membership of all 4 applicants and they were unanimously approved.

Announcements:

None

Any Additional Announcements

None

Adjournment…

Meeting was adjourned at 8:15 pm: Motion to close by Donald – WK2RP 2nd by Charlie – KB3JUF
Motion Passed

Secretary
Kevin Forrest
W3KCF

Presentation: Raspberry Pie and* Arduino *By Don WK2RP


Alex-KD2FTA
ZOOM
MEETING

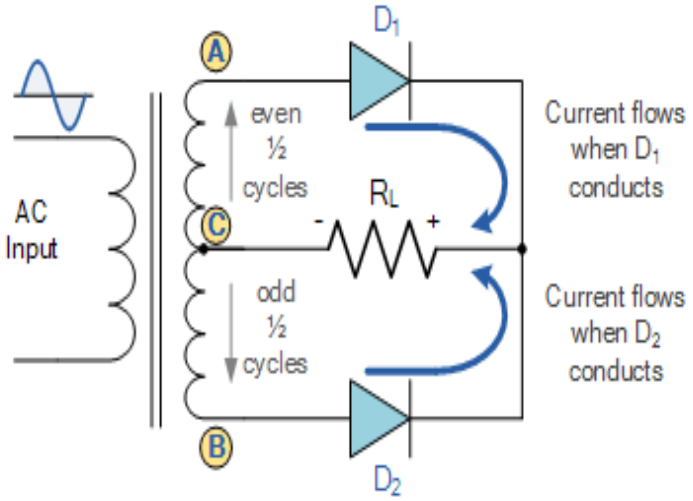
TEST YOUR KNOWLEDGE!

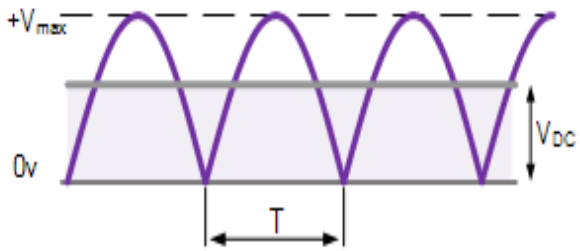
What is tri-state logic?

A. Logic devices with 0, 1, and high impedance output states
B. Logic devices that utilize ternary math
C. Low power logic devices designed to operate at 3 volts
D. Proprietary logic devices manufactured by Tri-State Devices

Last month's answer was, A. Inter-turn capacitance.
In an inductor adjacent wires act like the plates of a capacitor, this creates a small amount of parasitic

Full Wave Rectifier Circuit





Resultant Output Waveform

The full wave rectifier circuit consists of two *power diodes* connected to a single load resistance (R_L) with each diode taking it in turn to supply current to the load. When point A of the transformer is positive with respect to point C, diode D_1 conducts in the forward direction as indicated by the arrows.

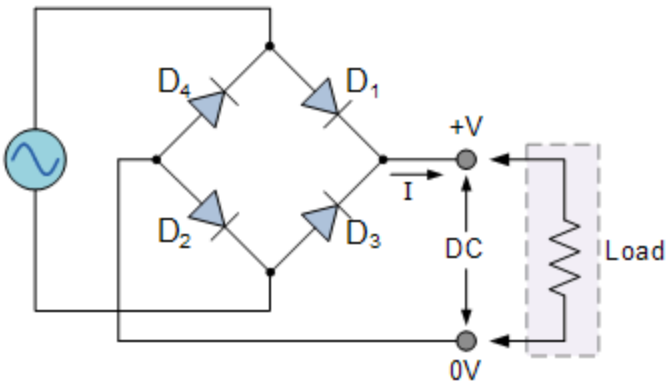
When point B is positive (in the negative half of the cycle) with respect to point C, diode D_2 conducts in the forward direction and the current flowing through resistor R is in the same direction for both half-cycles. As the output voltage across the resistor R is the phasor sum of the two waveforms combined, this type of full wave rectifier circuit is also known as a "bi-phase" circuit.

The Full Wave Bridge Rectifier

Another type of circuit that produces the same output waveform as the full wave rectifier circuit above, is that of the **Full Wave Bridge Rectifier**. This type of single phase rectifier uses four individual rectifying diodes connected in a closed loop "bridge" configuration to produce the desired output.

The main advantage of this bridge circuit is that it does not require a special centre tapped transformer, thereby reducing its size and cost. The single secondary winding is connected to one side of the diode bridge network and the load to the other side as shown below.

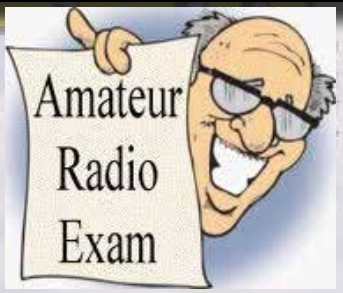
The Diode Bridge Rectifier



The four diodes labelled D_1 to D_4 are arranged in "series pairs" with only two diodes conducting current during each half cycle. During the positive half cycle of the supply, diodes D1 and D2 conduct in series while diodes D3 and D4 are reverse biased and the current flows through the load as shown below.

VE Testing & Classes

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. 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!

General license classes begin April 7th! Contact Chris AJ3C for further info if needed

General License Class

EPARA will be holding an 10 week course where you can learn everything you need to earn your General FCC Amateur Radio License.

Classes will be for 2 hours on Wednesday evenings from 7PM till 9PM. Classes will follow the ARRL General Class License Manual 9th Edition.

Classes begin on April 7th 2021 at 7PM. Class Location is the Monroe County 911 Control Center 100 Gypsum Rd. Stroudsburg, PA 18360

Students are required to purchase the ARRL General Class License Manual 9th Edition.
Registration is required.

To join, contact:
Chris Saunders AJ3C
AJ3C@gmx.com or call 570-213-4505

NEWLY RESURRECTED!

HAMFEST 2021

Sunday, September 26th, 2021 - Opening 8am

ALL NEW LOCATION!

The American Legion Post 346
126 E 5th St, East Stroudsburg, PA 18301

Take exit 309 off I-80, then left on 447 N. - 2 miles to Business rt 209 S. - then 1st left to E. 5th St.

Featuring:

- ✓ Hot & Cold Food
- ✓ Beverages
- ✓ Hourly Giveaways
- ✓ Free Parking

Rain or Shine

- ✓ Handicap Accessible
- ✓ Convenient Restrooms
- ✓ Door Prizes!
- ✓ 50/50 Raffle

- ✓ Sat/Comm Demonstration and Information
- ✓ VE Session will be held at 10AM
- ✓ Grand Prize Drawing is an Alinco DJ-MD5T Hand held DMR Transceiver

Google Maps

Eastern Pennsylvania Amateur Radio Association

For more information please visit the EPARA website at: www.qsl.net/n3is

Talk-in: 147.045MHz PL+131.8 · Phone 570-350-1185 · email: wsk11@outlook.com

VISITOR INFORMATION

ADMISSION: Buyers: $7 · Sellers: $10
Vendors & Sellers: 6:00AM · Buyers: 8:00AM
Tailgate Outside or Table Space Inside our Pavilion
Club Table for Consignments

EPARA Website

ARES/RACES meetings are now being held on the fourth Friday of each month at 7PM. The meetings are being held using ZOOM at your PC at home for the time being. 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.

Don't forget to sign up with with ARES Connect if you haven't done so already and if you plan to attend the meeting or check-in to the weekly net remember to register you attendance on the ares connect page. To sign please use this link: https://arrl.volunteerhub.com/lp/epa

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/

From the Editor

Eric, N3SWR

Ah Spring is finally here and I can hear the tree frogs going nuts in the woods. This is my favorite time of the year. I love seeing things come back to life - and that includes our club!

