



# Mount Vernon Amateur Radio Club

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President's View  
Frank KC8EVS



As  
you

already know the newsletter is late, very late. As your new editor I apologize. I helped Terry by



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proof reading and that was marginal at best. It has taken me some time to get this going, more than I thought it would. This is partially due to my skills, procrastination, and my schedule here at home. As you all know, Terry has had to step back from his duties due to health reasons currently. I expect him to be back in the future, but it will be a while. So, until then you have me or if there is someone who would like to step up and fill in no problem, I can fix you up with what little I know.

You might have noticed the picture on the front cover of the newsletter. Guess where it was taken? Oh, by the way, Barry N8PPF is the photographer. Apple Valley overlooking what used to be the field day site. It is becoming a pickle ball court. We lost a couple of trees that we used for antenna supports and that was the space in which they set up the tent for us. It's not a total loss but will take a bit more planning to set up there in the future. Or, we can find another site, at Apple Valley or maybe here in Mount Vernon. Not sure what direction we should go but we have time to discuss it and make new plans. This is just a heads up. That was a great site, but change is always on the horizon.

I'm going to stop here and get to formatting the rest of the newsletter, hope you enjoy it and can overlook my shortcomings. Terry produced a great newsletter.

Frank KC8EVS



Meeting Minutes  
Bill KD8WHQ



Call to order:

The September 2023 meeting of the Mt. Vernon ARC was called to order at 7:00 pm by Frank, KC8EVS.

The newsletter was late this month so no one had a chance to read the minutes of the August meeting this will be done at the October meeting.

Treasurers Report:

Frank, KC8EVS presented the treasurers report for Terry. There were no changes or corrections to the report and the report was approved as read.

Committee Reports:

ARES

The SET is on Oct. 7 and 8. Terry is sick so we may not do anything. For the time being ARES is on hold.

ARRL

Scott, N8SY, was not at the meeting. He is politicking for the Great Lakes Division Director. We wish him well.

All ARRL members will be receiving a paper ballot for voting along with a code to vote online. You vote online or by mail, but you can only vote once. Please do vote.

Repeaters

Steven, N8RLW reported that the amp for the repeater has been repaired and returned. He is having it checked out. If there are no issues, he will reinstall

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it. The new PL board will be ordered and installed also as soon as it is available.

#### Mesh/Echolink

Don was not at the meeting so there is no formal report, but everything is working.

#### Club Lease

No new news to report on the lease.

#### Tech Class/V.E. Testing

A new Tech class has started and testing is scheduled for Oct. 11.

#### Events

State Park on the Air was September 9. The new location worked out better than expected. Would like to use it next year.

#### Xmas Party

No date yet. Steven is looking at getting prices for food and other options. He will report back next month.

#### Nominations Committee

Should have a list for next month.

#### Presentation to Mt. Vernon City Council

On Oct 23 the club will be making a presentation on the club to Mt. Vernon City Council.

#### Public Information Officer

Frank asked the directors to approve Steven Harvey as the PIO. He was approved by the directors and is the new PIO.

#### New Business

#### Shirts

Steven wore one of the shirts with the MVARC logo on it. People can get with Steven to order one.

#### PayPal Account

Setting up the PayPal account was put on hold for now.

#### Club project for the future

Frank presented an idea to order antenna kits and build them and test them. Some discussion but nothing set in stone as to how to proceed. Frank will bring it up again.

The 50/50 raffle was won by Frank Counts. All donated to the club.

A motion to adjourn the meeting was made at 7:35 pm by Steven and seconded by Michael. The motion passed.

