



The *ORC* Newsletter



Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Bill Shadid, W9MXQ (newsletter@ozaukeeradioclub.org). Permission to reprint articles published in any issue is granted provided the Author (as shown in the article) and the Ozaukee Radio Club Newsletter are fully credited in any publication.

ORC Repeaters on 146.97 (-127.3PL), 224.18 (-127.3PL), 443.75 MHz (+127.3PL) - Callsign W9CQO
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Volume XLI

February 2023

Number 2

From the President

de: Bill Greaves, K9GN



I look forward to the coming year as your president. The year will be a big learning experience, especially following the excellent three years Pat W9JI has given to ORC. All of your Board members, officers, and committee chairs are dedicated volunteers helping to lead the club. Being a member of this group is an honor and a privilege as well as a responsibility. These individuals are just like you – dedicated members who enjoy ham radio and take a turn to help out the club.

While I have not asked Pat W9JI Volkmann his shoe size – I know they are big! Pat was President of ORC for arguably three of the toughest years in ORC's history. He began his first year just as the novel coronavirus pandemic began and severe restrictions on in-person meetings and activities began. He led the club through all of this with member input, common sense, and innovation not only to sustain but also to build ORC into a stronger and more resilient organization. The hybrid/Zoom meetings we now enjoy is but one example. I thank Pat for his highly successful three years as ORC President, and I believe I am joined by the entire membership. Thank you, Pat!

Pat remains on the Board as Past-President. Also, he has taken over as Chair of the STEM Committee. Tom W9IPR Ruhlmann helped lead the successful Scholarship Committee that met its goal and now is serving on the new STEM Committee with Gary W9XT Sutcliffe, Bill W9MXQ Shadid, and Gary N9UUR Bargholz. The February meeting program will be about STEM activities in the local area and opportunities for our club.

Personally, I am a “new, old ham” who re-joined ORC in 2020. After getting my novice license in the mid-1960s, I upgraded to general in the mid-1970s, and then upgraded again in late 2020. After my novice days, my on-air activity has been occasional 2 meters, mainly portable and mobile. Life was busy with family and career, and I always enjoyed

the monthly QST and CQ magazines with their new product reviews and all things amateur radio. I joined ORC to meet and chat with other local hams and learn by doing. I met members at the monthly meetings, online at first, and went to my first ever Field Day in 2021. I felt like a sponge soaking everything up from the more experienced members, which was pretty much everyone. And I still feel that way! We have a friendly and helpful membership who have tremendous knowledge and experience. I'm relying on that helpful advice as I gradually build my own ham station in my basement. I'll detail my progress in future newsletters.

I would be pleased to speak with any member about any activity of the ORC to enhance your enjoyment of amateur radio and how you believe we can all improve our ORC.

73, Bill K9GN



A Message from the Editor

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de: Bill Shadid, W9MXQ

Please note Club President, Bill Greaves, K9GN, on Page 1 for his first monthly message.

Take a look at several new or returning authors this month. It is nice to see Tom Trethewey, KC9ONY, with his several offerings – along with a bit of a challenge from his “Fun on the Interstate” article. And, nice to see Jim Albrinck, K9QLP, with an interesting article – and an opportunity for some interesting operating. I added a note referencing Jim’s discussion of 10-meter FM – but want to add that just minutes ago I made my first 10-meter FM Simplex contact with a Japanese station, just above 29.0 MHz. I am a frequent user of 10-meter FM Repeaters in the Caribbean for contacts to Europe.

Tom Ruhlmann, W9IPR, along with Ray Brunette, Jr., provide us with an obituary for Ray’s father, Ray, Sr. Ray Brunette, W9BUJ, was one of the Ozaukee Radio Club’s early members. Ray Brunette, Jr., runs the family business, Lake-View Electronics. Lake-View’s website is www.lvelectronics.com. You can reach them at their incoming sales email of sales@lvelectronics.com. Ray reminds us that if hams deal with him or his son, Chris, receive discounted pricing. Give them a try – they are local business and are willing to help hams. What more could we ask?

Check out references to the Wisconsin QSO Party – coming up in March. General information appears on Page 11. Also look for the event in the monthly On the Air Activities column, penned by Gary Sutcliffe, W9XT. Lots of other activities there as well.

Don Zank, AA9WP, continues a series on NIMS Communication. Don’s well written articles are a window on emergency communications and techniques.

Stan Kaplan, WB9RQR is back with his long running series – 299th in his series – on Linux and other operating systems. Say, this being is his 299th article – next month would seem to be an approaching milestone!

I bring you two articles this month with Part 2 of my two-article series on the Collins 51S-1 Professional Communications Receiver. As with all my articles, I only write about radios I have used. A second article is on a long-time power mystery in my house. Check it out!

Finally, check out Ken Boston, W9GA, not only for the January meeting minutes but also on pages 42 and 43 for ballots to elect ORC Turkey of the Year and ORC Ham of the Year for 2023.

This Newsletter is about you and what you do. I am totally impressed with the volume of material submitted this month. Keep it up, folks.

Check out the Table of Contents on the very next page.

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Onward To the Newsletter

Expanding Club Membership

de: Tom Trethewey, KC9ONY

A recent ARRL Club News issue had an article titled “Two Simple Tricks to Expand Club Membership.” You can read it at the link below:

<http://www.arrl.org/club-news?issue=2023-01-17#toc05>

When I started coming to the ORC meetings, I recall someone was tasked with making sure those without a name tag would have a temporary sticker to show their name and call sign. If no call sign yet, at least the name. At the start of the meeting, we would do like we do now...go around the room to introduce each person and their call sign, if they had one. It's a good way to put a name and call sign to a face, even for club members. Perhaps we could consider finding a volunteer to be responsible for making sure everyone has some sort of name tag?

The article also talks about club members monitoring the club repeaters. This is a good idea to answering unfamiliar call signs and also promoting our events. There are some of us that monitor some of the repeaters quite frequently, but we can't do it all day long. I admit I find myself not monitoring the club's UHF repeater (443.750 MHz) very often either. I'm hoping we could get some volunteers to monitor one or more repeaters on a regular basis at a scheduled time. So, if by chance there is a new ham heard on the repeater, they can at least be acknowledged and invited to the club meetings.

I currently run the Net on our 146.97 MHz repeater Tuesdays at 8 PM. I'd also like to encourage someone to create a Net on one of the other club repeaters. Again, we have been linking up the 220 repeater to the 2m for the Tuesday Night Informal Net. I am thinking someone could create a 220 Net and a 440 Net. It could be a daytime Net or a weekend Net, which might make it easier to attract more participants. I've heard that some of the repeaters down by Racine are getting activity, as well as some repeaters up near Door County. There's no reason why we couldn't get our repeaters more active as well.

What are your thoughts to expand our membership and/or repeater monitoring?

73,

Tom, KC9ONY

Fun On 10-Meters

de: Jim Albrinck, K9QLP

Tom, KC9ONY, has been telling me for years to write up something about the 10-meter remote base on our 224.18 repeater. Well Tom, you asked for it.

The 224.18 repeater has for many years had the capability to hook up to a 10-meter remote base at the repeater site. The remote base operates on 29.600 FM and puts out around 60 watts into a rigid dipole, horizontally mounted on the 146.97/224.18 tower. Any control op can activate the system and monitor it while it's in use. Even a Novice or Technician class operator can access it via the 224.18 system, as long as a control operator is able to monitor. I have an old scanner in the shack that I use to monitor 29.600 FM. When I hear activity on 10 meters, I turn 29.600 on to play through the 224.18 repeater. You can tell when it's on by the different courtesy tone on 224.18. It's a rising tone, not a simple "dit" like 97. I have worked stations all over the US and some foreign countries via the link to 220. Recently I worked Irish and German hams while driving around Cedarburg using my 220 mobile.

We are frequency bound to 29.600 via the repeater, but don't tie it up too long as it's the FM calling frequency. If you have an HF rig, QSY down to 29.500 and rag-chew.

The repeater pairs are a lot of fun too.

29.610/29.510

29.620/29.520

29.630/29.530

29.640/29.540

29.650/29.550

29.660/29.560

Output/Input

There is a repeater transmitting from the Empire State building on 29.620 cross-linked to VHF repeaters. I had a conversation with a cab driver in Manhattan during one opening. The AM stations have been showing up too. Look at 29.000 and up every 10 KHz. I worked France, England, Ireland, Bermuda, etc., on 10 AM. Armchair copy all the way. I used my TS850-S at 100 watts on FM and 52 watts on AM into a 10-meter dipole at 25 feet. It's the same antenna that I used with a converted CB sideband rig in the late 1980's to win a bet with K9CAN/SK that I could get my 10-meter DXCC and CQDX awards using that setup and 12 watts PEP. I must admit, however, that it took 3 years to get all the snail mail QSL cards and 10 meters was exceptionally hot from 1987 through 1990. My ICOM 505 Six-meter rig also performed well during that period. I worked over 170 grid squares USB and CW with 10 watts and a rigid dipole at 30 feet to get the VUCC on six meters.

The bottom line is with 10 meters doing well, try some of the modes not usually used on HF. Ten meters is the only HF band where FM mode is permitted and it's fun to use it for

a change. Normally the repeaters have no PL requirement, but with PL capability in some newer radios that may change.

As a final point, contact, myself, W9DHI, KC9ONY, or another control operator to turn on the link. The link will be closed if no control operator ceases to be available.

73 de Jim, K9QLP

Editor's Note: Those of you working the TN8K, Republic of The Congo DXPedition – how many of you noticed that they frequently held a split setup, just above 20 MHz on 10-Meter FM? I was not able to get them on FM (but sure did try). They were there many days during their operation with very large pileups. W9MXQ



Easiest Contest Anywhere – and Fun, too!!