Meetings will be held once again at the 911 call center and i for one am looking forward to getting out of the house and saying hello to those that attend. For those that wish to use Zoom - you still can as the club will provide Zoom access from the call center. I'm not sure how this work so i ask everyone to be patient as we give this a go ahead.

I've almost run out of things to fill up this newsletter with. I guess that's because we took a year off and well, so did every other club and ham radio related item I can think of too. It's nuts!!

I'm praying we get back to some normalcy so I can take pictures again of what EPARA realy is all about. I truly miss that. On a side note I have a 2004 Jetta windshield that is looking for a good home. It's only two months old. Comes with a car attached with 589,000 miles on it! Yup, the old girl decided to call it quits and honestly owes me nothing. When was the last time you had a car take you that far - original transmission too!

Catch ya all next month!
Eric
N3SWR
73

"Failure is an option here. If things aren't failing, you aren't innovating enough."
- Elon Musk

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).

Bruce Draper, AA5B, aa5b.corral@gmail.com

Contest Corral

April 2021

Check for updates and a downloadable PDF version online at **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		Start - Finish Date-Time		Bands	Contest Name	Mode	Exchange	Sponsor's Website
1	1700	1	2000	3.5	SARL 80-Meter QSO Party	Ph	RS, serial, grid locator	www.sarl.org.za
1	1800	1	2200	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	nrricontest.no
1	1900	1	2100	1.8-50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
2	2000	2	2100	1.8-14	K1USN Slow Speed Test	CW	20 WPM max, Name, SPC	k1usn.com/sst.html
3	1000	4	0400	14	PODXS 070 Club PSK 31 Flavors Test	Dig	SPC, mbr or name	www.podxs070.com
3	1400	4	0200	1.8-144	Louisiana QSO Party	CW Dig Ph	RS(T), LA Parish or SPC	laqp.louisianacontestclub.org
3	1400	4	0200	1.8-144	Mississippi QSO Party	CW Ph Dig	RS(T), MS county or SPC	www.arrlmiss.org
3	1400	4	2200	3.5-28	Florida State Parks on the Air	CW Ph Dig	Park ID or SPC	flspota.org/rules
3	1500	4	1500	1.8-28	SP DX Contest	CW Ph	RS(T), SPC province or serial	spdxcontest.pzk.org.pl
3	1600	4	1600	3.5-28	EA RTTY Contest	Dig	RSQ, EA province or serial	concursos.ure.es/en
4	0000	4	0400	3.5-14	North American SSB Sprint Contest	Ph	Other's call, your call, serial, name, SPC	ssbsprint.com/rules
4	1500	4	1730	3.5,7	DARC Easter Contest	CW Ph	RS(T), DOK or serial	www.darc.de
5	1900	5	2300	144	144 MHz Spring Sprint	CW Ph Dig	4-char grid square	sites.google.com/site/springvhfupsprints
6	0100	6	0159	1.8-50	Worldwide Sideband Activity Test	Ph	RS, age group (OM, YL, or Youth)	wwsac.com/rules.html
6	0100	6	0300	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	arsqrp.blogspot.com
6	1700	6	1900	3.5-14	RTTYops Weeksprint	Dig	Other's call, your call, serial, name	rttyops.wordpress.com
7	1300	7	1400	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC	cwops.org/cwops-tests
7	1700	7	2000	144	VHF-UHF FT8 Activity Contest	Dig	4-char grid square	ft8activity.eu/index.php/en
7	1900	7	2000	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC	cwops.org/cwops-tests
7	1900	7	2030	3.5	RSGB FT4 Contest Series	Dig	4-char grid square	www.rsgbcc.org/hf
7	2000	7	2100	3.5	UKEICC 80-Meter Contest	Ph	6-char grid square	ukeicc.com/80m-rules.php
8	0300	8	0400	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC	cwops.org/cwops-tests
10	0000	10	0600	1.8-28	QRP ARCI Spring QSO Party	CW	RS, SPC, mbr or power	qrparci.org/contest
10	0700	11	1300	1.8-28	JIDX CW Contest	CW	RST, JA prefecture or CQ zone	jidx.org/jidxrule-e.html
10	1200	11	1200	1.8-28	OK/OM DX Contest, SSB	Ph	RS, county code or serial	okomdx.crk.cz
10	1200	11	1200	3.5-28	FTn DX Contest	Dig	RST, state or province or serial	europeanft8club.wordpress.com
10	1200	11	1800	3.5-28	IG-RY World Wide RTTY Contest	Dig	RST, 4-digit year first licensed	igry.webs.com/ig-ry-ww-contest
10	1200	11	2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
10	1300	11	2200	1.8-UHF	Nebraska QSO Party	CW Ph	County or SPC (or grid for FT8)	www.nebraskaqsoparty.org
10	1400	11	0200	1.8-144	New Mexico QSO Party	CW Ph Dig	Name, NM county or SPC	newmexicoqsoparty.org
10	1600	11	0400	1.8-28	Georgia QSO Party	CW Ph	RST, GA county or SPC	gaqsoparty.com
10	1800	11	1800	1.8-144	North Dakota QSO Party	CW Ph	RS(T), ND county or SPC	ndarrisec.com
10	2100	11	2100	1.8-28	Yuri Gagarin International DX Contest	CW	RST, ITU zone	gc.qst.ru/en/section/32
11	1000	11	2100	3.5-14	WAB 3.5/7/14 MHz Data Modes	Dig	RS, serial, WAB square or country	wab.intermip.net
11	1200	12	1100	3.5-28	DIG QSO Party, CW	CW	RST, mbr or "none"	diplom-interessen-gruppe.info
11	1500	11	1600	3.5	Hungarian Straight Key Contest	CW	RST, serial, power	hskc.ha8kux.com
11	1900	11	2030	3.5	RSGB RoLo SSB	Ph	RS, 6-char grid of previous QSO	www.rsgbcc.org/hf
12	0000	12	0200	1.8-28	4 States QRP Second Sunday Sprint	CW Ph	RS(T), SPC, mbr or power	www.4sqrp.com
12	1900	12	2030	3.5	RSGB 80-Meter Club Championship, CW	CW	RST, serial	www.rsgbcc.org/hf
14	0030	14	0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	naqcc.info
14	1700	14	2000	432	VHF-UHF FT8 Activity Contest	Dig	4-char grid square	ft8activity.eu/index.php/en
16	2100	17	2100	1.8-28	Holyland DX Contest	CW Ph Dig	RS(T), 4X area or serial	iarc.org/iarc/#HolylandContest
17	0500	17	0859	3.5,7	ES Open HF Championship	CW Ph	RS(T), serial	www.erau.ee/en
17	0600	18	0559	3.5-28	Worked All Provinces of China	CW Ph	RS(T), province or serial	www.mulandxc.com
17	0700	18	0659	3.5-28	YU DX Contest	CW Ph	RS(T), YU county or serial	yudx.yu1srs.org.rs
17	0900	18	2359	3.5-28	COMM DX Contest	CW	RST, continent	www.cqmmdx.com
17	1400	18	2000	All	Texas State Parks on the Air	CW Ph Dig	RS(T), TX park or SPC	www.tspota.org
17	1600	18	0400	3.5-28	Michigan QSO Party	CW Ph	Serial, MI county or SPC	miqp.org/Rules.htm
17	1700	18	1200	3.5-28	EA-QRP CW Contest	CW	RST, category code	www.eaqrp.com
17	1800	17	2159	1.8-50	Feld Hell Sprint	Dig	RST, mbr, SPC, grid	sites.google.com/site/feldhellclub
17	1800	18	1800	1.8-144	Ontario QSO Party	CW Ph	RS(T), ON county or SPC	www.va3cco.com
18	1800	18	2359	3.5-28	ARRL Rookie Roundup, SSB	Ph	Name, 2-digit year licensed, SPC	www.arrl.org/rookie-roundup
18	2300	19	0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	qrpcontest.com/pigrun
21	1900	21	2030	3.5	RSGB 80-Meter Club Championship, SSB	Ph	RS, serial	www.rsgbcc.org/hf
24	0001	25	2359	28	10-10 International Spring Contest, Digital	Dig	Name, mbr or "0," SPC	www.ten-ten.org
24	0800	24	1800	3.5-21	QRP to the Field	CW Ph	RST, SPC, name or SOTA ID	www.zianet.com/qrp
24	1300	25	1259	1.8-28	Helvetia Contest	CW Ph Dig	RS(T), HB canton or serial	www.uska.ch/contest
24	1600	25	2159	7-28	Florida QSO Party	CW Ph	RS(T), FL county or SPC	floridaqsoparty.org/rules
25	1200	25	1800	3.5,7	International Vintage Contest HF	CW Ph	RS(T), 6-char grid square	contestvintage.beepworld.it
25	1700	25	2059	3.5-28	BARTG Sprint 75	Dig	Serial	bartg.org.uk/wp
28	0000	28	0200	1.8-50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
28	2000	28	2100	3.5	UKEICC 80-Meter Contest	CW	6-char grid square	ukeicc.com/80m-rules.php
29	1900	29	2030	3.5	RSGB 80-Meter Club Championship, Data	Dig	RST, serial	www.rsgbcc.org/hf

