

November 2022
2022 Edition 11



Mount Vernon Amateur Radio Club



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MVARC Repeaters

- K8EEN VHF Repeater
146.790 MHz
- 600KHz / PL = 71.9 Hz
- K8EEN-R Echolink Node:
809800
- K8EEN UHF Repeater
444.600 MHz
+5 MHz / PL = 71.9 Hz



Club Meeting

The regular MVARC meeting is the 2nd Monday of each month at 7:00 pm.

The next club meeting is November 14, 2022.

Meeting Location:

Academy Building
790 Fairgrounds Road

Visit us on Facebook:

[Mount Vernon Amateur Radio Club](#)

Visit our Webpage:

<https://MVARC.net>

President's View

Frank Counts

KC8EVS



So far, we have had great weather to get outdoor projects finished prior to inclement weather that is sure to come. I hope you have been able to get out and work on those projects. I've been slowly building up my stamina. It has been a slow process, but I am making progress and have been able to get a few things done. I did make it to Florida and back. We were there to welcome in our 15th grandchild Eden Sage.

The bands have been in good shape and DX contacts are becoming more common. I've been having great fun hunting Parks on the Air stations. There are a great number of park activators, something that I will be doing now that I am more mobile and able to drive. Terry KI8N has been successfully activating several of the parks near here and on his trips. I hope to join in the fun soon. I'm trying out different antennas to see what works best for me. More as I get out and try to make my first activation.



Don W8PEN and I went to Bellville area and spoke to a group of folks interested in amateur radio. There were 20 to 25 people there, I did not count. They were very interested and had a ton of questions. We were there for a good hour and had a great time. We did walk away knowing that 9-10 people were interested in taking our class and getting their license. Michael is working on setting up and doing those classes starting soon.

Well, November is when we look for nominations for next year's officers. So, if you are interested in serving the club let me or one of the directors know and we will make sure your name is on the list somewhere.

That's enough for this month, hope to see you on the 14th at 7p. Or any Friday at 10a at McDonald's.

Meeting Minutes

Bill Stroud
KD8WHQ



The October 2022 meeting of the Mt. Vernon ARC was called to order at 7:03 pm by President Frank Counts, KC8EVS. There were 13 members in attendance.

Roger Gorrell KE8ICI
Michael Jacobs KC8HGE
Emery Bennett W8TW
Bill Stroud KD8WHQ
Steven Harvey N8RLW
Terry Windsor KI8N
Barry Butz N8PPF
Don Russell W8PEN
Scott Yonally N8SY
Frank Counts KC8EVS
Don Bunner KB8QPD
Wayne Bower WB8WB
Emery Bennett W8TW
Ralph Dunmire

The minutes for the September Meeting were presented and there was one change, the club decided to raffle one Baofeng HT radio at each of the next two meetings. The minutes were approved with this change.

The Treasurer's report was presented. There was a discussion about the post office box costing \$160 a year. Terry is going to look at Pakmail to see what their cost will be. The Treasurer's report was approved.

ARES

The exercise to go into the field at all the fire stations and Red Cross Shelters and see if we can communicate via the repeaters was held Sept. 24 at 9am. 6 members participated.

Repeater

The 2 meter (146.790 MHz) repeater was replaced with the old repeater. Steve is working on the new repeater and has it running for testing with the new controller. He hopes to replace the old repeater this month.

Mesh network and Echolink are both operational.

Old Business

Frank is still waiting to hear back from the city on the lease for the water tower. The city says that there is no issue with us using the water tower for the repeater without the lease being signed.

There was a discussion on the lease for the Academy Building. It was agreed that we would sign it as written. Steve Harvey made the motion and Scott Yonally seconded the motion. The motion passed.

Michael Jacobs is working with the hospital to get us access to the 440 repeater any time we need to work on it.

Frank reminded everyone that it is time for election of officers and directors. No one spoke up at this time.

The results for OSPOTA were in last months newsletter. Five members attended. They made a total of 75 contacts and 36 were with State Parks.

New Business

The radio room has been worked on. Some of the walls and floor still need painted. No date for the next work party was set.

“Don W8PEN and I went to Bellville area and spoke to a group of folks interested in amateur radio.” Frank, KC8EVS

The Fan Dipole antenna at the EOC needs put back up, one end is down.

Frank was approached by people at Whitaker Farms to have a Tech Class. They have several people wanting to get their license.

Friday breakfast will now be at McDonalds on Newark Rd. at 10 am.

There was a discuss on VEC testing ARRL vs. Laurel. It is being looked into to see the advantages and disadvantages of both.

The meeting was adjourned at 8 pm. Motion made by Steve Harvey and seconded by Scott Yonally.

Adjourn

ARES

Terry Windsor KI8N



This month was quiet regarding out involvement in ARES activities. Knox County EMA, Mark Maxwell, is working on a new Communications Annex B for their Emergency Operations Plan

and I have been reviewing it to ensure amateur radio is still a part of the plan.

With the club room coming together it will be time to try the Tuesday night OHDEN net from there. This would prove we can do digital communications and be able to pass messages when we might be activated.

Of course we all need to be trained on how to use FLDIGI and passing messages. We can discuss this at the November meeting .

I have emailed EMA regarding the fan dipole on the roof of the Sheriff's building. Mark has to arrange time with maintenance personnel to get us access to the antenna. The antenna is hanging down and needs to be put back up and tested. Hope to hear from Mark soon.

