OUR 26TH YEAR!

EPARA BEACON

VOL. 6, NUMBER 9 THE OFFICIAL NEWSLETTER OF THE EASTERN PENNSYLVANIA AMATEUR RADIO ASSOCIATION SEPTEMBER 2022

NEXT CLUB MEETING: SEPTEMBER 8TH

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

Summer is almost over and aside from everything costing way more than before it's been a great summer. I've been busy with work obligations, so I haven't had nearly as much time to enjoy my hobby as I'd like. I've also had to postpone the General license class till October, stay tuned for the dates!

Our ham-Fest is coming in just a few weeks on September 18th so our meeting will be focusing on the final planning for this important event. We will need your help for this to be successful, it's just a few hours on a Sunday morning so please step up and donate some time. Remember our next meeting comes early this month on Thursday the 8th so mark your calendars. Its also time for the board to present the 2023 EPARA budget, I will be making a motion to postpone this until October so we will know what income we get from the Ham-Fest. Finally, I will be proposing to purchase a Yaesu 991A for the radio room, I will show prices for new and good used rigs. The membership must authorize funding for the purchase so it will be put to a vote.

That's all for now, see you at our meeting on September 8th.

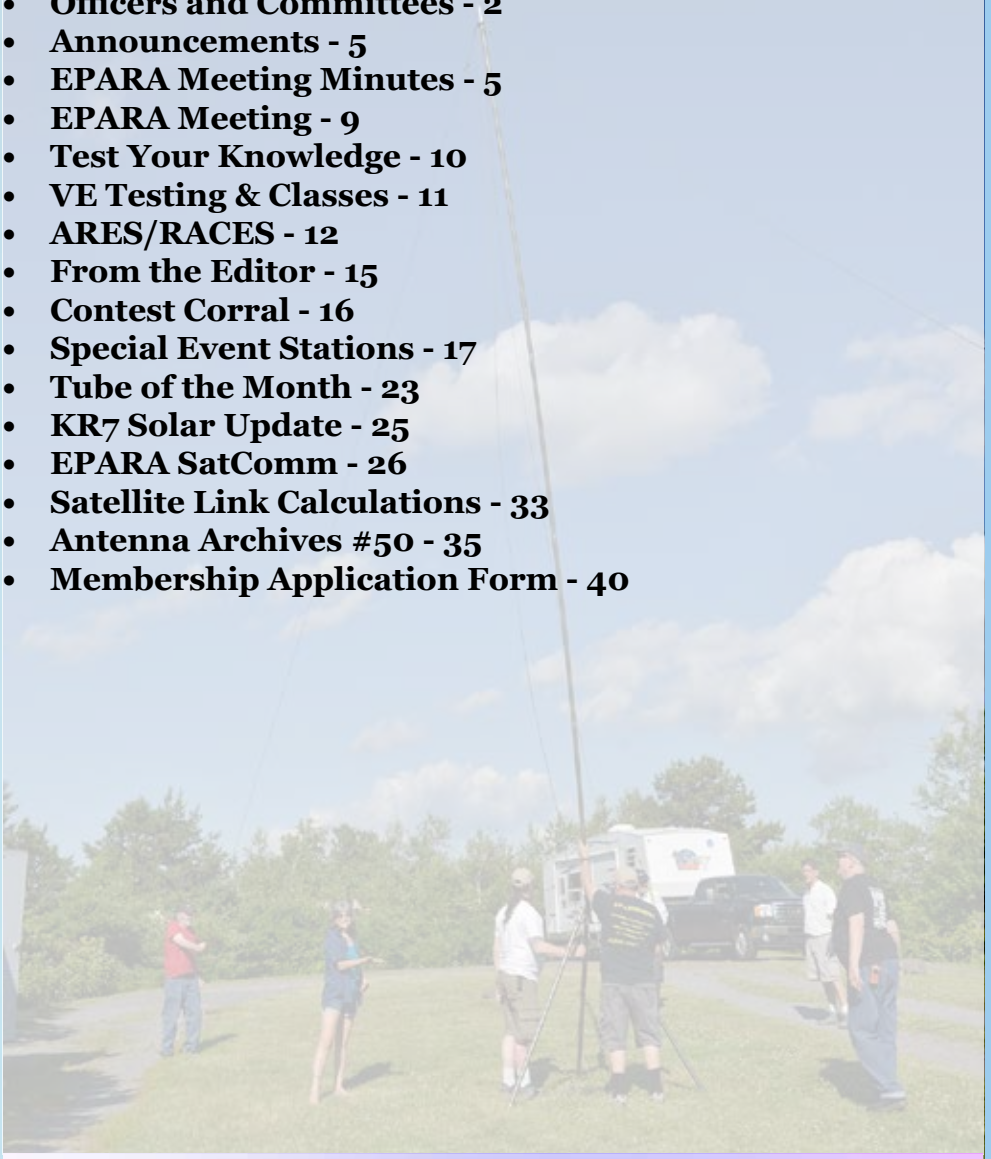
73 Chris AJ3C

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 Charles Borger KB3JUF KB3JUF@gmail.com

Postal Address:	Web Site:	Send dues to:	Newsletter submissions to:
EPARA	https://www.qsl.net/n3is/	EPARA	Eric Weis, N3SWR Editor
PO Box 521	Email:	PO Box 521	EPARAnewsletter@ptd.net
Sciota, PA 18354	N3IS@qsl.net	Sciota, PA 18354	

What's INSIDE this ISSUE



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

Announcements
AND UPCOMING EVENTS

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

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

Hamfest!
EPARA will host its annual hamfest this year on Sunday, September 18th, 2022. There is a new location this year - the Moose Lodge # 1336 at 705 Stokes Mill Rd., East Stroudsburg. The official flyer is posted in this addistion to help to get the word out, plus there is a larger map as well. There is a huge field area and extensive parking available!

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

Rule #1 of Amateur Radio, it is a hobby, unless you figured out a way to fashion a living out of it.
Rule #2 of Amateur Radio, life is not a hobby and typically carries heavy responsibilities of everything that is not a hobby.
Rule #3 of Amateur Radio, never give up a LIFE event for a Ham event. You may make some great memories at the Ham event, but the guilt you may carry missing a LIFE event can be a terribly heavy millstone.
Rule #4 of Amateur Radio, as technology moves forward, so does Ham Radio - do what makes you happiest, experiment with other elements of Ham Radio as LIFE allows.
Rule #5 of Amateur Radio, it is only Ham Radio, when confused always refer to Rule #1 through #4.

EPARA GENERAL MEMBERSHIP MEETING AGENDA

EPARA Membership Meeting Minutes
August *11th 2022*
General Membership Meeting 7:30Pm

Open meeting:

Meeting called to order at 7:30 pm on August 11h 2022 by Chris AJ3C
Declaration of Quorum.
Total attending 22. Present at 911 Center 20, Present on Zoom 2, Visitors present 1

Pledge of Allegiance / Moment of silence:

Membership Meeting - Minutes July 14th, 2022
Secretary - Kevin W3KCF:

Meeting minutes for July 14th 2022 were posted on the EPARA website. Chris – AJ3C asked members if they had seen and read the minutes from our previous meeting. He then asked if there were any questions or objections to the minutes as they were presented. With no objections, Chris asked for a motion to accept the minutes as presented:

Motion to accept minutes as read: By Alex – KD2FTA 2nd by RuthAnn – W9FBO Motion Passed

Treasurers report:

Treasurers report: For the August 2022 EPARA Club Meeting.
By Scott Phelan, KC3IAO (Read by Chris – AJ3C)

Bank Account Statement Opening Balance 7/29 statement.): $3,649.67

Expenses: None

$0.14 Bank Interest.

Closing Balance: $3649.81

Our PayPal Account: 7/29/22 statement.

No changes since last month. Balance is $414.26

Motion to accept by AL – KB3OVB Seconded by Ed – KC3OLB Motion Passed

Correspondence:
None

Reports of officers and committee's:

Bill AB3ME – Program Committee

Bill stated there would be a Winlink presentation tonight after the meeting. There are no other presentations scheduled at this time.

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

Chris said presentation can be very simple such as one he saw recently on drones used to inspect antennas.

EPARA GENERAL MEMBERSHIP MEETING AGENDA

Charlie KB3JUF – ARES/RACES:

Charlie reiterated that all involved in ARES need to be motivated. Make sure you attend our meetings on the 4th 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.

Len – KC3OND reported that Red Cross radio and antenna are working in 20, 40, and 80 meters. Len stated they could not reach Pittsburgh Red Cross because of issues in Pittsburgh -- possibly interference of nearby cell towers to that Red Cross facility. Len also reported that the Stroudsburg Red Cross is ahead of other Red Cross locations in their radio set up.

Chris – AJ3C added that our effort could be seen as a model for other Red Cross facilities in the State. Local Red Cross facilities simply need to contact their local RACES/ARES group. Red Cross has the financial resources to buy the radio equipment and local RACES/ARES teams have the know-how and manpower to install the equipment and get it operational. Win-win for all parties.

Chris then clarified that when using WinLink at the Red Cross facility, the operator had to use their own Winlink call sign. Reminder that all RACES/ARES members need to get registered with Winlink.

Ruth Ann, W9FBO – PIO:

Grant Request:

Deadline for grant request is October 1st 2022. She has been working with Chris on grant to fund new emergency communications trailer.

Grant does not require drawings, but it does require detailed budget, and whether build of trailer will be done by volunteers or outsourced.

Given the likely need to use the trailer in very hot and very cold weather, the budget includes the price of both cooling and heating units.

Bill Carpenter offered to assist with this effort.

Youth Outreach:

RuthAnn will be reaching out to local schools -- teachers -- to gauge their interest in ham radio presentations to students.

Chris AJ3C -- Instruction and Training:

The General Class that was scheduled for September has been postponed by one or two months. Chris has new work obligations that will have him out of town and unable to lead the classes for the time being.

Chris AJ3C – Website:

Chris stated, as his schedule permits, he would like to completely re-build the club website

EPARA GENERAL MEMBERSHIP MEETING AGENDA

Bob W3BMM – Social Media: (Not present)
Chris presented.

Chris said, as always, share material with Bob for the club's various social media accounts.

He mentioned that the ARRL has very good material on their Facebook account.

Many very good channels for every kind of radio interest -- DMR, Wingroup, EME, etc.

John – K3WH:

John suggested creation of an EPARA IO group. IO groups are successors to services like Yahoo Groups and very popular with some radio clubs.

Al, KB3OVB: Membership:

AL said we are currently at 69 members until the rolls are purged for non-payment of membership dues.

Eric N3SWR – Newsletter:

Eric said all's well with the newsletter. Keep sharing content with him.

Sat-Com / EME Group:

Alex – KD2FTA: Satellite communication works very well during weekdays even without Arrow antenna. Best in the very early hours and very late at night. Weekends have too much traffic.

Slow Scan TV:

Alex and Chris spoke to the ease and viability of these radio transmissions. Alex said he would be happy to show others how to do this.

Old business:

Antenna / Elmer weekend:

The weather was very hot so attendance was light. We did build and test the 80meter delta loop. The antenna works great and will be used next field day as our multi band wire antenna. The ladder line fed doublet will be converted back into a standard 80-meter dipole.

Hamfest 2022: Planning and assignment:

This year's Hamfest will be held on September 18th at the Moose Lodge.

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

Walt said Everything is on track. More detailed discussion at next meeting. We are getting this facility for free. We need to ensure the generous donors of this facility are happy with our event and our presence. We need someone to bring a grill and people to man said grill. Gene will donate grand prize.

EPARA GENERAL MEMBERSHIP MEETING AGENDA

Dunkin Donuts has made a donation. Awaiting response to $125 requested donation from Weis Markets.

Chris said we will have 500 tickets printed up at West End Printer.

Alex -KD2FTA, Kevin – W3KCF and RuthAnn – W9FBO have volunteered to manage the food and beverage booth. Kevin said he could bring a hot dog cooker.

Any other old business:

New business:

Replacement HF rig for the radio room:

The Kenwood Radio works great for SSB and CW but is not working for digital modes. It will not support the ARES digital emcomm requirements. The radio needs to be updated to a more modern rig. Possibly the Yaesu 991A?

Any Other New Business

Votes / New members:
None

Announcements:

Any Additional Announcements

Tonight's 50/50 Raffle: $44.00.

Adjournment…

Meeting was adjourned at 2030: Motion to close by Len – KC3OND 2nd by Martin -KC3TOE Motion Passed.

