



## WISCONSIN SECTION NEWSLETTER

Issue Date: April 2024

WI Section Manager, Jason Spetz, KC9FXE

### From the Section Manager

Here it is, the April edition of the Section Newsletter! It's a little late, but better late than never. I caught wind of some breaking news that I wanted to include this month, so I held off for a couple days to get it in. In the meantime, I also picked up a new event listing to be added, so I guess it all worked out.

This month, I got my first road trip in and that was to the Hamfest in Stoughton. This was my first ever appearance at this particular event and it was a good one. I didn't get any feedback from the host, so I will just say that it was well attended by vendors and participants. There were plenty of vendors, door prizes, a testing session, and good coffee. I was able to see a lot of familiar faces and meet some new people. That's what it's all about!



I found it particularly interesting the number of people who stopped by who were not even hams YET. One of them even became a member of the ARRL. All of them found it a great resource to learn about amateur radio and how to get involved. I look forward to meeting them again with a call sign attached to their name.



Earlier this month I had the honor of presenting the ARRL Rag Chewer's Club Certificate to **Steven Hart, KA9OMC**. While this is just a fun award, it's a good opportunity to highlight the dedication people have to amateur radio. Steve is the voice of West Central Wisconsin and the

Red Cedar Repeater Association. If you are ever in that part of the state, tune in and chances are you will find Steve and/or others on the K9KGB repeater, 146.610 (pl 110.9). Steve is a top-notch communicator because not only does he talk, but he also listens (and I think he even listens in his sleep). There's not much that gets by Steve and he remembers just about everything. He is the hub of all information, historical and new. Every Monday night, at 6:30, Steve also comes on the air with, "Amateurs for ham radio, it's time for the Red Cedar Repeater Association's Monday night net..." This is the scheduled time for Steve to promote amateur radio activities and for participants to get all the news and information. Thank you, Steve, for keeping us "radio active".



This is to certify that

**Steven Hart, KA9OMC**

is a member-station of the

**Rag Chewers' Club**

having demonstrated the ability to make an Amateur Radio contact and chew the rag for at least thirty minutes, and is entitled to all the privileges, rights, favors, glory, rank, fame, notoriety, popularity, and honor of membership in that worthy organization.



The **2024 Field Day** event is fast approaching, June 22-23. The theme for this year is "Be Radio Active". The ARRL Field Day site is up and running with all the information you need for a successful field day. Here is the direct link: <https://www.arrl.org/field-day>



On a personal note, as a 2016 graduate of the FBI National Academy, I am a member of the FBI Amateur Radio Association. The FBIARA is holding the annual Police Week Special Event. The event will run May 12, 0001Z – May 18, 2359Z. From time to time, during that time, I will be

operating as K3FBI/9. You may also hear another one of our members, Paul Schumacher, KD9FM, operating as the same. I hope to make some contacts with the WI section during the event. The rest of the info is here: <https://www.qrz.com/db/K3FBI>



That's it from me. I will be attending the ORC Hamfest in Cedarburg this weekend. Stop by the ARRL table and say hello!

**Until next time... 73!**

## **General Announcements, Events and Reminders**

### **ARES Group Registration**

Much like the club listing, the ARRL has a place for ARES groups to register their organizations. I encourage each of your ARES organizations to register and remember to keep the information up to date. This will provide a good place for people to find ARES organizations in their area with accurate contact information. Registration only takes a couple minutes.

Register at: <https://www.arrl.org/ares-group-registration>



### **Club Grant Program**

It has been announced that the club grant program will be returning this year. If your club or ARES organization has a project in mind, consider this opportunity for funding. More information is coming, but here is where you should be checking: <https://www.arrl.org/club-grant-program>



### **New Extra Question Pool Effective July 1, 2024**

The National Conference of Volunteer Examiner Coordinators Question Pool Committee made significant changes to the Extra Class question pool which is effective July 1, 2024. 83 new questions were created, and 100 questions were eliminated, resulting in a reduction of the number of questions from 622 to 605. Approximately 350 questions were modified. If you plan on taking the Extra exam before July 1, 2024, please make sure you are using the study guide dated 2020-2024.



The **Central Division Convention** will be held in Elkhart, Indiana on August 3<sup>rd</sup>. For more information, visit: <https://elkharteasthamfest.com/convention.html>



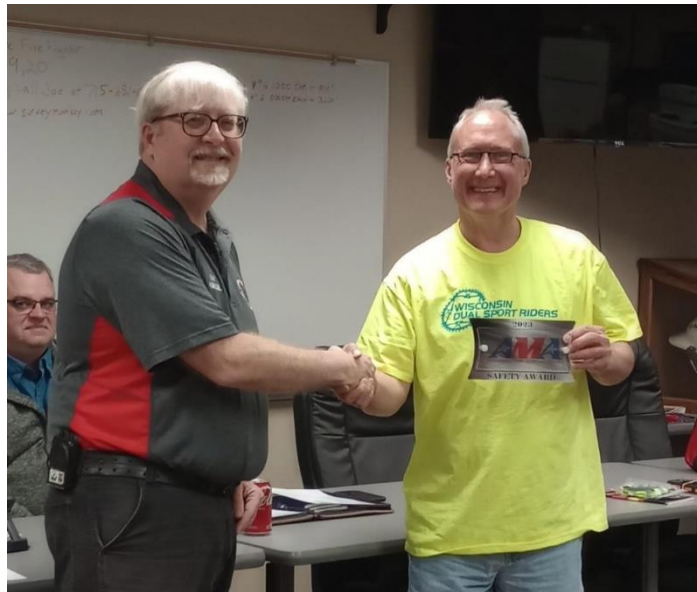
**\*\* UPDATED INFO \*\*** If you're having issues renewing your **FCC Amateur Radio license**, check out these helpful resources:

- Easy to follow website with instructions and screenshots by W0IS: <https://w0is.com/LicenseRenewal/FCCRenewalInstructions.htm>
- ARRL Website: <https://www.arrl.org/cores-uls-registration>
- Video featuring ARRL VEC Department Manager Maria Somma, AB1FM. You'll also hear from ARRL VEC "expert" Josh Nance on a few common issues he tends to help folks out with over the phone: <https://www.youtube.com/watch?v=DI8nmjRjg4>

## News From Around the Section

At the March meeting of the Rhinelander Repeater Association, Peter Jensen N9KWU, representing the Wisconsin Dual Sport Riders, presented the 2023 AMA Safety Award to RRA for communication assistance at their Ride for Research and Big Woods 200 events.