If you have any ideas you would like to test/perform for an ARES exercise please email me or let me know at one of the meetings.

Just to let you know we had five Sunday night ARES nets in October with a total of 19.5 hours of overall involvement. Then I participated in one OHDEN net this month which added another hour of participation. My ARES report this month had 20.5 hours and six events.

Stay Safe everyone!



Power Pole Polarity Checker

Frank Counts
KC8EVS



Just wanted to show a simple project that I threw together, and it works! You know it is simple because I was able to put it together. I saw it over the summer when I had quality and quantity of time to do nothing but moan and read. It was in the January 2021 issue of ARRL's On The Air.

(NOTE: If you would like to have the article Terry, KI8N can email it to you.)



I started with this.



Ended with this.

This is a good polarity indication



This is a bad polarity indication



MVARC Membership

It is that time of the year to renew your membership in MVARC. The membership form is below.

MVARC Membership Form

Club dues run from January 1 to December 31 and are collected the last quarter of the year. You can mail your dues to the address shown below, bring them to a meeting, or give them to any club officer. Visit our web page at www.mvarc.net for further club information.

Regular membership dues are \$20.00. Dues are \$15.00 for those over 65 years of age, additional members in the same family, or who do not hold an active FCC amateur radio license.

**Mount Vernon Amateur Radio Club
812 Coshocton Avenue
PMB #145
Mount Vernon, Ohio 43050**

Name: _____ Call Sign: _____

Street or PO Box: _____

City: _____ State: _____ Zip: _____

Phone: _____ License Class: _____

Email Address: _____

ARRL Member (Y/N): _____ Donation (Optional) _____

Suggestions for possible meeting programs:

NOTICES

MVARC has a new a new mailing address!

Mount Vernon Amateur Radio Club
812 Coshocton Avenue
PMB #145
Mount Vernon, OH 43050

NOTE: When sending mail to this address the PMB and # must be used.

Our mail will now be delivered to PakMail instead of the US Post Office. The mail is available 24 hours a day and packages will be held but can only be picked up during PakMail office hours.

Club Membership

It is time to renew your MVARC yearly dues. Regular club dues are \$20.00, over 65 is \$15.00 and also \$15.00 for second family members or those do not hold an active FCC license. The renewal form is on page 7 of this newsletter.

Ohio State Parks On The Air (OSPOTA) Results

The final results for 2022 OSPOTA have been posted; [Results](#)

Our category was MSL; Multi Op-Single Radio—Low Power—In a park. This is shown on page 5 of the results document.

Club Officer Elections

Do you have a desire to be more active in club activities? Have new or different events or ideas?

It is that time of year to see who is interested in holding an office within MVARC.

The following are available in the next officer elections;

President
Vice President
Secretary
Treasurer
Directors

Either speak up at the November meeting or send an email to admin@mvarc.net if you are interested in becoming more involved.

Radio Active

Don Russell

W8PEN



The month of October was an interesting and busy month for a few of our club members.

The group working on the club room finally completed the painting.

Walls were washed down, primed, and painted white. The floor was painted grey. The room is nice and bright. An Off Center Fed (OCF) antenna was installed in the attic. It fit perfectly. The attic itself is 135 feet long or so. The antenna was about the same size. This means we have a horizontal antenna in the attic that is 30 or 40 feet above ground. Nice.



SWR on the antenna was excellent on 40 – 6 meters. On 80 meters, SWR is about 1.5:1 in the CW portion of the band, but a bit high on the SSB portion of the band. The club's new Icom IC-7300's internal antenna tuner will tune just fine up to about 3.740 MHz. Anything above this frequency requires an external antenna tuner. I did try to shorten the antenna to get the resonant frequency a bit higher for you SSB guys; but everything I tried messed up the SWR on the other bands. So I decided we could live with a higher SWR on 80 meters if all the other bands were good.

I tested the antenna with my friend Lynn (KG8D) from Monroeville, Ohio on 80 meters. Signals were 20 db over S9 both ways. The same as from my home QTH. Verdict is that the antenna works very well indeed.

Lynn did mention an echo while I was talking. Pretty sure no one wants to hear what I have to say a second time! I think the solid walls and cement floor bounces sounds around a little bit. Not sure if we can compensate for this with an area rug to absorb some of the sound, or if this would be a simple microphone gain adjustment. Another option may be a wall divider placed around the station. Time will tell.

Steve (N8RLW) has donated two new tables or computer desks in which to set up our two stations: One for HF and One for VHF/UHF FM/Digital.

Even though we have only one HF antenna, I would like to set up two HF stations by putting the club's Kenwood TS-570D in operation. The Kenwood would not need an external antenna tuner to cover the entire 80 meter band. We can switch the antenna between the two stations as needed. I suppose we could use an antenna switch, but I hesitate to use an antenna switch between two transmitting units. Seems to me you are just asking for trouble by doing so. There is already a small desk in the room, so a second HF station should be feasible.

In addition to the HF antenna in the attic, the club has a dual band VHF/UHF antenna in the attic as well. We used this antenna last month when doing a communications test for ARES. While the antenna performed okay, I think it would work better placed outside. Perhaps on a chimney mount or a non-penetrating roof mount on the flat roof.

However, with the dual band antenna we can get into both local repeaters without a problem. It is simplex where we are lacking. Guess I should leave well enough alone.