Secretary

Kevin Forrest
W3KCF

EPARA MEETING

TEST YOUR KNOWLEDGE!

What is the term for the time required for the capacitor in an RC circuit to be charged to 63.2% of the applied voltage?

A. An exponential rate of one
B. One time constant
C. One exponential period
D. A time factor of one

Last month's answer was, B. A very small amount of noise (white noise) is added to the input before conversion. It causes the state of the converter to randomly oscillate between 0 and 1 in the presence of very low levels of input, rather than sticking at a fixed value. This helps prevent the signal from simply getting cut off altogether at this low level and extends the effective range of signals that the A-to-D converter can convert.

DMR
DIGITAL MOBILE RADIO

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!

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!

AMATEUR RADIO CLASSES

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/

From the Editor

Eric, N3SWR

Hello folks!

Summer is winding down and the heat is still rather intense at times. It wears me out but I still try to keep moving forward. I must admit the SSTV challenge, hmmm... now that's a catchy phrase I think, I'm going to give that a try in the very near future. It's actually easy and you don't need a bunch of special equipment to make a QSO. Plus, ITS COOL!

The hamfest is only weeks away and I'm looking forward to see the crowd this year. With the significant amount of parking available and the resources coming from the Moose Lodge we should have a great event! I look forward to see you all there and smiling for the camera :)

Cheers for now!

Eric
N3SWR

What does an electrician have for breakfast?
an Ohm-lette

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).

HAMFEST 2022

Sunday, September 18th, 2022 - 8am - 1pm

ALL NEW LOCATION!

Moose Lodge 1336
705 Stokes Mill Rd, East Stroudsburg, PA 18301

Featuring:

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

RAIN or SHINE

- ✓ Handicap Accessible
- ✓ Convenient Restrooms
- ✓ Door Prize!
- ✓ Grand Prize Drawing!

Huge Field and Parking Lot! Large Open Side Pavillion!

Talk-in: 147.045MHz PL+131.8 · Phone 570-350-1185 · email: 3w3fnz@gmail.com

For more information please visit the EPARA website at: www.qsl.net/n3is
Find us on Facebook! https://www.facebook.com/epararadio

EASTERN PENNSYLVANIA AMATEUR RADIO ASSOCIATION

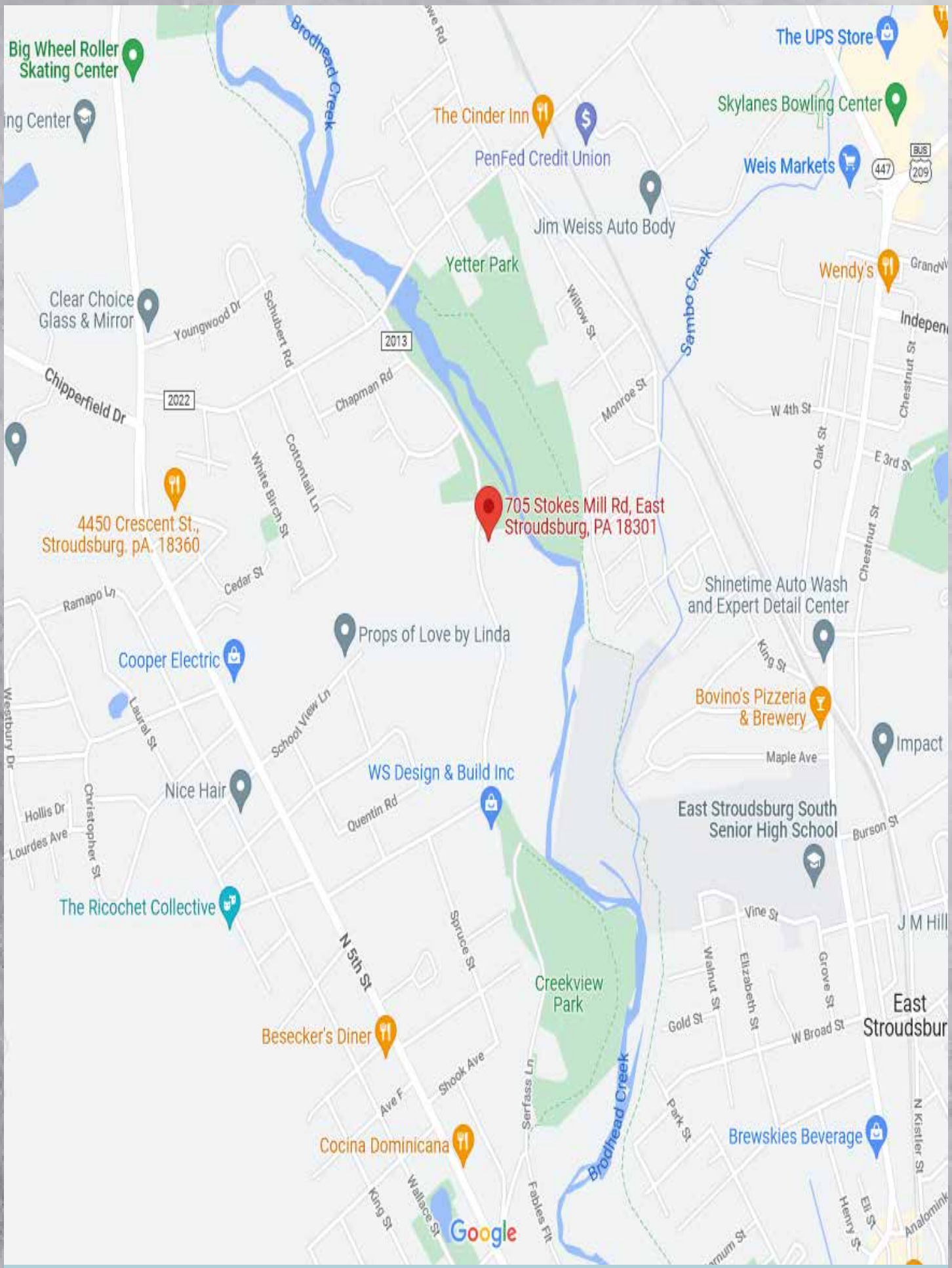
VISITOR INFORMATION

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

VE Session: Testing Begins at 11am
Sat/Comm Demonstration and Information

Google Maps

EPARA Website


Big Wheel Roller Skating Center
The UPS Store
Skylanes Bowling Center
The Cinder Inn
PenFed Credit Union
Weis Markets
Jim Weiss Auto Body
Yetter Park
Wendy's
Clear Choice Glass & Mirror
Youngwood Dr
Schubert Rd
2013
Chapman Rd
Willow St
Sambo Creek
Monroe St
W 4th St
Chestnut St
Oak St
E 3rd St
Chipperfield Dr
2022
Cottontail Ln
White Birch St
4450 Crescent St., Stroudsburg, pA. 18360
705 Stokes Mill Rd, East Stroudsburg, PA 18301
Cedar St
Ramapo Ln
Shinetime Auto Wash and Expert Detail Center
Props of Love by Linda
Cooper Electric
King St
Bovino's Pizzeria & Brewery
Impact
Maple Ave
Laural St
School View Ln
Westbury Dr
WS Design & Build Inc
Nice Hair
Quentin Rd
Hollis Dr
Lourdes Ave
Christopher St
East Stroudsburg South Senior High School
Burson St
The Ricochet Collective
Vine St
J M Hill
Spruce St
N 5th St
Creekview Park
Walnut St
Elizabeth St
Grove St
Gold St
W Broad St
East Stroudsbur
Besecker's Diner
Shook Ave
Ave F
Serfass Ln
Brodhead Creek
Park St
Brewskies Beverage
N Kistler St
Cocina Dominicana
King St
Wallace St
Fables Flt
Henry St
Google

Contest Corral

September 2022

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		Date-Time		Bands	Contest Name	Mode	Exchange	Sponsor's Website
1	1700	1	2100	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	nrrlcontest.no
1	2300	3	2300	3.5-28	G3ZQS Memorial Straight Key Contest	CW	RST, SPC, name, mbr, or power	www.fistsna.org/operating.html
3	0000	3	2359	3.5-28	Russian RTTY WW Contest	Dig	RST, RU oblast or CQ Zone	www.qrz.ru/contest/detail/93
3	0000	4	2359	1.8-28	All Asian DX Contest, Phone	Ph	RS, 2-digit age	www.jarl.org/English
3	0600	3	0800	7,14	Wake-Up! QRP Sprint	CW	RST, serial, suffix of previous QSO	qrp.ru/contest/wakeup
3	0800	4	1000	1.8-28	SARL Field Day Contest	CW Ph Dig	RS(T), # of rigs, category, province	www.sarl.org.za
3	1300	3	1600	7	AGCW Straight Key Party	CW	RST, serial, class, name, age	www.agcw.de/contest/htp/htp-en
3	1300	4	0400	All, except WARC	Colorado QSO Party	CW Ph Dig	Name, CO county or SPC	ppraa.org/coqp
3	1300	4	1259	1.8-28	IARU Region 1 Field Day, SSB	Ph	RST, serial	www.darc.de
3	1300	4	1300	3.5-28	RSGB SSB Field Day	Ph	RS, serial	www.rsgbcc.org/hf
3	1400	4	1400	145	IARU Region 1 145 MHz Contest	CW Ph Dig	RS(T), serial, 6-char grid square	www.iaru-r1.org/wp-content/uploads/2021/03/Rules-2021.pdf
3	2000	4	2000	3.5	PODXS 070 Club Jay Hudak Memorial 80-Meter Sprint	Dig	RST, SPC	www.podxs070.com
4	1000	4	1400	144	WAB 144 MHz QRO Phone	Ph	RS, serial, WAB square or country	wab.intermip.net
4	1800	5	0300	All, except WARC	Tennessee QSO Party	CW Ph Dig	RS(T), TN county or SPC	tnqp.org/rules
5	1900	5	2030	3.5	RSGB 80-Meter Autumn Series, SSB	Ph	RS, serial	www.rsgbcc.org/hf
6	0100	6	0300	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	arsqrp.blogspot.com
7	1700	7	2000	144	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu/index.php/en
10	0000	10	2359	1.8-28, VHF	FOC QSO Party	CW	RST, name, mbr (if any)	g4foc.org/qsoparty
10	0000	11	2359	3.5-28	WAE DX Contest, SSB	Ph	RS, serial	www.darc.de
10	1200	11	2359	1.8-28, 50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
10	1400	10	2200	3.5-28	Ohio State Parks on the Air	Ph	OH park abbreviation or SPC	ospota.org
10	1500	11	0300	3.5-28	Alabama QSO Party	CW Ph	RS(T), AL county or SPC	www.alabamaqsoparty.org
10	1500	11	0959	3.5-28	Russian Cup Digital Contest	Dig	serial, 4-char grid square	www.qrz.ru/contest/detail/86.html
10	1800	12	0300	50 and up	ARRL September VHF Contest	CW Ph Dig	4-char grid square	www.arrl.org/september-vhf
11	0000	11	0400	3.5-14	North American Sprint, CW	CW	Other's call, your call, serial, name, SPC	ncjweb.com/Sprint-Rules.pdf
12	0000	12	0200	1.8-28	4 States QRP Group Second Sunday Sprint	CW Ph	RS(T), SPC, mbr or power	www.4sqrp.com
14	1700	14	2000	432	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu
14	1900	14	2030	3.5	RSGB 80-Meter Autumn Series, CW	CW	RST, serial	www.rsgbcc.org
15	0030	15	0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	naqcc.info
15	1800	15	1959	3.5	BCC QSO Party	CW Ph Dig	RS(T), T-shirt size	www.bavarian-contest-club.de
15	1900	15	2000	3.5-14	NTC QSO Party	CW	NTC member: RST, mbr; non-member: RST, "NM," less than 25 WPM	qsl.net/ntc/party.html
16	2100	16	2359	3.5	AGB NEMIGA Contest	CW Ph Dig	AGB member: RST, serial, mbr; non-Member: RST, serial	www.ev5agb.com/contest/agb_nemiga.htm
17	0000	18	2359	2.3 GHz and up	ARRL EME Contest	CW Ph Dig	Signal report	www.arrl.org/eme-contest
17	0300	18	0900		SARL VHF/UHF Digital Contest	Dig	RST, 6-char grid locator	www.sarl.org.za
17	0600	18	2359	10 GHz and light	ARRL 10 GHz and Up Contest	CW Ph Dig	6-char grid square	www.arrl.org/10-ghz-up
17	1200	18	1200	3.5-28	Scandinavian Activity Contest, CW	CW	RST, serial	www.sactest.net/blog/
17	1400	18	0200	All, except WARC and 60	Iowa QSO Party	CW Ph Dig	RS(T), IA county or SPC	www.w0yl.com/IAQP
17	1400	18	2000	All, except WARC	Texas QSO Party	CW Ph Dig	RS(T), TX county or SPC	www.txqp.net
17	1500	17	2100	1.8-28	QRP Afield	CW Ph Dig	RS(T), SPC, power or mbr	www.newenglandqrp.org
17	1600	17	2300	3.5-28, 50, 144	Wisconsin Parks on the Air	CW Ph	WI park abbreviation or SPC	wipota.com
17	1600	18	0359	3.5-28	New Jersey QSO Party	CW Ph Dig	RS(T), NJ county or SPC	www.k2td-bcrc.org/njqp/
17	1600	18	2200	All, except WARC	New Hampshire QSO Party	CW Ph Dig	RS(T), NH county or SPC	www.w1wqm.org/nhqso/
17	1600	18	2359	1.8-28, 50, 144	Washington State Salmon Run	CW Ph Dig	RS(T), WA county or SPC	salmonrun.wwdxc.org
17	1800	17	1959	1.8-28, 50	Feld Hell Sprint	Dig	RST, mbr, SPC, grid	sites.google.com/site/feldhellclub/Home/
18	0000	18	0400	3.5-14	North American Sprint, RTTY	Dig	Other's call, your call, serial, name, SPC	ncjweb.com
18	1700	18	2059	3.5-28	BARTG Sprint PSK63 Contest	Dig	Serial	bartg.org.uk
19	1900	19	2300	144	144 MHz Fall Sprint	CW Ph Dig	4-char grid square	svhfs.org/wp/sprints/
21	1700	21	2000	1.2G	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu
22	1900	22	2030	3.5	RSGB 80-Meter Autumn Series, Data	Dig	RST, serial	www.rsgbcc.org
24	0000	25	2359	3.5-28	CQ Worldwide DX Contest, RTTY	Dig	RST, CQ Zone, (+state/prov for US/VE)	www.cqwwrtty.com
24	1200	25	1200	1.8-28	Maine QSO Party	CW Ph	RS(T), ME county or SPC	www.ws1sm.com/MEQP.html
24	1400	24	1800	144,432	AGCW VHF/UHF Contest	CW	RST, serial, power, 6-char grid	www.agcw.de
24	2200	25	2200	1.8-14	AWA Amplitude Modulation QSO Party	Ph	Name, SPC	antiquewireless.org/homepage
25	0700	25	1000	50	UBA ON Contest, 6 Meters	CW Ph	RS(T), serial, ON section (for ON)	www.uba.be
26	1900	26	2030	3.5-14	RSGB FT4 Contest	FT4	4-char grid square	www.rsgbcc.org
27	1900	27	2300	222	222 MHz Fall Sprint	CW Ph Dig	4-char grid square	svhfs.org/wp/sprints/