Members Present:

Frank	KC8EVS	Wayne	WB8WB
Michael	KE8HGE	Don	KD8QPO
Bill	KD8WHQ	Ralph Dunire	No call sign
Steve	N8RLW	Bill Bullock	No call sign
Larry	AC8YE		



Radio Activity

By Don Russell, W8PEN



Great Lakes Division Director

Voting has begun for the Great Lakes Division, in which club members are a part of. Our own club member and club Secretary Scott Yonally (N8SY) is

running for the position of Division Director. Scott is currently Division Vice Director. The Mt. Vernon Amateur Radio Club of Ohio has endorsed Scott. If you are an ARRL member, please join me in voting for Scott Yonally, N8SY, for Great Lakes Division Director. ARRL members will receive an email with voting instructions. If you have not received your ballot instructions by now, please check your spam folder and trash folder in case you missed it.

### **Here and There**

September was not a very good month for me. I was slowed down by a case of COVID-19 a few days before the Ohio Parks on The Air event. Needless to say, I missed the event. I guess it worked out for me because I was able to watch the Ohio State Football game. But I was miserable and didn't really enjoy it. In fact, I think I slept through the second half.

The COVID, along with a few other health issues I am having limited my Radio Activity for September to mostly mobile work. But that was okay. Having HF in the car has its advantages. If I get no answers checking into our repeaters, then I tune around 20 meters looking for Parks on the Air stations. Usually there are one or two operating at any given time. At least during the day.

I have been getting good signal reports on 20-meter mobile using the setup I described last month. I am really surprised by this. The MFJ antenna I am using is not much bigger than the standard 2-meter mobile antenna; yet it seems to work rather well at 20 meters.

Looking at the WA7BNM contest calendar shows a slow month for October. No major contests to make it worth activating the club station. The California QSO Party is on October 7th. This is actually a very active QSO party simply because of the number of stations in California that participate. Last year I ran about 2 watts QRP and worked about 50 stations on 20 and

15 meters during this QSO party. I was using a G5RV antenna cut for 40 - 10 meters and was on the air simply to test the antenna. The antenna worked rather well and is now part of my QRP go box to go along with the Yaesu FT-817 QRP transceiver.

The ARRL November Sweepstakes is coming up in November. Last year the club activated our station and did rather well, I think we should try it again. The CW version is November 4th. The SSB version is November 18th. I would like to do the CW version. Any CW operator that wishes to join me would be a welcome addition. We should also do the SSB version as a group. We have a month to plan this one so stays tuned and we will see how things go.

### Local Mesh Network

Due to my health issues mentioned above, our Mesh Network still has issues that need to be worked on. I won't go into details as I have been reporting these issues for a few months and don't need to repeat them.

I think October would be a good month to work on this project before the cold weather sets in.

So, ARDEN meshers can be expecting a call for assistance in the next week or two.

### That is a Wrap

That wraps it up for this month. I know this is a very short column compared to most of my columns. Usually once I start writing, I don't know when to quit. However, as I said, it has been a slow month here at my shack.

Hope to see you all at the meeting.

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Steven N8RLW  
PIO



## **Ham Radio and WWV/WWVH—a Brief History**

by Mark Haverstock, K8MSH

### **Does Anyone Really Know What Time It Is?**

If the band *Chicago* listened to WWV, they could have answered this question from their hit song. Tuning into 10 MHz, or any of their other five available frequencies, would produce a quick and accurate response. I can't imagine why they didn't try.

### **In the Beginning**

After World War I, scientists and inventors were figuring out ways they could develop the potential of newly available wireless communication. On October 1, 1919, the Bureau of Standards in Washington, D.C. established WWV as a new experimental station. A year later, the Bureau's Radio Laboratory was broadcasting weekly Friday evening concerts from 8:30 to 11:00 pm on 600 kHz. WWV also began broadcasting 500-word Daily Radio Market grams, prepared by the U.S. Bureau of Markets.

At the end of 1922, WWV shifted to broadcasting frequency standard signals. This became an important aid to broadcasting and amateur stations because radio equipment of that era would sometimes drift from their assigned frequencies and needed an accurate standard for calibration. By



May of 1923, WWV was broadcasting frequencies from 75 to 2,000 kHz on a weekly schedule. The accuracy of the transmitted frequency was quoted as being better than three-tenths of one percent.