Now that we have a club station, we need to see just how well it works. The November Sweepstakes, SSB is coming up on Saturday November 19th starting at 4:00 PM and ending Sunday, November 20th at 10:00PM. I think the club should do a multi-op station for this event.

I will have more information about the November Sweepstakes at the November club meeting. I will bring a schedule so that we can schedule operators for the event. That way club members can have the weekend free except when scheduled to operate.

There are other contests coming up as well.

Again, let's talk about it at the November meeting.

Club Repeaters

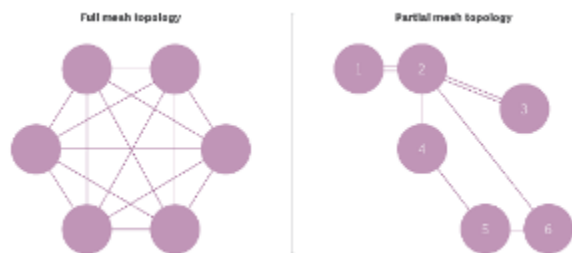
All is well on the repeater front.

On 2 meters we are simply waiting for Steve and Roger to install the new repeater controller and Yasue DR-1X. This should happen sometime this month (November).

Echolink has become very reliable after switching out computers.

The 70 cm repeater is working well. Wires-X has been working flawlessly.

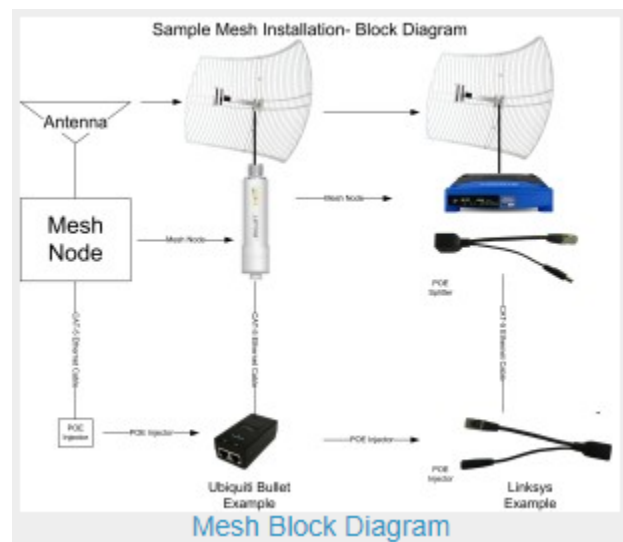
Local Mesh Network



The Mesh Network continues to chug along without issues. Well, the 5 GHZ node at the

parking lot on the square is down due to an upgrade failure. I need to go to the site and manually reboot the node. However, it is simply a backup and does not really affect the Mesh network much, so I procrastinate. I do need to update the firmware on all the nodes. I have hesitated to do so because the last firmware update caused some problems. I was waiting for those issues to be fixed before trying again. Hopefully, once I start upgrading all the nodes, I can get the one down node up and running again.

I have also put the Phone PBX back online. It is working well between my two phones at home. I am not sure who I gave phones to, so anyone who has a mesh phone should let me



know so I can add their phone to the new system.

Currently, I have two phones. One set up as a test phone and the other one for general use by me. There is a mesh phone at the 2 meter repeater site, but I may have it unplugged. I will have to check on that.

Adding a node at Centerburg and Fredericktown are still in limbo. The Centerburg site is my fault. We have permission to put a node up. I just have not had the ambition to organize the project.

As always, I have a standard offer. I have several nodes available, and I am willing to get these set up at any club members home that wants to participate in the Local Mesh Network. All I ask is that you commit to leave the node on 24/7. You must also be within range of one of our main nodes and be able to get the node antenna up twenty or thirty feet. The higher the better.

While the nodes need to be connected to a computer for operator access, it does not need to be connected to a computer full time. It will perform its duties as part of a Mesh Network without being connected to a computer. So, if you have only one computer, that is okay. Just hook it to the node when you want to access the local network.

The other thing I would like to do is assemble at least two “go box” nodes. These would consist of the node itself, antenna, computer, and mesh phone. Perhaps a video camera. Since the main use of the local mesh network would be ARES related, a go box node could be set up anywhere needed to provide service to a disaster area. If needed, several nodes could be strung together to access one of our main nodes.

If anyone has a laptop computer sitting around doing nothing and would like to donate to the cause, please let me know. It doesn't have to be the latest and greatest, but a laptop with a decent battery would be nice. I would put a small Linux operating system on it that would run a browser to access the nodes. That is all that is required. I would say if it can run Windows XP, then it could be used on the mesh network.

That's it for this month. Hope to see you at the November meeting. Hopefully we will have at least two stations set up in the club room.



Mesh Network Applications

- Field day logging
- Video (webcams)
- Phone (VOIP)
- File transfer (FTP)
- Chat
- Email
- Screen mirroring
- Web server (WX Station)
- Map server

Academy Building Club Room

Roger, KE8ICII, Don, W8PEN, and Terry, KI8N, have been putting in time to clean up, paint, and install antennas and radios in the new room. Roger has put in a lot of time getting the walls spackled, sanded, and painter. Him and Don painted the floor and now the room is ready for its reveal at the next club meeting. Here are a couple of pictures of the room as it is today. Be sure to thank Roger and Don for their time and effort.