**All you have to do is work the Parks On The Air
(POTA) station – the rest is
automatic. Check them out at:**

<https://parksontheair.com/>

Fun On 1.25-Meters

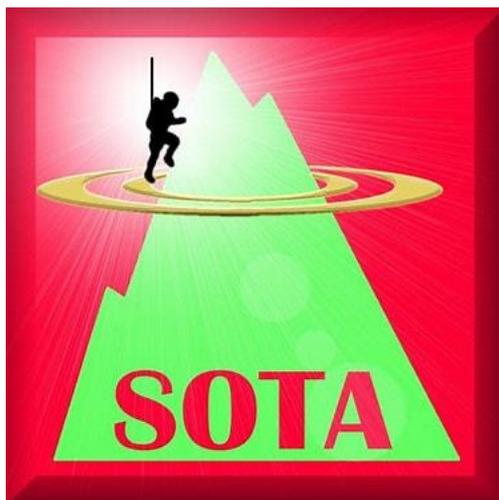
de: Tom Trethewey, KC9ONY

Are you a proud owner of a 1.25-meter (222 MHz) radio, but haven't used it in a while? If so, blow the dust off of it and power it up on the Ozaukee Radio Club (ORC) 224.180 MHz repeater! You'll be surprised on the range of the repeater itself.

As Jim K9QLP noted in his article in this newsletter, the ORC 220 repeater can link up to a 10-meter transceiver for some remote HF fun. The controller used in the 220-repeater system can also link to a 2-meter transceiver, but not at the same time as the 10-meter transceiver. The 2-meter transceiver is fixed on the ORC 2-meter frequencies and is then picked up by the ORC 2-meter repeater system.

For a while now, we have been linking the 220 to 2-meter for use on the ORC's Tuesday Night 2-meter Informal Net at 8 PM. Thus, you can use your 220 radio to participate in the Informal Net. Give it a try!

I'm wondering if anyone would be interested in starting a 220 Net?



**Did I mention
Summits on the Air
(SOTA)?**

<https://www.sota.org.uk/>

Fun On the Interstate

de: Tom Trethewey, KC9ONY

Recently, Loren N9ENR and I were traveling back to Wisconsin from a hamfest in Illinois. We were in two cars and talking via D-STAR simplex. Then I heard some horn honking. What was that? It was about 8 beeps then quiet....again, 8 beeps then quiet. As I-94/I-294 is rather busy on a Sunday late afternoon, it was hard to tell where it was coming from. I'm guessing it was coming from a landscaping type of truck that had a cherry picker on top, in the lane to the left of me.

I told Loren I heard some beeping, which sounded familiar. Could it be the "shave and a haircut, two bits" tune? Do you remember that? See the link below:

https://en.wikipedia.org/wiki/Shave_and_a_Haircut

or

https://www.youtube.com/watch?v=YQdX_TeOhf0

No, that's only 7 beats. I'm hearing 8 beeps.

There it is again. Still can't tell for sure if it's from the truck. Well, instead of 8 beeps, it's more like two sets of 4 beeps:

Beep...beep, beep, beep....
Beep, beep...beep, beep.

It's bugging me that it sounds familiar. I attempted to convey the sound to Loren over the microphone. He said it sounds like.....?????

Do you know what it was? The answer coming in the March newsletter!

73,
Tom
de KC9ONY

Ray Brunette, W9BUJ – Silent Key

Edited by Tom Ruhlmann, W9IPR, and Ray Brunette, Jr.

Ray Brunette, one of our very early ORC members died December 22nd, 2022.



Ray was born in Duck Creek WI. , a suburb of Green Bay, May 26, 1929. He excelled in baseball during high school and was initially recruited by the Cleveland Indians where he tried out for their farm team. He truly loved playing ball and was still playing Senior League softball at age 83.

As a youth he was tutored in electronics and “HAM” radio by his “HAM” uncle, Carl Schaff. This proved invaluable when he joined the U.S. Army where he continued his technical training and ended up teaching radar systems which were relatively new at the time. This led

to his earning a commercial broadcast engineers license and a job at the ship to shore radio station in Port Washington. It was in Port Washington that he met his wife Renee, and they started their family.

In 1961, Ray went to WITI (Channel 6) and assisted in building the station on Donges Bay Road. This was followed by the expansion of the station, and you will now note their tower in Estabrook Park near Capitol Drive in Milwaukee.

Another “old time” ORC member, Sandy Wirth (W9BTN), started a CB electronics company, KRIS electronics, and recruited Ray as a national sales manager. As CB started to fade and Allied Electronics moved to the area Ray became their branch manager. Allied (TANDY) became more interested in retail electronics so then Ray moved to Newark Electronics as branch manager. While at Newark Electronics he realized that if he could operate the business for someone else, he could operate his own electronics distributor operation. He then founded Lake View Electronics in 1973 originally in a residence in Thiensville. Then he expanded as the business grew and in 1976, he converted a service station on Port Washington Road to his new location. With further growth, in 1989 he bought land along Interstate 43 at exit 89 and built the present facilities where his son now manages the wholesale operation.

Ray especially enjoyed going to Swapfests and buying “bargains” which he intended to repair and resale at a profit (sometimes). He and his nephew, Rodger Davies of Utah, often rode with us to the Dayton Hamfest and their stories did much to make the trip shorter.

He and Renee enjoyed the warmer weather. So, they bought a diesel RV and traveled the coasts and, during the winter, the South. It was on a trip to Texas that he was talking

to a fellow ham in Corpus Christi on VHF who invited Ray to park at his place. They did for several years and then bought the place.

Ray is survived by his wife, Renee, and his son Ray Jr. and family who now run the business.

There will be a memorial service for Ray at St. Francis Borgia in Cedarburg at noon on 26th of May. **See other notes in the “From the Editor” Column” on Page 3.**

Wisconsin QSO Party

March 12, 2023 - 1800Z to 0100Z March 13
(1:00PM CDT to 8:00PM CDT on Sunday, March 12)
> *First day of Daylight-Saving Time* <



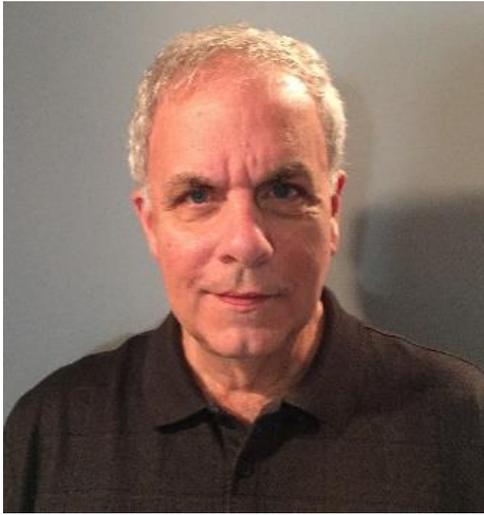
Event Sponsor

Remember to send in your log and credit the
Ozaukee Radio Club for your entry.
Spell it out – Ozaukee Radio Club – not “ORC.”
Rules: http://warac.org/wqp/2023/wiqp_rules.htm

CW, Phone and Digital (RTTY, PSK, Olivia, Feld-Hell)
FT8/FT4 QSO's are not accepted.

Do Not take AC Line Feed Voltage for Granted

de Bill Shadid, W9MXQ



In my professional life, I traveled throughout much of Western Europe, China, and SE Asia, plus some of South America, Australia, as well as Mexico and Canada. One of the biggest considerations, as I carted my necessary computer and cell phone tools from place to place, was the prevailing AC voltage. Mostly I found that I focused on adapter and plugs to accommodate everything from 100 volts in Japan to 240 volts in the UK and Europe. Many/most times, hotels focusing on western guests, in China, provided 120 VAC for their American/Canadian/Mexican guests. There were a multitude of styles of wall connectors. Sometimes different from city to city in China. It was all pretty much dependable with the exception of

Eastern Europe and China in early years of my travels (1975-onward) when voltage could drop as much as 20% during peak load times. Most of that problem had gone away by my last China, Taiwan, Hong Kong, and SE Asia trip in 2015. (Actually, Hong Kong and Taiwan are like being in London or New York.)

But, as I have recently learned, never take line voltage for granted – even if you live in the United States or Canada.

In the past several months, I have noticed progressively worsening issues with LED replacement bulbs in the house flickering. Oddly, the same brand of bulb would flicker at the same time (totally in sync!!) – an aggravating flicker that was not something one could not just ignore. Several times a second is definitely more aggravating than what is noticed by being in 40Hz or 50Hz AC power for a person used to 60Hz. Mentally, the mind becomes accustomed to 40Hz or 50Hz but the much slower flicker of these lamps in my home was over the top. (I have a collection of Sylvania and Feit branded LED replacement bulbs that have totally replaced our incandescent and fluorescent bulbs.)

The situation with the more frequently aggravating Sylvania bulbs initially seemed solved by removing them and replacing them with Feit brand bulbs.

That solved the problem, right? For a while, yes it did. But other things started to happen that only added to the confusion. During the period of this “adventure,” I had the third occurrence of a burned-out blower motor on the furnace in the house. The furnace technician – who we have used since buying this house, newly built, in 1998 – was puzzled because he said he had installed dozens of the same Carrier furnace but only mine had burned out a blower motor – let alone three of them. For other reasons, the furnace was replaced in 2019 with a Goodman furnace. For the first clue, not recognized at the time, the Goodman blower was a DC motor, not an AC motor like the Carrier.

Over the recent Christmas and New Year's holiday, the problem reached a climax, I was noticing that several things were happening:

1. My ham radio transceiver (200-watt Yaesu FTdx-101MP) could no longer reach full power. No high SWR was seen. The connected Ameritron ALS-1300 Linear Amplifier did not change in output. (Major clue here – not known at the time.)
2. My vintage Drake L7 Linear Amplifier used with my also vintage Drake TR7A transceiver could not seemingly load to more than about 900 watts before the amplifier cooling fan moving to high, they higher, speed. The L7 fan was running in its highest speed position – which I do not ever remember it doing since my former days running full power RTTY.
3. We noticed that the microwave oven was overly quiet – slower fan operation.
4. The furnace seemed to not be able to keep up with formerly easily accommodated outside temperatures.
5. The Feit bulbs were flickering like the Sylvania's had been doing.
6. The circuit GFI Breaker feeding the incoming Spectrum Modem, the Wi-Fi Router, and three VoIP adapters was frequently blowing – at least once or twice a day.

