



**BUY A BRAT FROM WARAC  
SATURDAY, SEPT 7th**

**WARAC'S SPRING  
SENDIK'S GRILL  
FUNDRAISER**

The logo for Sendik's Food Market, featuring the name 'Sendik's' in a white script font and 'FOOD MARKET' in a smaller, white sans-serif font below it, all set against a red rectangular background.

**WARAC is back at the New Berlin  
Sendik's 3600 S Moorland Rd  
Sat Sept 7th from 11:00 to 4:00 PM**







Official Publication of the  
West Allis Radio Amateur Club

# Hamtrix

[click here to go to web site](#)

Volume 73, Issue 9 September , 2024

## SEPTEMBER CLUB HAPPENINGS



**NUT NET**  
3.985mhz  
Monday-Saturday  
8:15am CT

**WARAC 4th Tuesday**  
**Breakfast**  
At the Forum  
Layton & Hyw 100 at  
8:30am

**The Milwaukee-Florida Net**  
**time is:**  
7:15 – 8:00AM Central  
8:15 – 9:00AM Eastern  
Mon through Sat

**Meeting**  
**Tuesday September 10, 2024 7pm**  
**New Berlin Community Center**  
**14750 W. Cleveland Ave.**  
**New Berlin, WI**  
**Between Moorland and Sunnyslope**

**Presentations**  
YouTube presentation  
**HF Propagation During Solar Maximum**

**Field Day followup**  
**Dave Garnier WB9OWN**

**Premeeting dinner**  
**New Berlin Ale House 5:15pm**  
**16000 W. Cleveland Ave**  
**West of Moorland Rd.**



**Sendik's Grill**  
**fundraiser**  
**September 7, 2024**  
**11:00 to 4:00 pm**  
**At the New Berlin**  
**store**

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## WARAC 4th Tuesday Breakfast

### NOTE NEW LOCATION

Several years ago there was talk among Nut Net members that we should get to meet each other. A breakfast get together idea was started. It was open to all hams, XYL/partners and anyone who wanted to learn about amateur radio. Even visiting OM/XYL couples joined us.

So, on the fourth Tuesday each month at 8:30 am we meet at **The Forum Restaurant, corner of HWY 100 and Layton, Greenfield, WI**. Looking forward to seeing you, mark your calendar.

Phil, W9NAW

## WARAC

### Find Us On The Air

**VHF Simplex 146.55 Mhz**

Looking for a Club Member to chat with? Fire up the VHF rig and give a shout out on the VHF Simplex Frequency 146.55. You'll be surprised how often someone is listening. Hit the PTT and say "Hello"

**DMR - BM TG 3155 WI State**

The WI State 3155 TG is available on all the local DMR Repeaters AND via your HotSpot. Put yourself monitoring and come find a Club Member

**Nut Net - Mon to Sat on 3.985 Mhz @ 8:15 AM**

Join The Nut Net on 80 Mtr SSB from 8:15 to 9:00 AM Mondays thru Saturdays. Check-ins are from all over WI. You'll be a Nut Netter regular in no time. This is a general discussion net that gets your day started out right.

**Milw - Florida Net - Mon to Sat 14.290 Mhz 7:00 AM**

Join Tom, K9BTQ, for this early morning Check In Net, Mon thru Sat on 20M from 7:00 AM to 8:00 AM. Get the news to get your day started out just right.

**6 Meter Chat - Wed, Fri 50.160 Mhz @ 9:30 AM**

Paul, W9PCS, hosts this informal 6m online get together on Wed and Fri starting at 9:30 AM. This is a round table discussion and everyone is welcome to drop by and join in.

## WARAC Pizza Social – August 13, 2024

Lions Park shelter #2  
14900 W Overland Trail  
New Berlin, WI 53151

Attendance: 23

Started at 6:00pm and went after 8pm.  
We socialized, enjoyed pizza. And Michael and Max provided a 2M Fox hunt.

Respectfully Submitted  
Bill Dargis KD9BJZ  
Secretary WARAC, August 13, 2024

### Contest Corner and DX Report Michael Falk, AA9RK

September brings lots of exciting and fun contests to all sorts of different ham radio bands.

Then, on September 8th/9th, there are several interesting events. There is a PSK31 contest (the PODXS 070 Club Jay Hudak Memorial), two big CW events (the CW Open and the North American Sprint, both QRQ events), several European phone events (RSGB SSB Field Day and the WAB 144 MHz QRO Phone, among others), and the 144 MHz Fall Sprint for the VHF+ ops. Especially the CW Open has grown in recent years. It is actually three separate 4-hour contests, and operates at a pretty high speed (25-35 WPM or maybe even a little more) but is very friendly and encourages team competition.

Last month I mentioned the many different events on the first full weekend of September. I'd like to focus on the CW Open. It is actually three separate contests, each four hours long, on UTC day September 7<sup>th</sup>. The first runs from 7-11 PM Friday night our time, the second from 7-11 AM Saturday, and the third from 3-7 PM Saturday. They are longer, more official versions of the Wednesday night CWTs. The exchange is serial number and name. They go off at high speed (mostly 25 WPM and faster, with some CQers approaching 40 WPM), but they are very friendly events. Check out [cwops.org](http://cwops.org) for more information.