Miscellaneous Rambling

Terry Windsor

K18N



Frank mentioned working Parks-On-The-Air (POTA) and in October I had 11 activations at seven different parks. Four of these parks

were new activations for me. I had a total of 427 contacts using SSB and FT8. One of the parks was outside Memphis, TN while we were camping and attending our granddaughters fifth birthday.

I mentioned last month I was starting to use the KX3 for more POTA activations and this month 4 of the parks were activated with this radio. It is amazing that I can get SSB contacts not only from all corners of the United States but also Europe using only 15 watts.

I found the KX3 is a great radio for taking on the motorcycle to activate parks. It fits in a small case and is easily carried in the motorcycle trunk. I used the Elecraft AX1 antenna and it worked to get 21 contacts in about 45 minutes.

Winter is upon us soon, at least it is starting to feel like it, so I have been doing work around the house. Putting

away garden hoses, storing patio furniture, and winterizing the camper. It is for sale if anyone is interested.

However, I did not get around to rehangng the 160 meter OCF dipole like I said I was going to. The weeds are just starting to die and with them the ticks will also be gone. Plans are to get the work done later this month. However, I have been making some 160 meter contacts and even used it for the 80 meter OHDEN net.

Be sure to get out on the 8th and vote. The mid-term elections are just as important as the presidential elections.

Lastly, be sure you check out the club room in the Academy Building! Roger and Don have been busy finishing up the painting, arranging the tables and amateur radio equipment, and hanging an OCF dipole in the attic of the building. By the meeting the room should be fully functional and ready for HF, VHF, and UHF activities.

I am bringing some surplus equipment to the November meeting and those there will get to go through it and take what they like.



It is time to renew your MVARC yearly dues.

November 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 4:45 pm Dinner - Southside Diner	3	4 10:00 am Breakfast - McDonalds, Newark Rd.	5
6 9:00 pm ARES Sunday Night Net —Don Russell (W8PEN) DST ends	7	8 Election Day OH DEN Net 7:45 pm	9 4:45 pm Dinner - Southside Diner	10	11 10:00 am Breakfast - McDonalds Veteran's Day	12
13 9:00 pm ARES Sunday Night Net—G. M. Jacobs (KE8HGE)	14 7 pm MVARC Monthly Meeting	15 OH DEN Net 7:45 pm	16 4:45 pm Dinner - Southside Diner	17	18 10:00 am Breakfast - McDonalds, Newark Rd.	19
20 9:00 pm ARES Sunday Night Net— Rog- er Gorrell (KE8ICI)	21	22 OH DEN Net 7:45 pm	23 4:45 pm Dinner - Southside Diner	24 Thanksgiving Day 	25 10:00 am Breakfast - McDonalds, Newark Rd.	26
27 9:00 pm ARES Sunday Night Net—Terry Windsor (K18N)	28	29 OH DEN Net 7:45 pm	30 4:45 pm Dinner - Southside Diner			

Ham Radio Contest Calendar

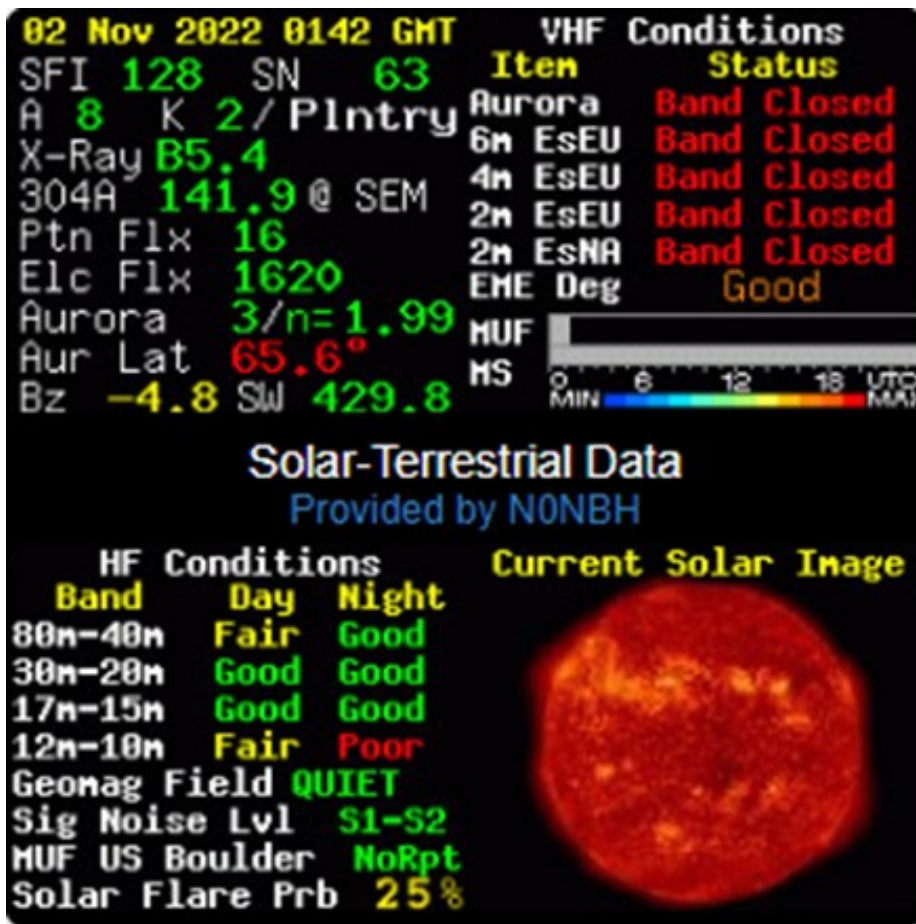
Final Takeaway

Solar-Terrestrial Data—Part II

Last month I covered the left top half of the Solar-Terrestrial Data and now we will finish the rest of the table. However, before we begin have you noticed how good propagation has been on the higher HF bands such as 17, 15, 12, and 10 meters? Several amateur radio operators were discussing how many DX contacts they were getting on these bands.