Why I never did this before is a mystery, but I decided to make some voltage tests in the house. Does one ever confirm they have 240 and 120 volts at our circuit outlets? (I do now!!) Well, at first there was little mystery. 120 VAC at the regular outlets and 240 VAC at the one 240-volt line outlet in the house. Understand, however, that none of this was a 100% occurrence. I started making regular checks and in the basement shack where I have a 750-watt (at the setting I am using), 120 VAC, heater in my ham shack. I noticed that when it would cycle it on the voltage would drop to 108 volts – and, gee, the Feit LED bulbs would flicker. At the first time found, this was not a repeatable occurrence – only occurring intermittently.

Finally, on the Thursday before New Year's it came to the point of getting out of hand. I would still read 240 VAC (on a 240 volt outlet) but when checking 120 VAC outlets, some were at 108-volts, and some were at 132 volts. I called an electrician, who arrived the next day. Initially he found no problem but asked what was running in the house. We confirmed that at that moment only a few lights were on – maybe four LED bulbs at <13 watts each. Essentially no load. At his suggestion, we put a cup of water in the microwave which started with loud fan noise but quickly quieted down as that side of the line sagged in voltage. He then confirmed that he saw the 108 on the with the microwave running and 132 VAC on the other side of the 120-0-120 system. He immediately went to the meter outside the house and confirmed that there was a feed problem.

The technician called WE Energies and we had a brief conversation on the speaker phone at which time I was advised to keep high current items off, and they would “arrive within 30-minutes.” Actually, under ten minutes later the WE Energies truck was in front of my house with a tech from there saying he felt he knew what was wrong, to leave my service active, and he would return with an answer. At that point, he went to the service box in the back yard. (We have underground service.)

The WE Energies technician confirmed that the ground lead in the back yard Distribution Box had pulled loose. He could not comment on whether it had been intermittent before

that point, but he said he resolved the issue and that it should not occur again. There are three houses fed by this distribution box. That distribution box is fed by on-ground transformer cabinet elsewhere on the utility easement behind six houses in our “cluster.” The problem was apparently tied to underground service and the relatively light weight distribution box. The feed cable from the house is buried quite deep and remains stable as the box moves up and down with freeze and thaw cycles. Without a specialized installation process, this works the connections loose over time.

On additional item. The electrical contractor technician who was here first had advised me (and upon arrival warned the WE Energies technician) that he felt a shock when touching the outside box holding the service meter. That clue allowed the WE Energies technician to guess, before checking the service point, what was wrong. The floating ground was the cause of the shock. And, I had experienced it once during this occurrence. I will not provide details because while I understand the issue, I do not want to make an error in my description. (I do have a ham license but my finding over the years is that this qualifies me to turn on the radio and connect the antenna!!) But be aware of the symptoms outlined here – the potential for injury (or worse) is present here. My personal clue to that statement is tied to the speed of response to the problem by WE Energies!!

So, let's review the symptoms and the results:

1. My ham radio transceiver (200-watt Yaesu FTdx-101MP) could no longer reach full power. No high SWR was seen. Connected Ameritron ALS-1300 Linear Amplifier did not change in output.
 - Radio was on the 108 VAC side of the occurrence.
 - Problem now corrected – all radios operate at full power.
 - ALS-1300 was running across the 240 VAC line.
 - Somewhat unique, the ALS-1300 when wired for 240 VAC has no internal item or accessory still on 120 VAC operation,
2. My Drake L7 Linear Amplifier used with my Drake TR7A vintage station could not seemingly load to more than about 900 watts, on the high-voltage (SSB) mode position. And the L7 fan was running in high-speed position – which I do not ever remember it doing since my days running full power RTTY.
 - Fan in the L7 was running too slow – so temperature sensor set the fan to high-speed operation. Fan in the L7 was, as it happens, on the low side of the 120 VAC line – the one side of the 240 VAC input.
 - Filaments on the 3-500z were off the filament transformer which operates from the 240 VAC line. So, no tube damage.
 - Older American-made Solid-State Transceivers (like the TR7, TR7A, and TR5) do not use regulated voltage for the Power Amplifier¹. They have a separate feed for low current 13.6 VDC. “The higher current, unregulated, “12 VDC” line was sagging and therefore the drive from the TR7A was not as expected.
3. We noticed that the microwave ovens (two in the house) were overly quiet – slower fan operation.
 - Microwave ovens were on the 108 VAC side of the occurrence – now corrected.

- Fan motor was running slow – so it was quieter.
4. The furnace seemed to not be able to keep up with formerly easily accommodated outside temperatures.
 - Furnace and fan were on the 108 VAC side of the occurrence – now corrected.
 - The DC fan was not damaged but it ran slow – limited heat distribution.
 - The older furnace's AC motor was damaged by the AC voltage being too low to allow the starter winding in the motor to disengage.
 5. The formerly proper operating Feit bulbs were flickering like the Sylvania's had.
 - Study with a Variac™ later showed that the Feit bulbs started flickering at about 113 volts while the Sylvania bulbs would start to flicker at 116 volts. So, as the voltage dropped, they would begin to flicker. Sylvania seemed worse because it needed a higher voltage.
 - I had not discarded the Sylvania bulbs – some are back in service.
 6. The circuit carrying the incoming Spectrum Service Modem, the Wi-Fi Router, and three VoIP adapters was blowing – at least once or twice a day. Clue for later – this circuit has a GFI breaker in the outlet.
 - GFI circuit was on the 132 VAC side of the occurrence – now corrected.
 - I surmise that the extra high voltage caused the GFI to trip.

Many items in the house were on the high (132 VAC) side of the line – any damage or life limiting situations have yet to make themselves known. Initially, items on lower voltage will be more evident than those on high voltage. Over time, either could have suffered life shortening issues.

Epilog: For the past several months I had been experiencing a lot of interference to broadcast radios and televisions in the house from my ham station. I had not experienced that before and it has stopped since the power feed problem was corrected. Both technicians involved in this issue reported stray voltage on the grounded utility meter box – in spite of the fact that there is a ground rod at the circuit breaker box and then a separate ground, connected to the utility ground at the ham shack. Was this an issue? I can only report the results.

Lesson learned: Take nothing for granted – certainly not the power feed to your property.

One additional note from a Home Improvement Internet Site²:

Service Drop Repairs

While homeowners in many municipalities are allowed to do their own electrical work, this applies to household projects like replacing outlets and lights, running electrical cables, and maybe even installing new circuits.

However, homeowners are not allowed to work on any part of the utility's service drop. For one thing, the service drop belongs to the utility company, not to the

homeowner. For another, power in the service drop cables can be shut off only by the utility company.

Homeowners also should not attempt any work on the cables between the service drop and the home's electrical service panel. As with the service drop, power in these cables is live at all times unless the power company shuts it off. If you have a problem with the service drop supplying your home, call the utility company. If you have a problem with the service head or the cables between the service point and your home's service panel, call a licensed electrician.

Credits and Comments:

¹ Linear Amplifiers operating in Class AB1 do not need regulated 13.6 VDC supply voltage. Check the Theory of Operation section of your radio manual for details. Add to that the easier delivery of high current power supply voltage to the transmitter power amplifier was not as easy as today. So, many transmitter or transceivers in the early days of solid-state radios provided low current, regulated 13.6VDC and unregulated high current ~12 VDC. In this case the high current supply was sagging in voltage so the transmitter could not reach full power. Cases in point are the PS7 and PS75 AC Power Supplies for the TR7 and TR7A and the TR5, respectively, has a brute force, unregulated, nominal 12VDC plus a separate regulated 13.6 VDC line.

² Reference, <https://www.thespruce.com/electric-service-drop-basics-1821517>

© W9MXQ



Be careful!!
Don't let this be the last sound you ever hear!!

OZARES: Ozaukee Amateur Radio Emergency Services

by Don Zank AA9WP, OZARES Emergency Coordinator, aa9wp@arrl.net

National Incident Management System (NIMS) Communication



We continue our examination of the requirements from the National Incident Management System or NIMS. Our starting point last month was interoperability and this month we will continue with:

Reliability, Scalability, and Portability.

Their brief definitions are:

- **Reliability:** able to function in the context of any emergency
- **Portability:** built on standardized radio technologies, protocols, and frequencies
- **Scalability:** suitable for use on a large or small scale as the needs of the incident dictate.

We can dig a little deeper into the definitions to get a better understanding.

Reliability is the ability to function in any emergency or to be able to work under various conditions. This extends beyond hardware reliability and includes the user's ability, knowledge, and familiarity with radios and auxiliary equipment.

Scalability is defined as the ability of a system to expand or contract with the size of the incident. Systems included are communications and operations. An increasing incident size could mean working in another jurisdiction or receiving support from another jurisdiction. Basically, the ability to work together to maintain communications. In more complex and growing incidents it becomes vital that everyone is on the same page.

Portability is defined as the "effective integration, transport, and deployment of communication systems." This is where standardization of technologies, operating protocols, and frequencies allow scalability as mentioned above. In the world of first responders, all communicators must be familiar and comfortable with working within all parts of the communication system.

So, what does all of the above mean to Amateur Radio Emergency Service, ARES®? As far as reliability, the faults that can occur that prevent reliable operation can be broken into three categories:

(1) **Hardware**, (2) **Software**, and (3) **Human**.

1. **Hardware** points of failure will include complete, intermittent, or partial failures. Failures can occur to radios, power supplies, (which include batteries) antennas, and accessory components such as terminal node controllers, sound cards, and computers. Other points of failure include the wired connections between power supplies, microphones, headsets, antennas, and other components.
2. **Software** failures would include computer programs that lockup or have confusing functions in the program. Included in this list would be radios that are difficult to program or operate. Unstable computer operating systems, although maybe more infrequent, is another source.
3. **Human** failures are probably the largest and most frequent source of failures. The list of human failures is long and ranges from simple things, such as picking up the wrong microphone or transmitting on the wrong side of a two-band radio to more complex ones, such as the lack of knowledge or training in basic radio programming and operation. Another source of radio operation failures is the increasing complexity of radios and menu-driven operations and setup.