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 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** *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!

08/26/2022 | 9Y60TT Special Event - Trinidad and Tobago 60th Independence Anniversary

Aug 26-Sep 3, 0400Z-0400Z, 9Y60TT, Port of Spain, TRINIDAD & TOBAGO. TTARS. 7.159 28.462 50.125 29.580. Certificate. TTARS, Boy Scouts HQ, St. Anns, Port of Spain, TRINIDAD & TOBAGO. Celebration of Trinidad and Tobago's 60th Anniversary of Independence via an Amateur Radio Special Event call sign 9Y60TT from 26th August - 2nd September 2022. The event will be multi-mode, multi-band and multi-operator. Modes will include HF SSB, CW, Slow Scan TV (SSTV), Digital Modes FT8, JS8, FT4 & JT65, 2m EME (Moonbounce), Satellite, APRS via ISS, Digital Voice (DMR, C4FM, D-Star), EchoLink....and more. QSL is via Logbook of The World (LOTW). We also confirm and log via QRZ.com, ClubLog, and HRDLog. For more details on the event and to obtain a certificate, visit the website https://9y60tt.info/ Thank you, Good DX and 73. de 9Z4RG https://9y60tt.info

08/26/2022 | Amateur Radio Software Award

Aug 26-Sep 5, 0500Z-0700Z, K3A, K3R, K3S, Ames, IA. Amateur Radio Software Award. 3.950 7.078 7.185 14.250. QSL. Amateur Radio Software Awards, Special Event Station, P.O. Box 126, Ames, IA 50010-0126. Special event stations K3A, K3R, and K3S are operating from Iowa, Colorado and California to promote free and open amateur radio software. During the event the 2022 Amateur Radio Software Award recipient David Rowe (VK5DGR) will be honored for Codec 2 which enables digital voice communication over HF and VHF. Nominations for the 2023 awards will also be encouraged. Please QSL with S.A.S.E. The Amateur Radio Software Award is an annual international award for the recognition of software projects that enhance amateur radio. The award aims to promote amateur radio software development which adheres to the same spirit as amateur radio itself: innovative, free and open. For more information about the Amateur Radio Software Award or a detailed schedule of the special visit www.arsaward.com. https://arsaward.com/special-event.html

08/27/2022 | Buhl Day Celebration

Aug 27-Sep 5, 0000Z-2359Z, W3B, Hermitage, PA. Mercer County Amateur Radio Club. 7.185 14.240 145.350. QSL. Mercer County Amateur Radio Club, P.O. Box 996, Sharon, PA 16146. Mercer County Amateur Radio Club is celebrating BUHL DAY, the 107th Anniversary of Buhl Farm Park, which covers 300 acres donated to the Shenango Valley Pennsylvania, community by Frank Buhl a local industrialist, for the use and recreation purposes More information at www.w3lif.org

08/28/2022 | Auburn Cord Duesenberg Festival

Aug 28-Sep 9, 0000Z-2359Z, K9A, Auburn, IN. Northeastern Indiana Amateur Radio Association. 7.225+/- 14.074 7.074. Certificate & QSL. K9A - NIARA, P.O. Box 145, Auburn, IN 46706. w9ou.org

09/01/2022 | 95th Anniversary of the inventionof the electronic TV

Sep 1-Sep 12, 0000Z-2359Z, K7T, West Jordan, UT. Utah DX Association. 14.250 7.200. QSL. Wesley Wilkinson, 7363 S Galaxy Hill Rd, West Jordan, UT 84081. w7wes@yahoo.com

09/01/2022 | Young Amateurs Radio Club WY4RC Worked All YARC Zones Special Event

Sep 1-Sep 15, 1800Z-1800Z, WY4RC, New Haven, CT. Young Amateurs Radio Club WY4RC. 14.250 All Bands, All Modes. Certificate. Tyler Schroder, PO Box 201266, New Haven, CT 06520. WY4RC - The Young Amateurs Radio Club, is hosting our first annual YARC-WAYZ (Worked All YARC Zones) special event! Youth operators will be activating WY4RC/# in the ten US call zones from September 1 to September 15, 2022. Different awards are available for operators who contact at least six or all zones during the event. If you know of youth who would be interested in operating, please point them to our Discord server, https://discord.gg/yarc, where we are coordinating the event and time slots. For clubs and other operators, have them check out our rules and award details on how to participate! More information is available online at https://yarc.world/

Amateur Radio Special Event Stations!

index.php/events/2022/yarc-worked-all-yarc-zones-wayz-contest-event

09/02/2022 | 200th Great Geauga County Fair

Sep 2-Sep 3, 1200Z-0200Z, W8G, Burton, OH. Geauga Amateur Radio Association. 7.245 14.245. Certificate & QSL. Jacqueline Welch, P.O. Box 192, Windsor, OH 44099. www.geaugaara.org

09/02/2022 | V-J Day Commemoration

Sep 2, 1600Z-2130Z, W5KID, Baton Rouge, LA. Baton Rouge Amateur Radio Club. 7.040 7.250 14.040 14.250. QSL. USS KIDD Amateur Radio Club, 305 S. River Road, Baton Rouge, LA 70802. Operation aboard the USS KIDD (DD-661). WW II Fletcher class destroyer. www.qrz.com/db/w5kid

09/03/2022 | Back to Paradise, 44th Anniversary

Sep 3-Sep 5, 1600Z-1700Z, K7RDG, Sierra Vista, AZ. Cochise Amateur Radio Association. 3.890 7.225 14.070 14.285; voice/FT8/FT4/JS8. Certificate. Cochise ARA, P.O. Box 1855 , Sierra Vista, AZ 85636-1855. www.k7rdg.org

09/03/2022 | Celebrate the 100th Anniversary of KYW Broadcast

Sep 3-Sep 5, 1300Z-2300Z, W9C, Orland Park, IL. Metro DX Club. 7.050 7.280 14.050 50.313. Certificate & QSL. Jim Mornar, N9TK, 8607 W. Kendall Lane, Orland Park, IL 60462. Operations will be on other frequencies as needed. A certificate to be returned by email may be requested by sending an email to n9tk@att.net. To receive a printed certificate and QSL card, please send your donation of $5.00 (for the Dave Kalter Youth DX Adventure) and a self-addressed 9×12 envelope with three (3) ounces postage ($1.08) attached to N9TK, our QSL manager for W9C https://www.metrodxclub.com/2022-special-event

09/04/2022 | Fly/In Cruise/In

Sep 4, 1200Z-1900Z, W9EBN, Marion, IN. Grant County Amateur Radio Club. 3.850 MHz 7.250 MHz 14.250 MHz; DStar: Ref 24B DMR: Talkgroups- 31656 & 3100. Certificate & QSL. Grant County Amateur Radio Club, c/o L B Nickerson - K9NQW, P O Box 1786, Marion, IN 46952. grantcountyamateurradioclub@gmail.com or https://www.grantarc.org

09/08/2022 | 9-11 Remembered Once More

Sep 8-Sep 12, 0000Z-2359Z, K4A, Cordova, AL. Alabama Contest Group/WA1FCN. 7.040; all bands, all modes. Certificate & QSL. Robert Beaudoin, 970 Mountainview Rd., Cordova, AL 35550. Certificate for K4A QSO on four bands and any combination of modes. QSL with SASE. Please.wa1fcn@charter.net or www.qrz.com/db/wa1fcn

09/10/2022 | National POW MIA Recognition Day

Sep 10-Sep 18, 0000Z-2359Z, K4MIA, Loxahatchee, FL. PBSEC. 7.195 14.265 18.150 28.400. Certificate & QSL. Michael Bald, 6758 Hall Blvd., Loxahatchee, FL 33470. Observances of National POW MIA Recognition Day are held across this country on the third Friday in September each year. This year it will be on September 16. The day was established to honor our prisoners of war and those who are still missing in action. This will be the 14th year the special event station has been activated. On Sept 16, K4MIA will be transmitting from a Vietnam UH1H Huey helicopter. There will be sister stations K4MIA/2, K4MIA/4, K4MIA/5 K4MIA/7 and K4MIA/8 in operation. Possibly more. Days listed above are primary operational days and modes used will be, SSB, CW, FT8 and Satellite operation. Throughout the month of Sept, K4MIA will be on less used digital modes, SSTV, and hopefully EME again. See QRZ for a lot more information and a copy of this year's QSL card. Because of the volume of requests, you MUST SEND SASE to get a returned QSL. Please take time to remember our POW's, MIA's, KIA's as well as their families. radiomb@bellsouth.net or www.qrz.com/db/k4mia

09/10/2022 | Arthur Collins Birthday

Sep 10-Sep 11, 1300Z-0100Z, W0CXX, Cedar Rapids, IA. Collins Amateur Radio Club Cedar Rapids, IA. 3.90 7.180 14.302 21.380. Certificate. W0CXX, 1110 Lyndhurst Dr, Hiawatha, IA 52233-

Amateur Radio Special Event Stations!