This would be a good time for you to review the solar data that was previously covered.

Starting off the right side of the graph is a section labeled VHF Conditions and lists the status of aurora, 6, 4, and 2 meter propagation. At this time these VHF bands continuously report as Band Closed.



Aurora refers to No/Low Auroral activity and currently there is No/Low auroral activity. When there is High LAT AUR, activity it is >60° North while MID LAT AUR is auroral activity from 60° to 30° North. This represents where the F-Layer ionization is occurring.

EsEU indicates Sporadic E Europe and where a high MUF exists so that 6, 4, and 2 meters are open.

EsNA is Sporadic E North America and indicates high MUF when conditions support Es and 144 MHz is open.

The next field is **EME Deg** (Earth-Moon-Earth Degradation) and indicates EME path attenuation. Values are Very Poor (>5.5dB) through Excellent (<1 dB). The current chart for November 2 is Good, 1 dB attenuation.

The **MUF**, Maximum Useable Frequency, colored bar indicated the max useable frequency. A grey colored bar, as shown, indicates No Sporadic E (ES) activity. A blue bar indicates ES at 6 meters, green means ES reported at 4 meters, yellow shows support for 2 meter ES. Since this chart was copied at night there is no MUF reported.

The last field in this section is **MS** (Meteor Scatter). Indicated the meteor scatter activity in a colored bar graph. Grey again represents no activity. The color coded bar below the grey bar shows min to max colors/conditions the bar could report.

At the bottom of the solar data is **HF Conditions** reported by amateur bands. The bands are broken up and conditions are reported for day and night propagation using colors and either Poor (red), Fair (yellow), or Good (green). These indications provide a good estimate of propagation for DX activity. Note how 10 meters drops at night.



Geomag Field indicates how quiet or active the Earth’s magnetic field is based on the K-Index value. Reports as Inactive, Very Quiet, Unsettled, Active, Minor Storm, Major Storm, Severe Storm, or Extreme Storm. Higher indications can cause HF blackouts and auroral events. The current graph shows a quiet magnetic field.

The **Sig Niose Lvl** (Signal Noise Level) indicates how much noise (in S-units) is being generated by interactions between the solar wind and geomagnetic activity. A more active solar wind, the greater the noise. The example graph shows a noise level of S1 – S2; fairly low noise level.

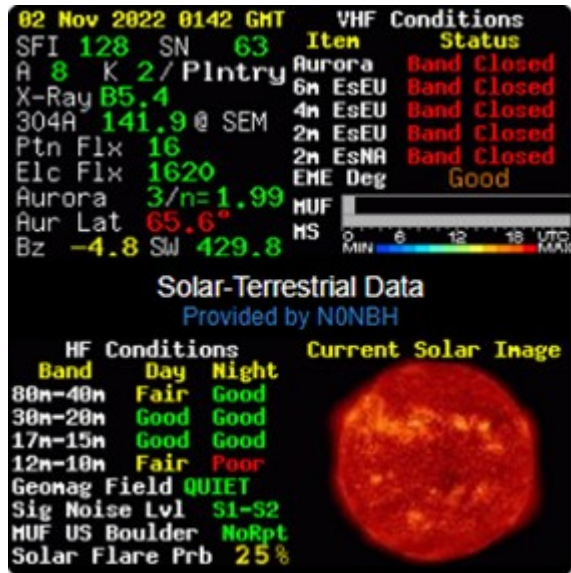
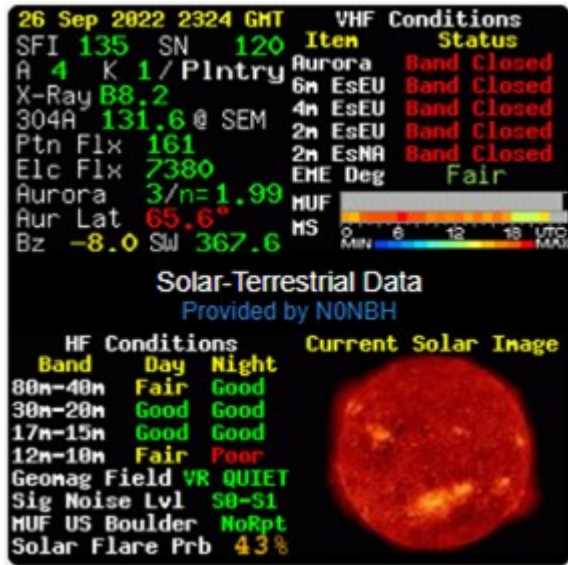
The **MUF US Boulder** displays the maximum useable frequency from 0 to 100 MHz. This graph indicates the value is from Boulder, Colorado but is not currently being reported. There are 11 locations worldwide that can report this value.