The events are held in the Wabeno area. Distance and terrain make Amateur Radio the only reliable communication for rider safety and welfare. This year the Ride for Research will be held June 8, 2024, and the Big Woods 200 on September 28, 2024.



More ham volunteers would be welcomed to better serve the events. If you would like more information or to sign up, please contact Ray Mark KB9CBL at [KB9CBL@Yahoo.com](mailto:KB9CBL@Yahoo.com).

## Section Emergency Coordinator / ARES Report

**Kyle Schaefer, KC9SDK**, Wisconsin SEC:

SIMCOM is coming June 4<sup>th</sup> and 5<sup>th</sup> to State Fair Park in West Allis, Online registration link will be coming soon so keep an eye on social media and the ARES/Races Website.

As summer approaches, so does the annual flurry of public service events, marathons, races, and other supported events. Along with those events comes a lot of exposure for our organization, so please put your best foot forward when representing WI ARES/RACES and the amateur radio community in general.

Like many things in life WI ARES/RACES has a hierarchy and a chain of command that is expected to be followed. Those of you with experience in public service agencies like police and fire services or have served in the military are acutely aware of this structure. You are also likely aware that such a structure exists for a good reason; it allows the organization to function more efficiently and provides for specific interagency relationships with designated points of contact. Requests originating from outside that main point of contact are generally frowned upon because they can contradict or undermine conversations and strategies that are being worked out at a higher level. Our organization is no different.

Over the past several months I have been made aware of several different incidents where individuals have taken it upon themselves to disregard the ARES/RACES chain of command and reach out directly to some of our served agencies, demanding action, some kind of authorization, or materials they are not entitled to. This is NEVER an acceptable action in our organization, at ANY level. Let me state this with as much emphasis and clarity as I can muster; THEY are the served agency, NOT US. We never demand anything from or dictate any actions to any of them. Actions outside the chain of command can destroy years or even decades worth of relationship building with a single incident and can poison recovery efforts for years to come.

If you have a request for some information or would like to request something from a served agency, that request needs to follow the chain of command first to the local EC, then if needed it would be forwarded to the DEC and then if the required it would be forwarded to the SEC or SM for resolution. How far the request travels up the chain is dependent upon where the served agency relationship resides.

We are a professional volunteer organization, which means that while we are not paid for our services we still must act in a professional manner during ALL interactions, both internal and external. To further elaborate, this means we do not scream or swear at others, we do not belittle or berate others; rather, we treat each other with respect and decency. Aggressive behavior will not be tolerated at any level of the organization.

I do realize that the majority of our operators will view this article as common sense and may even wonder why such an article is necessary. Recent events have shown that a reminder of such basic decorum is indeed in order. For those who carry out their duties with decency and respect for each other, I do thank you for setting a good example. There was a time where this would have been considered common sense; however, it does not seem to be as common as it once was.

## **Public Information Coordinator Report**

From Myron Oestreich, KB9STB, Section Public Information Coordinator:

Happy April Wisconsin! The spring weather has been absolutely fantastic with the exception of that one time where Mother Nature missed the memo about no more snow and decided she would have the last laugh on many who were looking to start their spring cleaning and yard work

early. Also, with spring comes the annual checks of our antenna systems, and in some cases the trees our respective antennas to make sure everything is working as well as it should be.

This month, rather than a brief teachable moment, I wanted to plant a couple seeds of thought for you and/or your local organization. First though, a couple questions to ponder and a little backstory. Trust me, it'll all make sense by the time we're done here. Here are the two questions in no particular order.

1. Aside from Field Day (summer, winter or both), what do you or your local group do for outreach to help maintain your visibility in the community?
2. Does anyone in your group (or your whole group for that matter) have a niche interest in portable/remote setup and operation?
3. When you or your group does any portable/remote setup and operation, do you let the public know when it's happening?

Now the backstory. Recently, the Mississippi Valley Amateur Radio Association hosted their inaugural swapmeet in Onalaska. I really can't say enough positive about the event, and the Mississippi Valley group did an outstanding job getting the event rolling. Through the course of visiting with the people attending, I talked to a ham from Minnesota (he admitted he wasn't a Vikings fan so he's a-ok), and he had some postcards with him that talked about a Minnesota Parks On The Air event the weekend of June 8. Their goal was simple – per the minnesotahamradio.com website that talks about the event is to “activate as many Minnesota Parks On The Air (POTA) entities as possible with a focus on state parks. The second Saturday in June is a free admission day at Minnesota State Parks!”

Well, that got my brain thinking about this and I needed to get that thought shared to foster some talk. First ones I talked about this conversation with was the local organization I'm a member of. We have a “brain trust” every Sunday morning at the local Dunkin' Donuts where we swill gluttonous amounts of coffee, pay homage to Wilford Brimley with delicious donuts, solve all the world's problems and talk about everything from soup to nuts. Our group does POTA outings as a way to make sure our equipment is ready to rock and roll because of ARES/RACES/AUXC needs, but we also use those outings as a way to engage visitors to state parks and educate them about radio if they want to talk about it and have a relaxing day with a cookout scattered in. By the time we got done with talking about this, we learned that the weekend of *June 1* is free admission weekend to Wisconsin State Parks and Forests, that weekend would be a really great tune-up for Simcom that will be held June 4 and 5 in Milwaukee, and it will help give an idea of any potential issues we may encounter for Field Day the weekend of June 22 and 23. Plus, it could help give the Minnesota hams the opportunity to make sure their gear is happy before their weekend.

Now mind you, this is not a call to action or anything like that. Nothing formal is planned and the first anyone has heard about this is this second as you're reading this. It's straight up food for thought if your local group is looking for an event that may have a positive impact in your area. It just so happens it's a POTA event that's being talked about. Here are a couple tips if this does peak your interest and you'd like to do a POTA setup on the weekend of June 1.