1820. w0cxx.us

09/10/2022 | Celebration of Initiation of US Airmail and Attendant Beacon System

Sep 10, 1500Z-2200Z, K0A, Saint Paul, MN. South East Metro Amateur Radio Club. 7.035 7.250 14.250 18.100. Certificate. Brian McInerney, N0BM, 2523 Cochrane Dr., Woodbury, MN 55125. www.semarc.org

09/10/2022 | Route 66 On the Air

Sep 10-Sep 18, 0000Z-2359Z, W6H, Rio Rancho, NM. Albuquerque DX Association. 14.033 14.266 3.866 7.266. QSL. Bill Mader, 4701 Sombrerete Rd SE, Rio Rancho, NM 87124. We will operate CW, SSB, and FT8 primarily on 80m-10m, with supporting propagation. Look for our self-spots on your favorite cluster. Find our operating schedule at http://n2iw.com/route66-2022/index.php. See our QRZ.com page. Please spot us when you work us! 73, Bill, K8TE https://adxa.groups.io/g/main

09/10/2022 | Toys on the Air

Sep 10, 1300Z-2000Z, WA4TRS, Fairview, NC. The Road Show Amateur Radio Club, Inc.. 14.275 28.370. Certificate & QSL. The Road Show Amateur Radio Club, Inc., 57 Echo Lake Drive, Fairview, NC 28730. Kick off of The Toys For Tots 2022 Fall Campaign for Western North Carolina www.wa4trs.org

09/10/2022 | Wings Over the Rockies B-17 Fly-in

Sep 10, 1400Z-2200Z, W0R, Parker, CO. Parker Radio Association. 14.222 7.222. QSL. W0R, PO Box 3241, Parker, CO 80134. B-17 fly-in parkerradio.org

09/16/2022 | Ham Radio Action Camp

Sep 16-Sep 18, 1700Z-1900Z, K9J, Hartford City, IN. Indiana Royal Rangers. 14.240 14.270 28.435 146.550. Certificate. Jerry Barnes, 601 Spring Street, Madison, IN 47250. HRAC is designed to give training and experience in the use and benefits of Amateur Radio as a exciting hobby along with the use in an Emergency Situation. Much of the instruction is based on the requirements from the Royal Rangers Green Amateur Radio merit. The time will be divided between instruction and application. The Adventure Rangers (grades 6 - 8) and the Expedition Rangers (grades 9 - 12) will learn skills, such as signal propagation, antenna types and efficiency, transmitting modes, operator license requirements and acquisition, as well as the proper use of a mobile hand held and fixed base radio unit. Teams will set-up a temporary installation and make contact with other area, and beyond, ham radio operators. This is also a great opportunity to draw closer to God and grow spiritually. https://www.indianaag.org/ministries/royal-rangers

09/16/2022 | Project Big E

Sep 16-Oct 2, 1000Z-2200Z, N1E, West Springfield, MA. Hampden County Radio Association. 7.050 7.195 14.050 14.285; digital, HF and VHF; additional bands and modes possible. QSL. Larry Kranson, W1AST, 100 Kenmore Dr, Longmeadow, MA 01106-2759. Amateur exhibit will be staffed daily from 10 AM-10 PM ET. September 16-October 2, 2022 –– N1E, W. Springfield, MA. The Big E, "New England's Great State Fair" with over 1.6 million visitors. Will host a live, on-site ARISS contact sometime during the operating event. QSL with self-sticking SASE please. www.nediv.arrl.org/ProjectBigE

09/17/2022 | 200th Anniversary of the Fontenelle Fur Trading Post

Sep 17-Sep 18, 1300Z-2300Z, W0N, Bellevue, NE. Bellevue Amateur Radio Club. CW: 7.060 14.050; SSB 7.250 14.250; PSK31 14.070; SSTV 14.233; D-STAR Ref 002C. QSL. eQSL or direct to Dudley Allen, KD0NMD, 4509 Anchor Mill Rd, Papillion, NE 68133. www.bellevuearc.org

09/17/2022 | Harvey House on the Air

Sep 17, 1400Z-2000Z, KS0LV, Leavenworth, KS. Pilot Knob Amateur Radio Club. 7.185 14.228 21.278 28.378. QSL. Charles Jackson, N0CS, 717 Mount Calvary Road, Lansing, KS 66043. Operating from the home of Mr. Fred Harvey in Leavenworth, KS n0cs@arrl.net

Amateur Radio Special Event Stations!

09/17/2022 | USAF 75th Birthday

Sep 17, 1500Z-2359Z, N7GV, Sahuarita, AZ. Green Valley Amateur Radio Club. 7.260 14.260. QSL. Richard Rogers, 15747 S Avenida Cuaima, Sahuarita, AZ 85629-8682. Celebrate the 75th birthday of the USAF from the Titan Missile Museum using the discone antenna used by Titan crews when the site was on alert. rcralb@aol.com or https://www.gvarc.us

09/22/2022 | 500th Anniversary of the Discovery of Arkansas State Capital - Little Rock

Sep 22-Sep 25, 1400Z-2300Z, K5A, Springdale, AR. Razorback Contest Club. 7.040 7.190 14.040 14.260. QSL. Razorback Contest Club, 3407 Diana St., Springdale, AR 72764. Commemorating the 500th anniversary of the discovery of the area which would become Little Rock, the Arkansas state capital. rccw5yo@cox.net

09/24/2022 | Celebrating the Launch of the USS Massachusetts BB59

Sep 24, 1400Z-2000Z, NE1PL, Fall River, MA. USNR. 20 meters 40 meters. QSL. Rick Emord KB1TEE, 135 Wareham st, Middleboro, MA 02344. Anyone can make contacts or come down and operate. We'll be on 20 and 40 meters and other bands as equipment and operators allow. www.ne1pl.org

09/24/2022 | The 100th Anniversary of the Krug Park Castle

Sep 24, 1700Z-2100Z, W0K, Saint Joseph, MO. Missouri Valley Amateur Radio Club. 14.188. Certificate. Brad Hurd, 3423 Pacific Street, Saint Joseph, MO 64507. This is a special event station to celebrate the 100th anniversary of the historical Krug Park Castle in St. Joseph, MO. We will operate mainly on 20 and 40 meters SSB and CW. Other bands and modes maybe utilized for the event. w0nh.org

09/24/2022 | Volcano Days Parkersburg WV

Sep 24, 1400Z-2200Z, W8PAR, Parkersburg, WV. Parkersburg Amateur Radio Klub. 14.225 7.225. Certificate & QSL. Jerry Wharton, 1722 20th. St., Parkersburg, WV 26101. Celebrating the early history of oil and gas exploration in the 1850"s. w8par.org

09/25/2022 | 242 Anniversary Muster at Sycamore Shoals on the Watauga River and march to Kings Mountain

Sep 25-Oct 7, 1700Z-1700Z, WR4CC, Elizabethton, TN. Carter County Amateur Radio Association. 3.900 7.075 14.290 21.350. QSL. Larry Davis, KM4RWO, 172 Carl Taylor Dr., Elizabethton, TN 37643. To help celebrate the gathering and march of men from the frontier that helped win The American Revolution. The march to Kings Mountain was 242 years ago in the year 1780. wr4cc.org

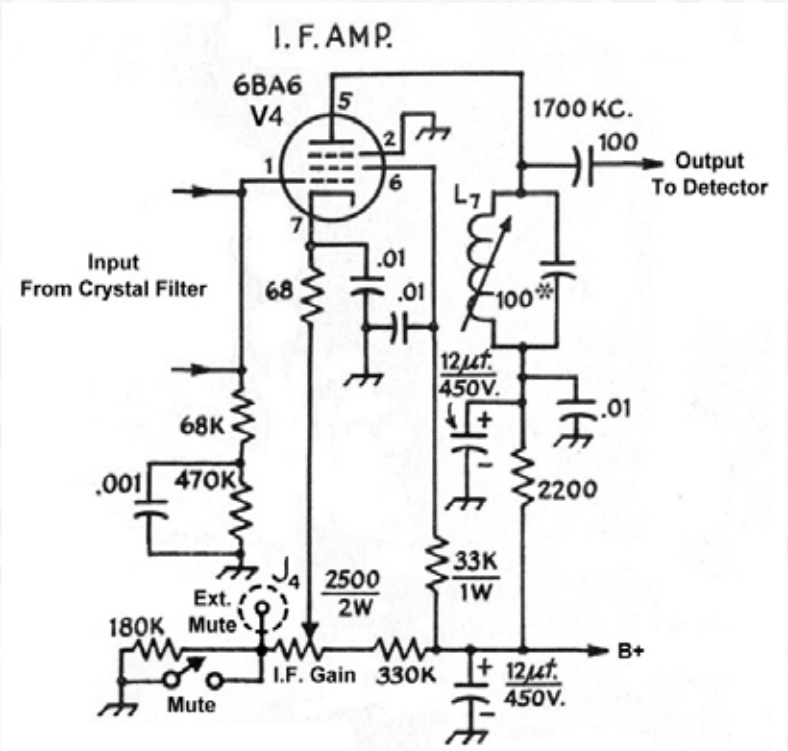
09/30/2022 | Smoky Mountain Amateur Radio Club 75th Anniversary

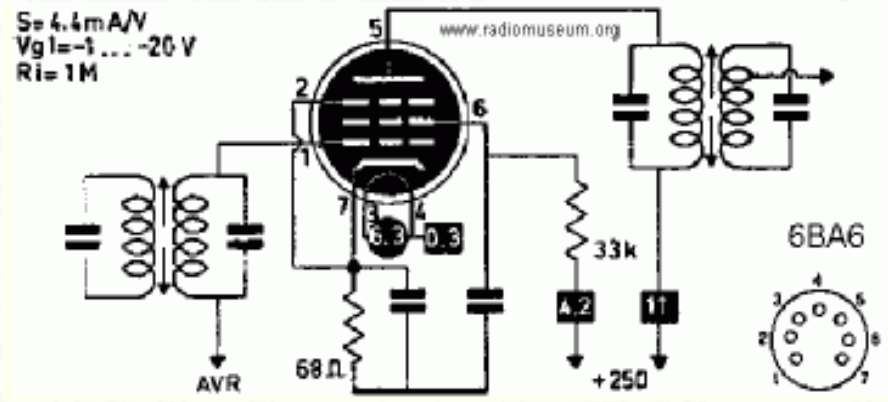
Sep 30-Oct 2, 0000Z-0000Z, W4OLB, Maryville, TN. Smoky Mountain Amateur Radio Club. 7.220MHz SSB 7.050MHz CW 14.250MHz SSB 14.090MHz CW. QSL. Paul Galentine, 103 Hatcher Ln., Maryville, TN 37803. W4OLB.org

09/30/2022 | Toccoa-Currahee Military Weekend

Sep 30-Oct 2, 1600Z-1400Z, W4T, Toccoa, GA. Currahee Military Museum. 1.945 3.885 7.270. QSL. Garret Scott, 10236 Birch Hill Lane, Knoxville, TN 37932. Military Weekend commemorating the training of WWII Airborne Troops at Camp Toccoa, Georgia. Parachute Infantry Regiments of the 101st and 82nd Airborne Divisions, and others, trained at Camp Toccoa, notably including the 506st PIR "Easy Company". All operations will be from original WWII radio equipment, including an SCR-177B/BC-191/BC-312, SCR-284/BC-654, SCR-694/BC-1306, SCR-536/BC-611, and SCR-511/BC745. AM and CW modes will be utilized. Radio operations will be conducted from living history encampments at the Toccoa Museum, Toccoa Courthouse, Camp Toccoa, and Currahee Mountain. WWII veterans are expected to participate in this event. w8bug.com/w4t

6BA6, Miniature Remote Cut-Off Pentode





Base	Miniatur-7-Pin-Base B7G, USA 1940 (Codex=Zia)
Was used by	Radio/TV-reception etc.
Filament	Vf 6.3 Volts / If 0.3 Ampere / Indirect / Specified voltage AND current AC/DC
Description	Remote cutoff pentode for RF/IF stages. Heater to cathode insulation initially specified for +/- 90 V max peak. Uprated to +/- 200 V from December 1959.

Electronic TUBES

6BA6—3BA6—4BA6—12BA6

PENTODE

FOR RF AND IF AMPLIFIER APPLICATIONS

6BA6
3BA6
4BA6
12BA6
ET-T897A
Page 1
11-56

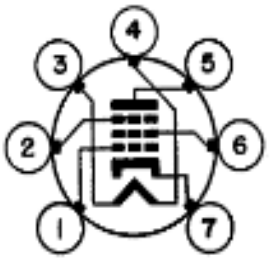
DESCRIPTION AND RATING

The 6BA6 is a miniature remote-cutoff pentode primarily designed for use as a high-gain radio-frequency or intermediate-frequency amplifier. Features include small size, low grid-plate capacitance, and high transconductance.

Except for heater ratings the 3BA6 and 4BA6 are identical to the 6BA6. In addition, they incorporate a controlled heater-warm-up characteristic which makes them especially suited for use in television receivers that employ series-connected heaters.

The 12BA6, which differs from the 6BA6 only in heater ratings and heater-cathode voltage ratings, is especially useful in a-c/d-c radio receivers.