The last field is **Solar Flare Probability** which reports on solar flare activity from the sun and the probability of occurrence. This graph shows 25% while last month the October Newsletter graph showed 43%.

The final indication is the **Current Solar Image** representing solar activity. These vary depending on sun measurements using spectral ionization filters. The image in the graph was taken with 304 angstrom (30.4 nm) and 80,000°K (143,540° F) filters. This image is used to show solar activity and transition regions.

The graph from 02 November compared to September 26 show a slight decrease in Solar Flux and is expected to drop as low as 100 in November. This could lead to less F-layer ionization and harder to get DX contacts. At the same time the A index value is predicted to range from 8 to 25 this month also indicating more geomagnetic activity. This may result in fading HF signals or closing paths with abrupt openings with little notice.

How will you know when the bands are open, and contacts can be made worldwide? The only real method is to get on the radio and either listen for others calling CQ or picking a band/frequency and attempting to initiate contacts.



The table on the next page will assist with determining blackouts, storms, or band openings. Use the fields noted and correlate with the extreme to normal categories.

I hope you found this useful and somewhat interesting these two months. I know I learned quite a bit in reading and interpreting the Solar-Terrestrial Data.

Understanding HF & VHF propagation conditions using data from N0NBH's HAMQSL Solar Data Panel

Category	Radio Blackouts Use X-Ray	Solar Radiation Storms Use Proton Flux	Geomagnetic Storms Use K-Index/K-nT/ Aurora/Solar Wind/Bz	Band Openings Use Solar Flux (SN)	Electron Alert Use Electron Flux
Extreme	X20 (1 per cycle) Complete HF blackout on entire sunlit side lasting hours	1.0e+06 (1 per cycle) Complete HF blackout in polar regions	K=9 (nT=>500) [Aur=10+] (SW=>800) [Bz=-40 -50] (4 per cycle) HF impossible. Aurora to 40°. Noise S30+.	200-300 (SN=160-250) Reliable communications all bands up through 6m	>1.0e+03 Alert Partial to complete HF blackout in polar regions
Severe	X10 (8 per cycle) HF blackout on most of sunlit side for 1 to 2 hours	1.0e+05 (3 per cycle) Partial HF blackout in polar regions	K=8 (nT=330-500) [Aur=10+] (SW=700-800) [Bz=-30 -40] (100 per cycle) HF sporadic. Aurora to 45°. Noise S20-S30.		
Strong	X1 (175 per cycle) Wide area HF blackout for about an hour on sunlit side	1.0e+04 (10 per cycle) Degraded HF propagation in polar regions	K=7 (nT=200-330) [Aur=10] (SW=600-700) [Bz=-20 -30] (200 per cycle) HF intermittent. Aurora to 50°. Noise S9-S20.	150-200 (SN=105-160) Excellent conditions all bands up through 10m w/6m openings	
Moderate	M5 (350 per cycle) Limited HF blackout on sunlit side for tens of minutes	1.0e+03 (25 per cycle) Small effects on HF in polar regions	K=6 (nT=120-200) [Aur=9] (SW=500-600) [Bz=-10 -20] (600 per cycle) HF fade higher lats. Aurora to 55°. Noise S6-S9.	120-150 (SN=70-105) Fair to good conditions all bands up through 10m	<1.0e+03 Active Degraded HF propagation in polar regions
Minor	M1 (2000 per cycle) Occasional loss of radio contact on sunlit side	1.0e+02 (50 per cycle) Minor impacts on HF in polar regions	K=5 (nT=70-120) [Aur=8] (SW=400-500) [Bz=0 -10] (1700 per cycle) HF fade higher lats. Aurora to 56°. Noise S4-S6.	90-120 (SN=35-70) Fair conditions all bands up through 15m	<1.0e+02 Active Minor impacts on HF in polar regions
Active	C1 Moderate Flare Low absorption of HF signals	1.0e+01 Active Very minor impacts on HF in polar regions	K=3-4 (nT=20-70) [Aur=6- 7] (SW=200-400) [Bz=0- +50] Unsettled/Active Minor HF fade higher lats. Aurora 60-58°. Noise S2- S3.	70-90 (SN=10-35) Poor to fair conditions all bands up through 20m	<1.0e+01 Normal No impacts on HF
Normal	A1-B9 No/Small Flare No or very minor impact to HF signals	1.0e+00 Normal No impacts on HF	K=0-2 (nT=0-20) [Aur=<5] (SW=200-400) [Bz=0.-+50] Inactive/Quiet No impacts on HF. Aurora 67-62°. Noise S0-S2.	64-70 (SN=0-10) Bands above 40m unusable	<1.0e+00 Normal No impacts on HF

VHF Conditions

Aur Lat (Auroral Latitude): Indicates lowest latitude from the current Aurora Activity measurement. Text color coded for low activity; hi-latitude, & mid-latitude.
Aurora (Northern Auroral Activity): Band Closed = No Low Auroral activity. High LAT AUR = Auroral activity >60°N. MID LAT AUR = Auroral activity 60° to 30°N.
EsEU (Sporadic E - Europe): Band Closed = No Sporadic E (ES) activity. High MUF (2M only) = Cond support 2M ES. 50/70/144MHz ES = Respective band open
EsNA (Sporadic E - North America): Band Closed = No Sporadic E activity. High MUF = Cond support 2M ES. 144MHz ES = Sporadic E reported >140 MHz.
EME (Earth-Moon-Earth): Current EME degradation. Very Poor (>5.5dB), Poor (4dB), Moderate (2.5dB), Good (1.5dB), Very Good (1dB), Excellent (<1dB).
Solar Flare Probability: Provides the probability of a solar flare (in %) for the next 24 hours.
MUF (Max Usable Frequency Bar Color): No Sporadic E (ES) activity / ES reported @ 6M / ES reported @ 4M / Cond support 2M ES / ES reported @ 2M
MS (Meteor Scatter) Activity Color bar: Provides meteor activity color coded MIN to MAX conditions (see the graph below the bar).
 ©N0NBH Paul L Herman 2010

General Exam Sample Test Questions:

G0B11 Which of the following is good practice for lightning protection grounds?