There are a number of weekly contests not included in the table above. For more info, visit: **www.qrpfoxhunt.org**, **www.ncccsprint.com**, and **www.cwops.org**. All dates 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** *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!

04/01/2021 | Quebec Parks On The Air (QcPOTA)

Apr 1-Dec 31, 0000Z-2359Z, all, all. VE2GT and VE2NCG. ALL. Certificate. no QSL, no QSL, no QSL, CANADA. qcpota.ca

04/10/2021 | The Annual Nancy Kott Memorial KN0WCW Event

Apr 10-Apr 11, 0001Z-2359Z, KN0WCW, Leonardo, NJ. FISTS North America. 10.058 7.058 10.118 3.558. Certificate. cody codianni, 413 Martin Court, Leonardo, NJ 07737. The Annual Nancy Kott Memorial KN0WCW Event! Nancy met Fists' founder George, G3ZQS (SK) in a happenstance QSO in 1988, befriended him and shortly became the head of what is now The Americas Chapter of Fists. From then till her passing on 2 March of 2014, she worked tirelessly to promote our club and Morse Code, showing kindness to all and exemplifying our mottos of "courtesy at all times" and "accuracy transcends speed." She is deeply missed by all, but not forgotten. Please help us honor Nancy's work and dedication from 00:01 UTC April 10 2021 to 23:59 UTC April 11 2021. fistsna.org/operating.html

04/10/2021 | Celebration of the 155th Anniversary of Auburn University

Apr 10-Apr 11, 1200Z-2359Z, W4E, Auburn University, AL. Auburn University. 7.060 7.074 and 7.047.5 14.074 and 14.080 7.070. QSL. Stew Schneller, 1869 Hillton Court, Auburn, AL 36830-2693. www.qrz.com/db/k4jop

04/10/2021 | Spring has Sprung

Apr 10, 1700Z-2100Z, W4D, Kodak, TN. Sevier County Emergency Radio Service. 14.280 +/- .020 USB 7.200 +/- .020 LSB 14.070 +/- .020 PSK31 7.070 +/- .020 PSK31 CW only on 7.060 +/- .010. QSL. Thomas P. Baxter W9TPB, 2054 James Rd., Sevierville, TN 37876. For additional information, please go to our website www.eventqsl.webs.com

04/10/2021 | USS Midway Museum Ship Special Event: Doolittle Raid

Apr 10, 1600Z-2300Z, NI6IW, San Diego, CA. USS Midway (CV-41) Museum Ship. 7.250 14.320 14.070 (PSK31) DSTAR via PapaSystem repeaters. QSL. USS Midway CV-41 COMEDTRA NI6IW, 910 N Harbor Dr, San Diego, CA 92101. Please include SASE. www.qrz.com/db/ni6iw

04/14/2021 | Maritime Radio Day 2021

Apr 14-Apr 22, 1200Z-2200Z, various, various, GERMANY. Maritime Radio Day. CW only. Certificate & QSL. Rolf Marschner, Narzissenweg 10, 53359 Rheinbach, GERMANY. This is an operating event. Please see website for rules. mrd.sfk-bremen.com

04/17/2021 | Celebrating the Louisiana Purchase

Apr 17-Apr 24, 0000Z-2359Z, W5L, West Monroe, LA. NorthEast Louisiana Amateur Radio Club. 14.250 21.250 7.250 3.850. QSL. Jim Ragsdale, W5LA, 111 Eagle Lake Drive, West Monroe, LA 71291. https://www.qrz.com/db/W5L

04/17/2021 | Texas State Parks On the Air (TSPOTA)

Apr 17-Apr 19, 1400Z-0200Z, K5LRK, The Colony, TX. Lake Area Amateur Radio Club. CW Phone VHF. QSL. See website, for, Information. Times are daily. K5LRK on as a special event station. Contest: Activate as many Texas parks as possible. www.k5lrk.com or www.tspota.org

04/18/2021 | World Amateur Radio Day

Apr 18-Apr 19, 1300Z-0400Z, W7W, Rochester, NY. W2JLD/Special event coordinator. Echolink *ROC-HAM* CONFERENCE 531091 Allstar 2585, 47620, 53130. QSL. John Derycke, W2JLD, 85 Amherst St #2, Rochester, NY 14607. This will be our 6th annual WORLD AMATEUR RADIO DAY celebration on the VOIP Echolink system We have a 16 hr net with net controllers from all over the world. A special event qsl card will be available Join us again for one of the LARGEST special events on Echolink@ 9AM EST TILL 12 MINDNIGHT EST we will have Allstar, DMR as well. w2jld2@gmail.com

04/24/2021 | 156th Anniversary of Sultana Disaster

Amateur Radio Special Event Stations!

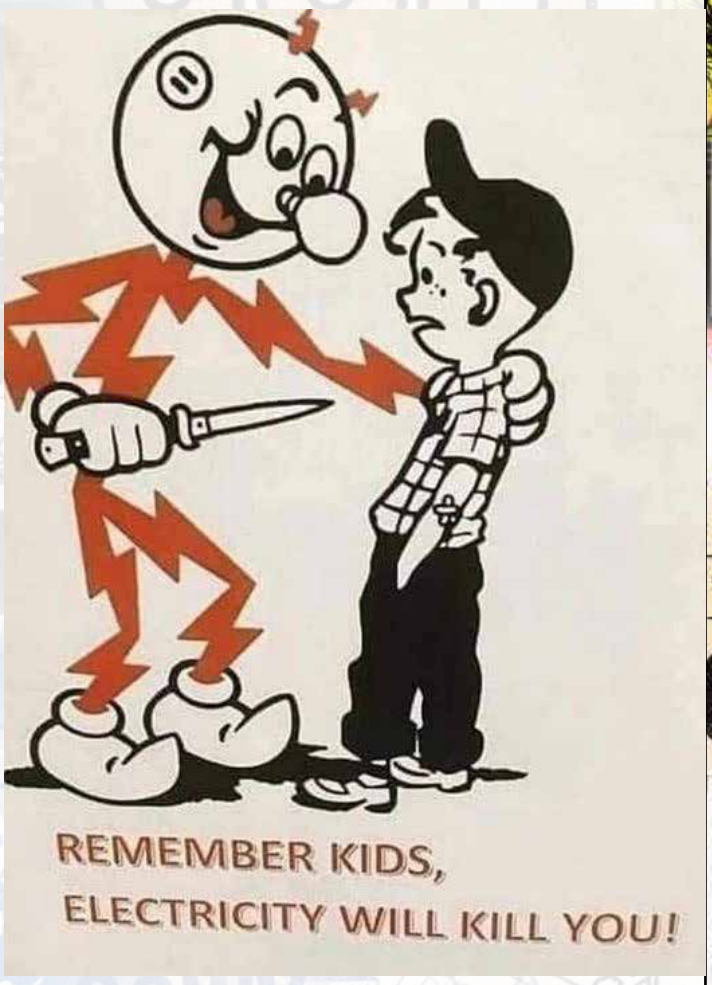
Apr 24, 1500Z-2100Z, W5S, West Memphis, AR. AG5QY. 14.240. QSL. Marc Gwin, 1402 Stratford Drive, West Memphis, AR 72301. https://ag5qy9.wixsite.com/ag5qy
04/24/2021 | OC&E Woods Line Last Train 31st Anniversary