BASIC DIAGRAM



RETMA 7CC

GENERAL

Electrical

Cathode—Coated Unipotential

	3BA6	4BA6	6BA6	12BA6	
Heater Voltage, AC or DC	3.15	4.2	6.3	12.6	Volts
Heater Current	0.6	0.45	0.3	0.15	Amperes
Heater Warm-up Time*	11	11	....	...	Seconds

Direct Interelectrode Capacitances

	With Shield†	Without Shield	
Grid-Number 1 to Plate, maximum	0.0035	0.0035	μμf
Input	5.5	5.5	μμf
Output	5.5	5.0	μμf

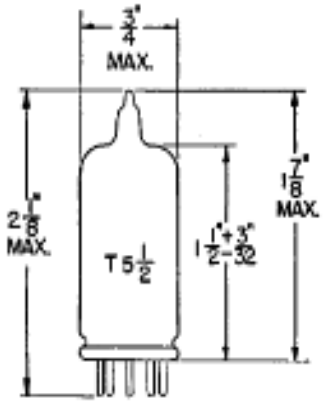
Mechanical

Mounting Position—Any
Envelope—T-5½, Glass
Base—E7-1, Miniature Button 7-Pin

TERMINAL CONNECTIONS

Pin 1—Grid Number 1
Pin 2—Internal Shield and Grid Number 3 (Suppressor)
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Grid Number 2 (Screen)
Pin 7—Cathode

PHYSICAL DIMENSIONS

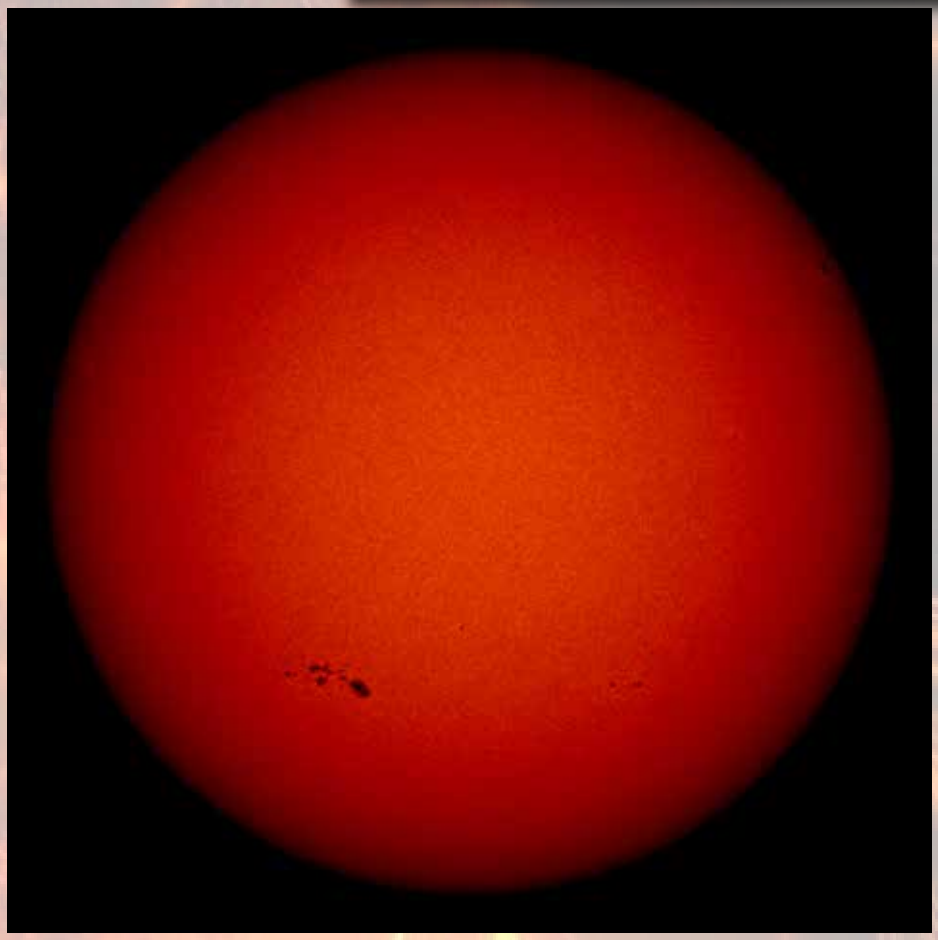


RETMA 5-2

GENERAL ELECTRIC

Supersedes ET-T897 dated 9-54

K7RA Solar Update



On August 18 a new sunspot group emerged, another on August 21, then two more on August 23, and three more on August 25, when the sunspot number jumped to 94 from 46 the previous day. Total sunspot area more than doubled from Wednesday to Thursday.

Solar activity overall was down slightly for the reporting week, August 18-24, with average daily sunspot number declining from 60.8 during the previous seven days to 58.7, and average solar flux from 123.7 to 104.5.

Planetary A index changed from an average of 11.7 to 12.6, and middle latitude A index measured at a single magnetometer in Virginia was 11, after an average of 10 last week.

As an indicator of rising solar activity, a year ago this bulletin reported average daily sunspot number at 17.7, 41 points below this week's report.

The Thursday night forecast from the 557th weather wing at Offut Air Force Base shows a probable peak of solar flux for the near term at 130 on September 11 and again on October 8.

Predicted solar flux is 120 on August 26-27 (up from 105 in the previous day's forecast), 115 on August 28, 110 on August 29-31, 115 on September 1-2, 116 on September 3-4, 112 on September 5, 108 on September 6-7, then 115, 120, 124 and 130 on September 8-11, then 128, 120, 118, 105 and 102 on September 12-16, 98 on September 17-18, 96 on September 19-21, 94 on September 22-24, then 92, 98 and 100 on September 25-27, then 108, 114, 116 and 116 on September 28 through October 1.

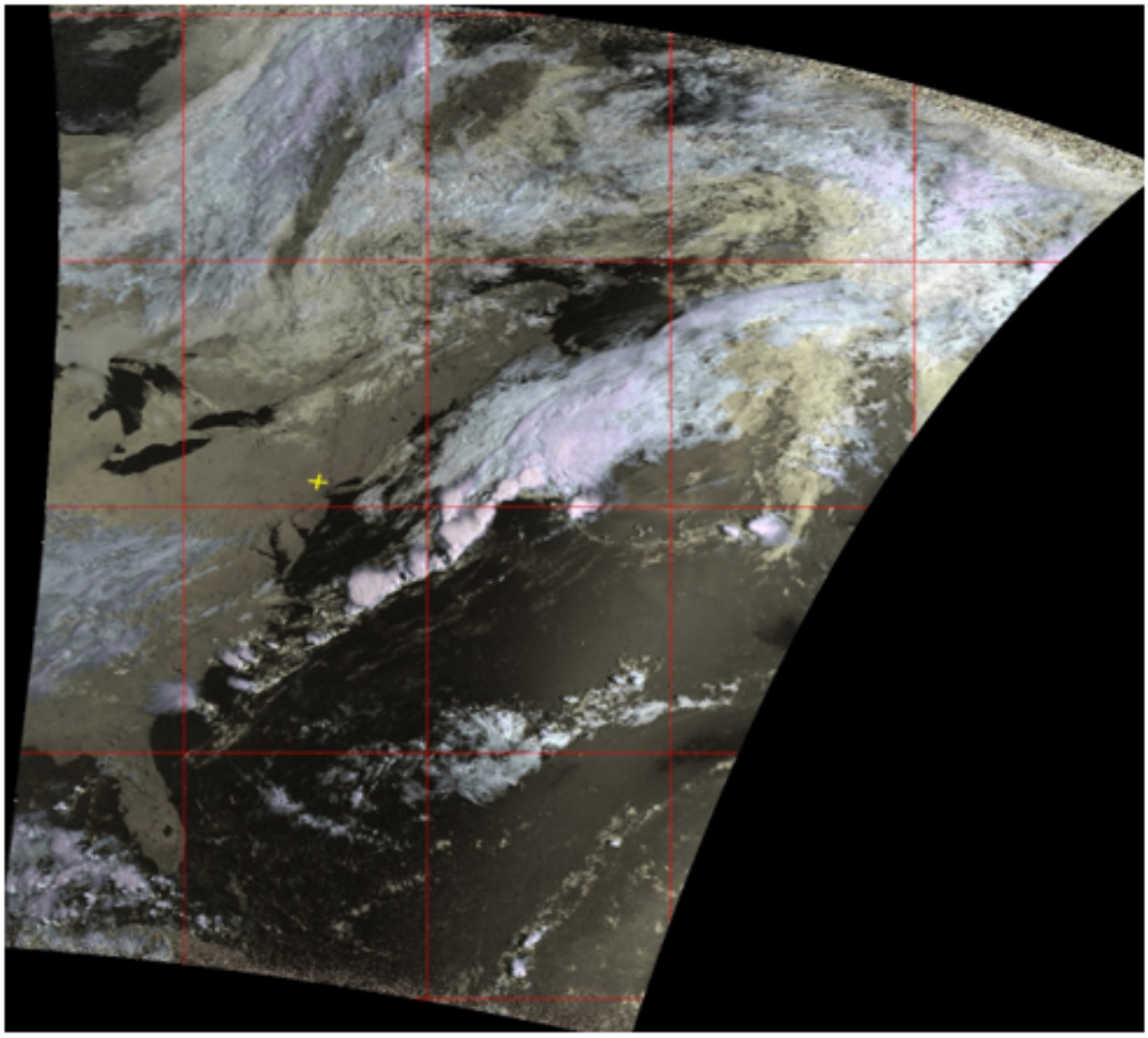
Predicted planetary A index has some surprises in store, at 5 on August 26, 8 on August 27-28, 10 on August 29, 5 on August 30-31, 8 on September 1-2, then jumping way up to 30, 38 and 20 on September 3-5, then 15, 18, 10, 12 and 8 on September 6-10, 5 on September 11-12, then 12, 15 and 10 on September 13-15, 8 on September 16-17, then 25, 15 and 8 on September 18-20, 5 on September 21-22, 12 on September 23, then 8 on September 24-26, 5 on September 27-29, then back up to 30, 38, 20, 15 and 18 on September 30 through October 4, an apparent echo of the prediction for September 3-7.

The above predictions were from USAF forecasters Easterlin and Sadovsky.

EPARA SATComm – Getting weather images for ECOM purposes de KD2FTA

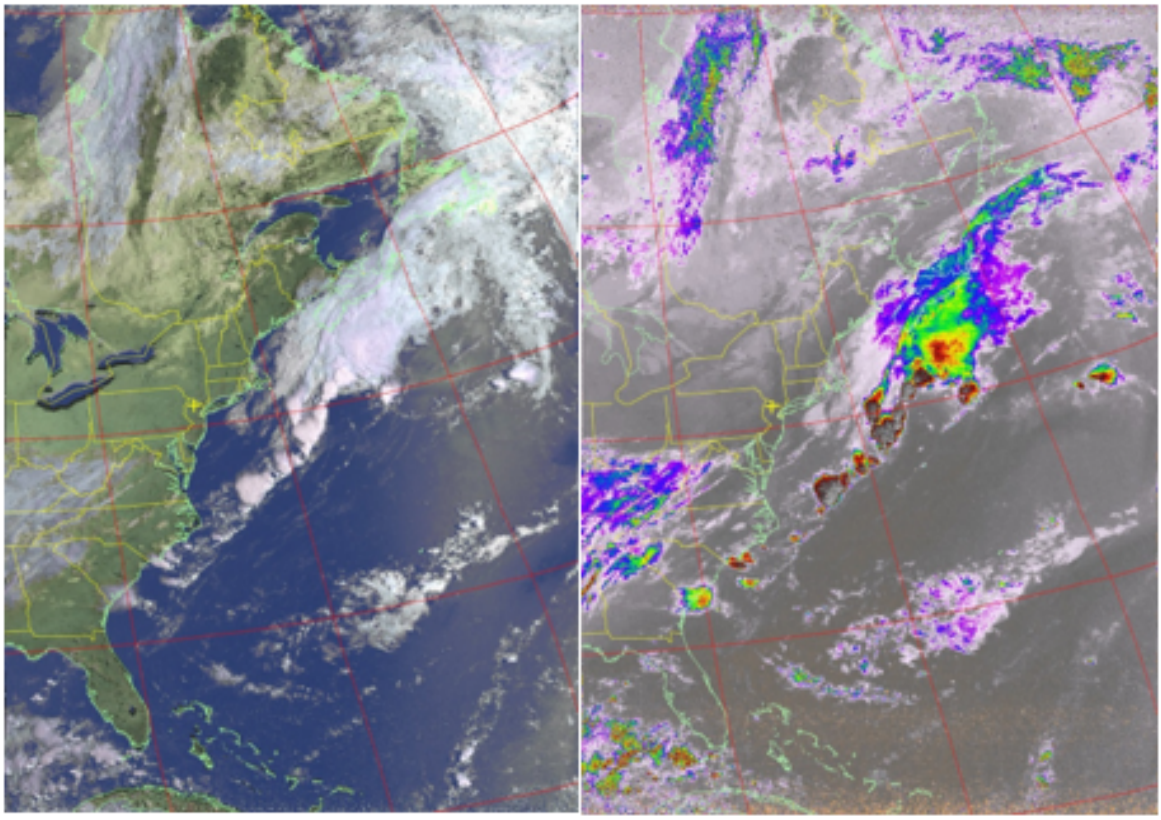
On some rare occasions when all regular commercial radio and cable networks go off line due to a natural disaster, most HAMs already have a way to do emergency communications.