In December 1932, the station moved to a Department of Agriculture site near Beltsville, Maryland. There were numerous changes in WWV's broadcast schedule, format, and frequency. Also, the station underwent an upgrade with its transmitter becoming directly controlled by a quartz oscillator.

In 1966, WWV moved to its current location near Fort Collins, Colorado— about 50 miles from the Boulder Laboratories where the national standards of time and frequency were kept. The increased height above sea level and exceptionally high ground conductivity improved reception across the United States. Proximity to Boulder, Colorado, and the use of atomic oscillators at the transmitter site would make WWV even more accurate.

## **Time is on Our Side**

WWV is the source of official U.S. time provided by the National Institute of Standards and Technology (NIST) and the United States Naval Observatory (USNO). They ensure that uniform time is maintained throughout the United States and around the world. WWV provides a public service by making time information freely available to anyone with a shortwave receiver.

How useful is WWV? The time signals generated by WWV allow time-keeping devices such as radio-controlled clocks and wristwatches to automatically maintain accurate time without manual adjustment. These time signals are used by commercial and institutional interests where accurate time is vital in daily operations, including shipping, transport, technology, research, education, military, public safety, and telecommunications. Think of WWV as the planet's pacemaker.

Got an older tube-based transceiver? Without WWV to calibrate the dial on older ham rigs, you'd need to use a GPSDO (GPS disciplined oscillator) to locally generate a 10 MHz signal in the ham shack.

Even today, WWV and WWVH's (WWVH is WWV's sister station in Hawaii) standard time broadcasts and frequencies are a great help for engineers. While time-of-day information can be obtained through the internet, researchers say the combination of circuits involved in internet distribution can result in fraction-of-a-second delays that can affect pursuits such as high-speed trading. For accurate information without lag, terrestrial radio remains king, they say.

WWV/WWVH's audio tones are also precise—and useful. On WWV, the 440 Hz tone (the A above middle C) is broadcast once each hour, during Minute 2 on WWV and Minute 1 on WWVH. Maestro, you could even tune your violins using WWV.

## **Propagation Observation**

WWV's signals travel from their transmitter site in Fort Collins to shortwave receivers, passing through the ionosphere and undergoing slight delays and frequency changes. These changes, when measured carefully, contain information on waves, density changes, and other phenomena forming space weather that could affect national telecommunications and power grids. Today, scientists are encouraged to know that even citizens using affordable, modest receivers in their backyards can participate in meaningful research. This concept is being realized now by the Ham Radio Science Citizen Initiative (HamSCI) in a project named GRAPE (Great Radio Amateur Propagation Experiment).

## **More Than Time**

In 2019, WWV conducted communications exercises in coordination with the Department of Defense. Thirty-seven states, National Guard units, emergency management agencies, and others participated in simple announcements. They were meant to see how many listeners there are out there and how far away they can be reached. The answer: there are thousands of listeners as far away as Australia and New Zealand.

With their high-power transmitters and multiple frequencies, WWV and WWVH could be useful for broadcasting emergency information from coast to coast. The quality of HF reception depends on many factors such as location, time of year, time of day, and propagation conditions. Given the variety of frequencies they use, it's likely that at least one will be usable at any time.

## **NIST Would Be Missed**

These benefits would come to an end should NIST's time stations ever go dark. They almost did when they faced proposed budget cuts for 2019.

It's not just WWV and WWVH that would be missed. If NIST station WWVB shuts down, self-setting clocks known as atomic clocks would no longer self-calibrate. There are more than 50 million radio-controlled clocks in operation and another few million wristwatches that rely on WWVB for self-calibration, in addition to weather stations, cameras, and other devices that may be affected. These devices are so much a part of our lives that we hardly notice them. Most of us assume they're set by the Internet—but many aren't. So, the next time you look at a clock or a watch, remember WWV, WWVB, and WWVH keep us all in time around the world.