Outside of radio hardware and software, we could include the failure to understand radio propagation and not being comfortable speaking on the air.

Then when you toss in operating in a stressful situation and another source of many of the human failures or weaknesses. The ability to think of your feet is important but cannot be overrated.

So, what can ARES operators do about the reliability issue? We all know that a large price tag does not necessarily mean quality. But is the cheapest radio available going to be a reliable radio? Is it going to be easy to work with? And, because ARES is an all-volunteer operation, spending lavishly is not an option available to everyone.

How about using home-built equipment? There is the advantage of understanding how that piece of equipment works which allows for quick repairs. But the downside can be an issue of quality? That will depend much on the skill of the builder. Home-built equipment may work well at the home QTH but may not fly when out in the field. We are all aware of the many times we work with the "make-do" setups at home that are inconvenient and inefficient but cannot be counted on to support our served agencies.

Scalability and portability work are overlapping requirements. Scalability, or the ability to expand and contract with an event, and portability, or the integration and deployment of communication equipment, are based on some common characteristics. The successful implementation of either or both will require common operating procedures and common radio protocols. The ARES organizations in the Wisconsin South East District are county based. For the counties to support each other during events the use of standardized operating procedures, frequency plans, repeater offsets, and pl tones will be necessary. The frequency channels, repeater, and simplex should be programmed into all radios to allow easy implementation into another jurisdiction.

So how can ARES operators best address the requirements of reliability, scalability, and portability?

In my opinion, the most effective ways are training, testing, and exercise.

Training with your equipment, including reading the manual, should improve the reliability of the equipment and the operator. You could work with another operator who has similar equipment to improve each other's knowledge and effectiveness. A further step could be expanding your training with different equipment and setups from other hams.

Scalability and portability can be addressed by participating in training during net exercises, participating in the National Traffic System, and taking further FEMA training courses. The skills learned will improve your abilities and capabilities to work with others outside your local group.

All of the above can be tested and improved by participating in simulated exercises. Exercises that require working in various environments, locations, and different groups will test the reliability of equipment and operators. Knowledge of the scalability and portability of your setup can be acquired during an exercise. A well-planned training event is the best time to test and exercise yourself as an operator, test and exercise your equipment, and test and exercise the ability of a team(s).

73,
Don
AA9WP

OZARES Repeaters:

147.330, + 127.3 uplink tone

443.525 + 114.8 uplink tone

Practice Nets: First and second Thursdays 7 pm Labor Day to Memorial Day; 8 pm Memorial Day to Labor Day

Monthly meeting: Third Thursday of the month at 7 pm

Training Net: Last Tuesday of the month

On The Air Activities!

de Gary Sutcliffe, W9XT



If you were not operating on the HF bands in January, you missed a real treat. We had the highest sunspot numbers in eight years, and the higher bands were full of juicy DX.

Bill, W9MXQ, picked up all-time new ones (ATNO). Crozet, Ethiopia, Palau, China, Togo, Thailand, Malawi, and Taiwan. All of these were worked on 12 or 10 meters. Bill also notes that he has a self-imposed limit of 20W on FT8. It makes it more challenging!

Fred, W9KEY, also commented that the high bands were hot. He reports working 11 Japanese stations in a row on 10-meter FT4 on January 22. He thought that was extraordinary until he repeated it a few days later. Fred notes that 10 meters can be active from mid-morning until mid-afternoon. Fred must be sleeping in late because I see the band opening around 6:30 AM, almost 45 minutes before sunrise, and staying open as much as an hour after sunset or later.

On January 20, I checked out 10 meters about 10 minutes after sunrise. I was surprised to hear Japan. You usually hear Japan in the afternoon and turn your beam to the northwest. Instead, I was beaming southeast and saw one calling CQ on FT8. I worked him and immediately had a pile of 4-5 JA callers. This long path opening only lasted a few minutes, and I put about 5 in the log before the path closed. I'm not sure I have ever contacted Japan long path before.

Then on January 31, I worked a station in the Philippines long path on 10. It was just after sunrise. Working into Southeast Asia and Australia is not really unusual but getting to Japan or the Philippines is rare. It was undoubtedly helped by FT8, which was not around the last time we had conditions this good.

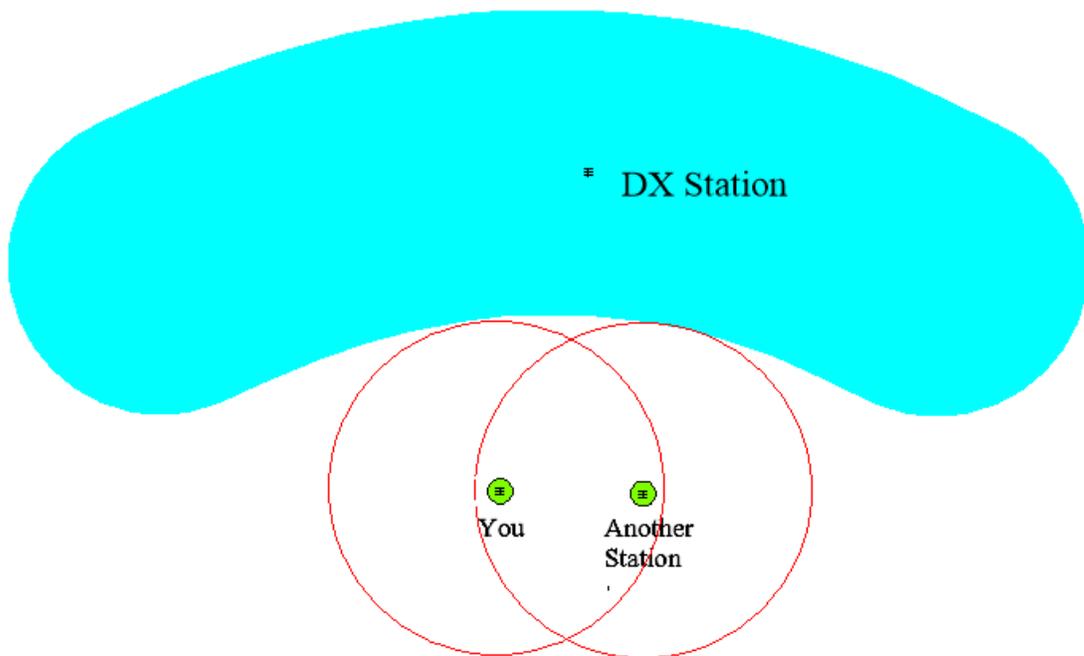
It sure has been a lot of fun, and it should be getting even better for the next couple of years. Signals will get stronger, and band opening will start earlier and close later. There will be times when 20 and even 15 meters will be open all night and days when 10 meters will be open until at least 10:00 PM local time.

The solar flux peaked at around 230 in January, dropping to 130 by the end of the month. The numbers jump around a lot. Still, 130 is not bad compared to where we were a year ago, and the long-term trend is upward.

Fred also noted that you should upgrade your WSJT program if you operate FT4 or FT8. The current version is 2.6.1. There have been a few changes, including better decodes in QRM. That will be even more important as activity picks up and the bands are more crowded. Note the download site for WSJT has been changed. The new site is: <https://sourceforge.net/projects/wsjt/>

The excellent conditions have made FT8 a victim of its own success. There are more stations, and it is often nearly impossible to find a clear frequency. Even if you do, someone in your skip zone won't hear you and may plop right on your frequency, and you QRM each other.

The skip zone is the area beyond ground wave but less than where the sky wave returns to earth. You can't hear signals inside the skip zone, but more distant stations can hear both of you. If you think this might be happening, change your frequency.



Skip zone example. The green areas represent the ground wave distance. The areas inside the red circles are the skip zone. Signals originating inside the skip zone and outside the groundwave area cannot be heard. Both of you can hear stations in the light blue area. The DX station hears both of you.

WIQP

It's not too early to start thinking about the Wisconsin QSO Party. It starts Sunday, March 12 at 1800Z. Note that we change to daylight savings time earlier that Sunday morning, so it begins at 1:00 PM local.

Last year we won the club competition quite handily. But the club that is always in the hunt didn't have an entry from one of its best operators. It would have been very close if he had put in his usual effort. We don't want to risk that again, so please plan to put in some time. You can use HF and VHF bands. Voice and CW modes are acceptable, as well as RTTY. Sorry, FT8/4 is not allowed, but those modes are very slow, even for

contests that allow it. I don't know if anyone uses RTTY. I never thought it was worth the trouble in the WIQP.

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We have another newsletter and meeting before the WIQP, so there will be more information next month. But if you plan ahead, you might want to check out the WIQP page. <https://www.warac.org/wqp/wqp.htm>

WWV Special Event

The WWV Amateur Radio Club will have a special event starting on March 6. It is to celebrate 100 years of the first standard frequency broadcasts from the station WWV in Fort Collins, CO. They will be operating under the club call sign WW0WWV on 80-10 meters, CW, SSB, and digital modes.

WWV is an important part of the National Institute of Science and Technology (NIST). They have been an essential resource for radio communications and science by providing extremely accurate time and frequency standards. Thanks to Fred, W9KEY, for passing this on.

DXpeditions

January had its share of good DXpeditions. The big one was to Crozet Island, FT8WW. Several members contacted him, as reported last month. More may have completed a contact after the newsletter publication date. The operator had a permit to operate for a few weeks, starting when he arrived. That has expired, but he is stuck there until the next supply ship arrives on March 20. He is trying to get permission to operate more, but that is still ongoing.

Most of the stations in the area worked him on 30 and 20 meters. I worked the island years ago on 20 CW, so I didn't try to work him on 20 with so many others needing the contact. I didn't want to take a QSO away from someone who really needed it. I barely heard him once on 15 meters. It does not look like we had very good propagation there on 15, and the last I saw, only a few US stations made contacts there.