However did you know that even with the most basic FM handy talkie you can receive weather images from three NOAA satellites that pass twice daily overhead? In the event of severe weather, gaining access to weather images may be just as important, as having a "Go Kit" for ECOM activity. Why is that so? When a line of severe thunderstorms are coming with a front capable of knocking out power, or severe snow squalls and cold fronts are coming, having this visual capability can help.



NOAA 15 Equidistant East Coast Image July 30 2022

NOAA has launched several weather satellites over the past three decades. The three NOAA satellites that are the easiest to capture images from are NOAA 15, 18, and 19. The oldest being NOAA 15 which was launched by NOAA in May 1998 with an original operational time of two years. However, the satellite as of 2022 was still fully operational.



NOAA 15 Images. On the left is a false a color image. The image on the right shows the same area on the east coast showing cloud temperatures, with precipitation probability

From the NOAA Website

"Launched in 2005, the NOAA-18 satellite contained similar instruments as the NOAA-17, its contemporary that would fly around the world during the morning hours; NOAA-18 would take over for the other half of the day. Notable equipment upgrades include the **COSPAS-SARSAT SARP instrument[‡].** While still operational, several instruments aboard the NOAA-18 satellite have failed, including the OAA-18 MIMU laser gyros and AVHRR imagery (while usable, has geolocation errors.) NOAA-18 changed frequencies with NOAA-19 on June 23, 2009, and is now the secondary PM satellite to supplement NOAA-20 operations".

"NOAA-19, also known as NOAA-N-Prime, was launched in 2009 after suffering manufacturing mishaps in 2003 that cost the U.S. government $135 million to correct. The NOAA-19 satellite contains an advanced version of the SARP instrument (SARP-3), but not the NOAA-18's DCS system. The AVHRR and AMSU systems were both designated for a three-year mission. As of 2022, all instruments aboard the

satellite are operating at optimal conditions". To learn more about how the NOAA satellites capture images got to https://www.sciencedirect.com/topics/earth-and-planetary-sciences/advanced-very-high-resolution-radiometer. Careful…serious science content at that website, however you'll see these are also RF related, as the images are taken by radiometer.

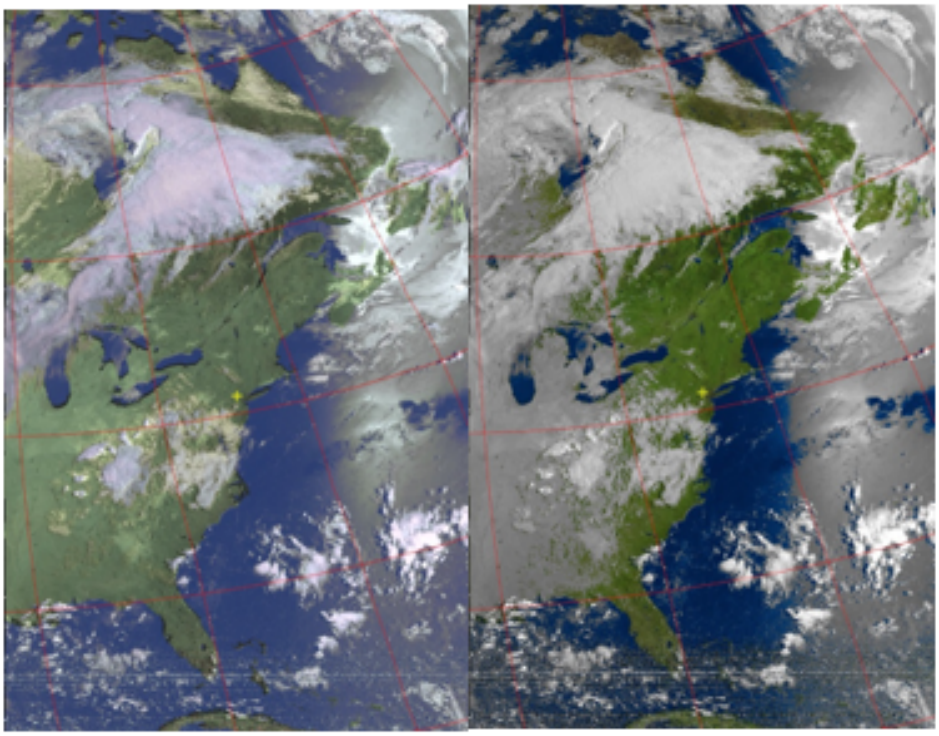
So how do you use a FM 2 meter radio to capture these images?

Connect the audio output of your HT or FM radio to your laptop audio input.

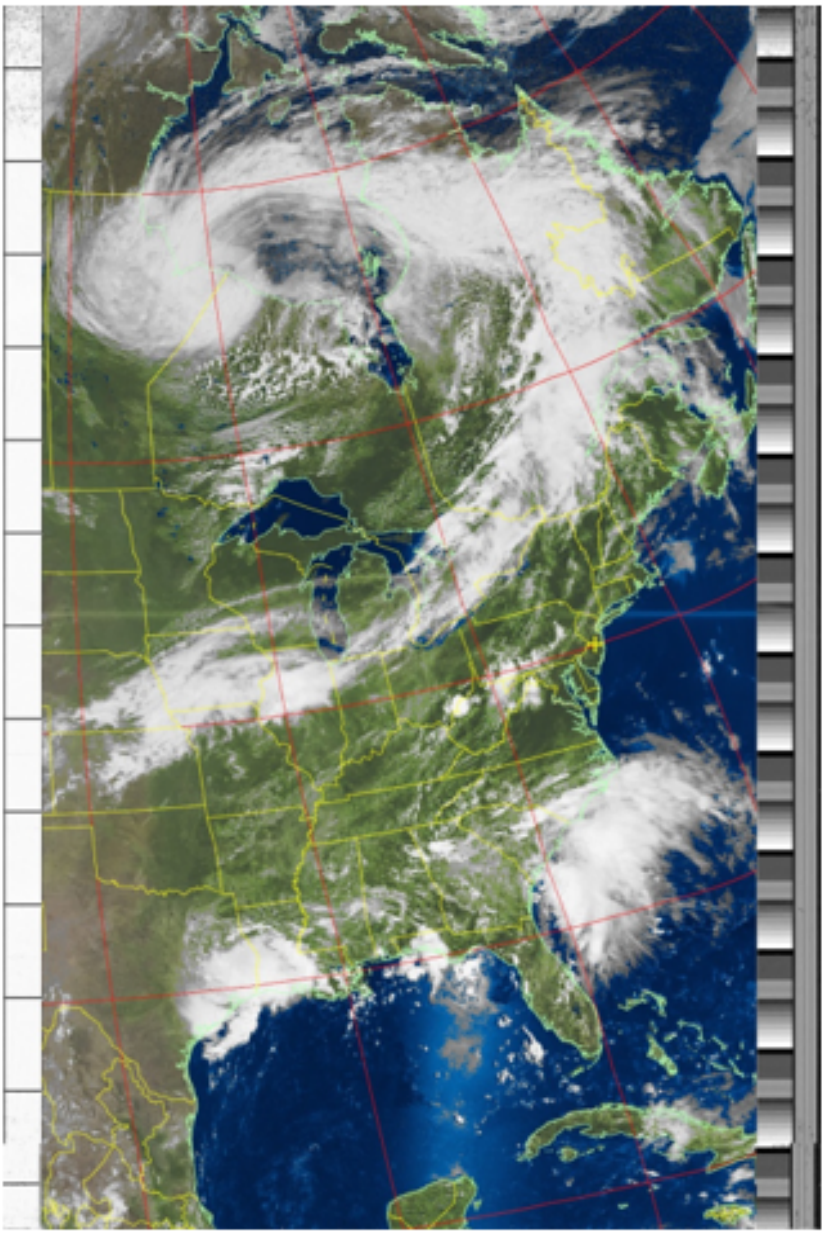
You'll need to download two pieces of software to capture these images. The NOAA Polar Orbiting Environmental Satellites (POES) use automatic picture transmission (APT), and so the RF will be translated into an audio signal which the software will decipher. The first piece of software to download is VB Audio Cable, which you can get for free at https://vb-audio.com/Cable/

The second piece of software is WXtoIMG. To download it, go to https://wxtoimgrestored.xyz/

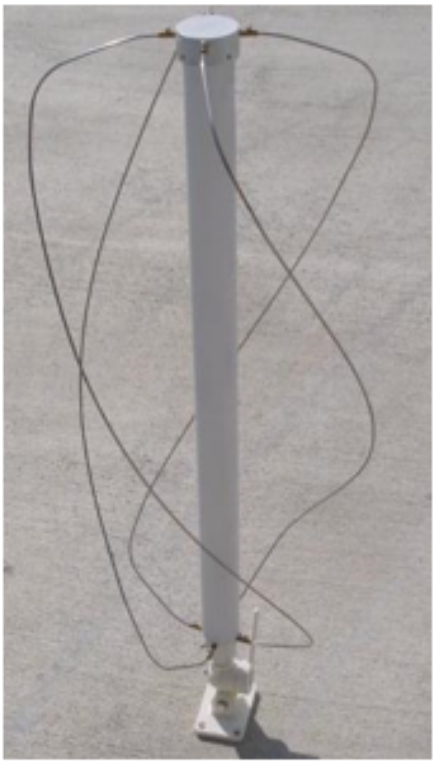
Read the information on the webpage, I use the beta version to create the various images.



Once installed the VB audio cable software will connect the audio from your HT or radio to WXtoIMG. The process is painless, although you'll get better images by reading the FAQ section of WXtoIMG text provided with the software once you start it for the first time. There are some calibration instructions you'll need to follow with WXtoIMG software, as well as some additional sound card setting to get the maximum utilization from the software producing useful images like the one shown here.



It pays to have an antenna that is tuned to the 137MHz frequencies that the NOAA satellites use. I use a Quadrifilar helix antenna made by National RF http://nationalrf.com/ . The reason this antenna works great is because the signals are right polarized signals and the design permits you to get crisp images.



National RF Quadrifilar Helix Antenna http://nationalrf.com/satellite-tenna.htm

I use my antenna as a mobile set up, raising the antenna 15 feet above the ground in an open field, but it can be used as a fixed base of operation. If you don't have an HT or FM radio, you can also use a software defined radio dongle (SDR) that you can attach to your laptop, utilizing the same software to receive the APT images. You'll need an SDR driver to control the SDR dongle. There are many but I use two to drive my SDR to tune the radio to the satellite frequencies, Cubic, and SDR++.

NooElec NESDrtee Dongle with a SAWbird LNA and broadcast FM filter

There are various SDR radios that can be bought for under $40. The NOAA satellites benefits from using a linear low noise amplifier (LNA) in line with the SDR radio, although the LNA should be placed as close to the antenna as possible. You can see and learn about SDR radios at this fine website: https://www.rtl-sdr.com/about-rtl-sdr/

I use the NooElec product specifically made for the NOAA birds. https://www.nooelec.com/store/

The NOAA LNAs are here: https://www.nooelec.com/store/catalogsearch/result/?q=noaa

The SDR radios are here: https://www.nooelec.com/store/nesdr-smartee-sdr.html

Finally, if you can't have a QFH (Quadrifilar Helix) or still want to capture images, then try a V dipole antenna built for the 137 MHz range. To build one go to: https://www.rtl-sdr.com/techminds-building-a-v-dipole-for-weather-satellite-reception/ to see how its built.