- Select a park near to you that is known to have a good volume of visitors

- Once the location is selected, plan within your organization to have someone designated to be the point of contact both at the event and prior to the event (more on that in the next couple points).
- Make sure to set up in a highly visible area. It may be a wise idea to talk to the park ahead of time and work collaboratively with them. If you do touch base with the park ahead of time, please remember to be patient and informative. Odds are they aren't sure about what you're talking about and may be concerned about potential issues that could arise, so lots of dialogue may need to take place.
- Once the details are set, advertise the event! That could be anywhere from emails to your group's social media outlet, any podcasts your local group may do or anything on those lines. If your group would like local media coverage, a good press release sent out a week to ten days prior to the event would be great too.
- At the event, designate a person to be the "tour guide" for the organization, showing off what's being done and answering questions. Make sure to have a sign-up sheet available for anyone who may want more information!
- Photo, photo, photo! Share your event on social media and with your Section leadership after it's all said and done so we can celebrate your success with you and share the great work you're doing.

These tips work pretty well across the board for just about any events you're looking at holding with some minor adjustments. A lot of groups will make up a "to-do" or checklist of things to do before, during and after events. Those lists work equally as well, and if your local group has a procedure for events, please use what works best for your area.

If you need assistance with drafting a release or writing up an article or post-event release, please reach out. We're happy to help with what you need to help your event or organization be as successful as it can be. Please remember to stop by our Facebook page @ARRLWisconsin and give it a like or follow. We update it pretty regularly with events from local organizations, updates from ARRL and original content.

Until next month, Wisconsin.....

## **Section Traffic Manager Report**

### **STM Report Wisconsin Section March 2024 Efficiency**

FAQ # 272 We admire efficiency and we practice traffic handling that way, but there are some dangers. For example, when traffic handlers use a "short form" to pass traffic, it can make traffic go very quickly – but it may not always be the best training for those who listen to learn. It makes sense to use the short form in the TCC and at the Area Net levels, because those are

the operators who know the form and need the time savings. At the section net level and on local nets, an operator has to make a judgment call.

Since the NTS is the training ground as well as the resource, we need to prepare ourselves to do things as we would in more critical situations. That means not skipping essential parts of a message's preamble, address, or text just as we would not skip them if we were serving an agency during a disaster. Book traffic sends the parts by sending the common parts first – but all the parts are sent. Choosing when to use shortcuts must be done carefully. Use of techniques such as "Rapid Fire" messages saves time and routes messages through the nets that otherwise wouldn't be exercised, but it doesn't preclude sending some messages in full, too.

Then we count what we've done to check our efficiency. When a net counts the traffic passed on that net, it counts every message handled. If the message is handled twice, it's counted twice. If the message is handled off frequency at the direction of the net control, it's still counted. If, on the other hand, the message is not handled on the radio – it's not the same. True, emailing traffic via the wired Internet can be a fast way to get it to its destination – but it's not the same as radio. Winlink? That's radio. Packet? That's radio. AM, FM, SSB, CW – yup, you get the picture. Phone lines? Not really. (Except for delivery, of course.) We don't encourage counting messages not sent via radio as sent.

We can use good pro-words, good pacing, and good sending to add to our effectiveness, but let's not abandon the basics of accuracy and training for the sake of speed. Remember in the old movies that when the explorer asks the native where his friend caught such a large halibut the native always says, "Efficiency." 73 – K9LGU/STM – WI

**...and don't forget about our nets:**

WISCONSIN TRAFFIC NETS

Name Of Net, Frequency, Local Time	Net Manager	Net Control Stations						
		Sun	Mon	Tue	Wed	Thur	Fri	Sat
Badger Weather Net (BWN) 3984 KHz, 0600	<a href="#">K9LUK</a>	KB9GO	K9LUK	N9NBC	W9CPY	W9IHW	AG9G	WB9WKO
Badger Emergency Net (BEN) 3985 KHz, 1200 ALT 7270 KHz	<a href="#">NX9K</a>	WJ9L	WJ9L NX9K	W9RTP	KB9IME	WD9FLJ	NX9K	N9VC
Wisconsin Side Band Net (WSBN) 3985 or 3982.5 KHz, 1700	<a href="#">AG9G</a>	NX9K KA9BAE	N9VC	KC9FXE	KB9GO	WB9WKO	AG9G	AC9F
Wisconsin Slow Speed Net (WSSN) 3555 KHz, Daily 1800	<a href="#">KB9ROB</a>	KB9ROB	N9VC	*	*	*	AG9G	*
Wisconsin Intrastate Net - Early (WIN-E) 3555 KHz, 1900	<a href="#">WB9ICH</a>	WB9ICH	K9LGU	KC9UC	N9CK	N9VC	AG9G	WB9ICH
Wisconsin Intrastate Net - Late (WIN-L) 3555 KHz, 2200	<a href="#">W9RTP</a>	AG9G	K9LGU	KC9UC	N9VC	N9VC	W9RTP	W9RTP
ARES/RACES Net 3967 KHz, 0800 Sunday ALT 3977.5 or 7250	<a href="#">WB9WKO</a>	*						
WI ARES/RACES Digital Net Tuesday on WINLink 7PM Mon - 7PM Tues	<a href="#">KB9MMC</a>		KB9MMC					
WI ARES/RACES VHF Net on WECOMM Frequencies Last Thursday of the month 7PM	<a href="#">KA9KJE</a>					KA9KJE		

\* Net Control Operator needed. Contact Net Manager for information.



## Section Youth Coordinator Report

From Etienne Robitaille, K9ZN, Section Youth Coordinator:

### **The Alarming Shift In The Ideology of Club Growth**

As I continued to be exposed to new clubs month after month, I saw an alarming pattern in club expansion. In recent years, I believe more and more clubs have evolved from trying to enhance the number of the local ham radio community to wanting to grow in club size, add expensive equipment, and be able to provide for their members over the community.

A few years ago, even clubs seemed hyper fixated on increasing the amount of youth growing in the ham radio community. It was, as a section youth coordinator, a very pleasant thing to see in the Wisconsin community. Recently, however, I've found that clubs (and for various reasons) have strayed away from this in a self-regarding methodology, where they take priority in making sure they have the fanciest equipment and nicest features to offer to their club members. I, as well, had sort of taken to a fall of this until a club in early 2023 stunned me with how well they were contributing to the community.