The ET3AA operation, which included W9XY and former Wisconsin native K4WW, was a success. They made a lot of contacts on the higher bands. I picked up new band countries on 30 and 12 meters as well as a new digital country. Bill, W9MXQ, picked up ET3AA as an all-time new country. Bill notes it was more than a simple contact, citing working a

personal friend was special, and said he had a couple of email exchanges with Bob while he was in Ethiopia.

Unfortunately, they could not solve the noise problem on the low bands, so they didn't attempt to make contacts on them after the first nights.

Only part of the trip was for operating. A key point was helping the technical institute in Addis Ababa with their ham station and training operators. Bob, W9XY, is a Greater Milwaukee DX Association member and posted many pictures on their website. You have to scroll down a ways to see most of them. You do not have to be on Face Book to view the page.

<https://www.facebook.com/groups/551826123032517>

Now, the one we are all waiting for is the 3Y0J operation to Bouvet. They arrived on January 30. It took them 12 days to get there on the high seas. Many had severe cases of seasickness. They reported some landings on January 31, but I have not heard how much equipment was landed, or anything more about when they first expect to be on the air. Hopefully they will be by the time you read this.

Expect the pile ups to be huge. Fortunately, they have a lot of operators, a lot of stations, and three weeks on the island. If they can operate the whole time, everyone should be able to make a contact. I often don't bother trying on the first few days of a major operation, knowing it will be easier in a few days. Of course, there is a danger sometimes they have to leave early, usually due to the weather.

The web page has a lot of information. <https://www.3y0j.no/>

Click on the operations tab to learn where and how they will operate. Note that they will always operate split. Never call them on their frequency.

A group of Czech operators will be visiting Agalega & St. Brandon Islands in the Indian Ocean February 24-March 4. This is a pretty long distance, but there have recently been plenty of openings to Mauritius (3B8) and Reunion Islands (FR4) on the higher bands. Contacting this location would have been impossible on the higher HF bands in the last 6-7 years. This will be the first time FT8 has been used from this DXCC entity.

The ARRL DX contests are coming up, with the CW weekend in February and the phone weekend in March. There will be many operations to DX locations to operate these contests, so getting on a few days before can be productive, especially on the WARC bands since they will not be on these bands during the contest. One operation is by Tom, AA9A, from up around Green Bay. Tom will be on Sint Maarten March 1-8 using the call sign PJ7AA. If you hear him on before or after the contest, tell him how cold it is back home.

San Andres & Providencia will be activated by a pair of Columbian hams from February 29 to March 5. They will have separate calls, 5J0EA and 5K0VT. The bands are 80-10

meters SSB, but FT8 might be possible. In addition, they will be on for the ARRL DX phone contest.

Contests

One contest I overlooked is Winter Field Day. It is like the regular Field Day we all know and love, except this one is held the last full weekend of January. Field Day is meant to be a training exercise for a time when we need to provide emergency communications. But emergencies don't just happen in the warm weather of late June. They can happen any time. Note that the ARRL does not sponsor Winter Field Day, unlike the traditional one in June.

I was surprised to find out how many hams I know operated this year. One was Bill, W9MXQ, who made 55 contacts on 40, 20, 15, and 10 meters. He didn't operate from the field but from home.

The big contests for February and early March are the ARRL DX contests. The CW contest is February 18-19, and the phone weekend is March 4-5. The CW weekend is one of my top three or four contests. I like CW DX contests because of the variety of places you contact, and CW is a very efficient mode for smaller stations. The propagation forecast for that weekend has the solar flux up around 200. It should be a good time.

I especially like that it is a world that works the US and Canada in the ARRL event. The DX is looking for us, as opposed to other parts of the world. You won't be pounding your head against the wall trying to work someone on an island in the South Pacific who is working only Japanese stations.

We send a signal report and our state. DX stations send a signal report and their power. It is fun to see how much power the other station is running. Sometimes it is amazing to see QRP stations getting through. This is because the higher bands are very quiet if they are open, and low power gets through very well. Once during a solar peak, a station from Belgium called me on 10-meter SSB during the ARRL DX contest. He was running 300 milliwatts and beat out other stations to do it!

The WPX RTTY contest is the weekend of February 11-12. Multipliers are prefixes. For example, W9, WB9, K9, etc., are all multipliers. You will be sought after if you have a call sign like WT9Q. A plain W9 is not so attractive. I like FT8 for general contacts, but I prefer RTTY contests over FT8/4 contests. If you are on FT8, you already have everything you need, except maybe software. MTTY is the program I use for RTTY. Check out the rules regarding the number of points QSOs are worth.

The other RTTY contest this month is the North American QSO party. The NAQPs are scheduled in the winter and summer, with one event each for CW, SSB, and RTTY. The winter RTTY happens on January 22. You send your name and state.

Could you pass your ham exam today?

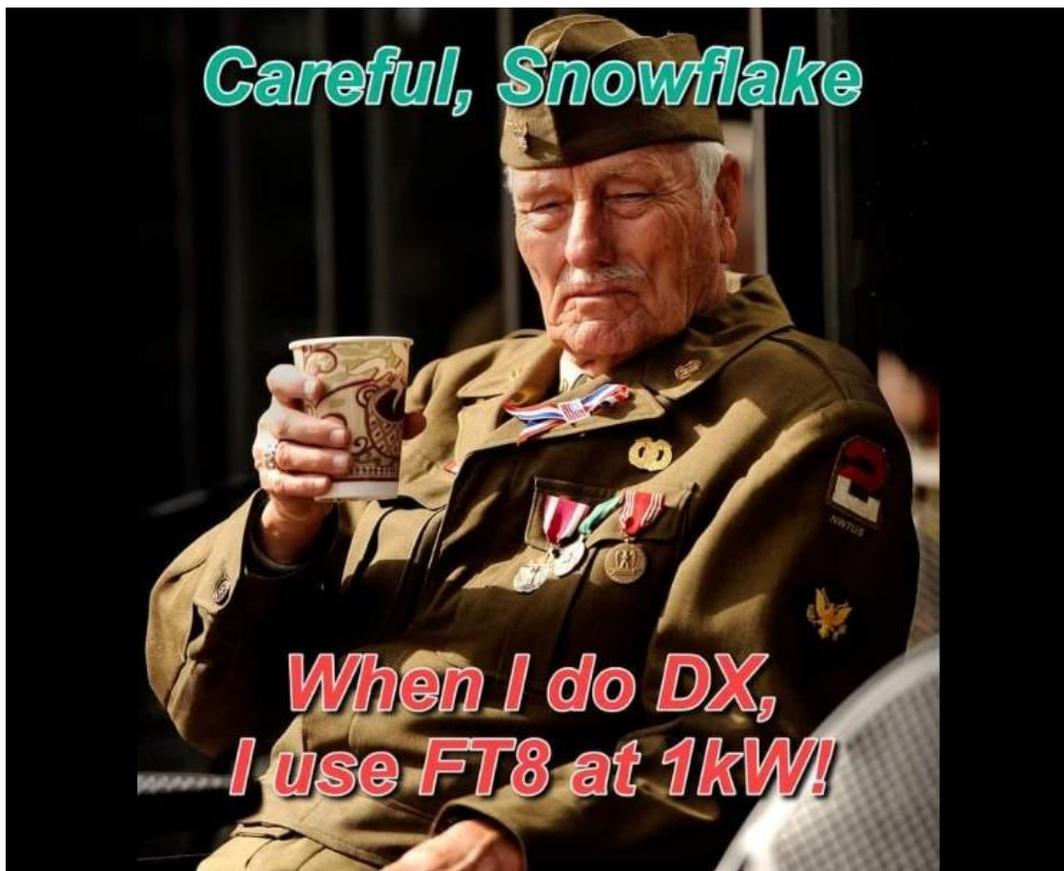
Fred, W9KEY, passes along a challenge. Try taking an exam for your current license class. You can take practice exams on www.hamexam.org.

It is free, and you don't even have to register. I gave it a shot and got an 85. That is well into the passing category. I took my Extra exam 50 years ago this summer, and the questions have changed quite a bit since then. The questions I missed were mainly related to modes and things I have not tried in the hobby. I would have read up on those if I got the bug to try them, and I certainly would have studied if I were taking it for real.

If you have a lower-class license, take the test for the next higher one. You might be surprised how well you did; moving up might take only a little studying.

Fred notes that you don't have to tell anyone about your results. Is anyone else willing to see if you could still pass? Thanks for passing this along, Fred!

That wraps up February. Let other club members know what operating and other events you have been or are planning to operate. Please send me the info by the 27th of the month. Don't forget to mark March 12 on your calendar for the Wisconsin QSO Party!



W9MXQ's alter-ego. See above.

W9XT's Contest, Operating, DXpedition, and Special Event Picks for February and early March 2023

W9XT's DXpedition picks for February and early March 2023					
QTH	Dates	Call	Bands	Mode	Link/notes
Bouvet Island	~30 Jan	3Y0J	160-10	C/S/D	https://www.3y0j.no/
Agalega & St. Brandon	Feb 24- Mar 5	3B7M	160-6	C/S/D	http://3b7m.com/
Providencia	Feb 27- Mar 5	5J0EA & 5K0VT	80-10	S + D?	
Sint Maartin	Mar 1-8	PJ7AA	80-10	C/S/D	

Modes: C = CW, S = SSB, D = Digital (may include RTTY)

W9XT's contest picks for February early March 2023					
Name	Start	Length	Bands	Mode	Link
CQ WPX RTTY	0000Z Feb 1	48, work 30 max	80-10	RTTY	https://www.cqwprrty.com/
ARRL DX	000Z Feb 18	48 hours	160- 10	CW	http://www.arrl.org/arrl-dx
NAQP RTTY	1800 Z Feb 25	12, work 10	80-10	RTTY	https://ncjweb.com/
ARRL DX	0000Z Mar 4	48 hours	160- 10	SSB	http://www.arrl.org/arrl-dx
WIQP	1800Z Mar 12	7	160- UHF	CW, voice, RTTY	https://www.warac.org/wqp/wqp.htm

Dates/Times in UTC. Subtract 6 hours from UTC to get local (CST). HF = 80, 40, 20, 15, 10 Meters

W9XT's operating & event picks for February early March 2023			
Event	Dates	Details	Link/notes
WWV 100 th anniversary Special event	Mar 6-12	80-10M, CW/SSB/digital	https://www.qrz.com/db/WW0WWW

THE COMPUTER CORNER

No. 299: LINUX: SOME APPS YOU JUST CANNOT LIVE WITHOUT

de: Stan Kaplan, WB9RQR, 715 N. Dries Street, Saukville, WI 53080-1664

wb9rqr@gmail.com

Vanessa comes with an amazing array of apps, which it installs when you install Linux. The Libre Office suite, Firefox web browser and others make Linux Mint Cinnamon 21 ready to go the minute you finish installation. But there are also others that are really helpful when you need them. Some apps you cannot live without (Stan's personal bias), and you may find others yourself when you look under Software Manager.