Apr 24, 1600Z-2200Z, W7VW, Klamath Falls, OR. Klamath Basin Amateur Radio Society. 14.074. Certificate & QSL. Jim English, 2602 Wiard Street, Klamath Falls, OR 97603. The Oregon, California, and Eastern Railway (OC&E) was a 64-mile (103 km) rail line between Klamath Falls and Bly in the US state of Oregon. After 70 years of bringing logs from nearby forests to local sawmills, the former railroad right of way was converted to the OC&E Woods Line State Trail. The last OC&E log train to Bly ran on Sunday, 29 April 1990. wo7v@arrl.net or https://www.facebook.com/kfalls.radio
04/24/2021 | San Jacinto Day Special Event

Apr 24-Apr 25, 1400Z-2359Z, K5T, Nacogdoches, TX. Nacogdoches Amateur Radio Club. 7.216 14.260 21.350 28.350. QSL. Army Curtis, 167 CR 2093, Nacogdoches, TX 75965. All contacts will be confirmed via LOTW https://w5nac.com
04/24/2021 | W1BSA Birthday of Scouting Event

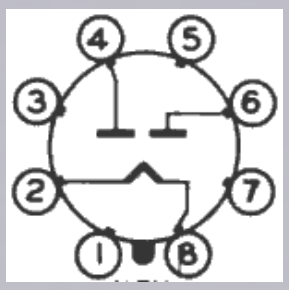
Apr 24, 1400Z-1930Z, W1BSA, Fall River, MA. USTNE ne1pl.org. 14.259. QSL. Rick Emord, 135 Wareham St., Middleboro, MA 02346. The USTNR group will be activating on the USS Massachusetts this year at least 4 times for the following events. Except for the Museum ships on the air event, we will be on the air by 1000 EST or 1400 utc we will be shut down at 1530 EST or 1930 utc. We have a website to see the current QSL card for the events go to ne1pl.org. Look for the ticker tape for added events. Our first event for the year will be: W1BSA April 24th On the air by 1000 off the air around 1530 This event is for the Birthday of Scouting in America. The birthday is on February 8, 1910 because of the chilly weather in February we celebrate in April. Please visit battleshipcove.org for more information about the park and its equipment. Please visit us at ne1pl.org
04/24/2021 | Woronoko Heights Outdoor Adventure

Apr 24, 1300Z-1900Z, W1M, Russell, MA. Western Mass. Council--BSA. 14.290 14.060 10.115 7.190. QSL. Tom Barker, 329 Faraway Road, Whitefield, NH 03598. SES operating from the Horace Moses Scout Reservation in western Mass. SASE for QSL.



5R4G Audio Amplifier

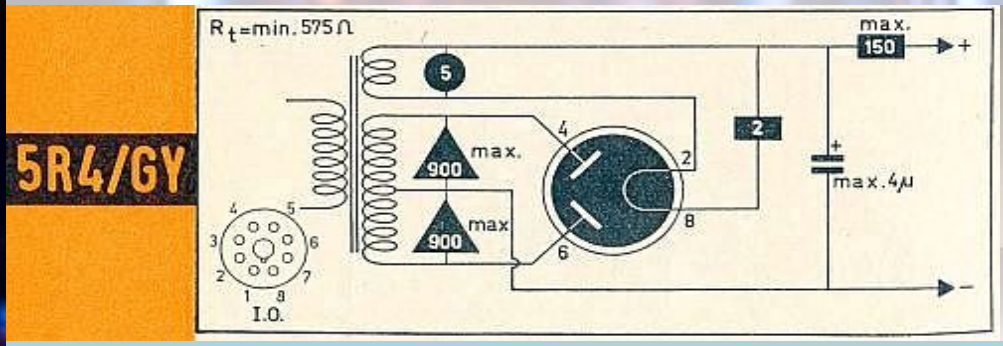
The 5R4 is a directly heated full wave rectifier which means it contains two diodes with a common filament.



The 5R4 shares the same Octal pinout which is used by most of the classic 5V rectifier tubes. The pin connections can be seen on the left. The plates are connected through pins 4 and 6 with unused pins between them and to the filament connections for better voltage insulation. The filament is operated at 5V and needs 2A. The rectified voltage can be obtained from either end of the filament or from a center tap of the heater winding on the power transformer.

The 5R4 has the highest peak inverse voltage rating among the 5V rectifiers. It can handle up to 2800V of inverse voltage, which was later uprated to 3000V in the 5R4B. The data sheet recommends a maximum input capacitor of 4uF, which was uprated to 20uf for the B version. DC output voltages of 800 V can be obtained from a single 5R4 and even in excess of 1000V with the 5R4B. It can provide up to 250mA of DC current. But this comes at the cost of higher internal voltage drop compared to other rectifier tubes. While the 5R4 was initially made in ST (shoulder type) glass, the 5R4B were made with straight sided glass bulbs. I only have 'B' versions in my collection. Let's start with 5R4GYB made by RCA.

Credit: https://vinylsavor.blogspot.com/2020/08/tube-of-month-5r4.html



Tad Cook, K7RA, Seattle, reports: Average daily sunspot numbers this week rose just a little, from 18.4 to 19, and average daily solar flux edged up from 78.9 to 78.1. Solar activity remains low.

The vernal equinox, (the first day of spring in the northern hemisphere) occurs at 0937 UTC on Saturday, March 20. That's when the southern and northern hemispheres will be bathed in approximately equal amounts of solar radiation, which has a positive effect of HF propagation.

On March 17 – 18, the daily sunspot number was only 12 on both days, but the total sunspot area rose from 50 to 200 microhemispheres. Sunspot area was last at this level on February 25. The Space Weather Prediction Center (SWPC) offers daily statistics on daily sunspot area, sunspot numbers, and solar flux.

Average daily planetary A index rose from 7.6 to 10.3, and average daily middle-latitude A index increased from 6.1 to 7.3. Solar wind on March 14 drove the planetary A index to 25, and Alaska's College A index was 37.

On Wednesday March 17, Spaceweather.com warned that minor geomagnetic unrest was expected on March 18, due to a co-rotating interactive region that would disturb our magnetic field. "CIRs are transition zones between fast and slow-moving solar wind streams. Plasma piles up in these regions, creating shock-like density gradients that often do a good job sparking auroras," Spaceweather said.

On March 18 Spaceweather.com reported, "NOAA forecasters say that a minor G1-class geomagnetic storm is likely on March 20 – 21 when a stream of high-speed solar wind hits Earth's magnetic field. The gaseous material is flowing faster than 600 kilometers/second from a southern hole in the sun's atmosphere."

The latest forecast from the US Air Force Space Weather Squadron predicts solar flux at 72 on March 19 – 21; 70 on March 22 – 26; 76 on March 27; 76 on March 27; 75 on March 28 – April 1; 78 on April 2 – 3; 70, 74, 76, and 72 on April 4 – 7; 71, 72, and 70 on April 8 – 10; 71, 72, and 71 on April 11 – 13, and 73, 76, 75, and 76 on April 14 – 16. Solar flux is expected to hit a high of 81 on April 19.