Clubs are one of the most powerful tools in benefit ham radio communities. I watched a singular club help boost MSOE's ham radio club and get them out with other hams. Evidently, the ARRL is a great national resource for any ARRL-affiliated club, but there is only so much the ARRL can do in a smaller-sized/rural community and it's important to have local clubs helping build local communities. When you focus on making your club appealing versus making the hobby appealing, all that occurs is the hampering of actual community growth. If this growth hampers to a certain degree, when all the old club members phase out, there won't be anyone to replace them with. Youth, in today's age, need direct outreach to schools, boy scout troops, colleges, etc. and events that specifically go out and target them.

I hate to be blunt, but just operating out in public isn't doing much of anything anymore. I think, at least from personal experience, the best example of this was an outreach event I did with a local Milwaukee club to try to get boy scouts on for JOTA. Due to some communication issues with the local troops, we weren't able to get troops out directly to our site. Despite this, the club continued on with the events. We set up Ez-Up tent, with both an HF radio as well as some DMR radios, and even some posters advertising ham radio. Despite this being set-up in an exceptionally heavily (foot) traveled areas, we only got the ability to talk to two scout members who came from another event, and even then, we weren't able to directly draw up substantial interest into the parent's about ham radio. If that alone didn't generate very much interest, and some would even put no interest, then how would operating out in public alone as a club with no advertising generate ANY interest?

It's a difficult question to pose; not to generate an answer, but to face the reality of. I'm not saying that clubs have to spend every single event they do on benefiting the community; hosting workshops to club members is a stellar way to build interest in a club, and getting out to operate in the park is a great way to boost operating skills. However, when I see clubs not doing any events for community outreach, even for something such as JOTA and contacting out for local troops, it's not difficult to find out why ham radio is struggling to grow. Clubs are powerful; make

use of that power to grow the community, not the club itself. If you grow the community, the latter will come as well.

### **Dayton:**

I will be attending Dayton for the year of 2024! Last year, there were plenty of youth presentations on various topics and this year there will be some as well. I will summarize these presentations up for May's monthly newsletter.

### **Contact Me:**

Please email me at [et.k9zn@icloud.com](mailto:et.k9zn@icloud.com) if you have any questions or issues about my Section Youth Coordinator work. Response times can range from an hour to a day.

## **Member Contributions**

### **2024 Spring Tri-County ARC – W9MQB Swapfest**



**ARRL Table at the Tri-County ARC Swapfest  
Pictured (L-R)**

**Tom Czaja, KG9EE, ARRL Wisconsin Assistant Section Manager  
Richard Polivka, N6NKO, ARRL Wisconsin Section Technical Specialist  
Myron Oestreich, KB9STB, ARRL Wisconsin Section PIO**

The Tri-County ARC – W9MQB Spring Swapfest was held at the Jefferson County Fairgrounds on Sunday, March 17, 2024. The Swapfest was very successful with over 350 attendees and approximately 100 vendors. The ARRL Wisconsin Section had a table at the Swapfest and it

was a pleasure speaking with all the attendees who stopped at the table. Thanks goes out to Mike Zore, AE9MZ, and his team for their hospitality and putting on a great swapfest.



**Are You Looking for a New Challenge?  
Tom Czaja, KG9EE**



Are you an awards hunter and looking for a new challenge? The Radio Amateurs of Canada (RAC) offer numerous awards. One of the awards is the Canadaward. The Canadaward is available to any Amateur who has submitted satisfactory evidence showing two-way communication with other Amateur stations in each province and territory of Canada. There are 13 Provinces and Territories. The most elusive Territory is Nunavut which is the largest and northernmost territory of Canada. It is the fifth-largest country subdivision in the world with a population of 36,858 yet only 26 hams are licensed in the Territory followed by the Northwest Territories with 55 licensed hams. After 30 years of waiting, I was fortunate to make contact on FT8 with VY0ERC, the Eureka ARC, on Ellesmere Island (IOTA NA-008) in Nunavut. The application is available on the RAC website (<https://www.rac.ca/operating/rac-operating-awards/>) and verification is completed by 2 other licensed hams. You do not need to submit proof with your application. Both QSL cards and LOTW are acceptable.

The RAC also issues awards for Worked All RAC, Canadian Century Club and Worked All North America. The RAC Awards Committee is very responsive, and I received my award within two weeks of submitting my application. Payment is done through PayPal and the cost is \$15.00 (CAD) for a paper certificate and \$5.00 (CAD) for a PDF.



# Setting Proper Signal Deviation Levels for FM Packet / VARA FM Operation

by

Richard E. Polivka, N6NKO  
ARRL WI Technical Specialist / Official Emergency Station

Packet Radio at 1200 baud on VHF/UHF has been with us for years. The up and comer here and is doing a good job at displacing Packet Radio is VARA FM. Both are great tools to use but one has to take care at adjusting levels for proper operation.

Adjusting transmission levels has always been hit or miss on VHF/UHF. You need a handful of expensive test equipment to set FM deviation properly (tone generator, FM deviation meter or Spectrum Analyzer). That has now changed with the ubiquitous availability of an RTL-SDR/ HackRF module of some kind. That data is then fed to a PC of some style for operation / display. If you have, or know someone who has, an RTL-SDR, the task has now become real simple. But first, the background and the heavy math has been done for you already.

The 100<sup>th</sup> Edition of the ARRL handbook has a good overview of this topic in Volume 2, Section 11, pages 11-7 through 11-9. What I will be covering is how to do the adjustments and the reasoning behind them. And here we go.....

An unmodulated FM signal (carrier only) is just one frequency. Once we start modulating the carrier with tones or voice, paired sidebands start appearing on either side of the carrier. It is these appearing sidebands and the corresponding tones that will help up set the levels. The chart below shows graphically the relationship of the carrier and sidebands based on frequency and signal deviation and the mathematically corresponding Modulation Index. Rearranging the equation allows you to solve for the third value if you only have two values.