VLC VideoLan Media Player. Plays MPEG, DivX, MOV, WMV, QuickTime, MP3, DVDs, VCDs, Podcasts and multimedia streams. Install it; you won't be sorry you have it when you need it the first time (it will know when to appear and offer to help).

Thunderbird If you need an email client, this is the best. It always was the best, even in the Windows world.

Inkscape An illustration editor (vector graphics), probably a step beyond the drawing tools that come in the Libre Office suite.

GIMP (GNU Image Manipulation Program). An advanced picture and photo editor.

Gparted detects and shows partition tables and allows you to manipulate them (make them bigger, smaller, remove them, etc.). At the very least, it shows you what you have going with regard to your current setup. Its a nice program to just let you just see what you have, even without making any changes.

And here are two you may *not* need. In other words, don't install them unless you really need them.

Wine Originally an acronym for "**W**ine **I**s **N**ot an **E**mulator". In a nutshell, it is a program that will (maybe) *let you run Windows programs in your Linux machine*. An ongoing project, it is constantly getting better, but it doesn't yet work in every case. The way to find out if it will meet your needs is to install and try it.

VirtualBox: A free x86 virtualization solution allowing a wide range of x86 operating systems such as Windows, DOS, and even other Linux versions to run on your Linux system. Don't forget, for either this or Wine (above), you will need extra hard drive space and memory (RAM) to have a shot at success.

Happy Computing!

ORC Repeaters are On the Air – Awaiting Your Call . . .

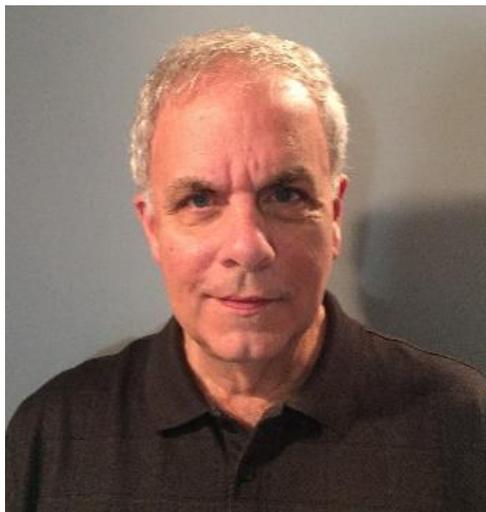
- 146.97 MHz (- Shift) (127.3 PL)
- 224.18 MHz (- Shift) (127.3 PL)
- 443.75 MHz (+ Shift) (127.3 PL)



"So then he says, 'Let me show you my logbook.' It was all FT8!"

Vintage Amateur Radio

de Bill Shadid, W9MXQ



We are back again in this edition of the Newsletter with a Part 2 extension of the article about the Collins 51S-1 Receiver. As I noted previously, “Throughout the time we have used HF in amateur radio as well as for military, embassy service, agency service, or research use, the manufacturers have produced what we will call professional receivers. Collins Radio Company, with their 51J series radios¹ replaced by the 51S-1, certainly were leaders in this product sub-section of the radio market. To be sure, others in the United States played in this market as well – as will be shown here.

Collins worked in a varied group of markets with the 51S-1 Receiver. These variations, when we look back on the design today, were mostly related to the appearance. Here are some examples – beginning with a repeat of the standard model appearance:



Collins 51S-1 Receiver

W9MXQ Collection

One variant of the Collins 51S-1 was more of an adaptation than a modification. LTV (Ling Temco Vought) adapted a stock 51S-1 to conform with a military contract requiring aircraft mounting and interfacing. It also was modified somewhat to deal with on aircraft electrical noise. The most noticeable feature of the changeover was to look at the knobs, illumination, and other features to allow for improved visibility in the low-light conditions of an aircraft in flight. The receiver – designated the LTV G133F-1, was a part of an ARDF QRC-346 System for the United States Air Force. Interior pictures of the G133F-1 show

the same design and layout as the factory delivered Collins 51S-1 Receiver. Note this picture of the LTV G133F-1:



LTV G133F-1 Receiver

**Rod Blacksome, KØDAS
Collins Collectors Association**

Contractor/manufacturers, such as LTV, would use specialized technology from other manufacturers to complete requirements for a system order from military or other government contracts. Presumably these included other NATO countries as well.

Not to be outdone, Collins Radio also did complete packages for customers. Some of those involved different looks for the 51S-1. Here are a couple examples of contracts that included the 51S-1 Receiver:



Collins 51S-1 Receiver – FAA Version

**For a Federal Aviation Administration (FAA) Contract in factory Aqua Green
KE9PQ Photo**

As you can see, these receivers were stock in appearance other than front panel color and the addition of the government contract sticker clearly visible at the left side of the front panel.

A more difficult to identify version appears here as a picture of a receiver destined for use by the Collins 51S-1 Receiver that was supposedly supplied to the United States Coast Guard (USCG):



Collins 51S-1 Receiver – USCG Version?
Presumably a UPSCG Contract or Proposal, in factory Light Gray
KE9PQ Photo

Personally, I find the light gray, for whatever reason it existed, to be quite pleasing. The stock color – matching the Collins S-Line Amateur Radio products marketed at the same time².

I truth, there could be many such variations in the product where a large contract would easily convince Collins to make a number of radios in a special format. Those variations did not always make for an outward difference. Since some could be modified for supply voltages that could be problematic for a buyer so many years after these radios were in wide commercial use. I am repeating the standard lineup here:

Model Number	Specifics
51S-1	Desk Cabinet, 115/230 VAC, 50 to 400 Hz – 125 watts
51S-1A	Desk Cabinet, 28 VDC Transistorized Power Supply – 4.5 Amperes
51S-1F	Rack Cabinet, 115/230 VAC, 50 to 400 Hz – 125 watts
51S-1AF	Rack Cabinet, 28 VDC Transistorized Power Supply – 4.5 Amperes
51S-1B	Same as 51S-1 but with Rear Mounted Military Connector Box

These differences should be shown on the escutcheon behind the main tuning knob but even so, it is important to be careful. A good price might mean a radio that does not run on 120 VAC or 240 VAC power in the USA, Canada, and Mexico.

One last variant is perhaps not a variant at all – but what the radio looked like as proposed and prototyped inside of Collins Radio Company. Check this picture:



Collins 51S-1 Receiver – Original Factory Prototype

**Rod Blacksome, KØDAS
Collins Collectors Association**

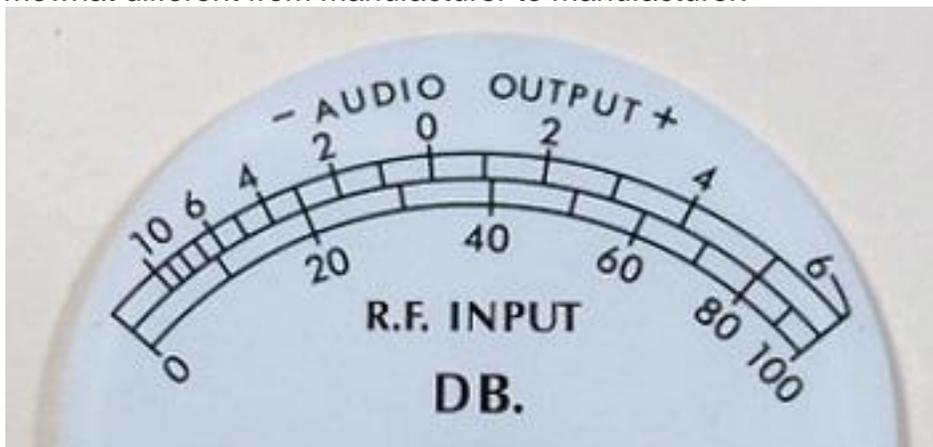
Immediately noticeable in the prototype is the main tuning knob. It is not common, to my knowledge, on other Collins radio, past or to the time of this prototype (1958 or so). However, you will see it again in the future on a Hammarlund Radio Company receiver some ten years later³.

Notice some variables in this prototype when compared to the picture of the production model at the beginning of this article. The Collins logo has been moved to just below left center. That allows the added Noise Blanking Level Control between the dial escutcheon and the meter. While the Noise Blanking is not listed on any options column that I have seen, I have seen them on more than one 51S-1 that I have had in my possession. Careful observation of the above picture will show that the background scale data around the NB GAIN knob affixed to a small add-on panel with the knob legend. Due to the design of the panel on this series of Collins radios, it was easy to add an additional, or changed dial legend.

There are issues with using this kind of receiver for amateur radio operation. Remember, this is a laboratory instrument. While in most cases it performs very well as a general coverage Short Wave Listener (SWL) or amateur radio band radio, it is not focused on that purpose. A case in point is the front panel Meter – notice I did not call it an S-Meter. Why not? It is not an S-Meter as we SWL or amateur operators have come to define it.