Reports are coming in of strong displays of aurora borealis—the Northern Lights—as a surprisingly strong geomagnetic storm strikes Earth's magnetic field.

"Auroras spilled across the Canadian border into northern-tier US states during an unexpectedly-strong G2-class geomagnetic storm," said Spaceweather.com, referring to displays late on Friday, March 19 and into Saturday, March 20, 2021.

A "G2-class geomagnetic storm" is a moderate solar storm that can bring hours of bright aurora. There could be even more displays coming this Saturday night and beyond.

In fact, according to SpaceWeather.com, the current heightened activity could mean our planet's magnetosphere taking a hit for the next three days and nights. "The solar wind stream that sparked the outburst is still here," said Spaceweather.com.

According to NOAA, periods of G1-class geomagnetic storming are likely on March 20 through March 22, 2021.

The National Oceanic and Atmospheric Administration (NOAA)'s Space Weather Prediction Center offers an aurora prediction service that's worth keeping an eye on when it gets dark where you are.

"We're having a couple of very interesting days at the moment with us occasionally reaching geomagnetic storm conditions," said SpaceWeatherLive.com. "This morning we hit the minor G1 geomagnetic storm threshold."

The displays of aurora are happening because Earth is right in the path of a high-speed solar wind stream coming from a “coronal hole” on the Sun spotted a few days ago.

On Friday night through Saturday morning bright displays of aurora were seen across Canada down to, and beyond, the Canada-US border, notably in Minnesota.

This heightened displays coincided with the spring or vernal equinox, which occurred at 09:37 Universal Time on Saturday, 20 March, 2021.

Bright displays of aurora around equinox are no coincidence.

The geometry of Earth at equinox means March is the most geomagnetically active month of the year, with geomagnetic disturbances twice as likely in spring (and also in fall) as in winter and summer.

Earth’s axis tilts by 23.5°, but as well as explaining the season also means that at equinox our planet is perpendicular—spinning side-on—to the Sun.

So during equinox our planet’s geometry is lined-up nicely for charged particles from the Sun to be accelerated down the field lines of the Earth’s magnetic field.

Aurora are a natural sky phenomenon seen near the Arctic Circle (aurora borealis or northern lights) and Antarctic Circle (aurora australis or southern lights). They’re caused by charged particles from the Sun being captured and accelerated by Earth’s magnetosphere to interact with atoms in the upper atmosphere.

Credit: https://www.forbes.com/sites/jamiecartereurope/2021/03/20/strong-auroras-likely-all-weekend-in-northern-us-states-as-geomagnetic-storm-strikes-on-equinox/?sh=3f8016185a03

How High Should My Dipole Be?

The half-wave dipole is one of the most basic antennas in all of Ham radio. It also tends to get a bad rap; how many times have you heard somebody—possibly even yourself—say, "I'm only running 100 watts and a dipole." Don't sell your station short! A resonant half-wave dipole and 100 watts is a very effective station.

And one of the most common questions for one of the most ubiquitous antennas in the hobby is: "How high should I put my dipole?" The most common answer—as high as possible—is not necessarily the correct one. A lot depends on your operating style and who you want to talk to. Let's take a look at these factors and see how high that dipole of yours should be.

Some Caveats

There are many variations of the dipole antenna. For purposes of this blog, we will focus on a half-wave center-fed dipole with 50-ohm coax as the feedline. Also, please note this blog is only a starting point of discussion and is not intended to be the defining article on antenna height. Volumes of work have been written on dipole antenna theory and design; I've provided some links at the end of this article if you want to study this in further detail.

Note that these factors may not apply to you. If you live in an apartment or on a small lot, your options for hanging that skyhook may be very limited. If that's the case, put the dipole up in whatever configuration you can, preferably outside, and enjoy being on the air with what you can muster. However, do consider some of the topics presented here; you may find that your options for getting that dipole up may be more than first meets the eye.

Basic Dipole Characteristics

The half-wave dipole is two equal lengths of wire with the feedpoint in the center. Each wire, or element, is a quarter wavelength of the frequency you want to transmit on. The basic formula for dipole construction is dividing 468 by the desired resonant frequency, in MHz. As an example, a dipole cut for 14.225 MHz SSB is 468/14.225 = 32.9 feet total length. Divide 32.9 in half, and we see each element of this dipole needs to be 15.45 feet long.

Know Your Audience

If you have the real estate to install a dipole in multiple configurations, you have some decisions to make. Who, exactly, do you want to talk to? This may seem a silly question, but it's one worth pondering. Are you interested in having a signal that is loud in your general region and not too worried about making DX contacts? Do you want to focus on working as much DX as possible? Are you interested in working anybody and everybody, no matter where they are from? These are real-world questions; a person interested in public safety and establishing a regional communications network during an emergency has different targets than a Ham trying to work DX halfway around the globe.

Generally speaking, a dipole is going to start exhibiting a directional pattern once it is a quarter wavelength above terrain. Under these circumstances, the antenna will radiate and receive broadside to the antenna orientation. That is, if your antenna is oriented north to south, you will notice better

performance from the east and west. That's not to say you won't hear or work anything off the ends of your dipole, but there will be some attenuation from those directions.

The major lobes of radiation broadside to your antenna are going to have different takeoff angles based on the height of your dipole above ground. Those takeoff angles will determine at what angle your signal hits the ionosphere and is reflected back to earth. Higher takeoff angles will help your signal be louder closer to you. Lower takeoff angles will help your signal travel farther, as they will bounce off the ionosphere much farther away, resulting in a bigger "hop."

Dipoles higher than a quarter wavelength can also be used to aim your signal in two specific directions. Say you live in the Midwest U.S. and want to maximize your capabilities to work European DX stations. By orienting your dipole northwest-southeast, your antenna is broadside northeast-southwest, which is bi-directional to Europe and out into the South Pacific. But this comes at the relative cost of not being as loud into South America and Asia.

Low Dipoles and Their Advantages

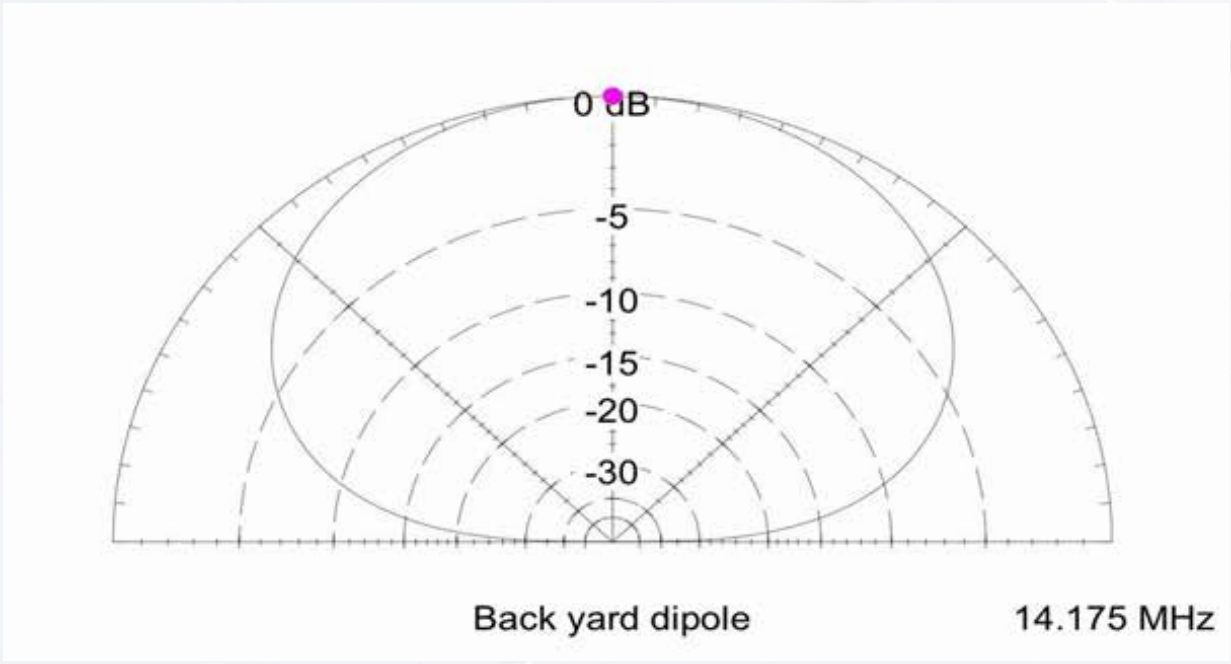
So what happens if your dipole is below a quarter wavelength high? Generally speaking, the radiation pattern will become omnidirectional, as much of your radiated signal goes out at much higher angles. For some applications (like long-haul DXing), this is bad. For others, a low dipole may be exactly what you're looking for. EmComm operators may need to establish a regional network, within roughly a 500-mile radius, for example. Using a principle called Near-Vertical Incidence Skywave (NVIS), on 40 meters and lower, a low dipole can make a VERY effective antenna, blanketing an area to excellent effect. This has other applications; Hams who participate in domestic contests such as ARRL Sweepstakes often have a low dipole on 40 and 80 meters to work close-in stations they may not otherwise work on larger, higher antennas.