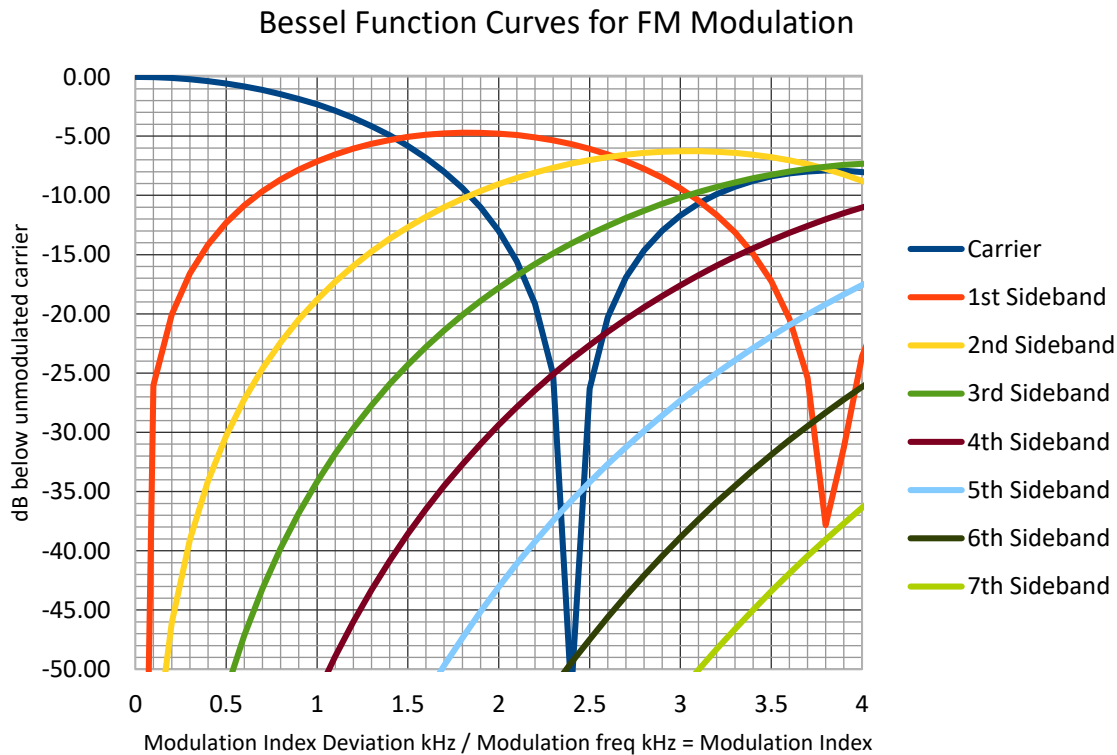


Figure 1

The ARRL Handbook has a graph like Figure 1 but not in color. The coloring of the sideband levels makes the relationships that the sideband levels have more easily seen. This chart will come in handy to understand the display of the sidebands coming from the RTL-SDR software. Going lower than -50 dB on the y-axis is not really useful here but the chart that this came from does go all the way down to -120 dB.

The maximum audio frequency that is used on voice / audio data on VHF/UHF is 3 kHz. We now have the “Modulation Freq kHz” part of the above equation answered. Maximum FM deviation is currently 5.0 kHz. That provide part two of the above equation. So, plugging in the values, 5.0 kHz / 3.0 kHz equals a M.I. of 1.666. Looking at the above chart, and minding only the carrier and 1<sup>st</sup> sideband levels, show values of approx. -8.0 dB for the carrier level and -4.7 dB for the 1<sup>st</sup> sideband. Now this is where it become easy. Look at the point where the carrier and 1<sup>st</sup> sideband meet. This is our target point for adjusting using the RTL-SDR. This gets us a deviation of about 4.3 kHz max and safely inside of the 5 kHz modulation maximum. This should also help alleviate any compression / limiting action that can mess up signals being sent, increasing error rates and retries. What is nice here is that even though we are not using 3 kHz as the test signal (VARA FM uses 1500 Hz, Packet can be either 1200 or 2400 Hz), we adjust for Modulation Index and the rest just falls into place. So how does this look on the RTL-SDR display? That is what is next.

The following pictures are from using a HackRF SDR and the gqrx program for Windows for monitoring. The transmitter is an ICOM IC-2000H being controlled via a Digirig Mobile modem.

Figure 2 is a picture of the radio being keyed up with the modulation signal at zero. There will be some fuzz in there because of electrical noise.