- A. They must be bonded together with all other grounds
- B. They must be bonded to all buried water and gas lines
- C. Lightning grounds must be connected to all ungrounded wiring
- D. Bends in ground wires must be made as close as possible to a right angle

G9C07 What does “front-to-back” mean in reference to a Yagi antenna?

- A. The number of directors versus the number of reflectors
- B. The relative position of the driven element with respect to the reflectors and directors
- C. The ratio of forward gain to dipole gain
- D. The power radiated in the major radiation lobe compared to that in the opposite direction

Extra Class Exam Sample Test Questions:

E4CO4 What is the noise figure of a receiver?

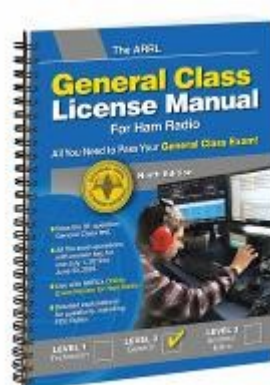
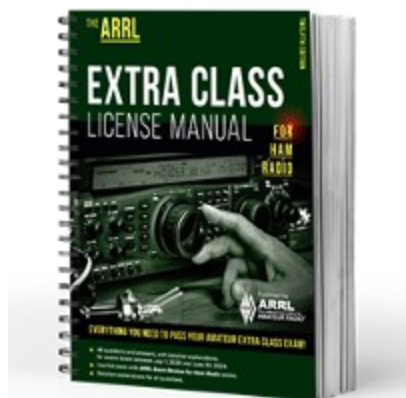
- A. The ratio of atmospheric noise to phase noise
- B. The ratio of the noise bandwidth in hertz to the theoretical bandwidth of a resistive network
- C. The ratio in dB of the noise generated by the receiver to the theoretical noise
- D. The ratio of thermal noise to atmospheric noise

E3C14 Why does the radio-path horizon distance exceed the geometric horizon?

- A. E-region skip
- B. D-region skip
- C. Downward bending due to density variations in the atmosphere
- D. Due to the doppler effect

These test questions are from the current test pools for their respective license classes. How did you do? The answers are on the last page. Practice tests for all license classes can be found here: <https://www.qrz.com/hamtest/>

The ARRL license manuals shown are available from the [ARRL](https://www.arrl.org/) or Amazon for license studying.



Miscellaneous Amateur Radio Information

Join us every Sunday night on the Mt. Vernon 146.79 repeater for our weekly **MVARC ARES Sunday Night Net. Check-in starts at 9 pm.**

Unable to access the repeater from where you are located? We are on IRLP (EchoLink) - Just look us up.
K8EEN-R Node 809800.



Ohio Traffic Nets

[The Ohio Single Side-Band Net \(OSSBN\)](#)

Ohio Single Side-Band Net; Ohio connection for what is going on in the Ohio Traffic System. The Net meets on 3.972.5 MHz at 10:30 am, 4:15 pm, and 6:45 pm daily.

Alternate Frequency for all sessions is 3.968 MHz.



[Central Ohio Traffic Net](#)

The Central Ohio Traffic Net is a part of the Ohio Section of the National Traffic System. They meet daily to handle traffic; all licensed amateur radio operators are welcome to check in and to learn to handle traffic. COTN meets daily at 7:15 pm on 146.970, -.600 MHz, PL 123.0. Signal Operating Instructions and frequencies given here: <https://www.cotn.us/sop>

Area Radio Clubs

Delaware Amateur Radio Association: <http://k8es.org/>

Newark Amateur Radio Assoc: <https://www.n8ara.org/>

(Mansfield) InterCity Amateur Radio Club: <https://iarc.club/>

Marion Amateur Radio Club: <http://www.marionhamradio.com/home.html>

The ARRL Ohio Section Newsletter: <https://arrl-ohio.org/news/index.html>

"I am bringing some surplus equipment to the November meeting and those there will get to go through it and take what they like." Terry (K18N)

FCC and License Updates



First-Time Exam Applicants Must Obtain an FCC Registration Number before Taking an Exam

Effective Thursday **May 20, 2021**, all amateur examination applicants will be required to provide an FCC Registration Number ([FRN](#)) to the Volunteer Examiners (VEs) **BEFORE** taking an amateur exam. This is necessary due to changes the FCC has made to its licensing system.

Social security numbers are no longer accepted at exam sessions.

Amateur candidates who already have an FCC license, whether for amateur radio or in another service, already have an FRN and can use the same number. All prospective new FCC licensees, however, will be required to obtain an FRN *before* the examination and provide that number to the volunteer examiners on the Form 605 license application. An FCC [instructional video](#) provides step-by-step instructions on how to obtain an FRN through the FCC's Commission Registration System (CORES).