There are three selectable scales controlled by the lever switch just below the meter that is labeled, left to right, as “RF,” “+10 DBM,” and “0 DBM.” I only use the “RF” position as the other two relate to line output. A calibrated S9 signal from a test oscillator⁴ nets a 40 dB reading. After that just know the meter is calibrated in dB signal strength⁵.

For further clarification, the meter face used in the Collins 51S-1 is as below. The model in my collection it is identical except for being Amber background instead of white. As I noted above, I use the “RF” switch position that relates to the 0 to 100 DB bottom scale. S9, as noted above, equates to 40 DB on the bottom scale. So, an S9 signal would read 40 DB. An S9 plus 20 DB would at 60 DB on this scale. Keep in mind that the definition of S9 is somewhat different from manufacturer to manufacturer.



**This is a Honeywell meter face kept as a spare at W9MXQ.
Some 51S-1 Receivers are equipped with a Bartlett meter.
Those meters have a slightly different appearance.
The scales are the same, however.**

W9MXQ

One other consideration is that the radio, designed before 1959, came from a time when most signals on the band were either CW, AM, or perhaps RTTY data. Single Sideband (SSB) was not the prime design. Tuning the radio in SSB will give (in this author’s opinion) the impression that the AGC attack time is too aggressive causing some pumping of the signal in the USB or LSB (SSB) mode positions. On the other hand, listening to CW or AM signals is smooth as silk. While my opinion is subjective, many share it. Modifications have been developed but I choose not to alter the basic design – for me the “basic design” is why I collect these vintage radio. If you need info on said modifications, contact me for details (W9MXQ@TWC.com)⁶.

A nice addition for the 51S-1 Receiver, made standard after late 1965 was a Tuning Dial Brake – a tool to hold the tuning dial tightly in one place. Today’s digital radios often have a “DIAL LOCK” button to keep the frequency dial from working – this is the mechanical equivalent of that modern digital feature. This brake was eventually incorporated into the Collins KMW-2A HF Transceiver. The kit of parts, shown below, were easily retrofit to an early receiver.



**Kit of Parts from Collins
W9MXQ**



**Kit installed on Author's 51S-1
W9MXQ**

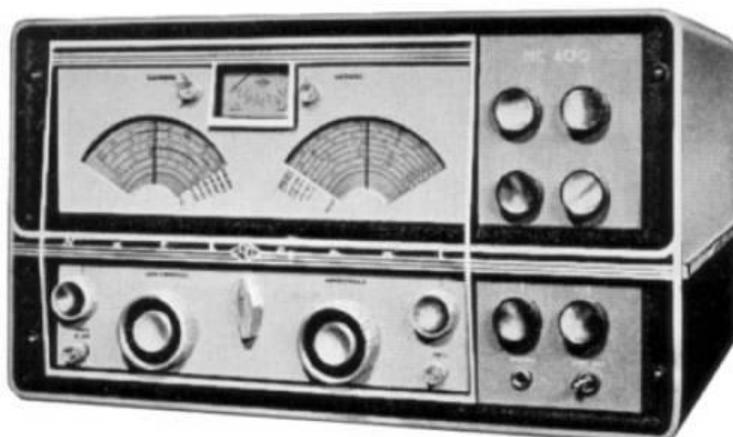
Collins played in several markets with this radio – just as they had done with the class leading 51J series. The major manufacturers in the United States, starting in the 1930's, always had a top line radio that they sold to the aforementioned areas of business. Perhaps the longest in this domestic market was Collins Radio Company. However, other American manufacturers played in this upscale, all mode, general coverage receiver market as well. Collins was definitely a technology leader, but others played with more than adequate radios – perhaps especially National and Hammarlund. A few of those domestic high-performance radios are illustrated here – some before and some after but still in the time when the 51S-1 was a viable player in the marketplace:

Perhaps the largest competitive player was from the National Radio Company. A player in the market from 1964 until 1972, National marketed a replacement for their HRO-60 HF Receiver, the HRO-500. This revolutionary solid-state receiver broke new technology ground and was very popular with maritime shipping customers. This was before satellite communications and the HRO-500 found many customers for the receive side of ship to shore and ship to ship radio communications.



**National HRO-500 HF Communications Receiver (1964-1972)
W9MXQ**

Also, from National, in 1959 to 1962, National released and marketed the NC-400 HF Receiver



National NC-400 HF Communications Receiver (1959-1963)

RigPix

The National NC-400 HF Communications Receiver was a more traditional design than the Collins 51S-1 or its stablemate, the National HRO-500. The NC-400, more designed as a high-performance amateur radio receiver than a professional tool, it ended up with only limited success in both markets.

Never was a player in the High-Performance HF Receiver market. However, Hallicrafters produced limited quantities of the high performing SX-88 General Coverage Receiver. Its more traditional conversion scheme using a free running high frequency oscillator limited its ability to compete with the 51S-1. I show it here as a singular example of Hallicrafters in this market. Hallicrafters was more of a player with high performance radios based on a specific design for a specific government contract.



Hallicrafters SX-88 HF Communications Receiver (1954-1955)

RigPix

Of the domestic competitors for the Collins 51S-1 Receiver, Hammarlund was perhaps the best. Take a look at these two models:



Hammarlund SP-600 HF Communications Receiver (1951-1972)

RigPix



Hammarlund HQ-180C/HQ-180AC HF Communications Receiver (1959-1972)

W9MXQ

Hammarlund had been involved for a long time with their SP Series (Super Pro) very high quality and performance radios. The SP Series began in 1936 with the limited coverage SP-10 followed shortly by the HF spectrum coverage SP-100S, in 1937. The SP-600 was the last version with many different varieties denoted by model number suffix. The SP-600 series lasted until the end of the company, in 1972. It may well have been the only reason the company was still in production up until 1972.

The last of the HQ-180 series, in the form of the HQ-180XA⁷, was still advertised right up to Hammarlund's end in 1972. The model series lacked the stability of the SP-600 radios. That was likely due to the design of the free running High Frequency Oscillator.

Collins Radio Company went on to produce updated models after the 51S-1 Receiver. Others in the domestic market, along with competition from Europe and Asia, went on as

well to compete with product from Collins. Staying with Collins, we have the following two radios:



Collins 651S-1 HF Communications Receiver

Universal Radio

The 651S-1 System has transmitter components as well. Many are still in use today. The issue with the 651S-1 relates to its Nixie™ readout tubes that are now difficult to source for replacement. An issue with later electronic technology as it becomes harder and harder to repair. An errant 51S-1 Receiver can be easily repaired but its later offspring likely have to be discarded. I have personally seen more than one 651S-1 Receiver with retrofit red LED readout segments. The 651S-1 Receiver has a relatively short life spanning 1971 to 1973.

In about 1980 (exact date eluded my research) Collins introduced a variant of the amateur radio focused KWM-380 HF Transceiver. Operation pretty much paralleled the features of the KWM-380 but is a receiver only.



Collins 451S-1 General Coverage HF Receiver (1980)

RigPix

And finally, for this article, is the Collins 851S-1 Communications Receiver:



Collins 851S-1 HF Communications Receiver

RigReference

The 851S-1 is the last of the post-51S-1 HF Communications Receivers to be mentioned. I did not do a lot of research on this as they really do not qualify in my mind as “Vintage” Amateur Radio.” I say that knowing that these are now also part of history and in someone’s mind, someday, they will be “Vintage.”

As time went on these radios seemed to be more contract based and not so much an offering that an amateur radio operator would see in a catalog.

I appreciate that you read my articles. Remember that I am open to questions and comments anytime at my email address, W9MXQ@TWC.com.

A special note of thanks to my proofreader, Bob Bailey, W9DYQ. Bob is a lot more than a proofreader as he often adds commentary that makes it into the article. Certainly, in any technical article, it is good to have a second person review the thought process.

© **W9MXQ**

Notes and Comments:

¹ The 51J series consisted of the 51J-1 Receiver in 1949 and was finalized with the 51J-4 in 1954. The 51S-1 replaced the 51J-4 in 1959. There were 51J-2 and 51J-3 receivers in between the first and last of the 51J product line.

² It is a popular notion that the 51S-1 is a family member of the popular Amateur Radio focused S-Line equipment. Actually, the two lines were alike only in that one letter in their designation. In the case of Collins Radio Company, the key item here is the number “51” in this receiver’s designation vs, the “75” and “32” (as they relate to 75S-3 Receiver and 32S-1 Transmitter) in the Amateur Radio line.

³ Hammarlund HQ-215 and HQ-225 Receivers from 1969.

⁴ The reference oscillator that I use is a “Battery powered portable S9 RF signal generator” from eBay. It is a high-quality unit with accurate output across the HF Spectrum. You can find this for \$29.00 (plus shipping) at this link: <https://www.ebay.com/itm/304646658241>

⁵ A special thanks for help with and confirmation of Meter functions for the radio comes from Charlie Talbott, K3ICH. Charlie is a well-known contributor to the Collins Collectors Association Reflector on Groups.io. To quote Charlie on his QRZ page says it all, “Main interests on the air are six-meter DX and restoration of old boatanchors, specializing in the Collins 51S-1.”

⁶ When I was first licensed in 1964, most signals on the phone bands were still AM. While many manufacturers had switched to SSB for phone use, others had not. In fact, I started with AM and shortly afterward moved to SSB. Like a few others, I was disappointed with SSB sound and available rag chew contacts – so I switched back to AM and bought, at the time, a brand-new Johnson Viking Valiant II transmitter.

⁷ The HQ-180XA was a variant of the HQ-180AC. Radios with the XA suffix have a crystal oscillator in place of the meter that allowed for crystal control of up to eleven individual frequencies within the HF coverage range. In high stability situations, this allowed for better stability in the receiver's performance. The radios +/- 3 kHz vernier tuning allowed for some adjustment of the exact crystal frequency.