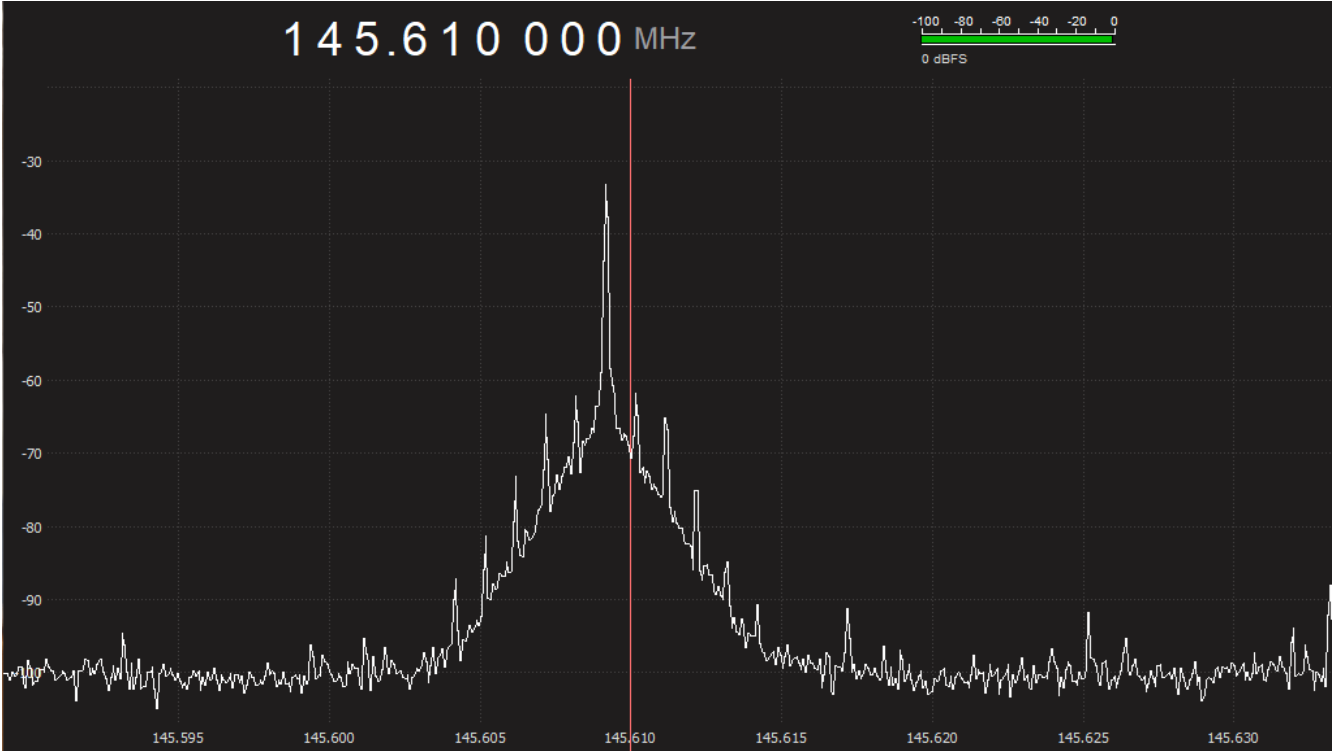


Figure 2

Figure 3 is the envelope with the modulation all the way down in VARA FM and the Windows volume level for the “3 – USB Audio Device” at 1:

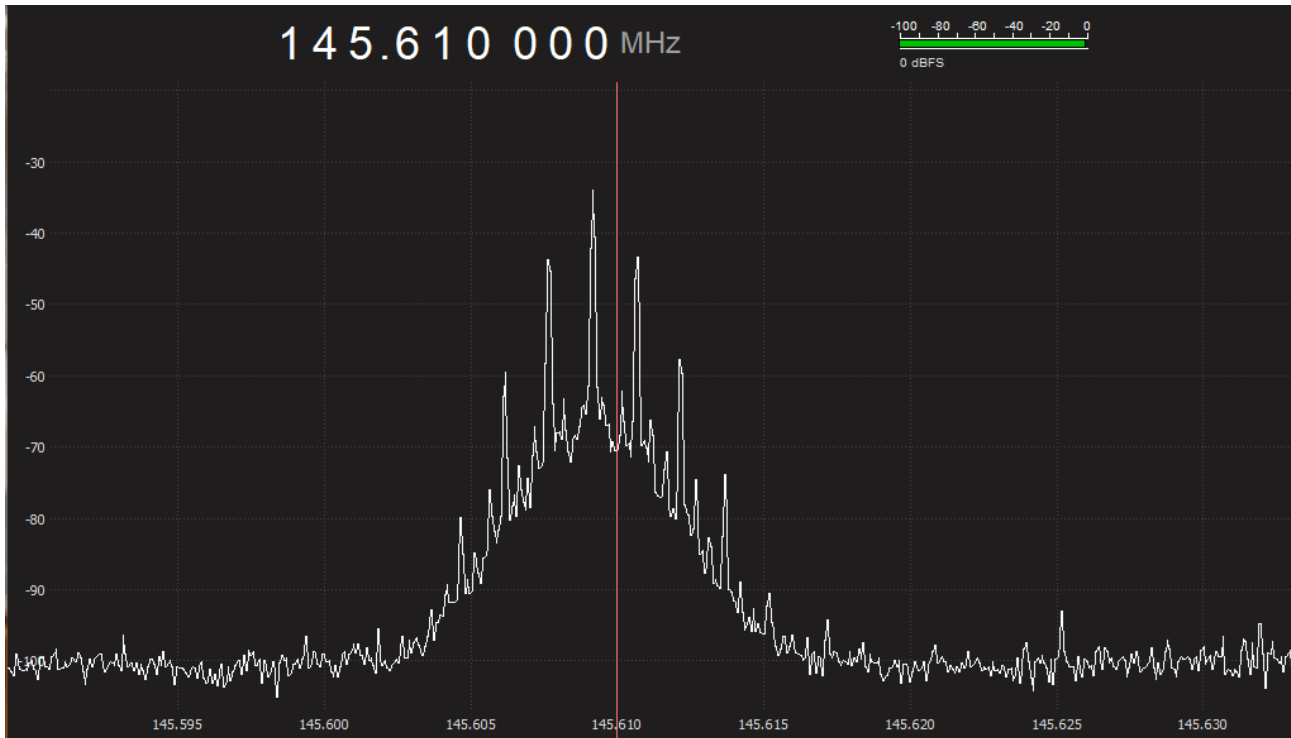


Figure 3

You will note that the carrier and the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> sidebands are now prominent in the display and the hash has been minimized.

Figure 4 is what the display looks like when you increase the modulation to a point where the carrier and 1<sup>st</sup> sideband are just about equal. You may or may not get them exactly equal but if you can't, error on the carrier being slightly higher in level than the 1<sup>st</sup> sideband as this will result in a slightly lower FM deviation value.