The FRN is required for all new applicants to take an amateur exam and is used afterward by the applicant to download the license document from the FCC Universal Licensing System (ULS), upgrade the license, apply for

a vanity call sign, and to submit administrative updates (such as address and email changes) and renewal applications.

All applications will be required to contain an email address for FCC correspondence. Applicants will receive an email direct from the FCC with a link to the official electronic copy of their license whenever a license is issued or changed.

FCC APPLICATION FEE AND VEC FILED APPLICATIONS

1 - MAKE SURE EXAMINEES UNDERSTAND THEY MUST PAY WITHIN 10 DAYS.

Examinees do **NOT** have to wait for the email from the FCC to pay the fee. As soon as an the application file number is issued by the FCC, they can pay by logging into the CORES [Payer FRN System](#) or the CORES FRN Registration system ([CORES - Login](#)).

Application File Number search using an FRN: [FCC Application File Number Search](#)

CORES payment system background information and instructions: [Information](#).

CORES step-by-step payment instructions: [FCC Application Fee Instructions](#)

2 - The FCC help center stated there is a known issue with individuals paying the \$35 application fee via a smartphone or tablet. This is not a new issue, and they haven't been able to help troubleshoot the issue at the support center. **Encourage candidates to login and pay the FCC application fee from a computer.**

3 – Examinees should not amend any applications that a VEC submits on their behalf, especially **NEW** license applications. Amending VEC filed applications will cause the application to be **dismissed without action** in the FCC system and potentially require the applicant to pay another \$35 fee. If there is a minor mistake on the application, either call us and we can correct and resubmit the application, or the individual can pay the fee, be issued the call sign, and then log back in and make corrections.

4 - Individuals should review their application **BEFORE** paying the fee. If there is a major error on the application, such as the licensee's name or license class earned is incorrect, or the answer to the felony question is wrong, **DO NOT PAY** the fee. Call the VEC immediately.

5 - When in doubt, **call the VEC!** Even if you think you shouldn't bother us with your question, call us anyway.

6 - [FCC application fee](#) webpage for information and instructions.

FCC Legacy CORES System—Retired

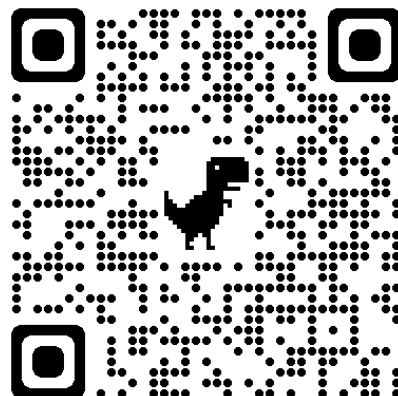
The Federal Communications Commission (FCC) retired the [Legacy version](#) of its Commission REGistration System (CORES) on July 15, 2022. CORES is the FCC's public-facing database that enables and tracks certain types of FCC and FCC applicant actions, including amateur radio applications and licenses. Its implementation has enabled routine amateur applications and licenses to be issued overnight instead of over weeks, as was the case with earlier methods. ARRL The National Association for Amateur Radio® advises the amateur

radio community to transition to the [updated version of CORES](#) as soon as possible.

In essence, CORES is designed to identify those who hold certain types of FCC licenses and FCC authorizations, including amateur licenses, and organize them in an easily accessible manner under a common FCC Registration Number (FRN) regardless of whether one holds a single such authority or thousands. The new CORES, in addition to assigning individual FRNs, allows holders of multiple FRNs to aggregate them under a single account where the licenses and authorization, fees and payments, and related actions can be administered from within the same account.

In effect, new CORES can be conceptualized as an electronic interactive file folder. The [updated version of CORES](#) has been available since 2016, and now its use will be mandatory for all amateur licensees when submitting amateur-related applications.

Starting on July 15, 2022, the Legacy CORES website will re-direct users to the [Commission's updated CORES](#) site. Although some functionalities in the old system will continue to work for a short time, the [FCC has urged all users](#) to transition to the updated CORES system to take advantage of its enhanced security and functionality.



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Note

The Friday morning breakfast is meeting at McDonalds. The address is 111 Newark Road, Mount Vernon (next to Southside Diner).

This is to accommodate parking since the Academy Building visitor parking is not closely available during weekday work times the group has temporarily decided to relocate to a meeting location that is easier for club members, guests, and visitors to access.

If you have any questions or comments please express them at the club meeting November 14th..

New Technician Class (Element 2) Question Pool took effect July 1, 2022.

Answers to sample test questions on page 19.

G0B11: A – They must be bonded together with all other grounds

G9C07: D – The power radiated in the major radiation lobe compared to that in the opposite direction

E4C04: C – The ratio in dB of the noise generated by the receiver to the theoretical noise

E3C14: C – Downward bending due to density variations in the atmosphere



Editors Notes

The MVARC Newsletter is delivered to club members only by email link to the MVARC webpage.

Thanks to all for your assistance with the MVARC Newsletter; in 2022 we were selected as the second best newsletter in the Ohio Section.

Please note the contact email for the MVARC newsletter is: admin@mvarc.net.

The **MVARC CQ** is the official newsletter of the Mount Vernon Amateur Radio Club.