Consider what you want your antenna to do for you, then install accordingly. If possible, try putting up more than one dipole to cover different applications. Most of all, take notes and see how your antennas are performing. You can always experiment with different heights and orientations. I wish you success in your antenna experiments!

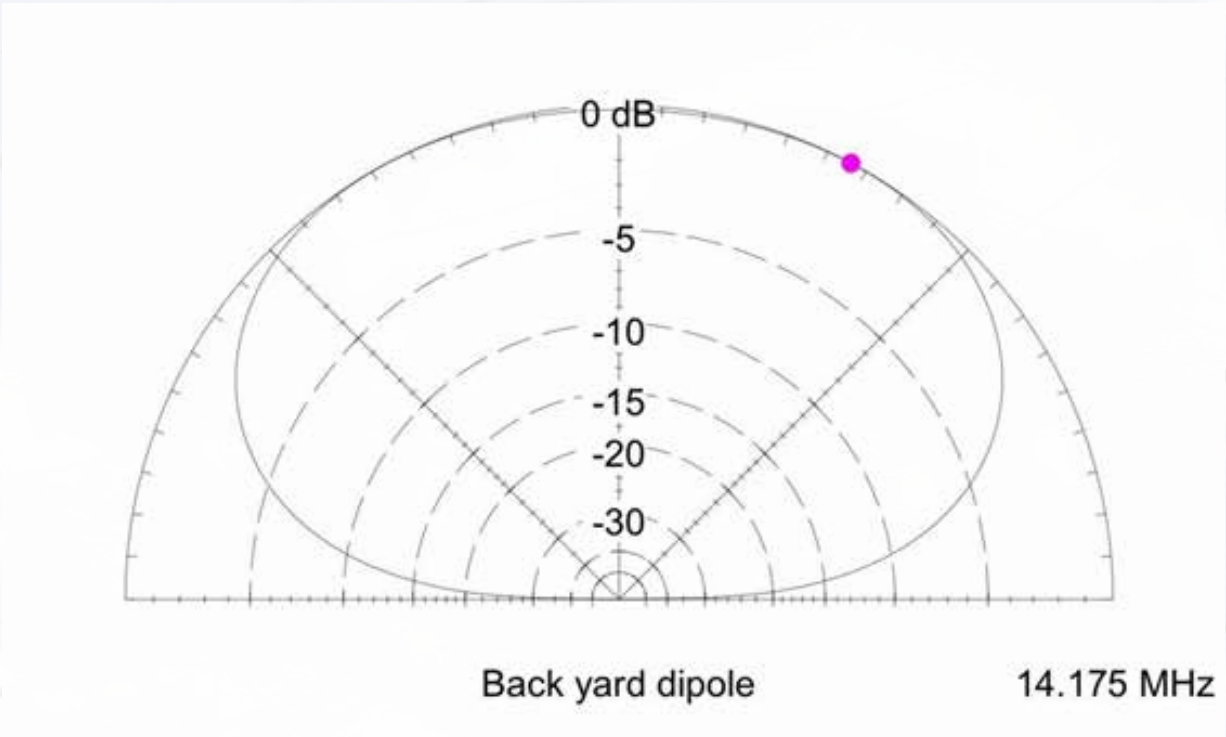
Further Reading

As I mentioned earlier, this is only a brief introduction to dipole performance and orientation. Those who want to do more in-depth research on how dipoles function and how they radiate at different heights above ground should investigate these resources:
Hands-On Radio: Experiment 82—Antenna Height by Ward Silver, N0AX. November 2009 QST.
Basic Antennas by ARRL. This book covers many types of antennas, from the basic dipole to vehicle antennas, and an introduction to antenna modeling. Written by the ARRL "Doctor" Joel Hallas, W1ZR.
Antenna Modeling with EZNEC 6+. This YouTube video by David Casler, KE0OG, goes over the basics of using the EZNEC antenna modeling software. A great tool for plotting the performance of your dipole.

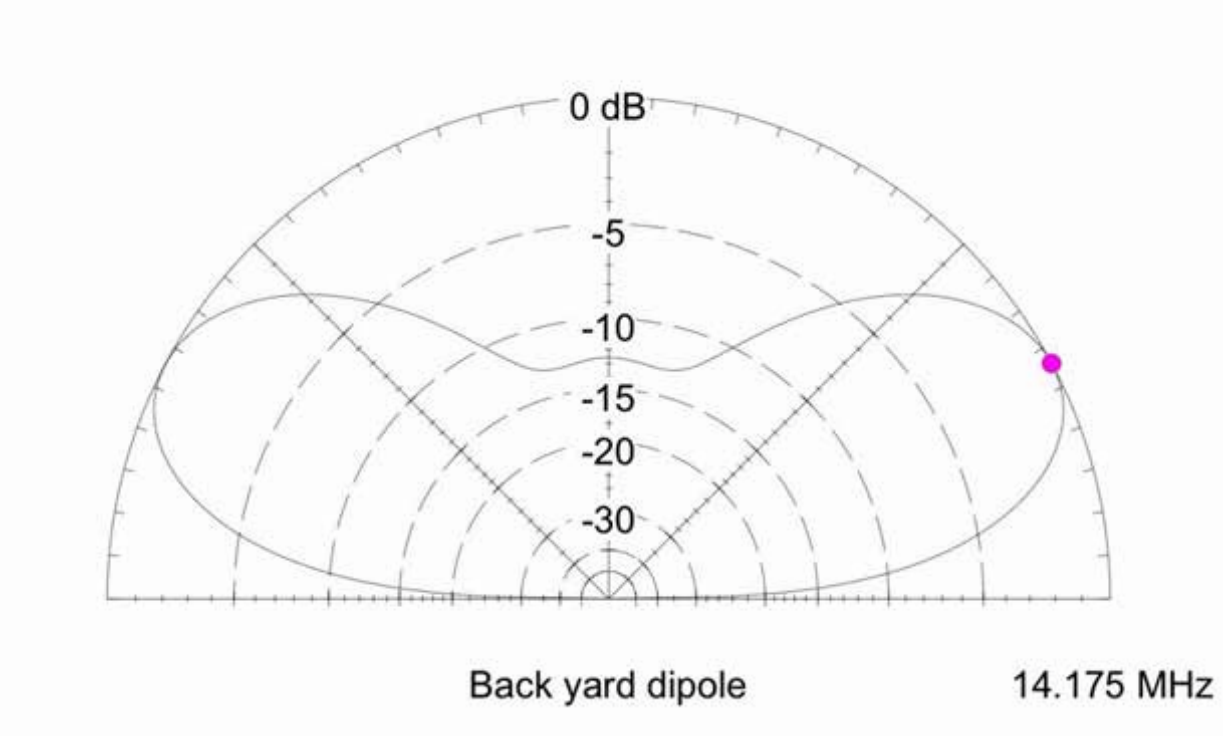
Take a look at these antenna plots that Ward Silver, N0AX, did with the EZNEC modeling program. The plot below shows the radiation lobes of a 20 meter dipole one-eighth wavelength above ground.