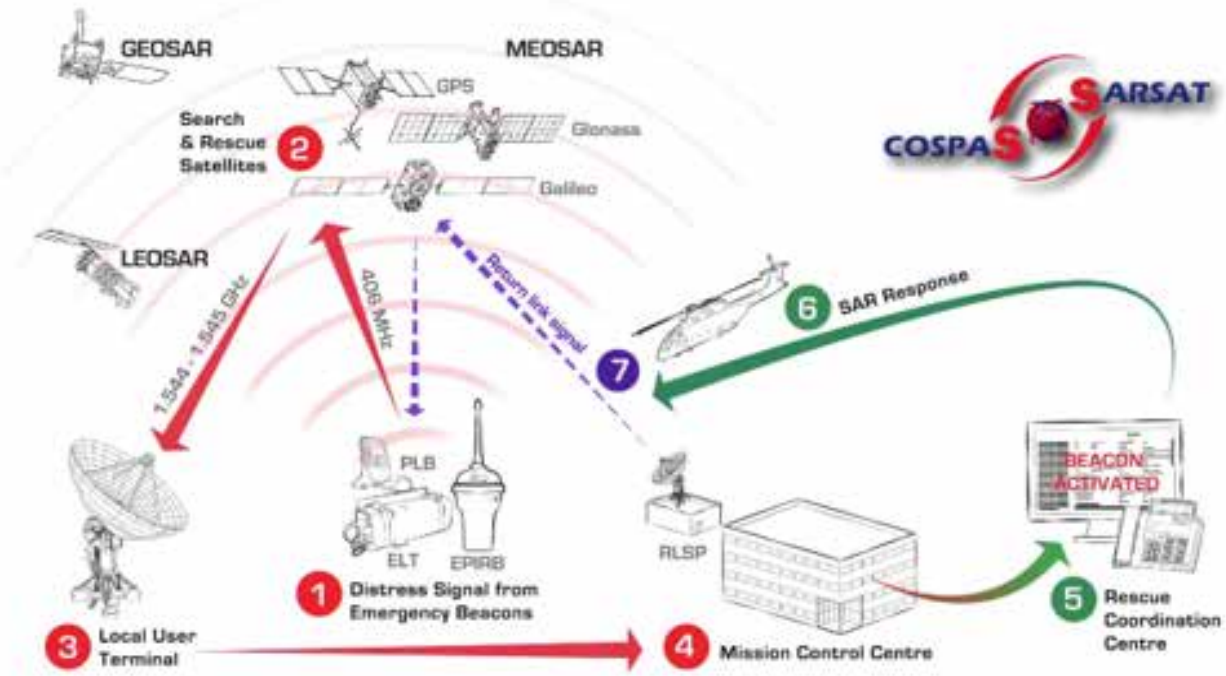
The NOAA Satellite Frequencies are:

- NOAA 15 - 137.6200 MHz
- NOAA 18 - 137.9125 MHz
- NOAA 19 - 137.1000 MHz

It's best to set the operating bandwidth to 40 KHz wide to account for Doppler shift. Finally to know when the birds will fly over got to https://www.n2yo.com/, and use the search tool to type in NOAA 15 or 18, 19 to see when they'll be overhead. I hope you'll find this information helpful.

73 de KD2FTA

*** COSPAS-SARSAT SARP instrument** – What is it? It's a way to do search and rescue using satellites. In the case of NOAA 18 COSPAS-SARSAT SARP instrument, was installed to help persons in distress.



R. Evans Wetmore, K3VFA

1609 Fifth St., Manhattan Beach, CA 90266; evansw@me.com

Satellite Link Calculations

Satellite link data includes gain-to-temperature ratio and effective isotropically radiated power.

There has been a clear rise in satellite activity, but there has been little about link calculations that can reveal the viability of both satellites and earth stations in making successful communications. These calculations show how good satellites and earth stations need to be for success.

In General

Link calculations are normally done using decibels, which greatly ease the math required. Also, by convention, power levels are normally stated with respect to a watt, *e.g.*, dBW. With amateur satellites allowance must be made for the constantly changing path length and Doppler shift. We will not address that in this article, since these time-varying parameters are different for each satellite/earth station configuration.

As with any communication channel consideration must be made for the received power and for noise. With these parameters, carrier-to-noise may be readily determined.

Received Power

Received power is set by combining transmit power, path loss, and receive and transmit antenna gains. Specifically:

$$P_r = P_t + G_t - L_p + G_r \quad (1)$$

where:

P_t = transmitter power output (dBW)
G_t = transmit antenna gain over isotropic (dBi)
L_p = path loss (dB)
G_r = receive antenna gain over isotropic (dB)
P_r = received power (dBW).

The antenna gains should include any feed line losses. Adding P_t and G_t yields *EIRP* (effective isotropically radiated power) in dBW. This makes **Eq (1)**,

$$P_r = EIRP - L_p + G_r \quad (2)$$

The path loss between two unobstructed antennas is:

$$L_p = 20\log(f) + 20\log(r) + k_p \quad (3)$$

where:

L_p = path loss (in dB)
f = frequency (in MHz)
r = path distance (same units as k_p)
k_p = –27.55 dB if r is in meters.
k_p = –37.87 dB if r is in feet
k_p = 32.45 dB if r is in kilometers
k_p = 36.58 dB if r is in statute miles.

Noise

Using linear values, the rms noise power in the received signal is:

$$P_n = k_B T b \quad (4)$$

where:

P_n = noise power, W
k_B = Boltzmann constant (1.38×10^{-23} J/K)
T = noise temperature (K)
b = bandwidth (Hz).

Eq (4) can be restated in decibels:

$$P_{n,dBW} = k_{B,dB} + T_{dB} + b_{dB} \quad (5)$$

where:

$P_{n,dBW}$ = noise power, dBW
$k_{B,dB}$ = Boltzmann constant (10 log(k_B))
b_{dB} = bandwidth (10 log(b)).

The receiver noise temperature T in kelvin is directly related to the receiver noise factor by:

$$T = 290(n_f - 1) \quad (6)$$

where:

n_f = noise factor (linear value)

Noise figure N_f is noise factor n_f expressed in decibels, so,

$$n_f = 10^{N_f/10} \quad (7)$$

The overall system noise temperature T_{sys} in kelvin is:

$$T_{sys} = T_A + T_{AP}\left(\frac{1}{\eta_1} - 1\right) + T_{LP}\left(\frac{1}{\eta_1} - 1\right) + \frac{T_R}{\eta_1} \quad (8)$$

where:

T_A = temperature received by antenna (K)
T_{AP} = antenna physical temperature (K)
T_{LP} = transmission line physical temperature (K)
T_R = receiver noise temperature (K)
η_1 = antenna efficiency (between 0 and 1)
η_2 = transmission line efficiency (between 0 and 1).

G/T Figure of Merit

G/T is a figure of merit for the receiving part of a link, *i.e.*, an earth station or the receiving part of a satellite. *G* refers to the receive antenna gain less any losses between the antenna and the first age of amplification. *T* refers to the overall system noise temperature, T_{sys}. Note that the noise bandwidth *b* is not included in the *G/T*.

From the above equations, it can be seen that,

$$P_r - P_{n,dBW} = \frac{C}{N} \quad (9)$$
$$= \frac{G}{T} + EIRP - L_p - k_{s,dB} - b_{dB}$$

where:

C/N = carrier to noise ratio (dB)
G/T = gain to temperature ratio (dB).

By rearranging terms in **Eq (9)**, one can easily calculate the required performance of a satellite or an earth station satellite performance is limited, which makes its *EIRP* limited; this dictates how good an earth station *G/T* must be in order to achieve whatever *C/N* is needed for successful reception.

Normally the receive antenna gain of an earth station is specified along the antenna boresight. However, with a satellite this is not practical because the receiver site on the ground is often not along the satellite antenna boresight. Therefore, for satellites a two-dimensional *G/T* plot is made, thus reflecting the changing antenna gain with respect to the boresight gain.

An Illustrative Example

Consider a 2 m downlink from a satellite with an *EIRP* of 0.5 W. What sort of earth station is required for CW and SSB reception? The values used in this example are for illustration only.

Here are the known parameters:

distance between the earth station and the satellite will be from 400 km (52.04 dB) to 1000 km (60 dB).

- **frequency** downlink is 146 MHz (43.29 dB).
- **satellite** *EIRP* is 0.5 W (–3.01 dBW).
- **CW: *C/N* and required bandwidth** is 500 Hz (26.99 dB), and *C/N* is 5 dB.
- **SSB: *C/N* and required bandwidth** is 3000 Hz (34.77 dB), and *C/N* is 20 dB.

Using the above values we calculate the path loss for the two distances:

$$L_{p,400km} = 43.29 + 52.04 + 32.45$$
$$= 127.78 \text{ dB}$$
$$L_{p,1000km} = 43.29 + 60.00 + 32.45$$
$$= 135.74 \text{ dB}$$

- For *C/N* = 5 dB, 400 km, 500 Hz:

$$5 = \frac{G}{T} - 3.01 - 127.78 + 228.6 - 26.99$$
$$\frac{G}{T} = -65.82 \text{ dB}$$

- For *C/N* = 5 dB, 1000 km, 500 Hz:

$$5 = \frac{G}{T} - 3.01 - 135.74 + 228.6 - 26.99$$
$$\frac{G}{T} = -57.86 \text{ dB}$$

- For *C/N* = 5 dB, 400 km, 3000 Hz:

$$5 = \frac{G}{T} - 3.01 - 127.78 + 228.6 - 34.77$$
$$\frac{G}{T} = -43.04 \text{ dB}$$

- For *C/N* = 5 dB, 1000 km, 3000 Hz:

$$5 = \frac{G}{T} - 3.01 - 135.74 + 228.6 - 34.77$$
$$\frac{G}{T} = -35.08 \text{ dB}$$

The most stringent *G/T* is –35.08 dB. If we assume a receiver system noise temperature of 600 K, then,

600 K = 27.78 dBK

$G - T = -35.08$

$\therefore G = -35.08 + 27.78 = -7.30$ dB

At first glance this would lead one to feel that an antenna gain of –7.30 dBi is adequate. There are two reasons why this will in all probability not be so. First, the *EIRP* from the satellite will not be a steady 0.5 W because the satellite antenna is not always pointing toward the earth station. This means additional *EIRP* degradation must be included. Second, another factor that degrades reception is the Doppler shift resulting from the relative velocity of the satellite with respect to the earth station. The effect of Doppler shift will depend on the receiver design.

Some Final Thoughts

The most difficult factor to calculate is noise. From attenuation, antenna side lobes, the warmth of the Earth and the sky, and so on. For most amateur satellite links, an approximation is all that is needed.

Amateur satellite data should include *EIRP* and *G/T* as a function of the compound angle from the satellite. This information will make link calculations possible. Of course, to this data must be added the degradation caused by the dynamics of the satellite itself in orbit.

Evans Wetmore, P.E., K3VFA, a ham since the 1960s,holds an Amateur Extra class. Prior to his retirement, Evans was Senior Vice-President, Advanced Engineering of the Fox Technology Group. As such he was responsible for engineering and technology for Digital Cinema for Twentieth Century Fox and for FCC and antenna work for Fox Television Stations. He began his career at PBS where he helped engineer and deploy the first nation-wide satellite television distribution system. In 1979 he migrated to Hollywood to work on Special Effects on Star Trek the Motion Picture, Brainstorm, and Bladerunner. He is a Fellow of SMPTE and an Associate Member of the ASC. He authored the Optical Formula section of the ASC Handbook. Evans holds multiple patents and is a registered professional engineer in North Carolina and California. He got his degree in Electrical Engineering from Duke University.

Credit: https://www.arrl.org/files/file/QEX_Next_Issue/2022/09%20SepOct/09%20Perspectives.pdf

Weekend Antennas No. 3

Weekend Antennas No. 3
A Magnetic Slot for 40 Metres

As we approach the solar cycle minimum, the lower frequency bands become increasingly important for DXing. Many amateurs use wire antennas on the 40m band and below, typically the horizontally polarized dipole and its variants such as the inverted V, W3DZZ and G5RV.

One of the limitations of all horizontally polarized antennas is that the elevation angle of maximum radiation depends largely on the height of the antenna above ground – in general, the higher the antenna above ground, the lower the angle of maximum radiation. Since effective DX communication requires a low takeoff angle – typically around 10 degrees or so – horizontally polarized antennas that are intended for DX communication should be mounted as high above ground as possible, preferably half a wavelength or higher. This poses a problem for the low bands, since raising an antenna half a wavelength above ground on the 40m band requires a support about 20m high, which is more than many amateurs can manage. The required height becomes quite excessive on the 80 and 160-metre bands.