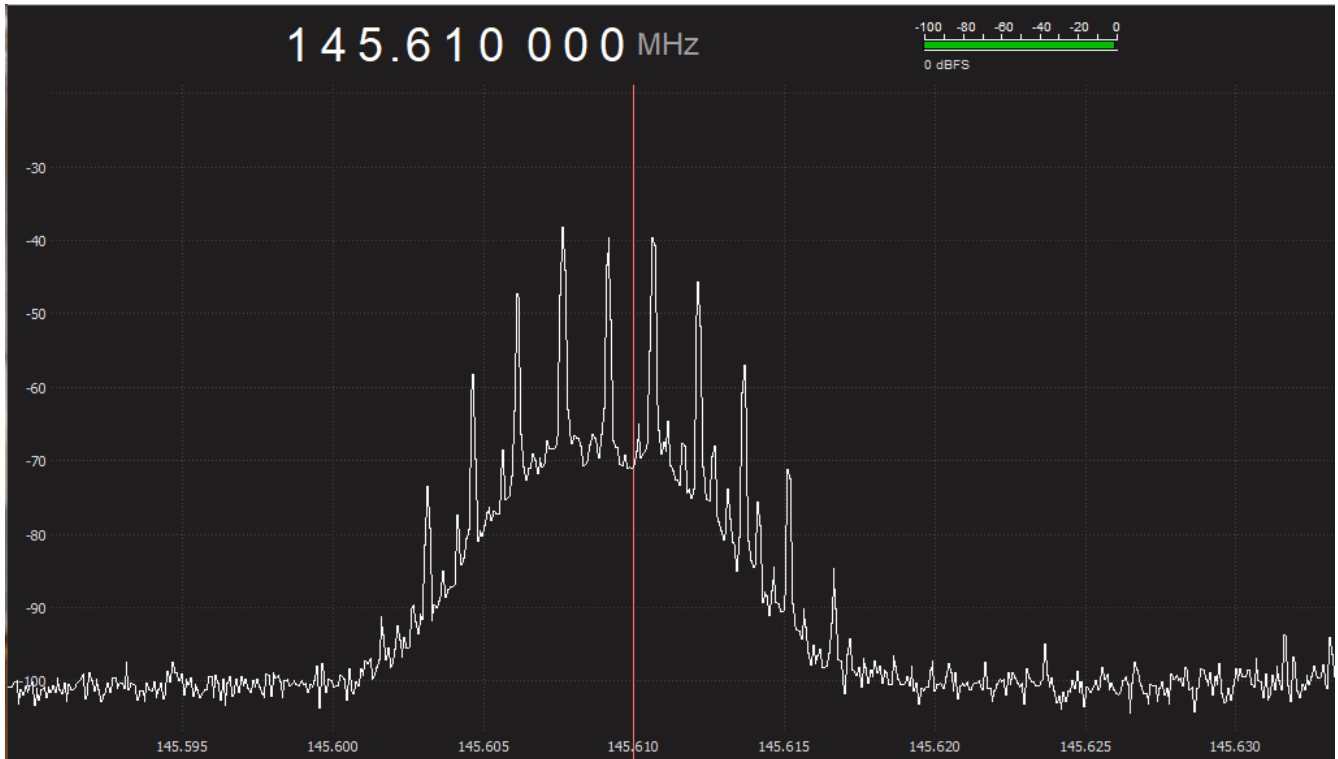


Figure 4

If you look closely at Figure 4, you have showing here the carrier, just to the left of the red vertical line, being buttressed by the 1<sup>st</sup> through 5<sup>th</sup> sidebands on either side as they are in pairs. This presentation has the VARA FM modulation level at -23 dB and the Windows Speaker volume for the “3 – USB Audio Device” at 1. If this was going into a line level input, the values would be much higher. If you look at the Bessel Curves chart (Figure 1), you will see the carrier and the 1<sup>st</sup> through 4<sup>th</sup> sideband level on the chart but the 5<sup>th</sup> sideband is just cut off. That is because the Y-axis is trimmed to magnify what is important here, the carrier and 1<sup>st</sup> sideband equal level point.

The signal modulation issue is not as prevalent when using packet radio as that is just a two tone signal. But with VARA FM and its advanced modulation methods, in this case 4PSK, this now becomes essential and the two pictures below show this. The left one is adjusted properly and the right one is probably overdriven. Both stations are the same distance from me and have the same received signal strength as well.

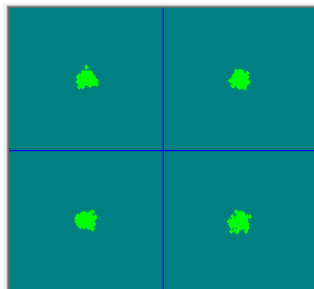


Figure 5

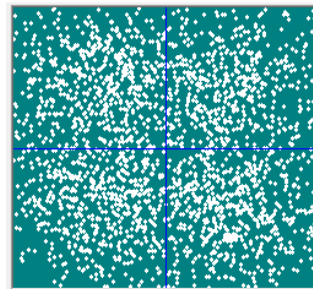


Figure 6



VARA FM, besides from 4PSK modulation, can shift to Quadrature Amplitude Modulation (QAM) with a mode as high as 256QAM when on a very solid and stable path with no fading or multipath. With the station that supplied the Figure 5 constellation, I have had connections as high as 64QAM. The station that supplied Figure 6, I have gone no faster than 4PSK with a connection. You will never get to the faster QAM transfer speeds as signal amplitude comes into play if you are slamming your limiter and it removes the amplitude variations.

In summation, with a simple set of tools, the process of setting a safe, effective, and courteous deviation level will go a long way. Each system (computer / modem / radio) will have to be set up in this fashion and considered as a one-off installation as the numbers do not transfer across for every combination. This will also increase throughput of data and minimize retries because of the lack of either transmitted or received signal distortions.

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*Richard Polivka, N6NKO, is a retired Principal Engineer at ABB, Inc. His primary duties were to provide advanced engineering and project management services to the Variable Speed Drives, Renewables (Wind/Solar) power generation, Custom Systems support, and other high powered power generation and controls markets. His hobbies include Amateur Radio, CAD/CAM Design and Machining, and Soaping.*

## **In Memoriam**

We have been made aware of the following members who have become silent keys since the last publication.

- Loren Liddell, WD9AUP, of Cedarburg, WI – [view obituary](#)

On behalf of the Wisconsin Section, our condolences go out to the family and friends of our fellow hams who have passed. May they all rest in peace.

If you become aware of a silent key, from our section, please contact the [Section Manager](#) or Assistant Section Manager, [Tom Czaja, KG9EE](#) with the details.