This plot below shows the lobes of the same dipole a quarter wavelength above ground



This final plot shows the lobes if the dipole is a half wavelength above ground. Antennas below a quarter wavelength above ground will have higher radiation angles and less directional capability. [Images reprinted with permission, November 2009 QST; copyright ARRL.]



Credit: https://www.onallbands.com/dipole-antennas-how-high-should-my-dipole-be/

ANTENNA ARCHIVES #33

Small Tuned Loop: Everything You Need to Know

A small transmitting loop, small tuned loop or magnetic antenna is defined as a loop antenna of less than one-tenth to one-quarter of a wavelength in circumference. These are normally constructed as a single turn of heavy-gauge wire (AWG #10 or larger), copper pipe or tubing and are tuned to one specific frequency at a time using a series variable capacitor.

As these antennas can be constructed in relatively little space, often with a diameter of several feet or less, they are used in HF applications where no suitable location is available for a full-sized antenna such as the beam antenna. In some cases, these have been constructed in attics or used for portable operation.

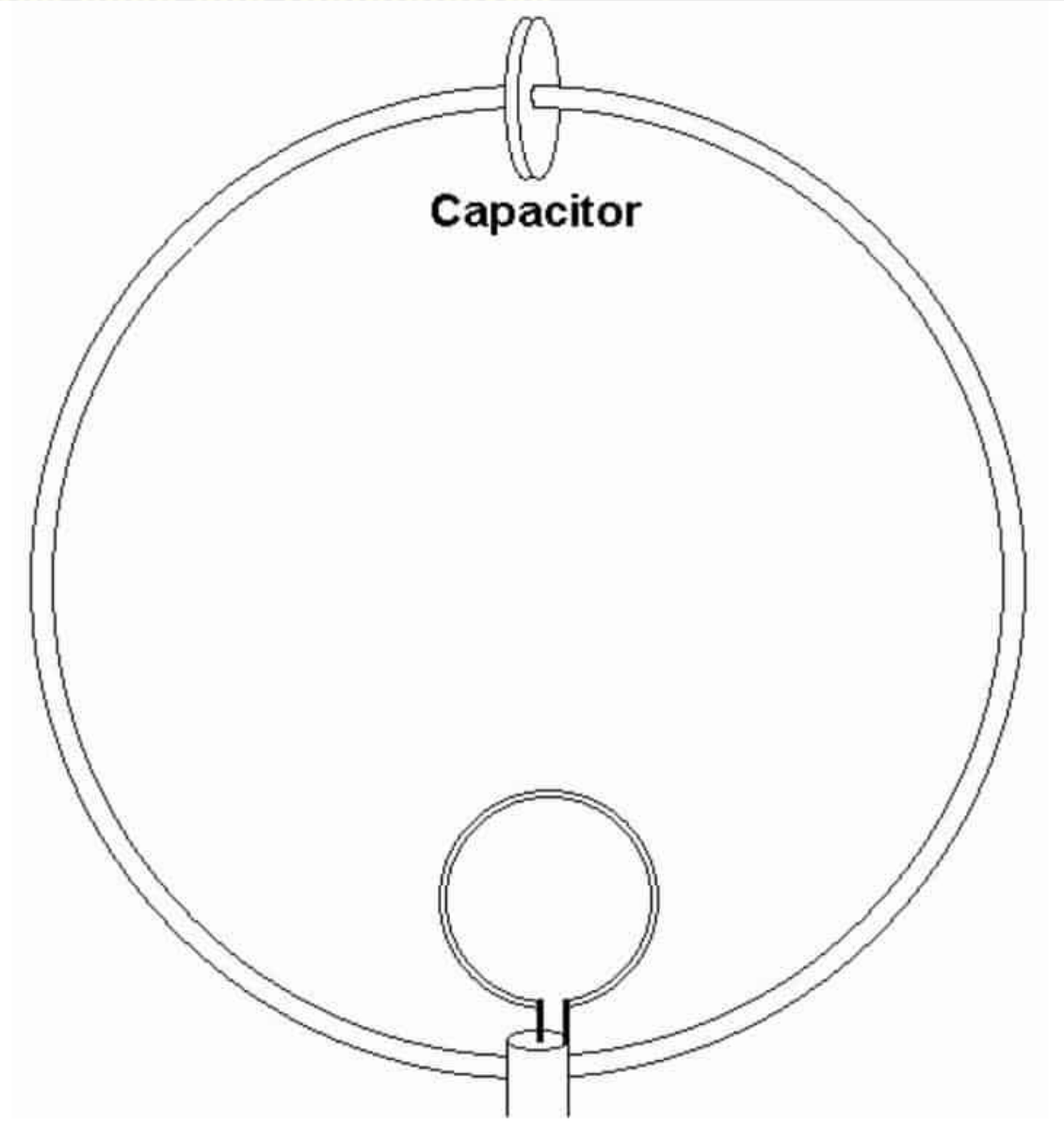
While a circular loop is efficient in that it provides the largest area for anyone given the length of the conductor, other form factors (such as a square formed from copper pipe and 90° elbows) have also been successfully employed.

ANTENNA ARCHIVES #33

Theory of operation

A wire loop inherently acts as an inductor with a radiation resistance of a fraction of an ohm. In order to keep other resistance and impedances from becoming predominant, the resistance must be kept to a minimum in transmitting antennas by the use of heavy wire or tubing and the inductance of the loop must be compensated using a large series capacitor.

This yields an antenna that operates as a resonant LC circuit at one specific frequency with an impedance very close to zero; at other frequencies, the impedance rises sharply and the antenna is unresponsive.



Tuning

Due to the need to maintain low impedance, capacitors used must have effective series resistance of near-zero, despite their handling of large amounts of current and RF voltages which (in any larger than a QRP operation) often reach 4kV or more.

As the circuit is largely built from reactive elements, voltages and currents at individual points far exceed those which normally would be associated with the real power being transmitted. The capacitors must also be variable over a wide range to allow the loop to be manually tuned to one of various frequencies and bands in the HF spectrum.

Vacuum variable capacitors are very well suited to this task but maybe costly even from industrial-surplus sources. A possible alternative is an air-variable capacitor in which all connections to individual plates are welded and there are no moving connections to the rotor. The butterfly capacitor (MFJ-19, MFJ-23) is a split-stator capacitor based on this approach; an air-variable design, it effectively has two stators (one connected to each end of the loop) and a rotor that moves between them to adjust capacitance. No direct electrical connection is wired to the rotor; there are no brushes or slip rings.

Some radio amateurs have constructed their own capacitors for use in tuned loop antennas; these are usually air-variable capacitors built from individually-machined plates or trombone capacitors in which two concentric pieces of the copper pipe are separated by an insulator and one slides into the other to vary the capacitance.

As the circuit is very frequency-selective, often a means is desired to remotely adjust capacitance to tune the antenna to the desired channel frequency. Reduction drives may be used to convert a single-turn variable capacitor to more finely-tunable multiturn control and motors (such as steppers designed for computer printers or servos used in radio-control operation) may provide a means to tune the antenna remotely.