This is not to say that horizontally polarized dipoles and their variants don't have their uses on the low bands. They can be very effective for local and middle-range communications, for example around South Africa. They just aren't great for DX.

Fortunately, vertically polarized antennas provide a good alternative for low-band DXing. Because ground reflections are in-phase for vertical antennas, they are capable of good performance at fairly low elevation angles (depending on the conductivity of the ground) even when mounted fairly low. Most vertically polarized antenna designs also have a null in the pattern overhead the antenna, which reduces the amount of energy that is radiated at high takeoff angles, allowing more to be concentrated at the low takeoff angles needed for DX. Vertical antennas are also less responsive to high-angle signals when receiving, which can help to attenuate local noise and QRM.

When most of us think of vertical polarization, the antenna that first comes to mind is the vertical monopole, especially in its quarter-wave vertical form, which is usually fed against ground on the lower bands (by this I mean that the braid of the coax is connected to ground, while the inner conductor is connected to the radiating element). This raises a problem of its own: ground is quite lossy at radio frequencies, so unless a good system of ground radials is installed, much of the power supplied to the antenna may end up warming earthworms instead of carrying your dulcet tones to distant continents.

Since installing an extensive system of ground radials sounds too much like hard work, my preference is to use a vertically polarized antenna that is *not* fed against ground, and avoid the need for ground radials at all! There are many types to choose from: "ground-plane" verticals, vertical dipoles, the half-square, and so on. My choice for this week's column is a vertically polarized rectangular loop known as the "Magnetic Slot" because it is simple to build, not too large (and especially not too

high), offers good performance with some gain, and has a feedpoint impedance of 50 ohms.

The Magnetic Slot

The Magnetic Slot is simply a rectangle one wavelength in circumference that is about three times as wide as it is high. In other words, it is a rectangle approximately 3/8 wavelength wide and 1/8 wavelength high. It is fed in the middle of one of the vertical sides, where the impedance is approximately 50 ohms. Figure 1 shows the layout of the antenna

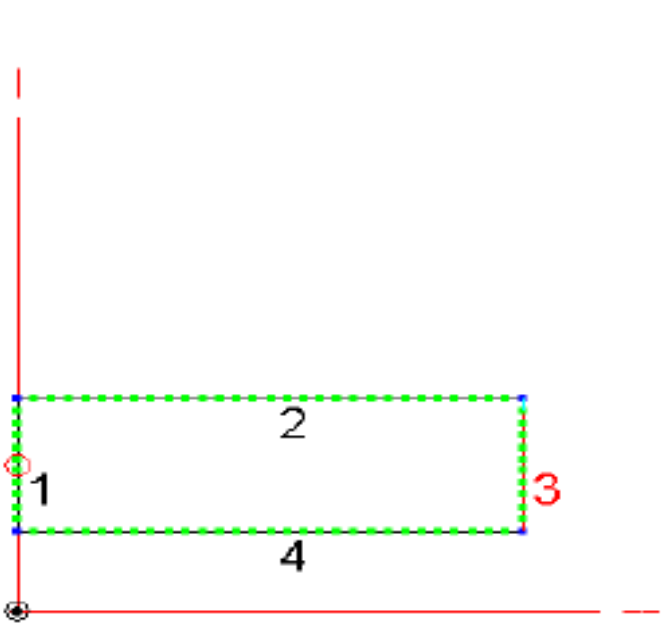


Figure 1: Layout of the Magnetic Slot Antenna

The figure was drawn using EZ-NEC antenna modeling software[1]. The rectangle represents the antenna wires, while the circle on the left hand vertical wire is the antenna feedpoint. The antenna functions as two 1/8 wavelength vertical radiators spaced 3/8 wavelength apart. The vertical wires carry in-phase currents, with a current maximum in the middle of each of the vertical wires. The currents in the horizontal wires change direction at the midpoint of the wires, where there are voltage maximums. As a result the radiation from the horizontal wires is largely self-canceling, so the radiation pattern of the antenna is dominated by the radiation from the vertical wires.

Note that the antenna is not shown right at ground level. As with all antennas, some distance from ground is desirable to minimize losses resulting from the antenna's near field causing currents to flow in the ground medium. In this case, the base of the

[1] www.eznec.com

antenna is 3m above ground, placing it high enough to minimize danger to people and animals. The top of the antenna is 8m above ground, a more realistic proposition for most amateurs than the 20 metres or so required by horizontal antennas.

The antenna pattern is bi-directional, with the strongest radiation at right angles to the plane of the antenna (in other words, "into the page" and "out of the page" in Figure 1). Figure 2 shows the elevation pattern of the antenna in its most favoured direction.

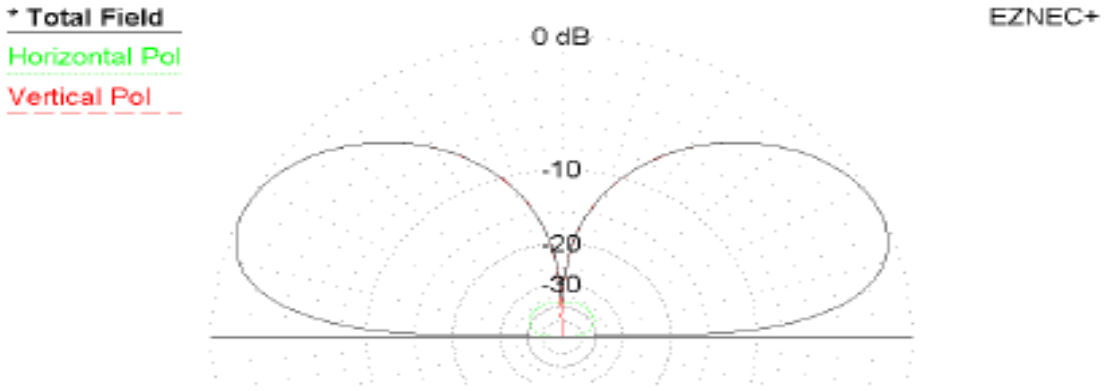


Figure 2: Elevation Pattern of the Magnetic Slot Antenna

The maximum gain is 1.8 dBi at an elevation angle of 25 degrees. The gain at an elevation angle of 10 degrees, which gives an indication of DX performance, is –0.6 dBi. Although this doesn't sound all that impressive, compare this with Figure 3, which shows the elevation pattern of a 40m half-wave dipole 8m above ground (the same height as the top of the magnetic slot).

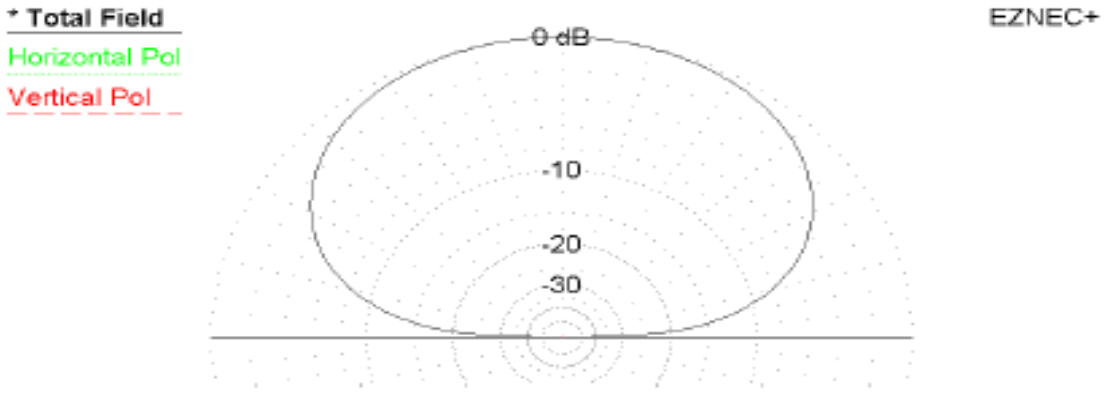


Figure 3: Elevation Pattern of a Low Horizontal Dipole

The maximum gain of the dipole is 6.0 dBi, which is considerably better than the magnetic slot's 1.8 dBi – but this maximum gain is at 90 degrees elevation, straight up! Gain at 10 degrees elevation is –5.3 dBi, some 4.7 dB worse than the Magnetic Slot. The dipole will perform well as a near vertical incidence skywave (NVIS) antenna for local communications, but the Magnetic Slot is a better choice at the low takeoff angles required for effective DX communication.

Weekend Antennas No. 3

Feeding the Magnetic Slot

Since the magnetic slot is a balanced antenna, a 1:1 balun should be used if it is fed with coaxial cable, to avoid the possibility of feed-line radiation. As with other antennas with low-impedance feedpoints, such as dipoles, you *may* get away without using a balun, depending on the common-mode impedance of the coax run you use to feed the antenna with. Unfortunately it is difficult to predict beforehand whether you need a balun or not. One simple test is to measure the SWR *using very low power* while a helper touches the coax at various points between the rig and the antenna. If the SWR changes at all, that is an indication that there is RF on the outside of the coax, and you should be using a balun. If the SWR remains constant, then you are probably all right without a balun.

Fortunately there are several simple ways to construct homemade baluns, especially for antennas like this one that only operate on a single band. If there's enough interest then perhaps I'll make this the subject for a future column.

Construction

All you need to build this antenna is 45m of suitable antenna wire, a centre insulator, cable ties, a couple of supports at least 16.5m apart and 8m high, and some nylon cord to attach the antenna to the supports. I used 1.5mm^2 insulated stranded "panel" wire, which is available at most electrical wholesalers. I chose green wire, which blends in nicely with the foliage.

Form the wire into a rectangle, with the short vertical sides 5m high. Attach the ends of the wire to the centre insulator, placed so the antenna is fed in the middle of one of the vertical sides (see Figure 1). Make one of these attachments temporary, so you can trim the antenna for best SWR (you can use a terminal block for the temporary connection, or simply twist the bare wires together). Tie nylon cord to the four corners of the rectangle; suspend it between the supports with the base at least 3 metres above ground; and connect the coax to the two ends of the antenna wire (with or without a balun). The coax should be led off at right angles to the antenna wires for at least 10m so it does not interact with them. Use cable ties to provide strain relief for the antenna wires and coaxial cable (see Figure 4).

Check the SWR at the bottom and top of the 40m band (I suggest using 7.001 MHz and 7.099 MHz as the test points to ensure you stay within the band limits). Hopefully the SWR at the bottom of the band will be lower than the SWR at the top of the band, indicating that the resonant frequency is too low and the wire too long. (If not, you may need to start over with a longer piece of wire!) Gradually shorten the wire, each time readjusting the corner points to maintain symmetry and keeping the two vertical sides 5m long and the horizontal sides equal lengths. Continue until the SWR at the top and bottom of the band is the same – you should be able to manage 1.5:1 or better across the whole band. (Of course the process is even easier if you have access to a low-power SWR Analyser and can find the frequency of lowest SWR even if it falls outside the amateur band.)

In my case, I tuned the antenna for the CW portion of the band, with SWR 1.1 from 7.000 to 7.040 MHz, rising to 1.4 at 7.100 MHz. The 1.5:1 SWR bandwidth is 200 KHz, about 3% of the centre frequency. This included the effects of the balun and a

40m run of RG58 coax. The total length of wire in the loop after trimming was 42.25m.

Remember to adjust the length of the antenna in *small* increments as you approach the desired resonant frequency – it's very frustrating to accidentally cut too much off the antenna and end up with an antenna that is resonant at 7.3 MHz, for instance! I cut in 10 or 20cm lengths as I approached the desired centre frequency – it takes a little longer, but avoids embarrassment.

When the SWR is acceptable across the whole of the 40m band, make the connections to the centre insulator and nylon cords permanent, ensuring that you have sufficient strain relief at the centre insulator for both the antenna wire and the coaxial cable. Waterproof the join between the coax and the antenna wire using self-vulcanizing rubber tape (Scotch number 23 or equivalent, available at hardware shops). Figure 2 shows detail of the feedpoint. Note the use of cable ties for strain relief. The second piece of coax is part of the homemade narrowband balun that I used with the antenna.

Figure 4: Detail of the Feedpoint

Construction, erection and trimming this antenna took me about five hours in total, so it makes a good weekend antenna project.

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:

_____

_____

_____

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