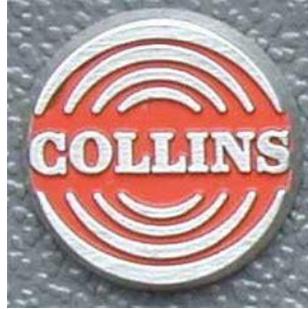
© W9MXQ



Front Panel Logo

Early Collins 51S-1 Receivers

© Collins Radio Company



Front Panel Logo

Late Collins 51S-1 Receivers

© Collins Radio Company

We cannot “Repeat” this too many times:

ORC Repeaters are On the Air – Awaiting Your Call . . .

- 146.97 MHz (- Shift) (127.3 PL)
- 224.18 MHz (- Shift) (127.3 PL)
- 443.75 MHz (+ Shift) (127.3 PL)

Ozaukee Radio Club Minutes of Membership Meeting. 1/11/2022

de: Ken Boston, W9GA, Secretary

The monthly ORC meeting occurred at the senior center as we have returned to live in-person meetings, along with a streaming version held via Zoom.

ORC President Pat W9JI officially initiated the {Annual-Elections} meeting at 7:33, with actual members attending, a go-around was conducted. Zoom attendees were also in attendance and were introduced individually. WB9RQR mentioned an article in 'The Smithsonian' on the history of morse code; W9IPR informed us that club member Ray W9BUJ is now a silent key.

Program:

Being the Annual meeting; elections were held; W9JI then presented the slate of officers for 2023:

President:	Bill K9GN	new
1 st VP	Jeananne N9VSV	new
2 nd VP	(no nominee)	
RPT VP	Gregg W9DHI	incumbent
Secretary	Ken W9GA	incumbent
Treasurer	Gary N9UUR	incumbent

Pat called for any further nominees from the floor, but as there were none made, Stan WB9RQR moved that the slate be accepted as provided; Tom W9IPR 2nd the motion, a hand count of the votes was taken, the motion carried with the slate becoming voted into office.

Then a video was shown: "Secret Listeners" which was a BBC documentary about the assistance of British radio amateurs during World War 2 in the monitoring of radio traffic, in order to monitor and forward to British intelligence for decoding the German signals ['Wireless Intercept operations']

50/50 Raffle: This was won by Bill K9GN; winning an award of \$11.00.

Scholarship Auction:

Stan WB9RQR held a short auction; included an HP Laptop, Bearcat scanner, Shin-Wa scanner

Committee reports:

[there was no first VP report and no RPT VP report]

2nd VP: Bill K9GN informed us that K9DJT will no longer be managing the orders and delivery of the ORC apparel; and the club will need a new member to step into that involvement.

Treasurer: Gary N9UUR set out reports, ORC now has about 90 paid members for 2023 The 2022 books have been audited and are now closed... The December treasurers' report was accepted; motion made by W9GA ;2nd by WB9RQR and carried.

Secretary: Ken W9GA reported that the Dec 2022 minutes are posted; pending some minor corrections, a motion to accept was made by N9VSV; 2nd by KC9FZK, and motion carried.

Scholarship/STEM: Tom W9IPR commented on the committee formulating plans to support local high school STEM projects, and he has contacted Cedarburg H. S. about our involvement.

Tech committee: no report.

OLD business: none reported.

NEW business: The audit committee has met; K9QLP chair, plus KC9FZK, N9UUR, W9KEY. Finances are now all into one institution, and N9UUR's clean book-keeping has made tracking cash movement easy. WB9RQR moved, K9GN 2nd, to accept the audit results; motion carried.

Ken W9GA reminded everyone that the annual awards are right around the corner; Ham and Turkey awards for 2023 are open soon, as well as many other types of categories.

Adjournment: WB9RQR moved to adjourn, N9UUR 2nd, motion carried; time ending was 9:07 PM. There were 22 in-person attendees, 18 Zoom attendees.

Respectfully submitted,



Kenneth Boston W9GA, Secretary



Turkey of the Year Award Ballot: 2023

BACKGROUND: The **Turkey of the Year** award can be awarded only once to an individual. (However, the Awards Committee erred a few years back when they failed to notice that the top vote getter had previously won under a different call sign). The criterion for this distinguished award is a club member who has helped keep the hobby fun. This person has generally promoted friendship and good will throughout the year. Past recipients and year awarded (years not indicated contain hams who are SK; those deceased members: WI9M, N9CCJ, K9CAN, KA9DDN, WJ9O, W9BCK, W9VQD, K9GCF, W9LO, KA9WRL, KA9RFM, WA9JOB):

1981 W9NHE Ted Willett
1984 WA9OHY John Strachota now W9FAD
1985 WD9FQW Mike Behlen
1986 W9DHI Gregg Lengling
1990 KA9QLP Jim Albrinck now K9QLP
1991 W9BTN Sandy Wirth
1995 N9UNR Dave Barrow
1996 (no award given)
1997 N9QQA Gabe Chido now WI9GC
1998 KB9PZL John Maybee
2000 WB9RQR Stan Kaplan
2001 W9IPR Tom Ruhlmann
2003 WI9GC Gabe Chido was N9QQA
2004 KA4UPW Jim Hilins
2005 AA9W Ed Rate
2006 KC9GDV Mike Yuhas now AB9ON
2007 KB9UKE Vic Shier now WT9Q
2008 KC9FZK Nancy Stecker
2010 AB9CD Mark Tellier
2011 N9LOO Brian Skrentny
2012 W9GA Ken Boston
2014 KC9ONY Tom Trethewey
2015 W9KR Chuck Curran
2016 K9DJT Gary Drasch
2017 KC9ZNR Zack Yatso
2018 KD9DRQ Bill Church
2019 W9MXQ Bill Shadid
2020 W9KEY Fred Schwierske
2021 K9MOI Don Lesch
2022 KC9YEP Chuck Meyer

My vote for 2023 Turkey of the Year (may **NOT** be in the Turkey of the Year list from previous years):

Please email your nomination to the awards chairman; kboston6@wi.rr.com

Nominations will be closed on March 30, 2023

Ham of the Year Awards Ballot: 2023

BACKGROUND: The **Ham-of-the-Year** award is a traveling trophy given to an amateur radio operator who has made significant contributions to the success of the club. The person may receive the award on more than one occasion, and to date several members have received it more than once (noted with an asterisk). Past recipients and year awarded (years not indicated contain hams who are SK; those deceased members; W9VLL, KA9DDN, W9WQ, W9LNL, WA9UVK, K9CAN, K9GCF, WI9M, KA9WRL, WA9JOB):

1986 *WB9RQR Stan Kaplan
1988 W9DHI Gregg Lengling
1990 WA9JMS Mark Seburn
1992 *AA9W Ed Rate
1993 *WB9RQR Stan Kaplan
1994 N9PBY Ray Meyer
1996 N9LLT Ted Heilmann
1997 AA9HR Joe Holly
1998 AA9OS Bill Raymond
2000 KG9NH Matt Singer
2001 *AA9W Ed Rate
2002 KB9SYI Jane Rediske
2005 KB9WBQ Julia Nawrot
2006 *W9IPR Tom Ruhlmann
2007 AB9CD Mark Tellier
2008 *W9IPR Tom Ruhlmann
2010 *WB9RQR Stan Kaplan
2012 K9QLP – Jim Albrinck
2013 N9UNR Dave Barrow
2014 W9GA Ken Boston
2015 *K9DJT Gary Drasch
2016 W9KR Chuck Curran
2017 N9ENR Loren Jentz
2018 *K9DJT Gary Drasch
2019 KC9ONY Tom Trethewey
2020 K9VIN Kevin Steers
2021 W9JI Pat Volkmann
2022 N9UUR Gary Bargholz

My vote for the 2023 Ham of the Year (may be in the Ham of the Year list from previous years):

Please email your nomination to the awards chairman; kboston6@wi.rr.com

Nominations will be closed on March 31, 2023

Upcoming ORC Monthly Meeting Programs

de: Pat Volkmann, W9JI

- February – Doug Dimmer, Technology Engineering Instructor at Cedarburg High School – Presentation with an overview of the current state of STEM education.
- March – Pat W9JI – Repairing a Viking Valiant Transmitter

We really do need some programs for the coming year. I don't have anything scheduled after March. Please consider sharing some of your experiences with the rest of us. If you have an idea and would like some help putting a program together let me know.

Creating a Presentation

Many of our presenters use Microsoft's PowerPoint to organize and present their information. If you don't have access to or aren't familiar with PowerPoint, there is an alternative. The Open Office package contains Impress, which is similar to PowerPoint. Impress is easy to use and available at no charge. You can check out OpenOffice here:

<http://www.openoffice.us.com/>

The monthly program is the highlight of the Ozaukee Radio Club meeting. We are fortunate to have a number of very talented people in our club, many of whom have shared their knowledge through a presentation. Share your expertise and experience with the club. Programs can be on any topic that is ham radio related. Contact Pat Volkmann, W9JI, at orc_pat_w9ji@outlook.com to discuss your idea for a program.

ORC Meeting Agenda

February 8, 2023

- | | |
|---|--|
| 1. 7:15 – 7:30 PM
Check-In and Introductions | 7. 2 nd VP Report: |
| 2. 7:30 PM Call to Order:
President Bill Greaves (K9GN) | 8. Repeater VP Report:
Gregg Lengling (W9DHI) |
| 3. Announcements, Bragging Rights, Show &
Tell, Upcoming Events, etc. | 9. Secretary's Report:
Ken Boston (W9GA) |
| 4. Doug Dimmer, Technology Engineering
Instructor at Cedarburg High School – STEM
education overview. | 10. Treasurer's Report:
Gary Bargholz (N9UUR) |
| 5. President's Update:
Bill Greaves (K9GN) | 11. Committee Reports |
| 6. 1 st VP Report:
Jeananne Bargholz (N9VSV) | 12. OLD BUSINESS |
| | 13. NEW BUSINESS |
| | 14. Adjournment |



**Next Month's ORC Meeting
Hybrid In-Person/Zoom Meeting
8 March 2023**

Program:

Pat Volkmann, W9JI
Repairing a Viking Valiant Transmitter

7:00 PM – Doors Open

7:15-7:30 PM – Zoom Check-In

7:30 PM – Meeting Begins