Feedpoint matching

As the impedance of the small loop antenna at resonance is near-zero, it must be matched to the higher impedance (typically 50Ω) of the transmitting equipment.

Possible methods to match the transmitter to the loop are:

Matching loop – A second loop, typically no more than one-fifth the size of the main loop, is constructed and installed adjacent to one edge of the main loop and used to couple the signal inductively.

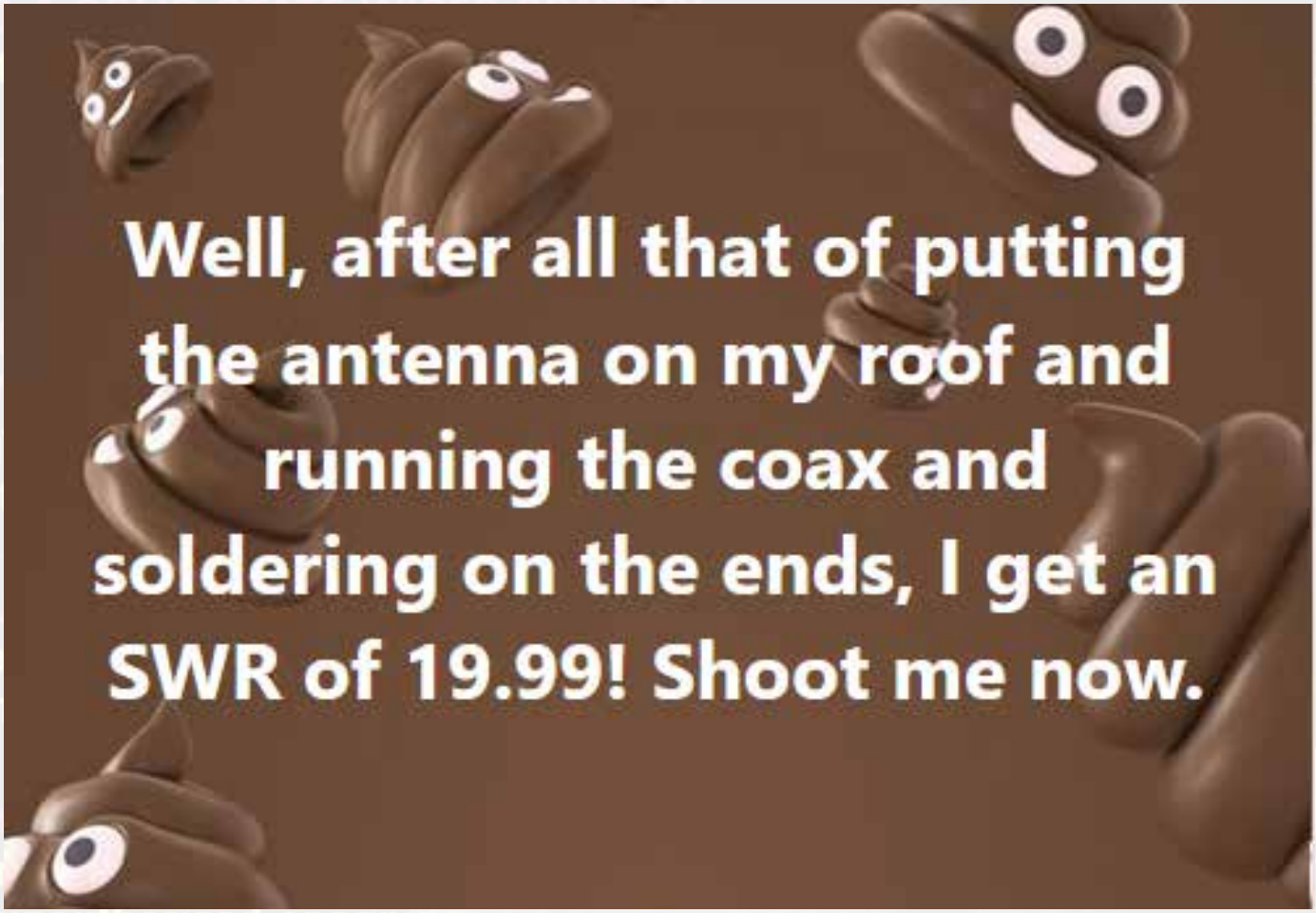
Delta match – One small portion of the loop is used as an autotransformer by connecting two taps to one portion of the loop circumference, usually at the point most distant from the capacitor. These are then connected using a balanced line (two conductors of equal length and size) to a balun or matching device and fed as a balanced load.

ANTENNA ARCHIVES #33

Army match – The transmitter is matched to the antenna capacitively

Gamma match – The shield of an unbalanced line is connected directly to the circumference of the loop at a point directly opposite the tuning capacitor. The center conductor is then installed, unshielded, at a 1″ spacing from the loop and hard-wired to the loop at a more distant point – effectively forming an unbalanced matching loop that includes part of the main loop as one side of the feed loop.

Credit: https://www.amateur-radio-wiki.net/small-tuned-loop/



CUSTOM WOOD PLAQUES DONE VIA CNC ROUTER!

Plaques and other projects are made to order. Contact Bill AB3ME for more info.

Prices do vary depending on the style ordered and start at $40 shipped locally to your door for a "basic plaque" Wood available is Butternut, Oak - light and dark, Black Walnut, Cherry and Hemlock Pine. Various fonts are also available. Local shipping via USPS is $8 and $15 for out of area. Construction time is expected to be a minimum of a few days due to the engraving and finishing process.

Keepsake boxes are also being offered using the same materials along with brass hardware and finger joint construction. Engraving for boxes is free up to 10 square inches and can be done on the top and inside of the boxes. Pricing starts at $225 per box. Work time is a minimum two weeks for construction. PayPal is the preferred method of payment, checks accepted however work will not start until your check clears my bank. My PayPal address for payment is... ab3me47@gmail.com

For more information please visit: Carpenterwoodworksusa.com

EQUIPMENT FOR SALE BY AB3ME

These items were purchased by myself for field day 2018 and have not been used since. Have been kept in weatherproof storage cases with desiccant since. I have kept the removed pluck foam for all weatherproof cases.

Additional items for sale:

1. 50 LF +- Belden #8267 (RG-213) PL 259 one end, will provide a PL 259 for other end.....
PRICE = $35.00

2. 50 LF +- Belden #8268 (RG-214 PL 259 one end, will provide a PL 259 for other end.....
PRICE = $35.00 (same as RG213 but with double shield)

3. 100 LF Cable Experts CXP138FCNM PL 259 ea end equivalent to Belden 9913 Low Loss.....
PRICE = $120.00 (new! this is $150 at HRO)

4. 1 each Triple Magnetic Mount - Black - 3/8-24 Base with 17 Feet of RG-58 Coaxial Cable.....
PRICE = $25.00 excellent condition.

5. 1 each Nagoya Heavy Duty 5" dia NMO, magnetic mount w/ 18 lf RG58A/U coax with PL 259.....
PRICE = $25.00 excellent condition.

6. 1 each Vertex (yaesu) MLS-100 external speaker w/mount, 6.5 foot wire w/ 1/8" connector....Price = $40.00 currently mounted to oak w/feet for indoor use

7. 1 each Dentron Super Tuner, 1000 watt, w/ balun, wire or coax feeds 5 star eham rating.....
Price = $175.00 see pic,excellent condition.

8. 1 each Dentron Junior Tuner, 300 watt, w/balun, wire or coax feeds 4.9 star eham rating.....
Price = $125.00 see pic, excellent condition.

9. 1 each TailTwister rotor and control box (my spare).....Price $550.00/both
Control box separately $300

MEMBERSHIP APPLICATION

E P A R A

Eastern Pennsylvania Amateur Radio Association

Address: PO Box 521, Sciota, PA 18354

Email: N3IS@qsl.net

Website: 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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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