## Upcoming Fests and Conventions

### **April 27, 2024 – ORC 44<sup>th</sup> Annual Spring Indoor Swapfest**

Location: Cedarburg, WI  
Sponsor: Ozaukee Radio Club, Inc.  
Website: <https://www.ozaukeeradioclub.org>

### **May 4, 2024 – ARAC Hamfest**

Location: Superior, WI  
Sponsor: Arrowhead Radio Amateur Club  
Website: <https://www.thearac.org/>

### **June 1, 2024 – Green Bay Mike and Key Club Hamfest**

Location: Green Bay, WI  
Sponsor: Green Bay Mike & Key Club  
Website: [www.k9eam.org](http://www.k9eam.org)

### **June 8, 2024 – Lyons WI Annual Free Fest**

Location: Lyons, WI  
Sponsor: Lakeshore ARC & Lakeshore Repeater Association  
Website: <https://www.facebook.com/groups/752141054863802/>

### **June 15, 2024 – Riverland ARC Swapfest**

Location: Stoddard, WI  
Sponsor: Riverland Amateur Radio Club  
Website: [www.rarc.qth.com](http://www.rarc.qth.com)

### **July 6, 2024 – South Milwaukee ARC Hamfest**

Location: South Milwaukee, WI  
Sponsor: South Milwaukee ARC WI9SM  
Website: [www.wi9sm.org](http://www.wi9sm.org)

### **August 3, 2024 – Central Division Convention**

Location: Elkhart, IN  
Sponsor: Central Division  
Website: <https://elkharteasthamfest.com/convention.html>

### **August 10, 2024 – CVARC 2024 Hamfest**

Location: Chippewa Falls, WI  
Sponsor: Chippewa Valley Amateur Radio Club  
Website: <https://w9cva.org/hamfest>

### **August 24, 2024 – Circus City Swapfest**

Location: Baraboo, WI  
Sponsor: Yello Thunder Amateur Radio Club  
Website: <http://yellowthunder.org>

### **September 7, 2024 – ORC Annual Regional Fall Swapfest**

Location: Cedarburg, WI  
Sponsor: Ozaukee Radio Club

Website: <http://www.OzaukeeRadioClub.org>

**September 20-21, 2024 – HRO Superfest**

Location: Milwaukee, WI

Sponsor: Ham Radio Outlet

Website: Not Provided

**October 19, 2024 – Hidden Valley ARC 1<sup>st</sup> Annual Hamfest**

Location: Lancaster, WI

Sponsor: Hidden Valley Amateur Radion Club

Website: Not Provided

**November 2, 2024 – ARES Conference / State Convention**

Location: Wisconsin Rapids, WI

Sponsor: Numerous

Website: <https://wi-arri.org/events/>

**March 16, 2025 – Tri County WI Hamfest**

Location: Fort Atkinson, WI

Sponsor: Tri-County Amateur Radio Club

Website: <https://www.W9MQB.org>

\*\*\* See these items and additional Section information on the [ARRL WI Section website](#). \*\*\*

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**ARRL Wisconsin Section**

**Section Manager: Jason Spetz, KC9FXE**

**[kc9fxe@arri.org](mailto:kc9fxe@arri.org)**  
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**WISCONSIN SECTION MONTHLY NET ACTIVITY  
MARCH 2024**

<b>NET</b>	<b>QNI</b> CHECK-INS	<b>QTC</b> TRAFFIC	<b>QTR</b> TIME	<b>SSNS</b> SESSIONS	<b>NM</b>
<b>BWN</b>	<b>1203</b>	<b>1749</b>	<b>3243</b>	<b>31</b>	K9LUK
<b>BEN</b>	<b>382</b>	<b>352</b>	<b>572</b>	<b>31</b>	NX9K
<b>WSBN</b>	<b>498</b>	<b>293</b>	<b>713</b>	<b>31</b>	AG9G
<b>WSSN</b>	<b>218</b>	<b>66</b>	<b>428</b>	<b>31</b>	KB9ROB
<b>WIN/E</b>	<b>178</b>	<b>311</b>	<b>336</b>	<b>31</b>	WB9ICH
<b>WIN/L</b>	<b>198</b>	<b>81</b>	<b>287</b>	<b>31</b>	W9RTP
<b>WI ARES/RACES HF</b>	<b>86</b>	<b>18</b>	<b>165</b>	<b>5</b>	WB9WKO
<b>WI ARES/RACES VHF</b>	<b>22</b>	<b>0</b>	<b>90</b>	<b>1</b>	KA9KJE
<b>WI ARES/RACES DIGITAL</b>	<b>288</b>	<b>1928</b>	<b>5760</b>	<b>4</b>	KB9MMC
<b>totals</b>	<b>3073</b>	<b>4798</b>	<b>11594</b>	<b>196</b>	

**WISCONSIN SECTION P S H R SUMMARY MAR 2024**

<b>POSSIBLE POINTS &gt;</b>	<b>40 nets</b>	<b>40 tfc</b>	<b>30 appt</b>	<b>5 /hr. sked events</b>	<b>5 /hr. emrg events</b>	<b>10 ea bbs / web pg</b>	
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>T</b>
N9VC	40	40	30	275	0	20	405
KC9FXE	40	40	20	25	0	10	160
AG9G	40	40	30	25	0	0	135
KB9IME	40	40	30	15	0	0	125
K9LGU	40	40	30	10	0	0	120
WB9WKO	40	40	30	10	0	0	120
NX9K	40	40	20	0	0	0	100
KB9GO	40	40	10	0	0	0	90
KC9UC	40	40	10	0	0	0	90
N6NKO	15	8	20	0	0	0	43

## WISCONSIN SECTION

### STATION ACTIVITY SUMMARY March 2024

STATION	ORIG	RCVD	SENT	DLVD	ATT	TOTAL
NX9K	751	583	1228	0	0	2562 - BPL
N9CK	0	406	398	3	0	807 - BPL
WB9WKO	0	432	306	3	0	741 - BPL
KB9GO	0	421	148	3	1	573 - BPL
AG9G	0	284	185	0	0	469
N9VC	0	170	277	0	0	447
WJ9L	0	103	100	10	2	215
KC9UC	0	87	115	0	0	202
KC9FXE	0	58	92	10	0	160
K9LGU	0	68	86	1	0	155
KB9ROB	3	62	24	22	0	111
KB9IME	0	25	12	10	3	50
KA9BAE	0	17	22	0	0	39
W9RTP	0	23	5	3	1	31
W9RNA	0	17	4	6	2	29
WB9ICH	0	22	2	0	0	24
KA9KJE	2	5	1	0	0	8