## Ham Radio 101 – Selecting the Proper Wire Size

Choosing the right wire size for your Ham Radio DC electrical project is important, since a wire that is too small can overheat and possibly start a fire. The American Boat and Yacht Council (ABYC) publishes this chart below with valuable detail to help experienced and beginner ham radio operators determine what wire size they need to use.

Although these charts are an excellent resource, they are a bit intimidating if you have never used one before. This technical brief distills the information on these charts to a more manageable size for all ham radio applications.

First off, quality wire is something that does need to be considered when doing most wiring applications. Most ham radio applications end up using a form of stranded wire rather than solid. This is due to the flexibility of stranded wire to go around bends and be able to get into tight spaces. Solid wire, while it can be used, is best suited for long straight runs. In addition, the DC Wire Selection Chart shown below assumes a wire insulation rating of 105°C or 221°F. A lower rating will decrease the current-carrying capacity of the wire.

To use the chart included with this technical brief, follow the instructions below.

### **Choosing the correct wire**

**A. Locate the CURRENT IN AMPS** of your appliance across the top of the chart. Most electrical products include a rating label, or you can find the amperage rating in the documentation that came with the product.

**B. Find circuit LENGTH IN FEET** along the left side of the chart. Note that the total length of the circuit is the roundtrip distance from power source (usually the battery or power supply) to the product and back.

**C. Select the CIRCUIT TYPE.** Allowable voltage drop is based on whether a circuit is critical or non-critical. Critical circuits, with 3% allowable voltage drop, include

- Automotive main feeders
- Long Towers Run up the tower.
- Electronics feeder circuits with multiple fuse circuits.
- Tower Roter Cable feeds up the tower.

Non-critical circuits, with 10% allowable voltage drop, include

- General lighting
- Short distance runs of 10ft or less
- General runs to low current devices.

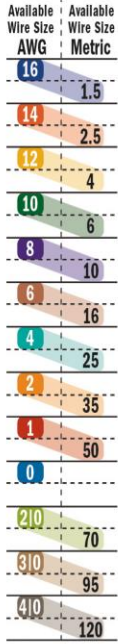
Follow down the column until you find your circuit's **LENGTH IN FEET**

**D.** Intersect **CURRENT IN AMPS** with **LENGTH IN FEET** to identify the wire size.

*Example: A 100W FM Power Amp rated 20A is 25' from the battery. Circuit length is 50', circuit type is 'non-critical', and correct wire size is 10AWG.*

**In the end using a larger wire size will not hurt you and also helps with line loss and gives a better safety factor for current draw. So, if all else fails a good rule of them would be to use a larger gage wire if you think in the future, you will need more current draw from that circuit. Have fun and be safe when doing any wiring project even with 13.8Vdc.**

Standard and Metric Wire Comparison Table



KEY  
AWG WIRE SIZE  
CLOSEST EQUIVALENT IN METRIC

CIRCUIT LENGTH	CIRCUIT TYPE				CURRENT FLOW IN AMPS																
	10% VOLTAGE DROP Non Critical		3% VOLTAGE DROP Critical		5A	10A	15A	20A	25A	30A	40A	50A	60A	70A	80A	90A	100A	120A	150A	200A	
	0 to 20 ft.	0 to 6.1 M	0 to 6 ft.	0 to 1.8 M																	
30 ft.	9.1 M	10 ft.	3.0 M	16 AWG	16 AWG	14 AWG	14 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	1 AWG	2/0 AWG	
50 ft.	15.2 M	15 ft.	4.6 M	16 AWG	12 AWG	10 AWG	10 AWG	10 AWG	8 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG
65 ft.	19.8 M	20 ft.	6.1 M	14 AWG	10 AWG	10 AWG	8 AWG	8 AWG	6 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	1 AWG	0 AWG	0 AWG	3/0 AWG
80 ft.	24.4 M	25 ft.	7.6 M	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	1 AWG	0 AWG	0 AWG	2/0 AWG	2/0 AWG	3/0 AWG
100 ft.	30.5 M	30 ft.	9.1 M	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	1 AWG	0 AWG	0 AWG	0 AWG	2/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG
130 ft.	39.6 M	40 ft.	12.2 M	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	1 AWG	0 AWG	0 AWG	2/0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG
165 ft.	50.3 M	50 ft.	15.2 M	10 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	0 AWG	2/0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
200 ft.	61.0 M	60 ft.	18.3 M	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	0 AWG	2/0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
		70 ft.	21.3 M	8 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
		80 ft.	24.4 M	8 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
		90 ft.	27.4 M	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
		100 ft.	30.5 M	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
		110 ft.	33.5 M	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
		120 ft.	36.6 M	6 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG
		130 ft.	39.6 M	6 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG

Although this process uses information from ABYC E-11 to recommend wire size and circuit protection, it may not cover all of the unique characteristics that may exist on a boat. If you have specific questions about your installation please consult an ABYC certified installer.

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SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>1</b> 9p ARES Sunday Night Net	<b>2</b>	<b>3</b> 4:45p Dinner	<b>4</b>	<b>5</b> 9a Breakfast	<b>6</b>	<b>7</b>
<b>8</b> 9p ARES Sunday Night Net	<b>9</b> 7p MVARC Meeting	<b>10</b> 4:45p Dinner	<b>11</b>	<b>12</b> 9a Breakfast	<b>13</b>	<b>14</b>
<b>15</b> 9p ARES Sunday Night Net	<b>16</b>	<b>17</b> 4:45p Dinner	<b>18</b>	<b>19</b> 9a Breakfast	<b>20</b>	<b>21</b>
<b>22</b> 9p ARES Sunday Night Net	<b>23</b>	<b>24</b> 4:45p Dinner	<b>25</b>	<b>26</b> 9a Breakfast	<b>27</b>	<b>28</b>
<b>29</b> 9p ARES Sunday Night Net	<b>30</b>	<b>31</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>

**Next Meeting November 13 at 7pm.**

Other nets around Knox County.

County	Net	Frequency	Day and Time
Ashland	No net as of 03.30.2023		
Coshocton	CCRA	147.045 PL 71.9	Every Sunday 9:00 PM
	ARES	147.045 PL 71.9	Every Monday 8:00 PM
Delaware	Monday Night Net	145.170 PL 74.4	Every Monday 8:00 PM
Holmes	No net as of 03.30.2023		
Knox	ARES Sunday Night Net	146.790 PL 71.9	Every Sunday 9:00 PM
Licking	N8RA Tuesday Night Net	146.880 PL 141.3 444.500 PL 141.3	Every Tuesday 9:00 PM on the 146.880 except for the last Tuesday of the month they check in on the 444.500 repeater.
Morrow	Morrow County Information Net	146.775 PL 107.2	Every Sunday 9:00 PM
Richland	IRAC Net - Mansfield	146.940 PL 71.9	Every Wednesday 8:00 PM

## 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>.

### The Ohio ARES HF Digital Net—OHDEN

Tuesday at 7:45 pm 1804.5 MHz, USB, Olivia 8-500 with waterfall frequency 1500.





### Editors Notes



### KC8EVS & KI8N

The MVARC Newsletter is delivered to club members via email containing a link to the MVARC webpage, Member Pages heading.

*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](mailto:admin@mvarc.net).

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

## MVARC

- President  
Frank Counts, KC8EVS
- Vice President  
Barry Butz, N8PPF
- Secretary  
Scott Yonally, N8SY
- Treasurer  
Terry Windsor, KI8N
- Club Call Trustee  
Don Russell, W8PEN
- Equipment Trustee  
Barry Butz, N8PPF
- Directors  
Michael Jacobs, KE8HGE



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