There are two fun events on the weekend of September 14<sup>th</sup> and 15<sup>th</sup>. One is the September VHF Contest, an ARRL event, which follows the format of the June and January events. It runs from 1PM Saturday to 10PM Sunday, and allows ops to use any mode, any band, 50 MHz and up. This can be a difficult time of the year for VHF+ propagation, but you might get lucky and see Sporadic-E, Tropo, or Aurora make an appearance. Another event that week is the North American RTTY Sprint, on Saturday night from 7-11 PM. I think RTTY is the most fun mode for digital contesting. The Sprint events have the special rule where after you call a CQing station, the frequency becomes yours to call CQ, and after that you must change frequency. Additionally, it is a short event, just four hours, so it is not too difficult to mount a serious entry (if that's your thing).

The weekend of September 21<sup>st</sup> and 22<sup>nd</sup> is a goldmine of state events. The New Jersey, Texas, Iowa, and New Hampshire QSO Parties are all on the air, along with the Washington State Salmon Run and Wisconsin Parks on the Air.

The CQ Worldwide DX Contest has its RTTY event on September 28<sup>th</sup> and 29<sup>th</sup>. This is a major 48-hour

event, but even if you can't devote your entire weekend to it, it is fun to play for a few hours. If you enjoy RTTY (and again, I think it is a lot of fun and you should try it), this is a marquee event. If RTTY isn't your thing, check out the Maine QSO Party on Saturday and early Sunday.

There are a million smaller events on the first weekend in October. The Collegiate QSO Party runs for the entire weekend, as well as the Oceania DX Contest (phone edition), but also the microwaves (902 MHz and above) Fall Sprint, California QSO Party, an international Hellschreiber contest, a Belgian SSB contest, plus a CW/SSB peanut themed QRP event sponsored by the North Georgia QRP Club.

...

## Here are your September Dxpeditions:

- By the time you get this, CY9C will be shutting down on St. Paul Island off Nova Scotia. They had over 70k contacts in the log by the first of September.
- We are focusing on Africa this month. Pista, HA5AO, is touring Africa and operating everywhere he goes. He will be QRV as Z22AO in Zimbabwe from September 3-13; 9J2AO in Zambia from September 14-23; A25AO from Botswana from September 24 until October 14. He will be QRO with an amplifier and a Hustler vertical. He generally operates CW and digital (possibly FT8 and RTTY) with some SSB in his African Dxpeditions.
- A five-station setup will be QRV in Somalia as 6O3T from September 9-30, 2024. They are focusing on low bands and also 6 meters, all modes.
- XT2AW Burkina Faso will be on 80-10 meters. Modes will be FT4, SSB, and the QO-100 satellite. activated by Harald DF2WO, from September 8-22.
- Elsewhere in the world, 3D2YY will be QRV from Fiji, from September 4-19. They'll be on 10-40 meters, with 80 possible. There is a quick run to Tuvalu as T2M from September 12-16. They are running 100 watts, mostly SSB, with some CW possible.
- 9M1Z is activating Semporna Islands from September 1-15 with more than 10 operators. They are QRV on phone and FT8/4 on most bands from 80-10 meters, CW and RTTY 40-10, and also the FT modes on 6 meters.
- KH8T American Samoa is on the air from September 2-16, all bands 80-10 meters, all modes.

See you next month,

-Michael AA9RK



September 2024 \* Hamtrix \* By Michael Johnson, WO9B

## RTTY: Legacy Mode Engaged

It's time to show some love for RTTY, the Grand Old Man of digital modes. RTTY is the very definition of a legacy mode and despite all the digital developments in our hobby, it remains a player in our limited band space. So much so that even our newest radio's bend their knee to RTTY by including it as an available mode. It also happens to be the most recognizable digital signal with its distinctive 2-tone "dweedling" sound standing out from its digital brethren. Somewhere along the way the RTTY bug bit me and it became a goal to figure out how to "do" RTTY. That journey has been strangely longer and harder than it should have been, so maybe what follows can benefit your experience.

The RTTY mode is a really simple digital signal. It is two tones which are called the Mark (2125 Hz) and Space (2295 Hz) encoded in 5 bit sequences (Baudot Code) that represent letters and numbers. These characters are sent at a speed of 45.45 baud (+/- 60 wpm) so it is a comfortable typing speed. Unlike recent digital modes, RTTY has no forward error correction. Also, it is not a low signal to noise mode, so crank up the power for the best experience. For a detailed explanation on literally all things RTTY, [AA5AU's RTTY Website](#) is excellent.

These days RTTY is mostly used for contests. It is unusual to find ragchew QSO's going on. Also, chasing RTTY DX is virtually nonexistent\*\*\*i. The ARRL does continue to include RTTY as one of three modes for their daily digital bulletins. Also there is a weekly 30 minute sprint on Thursday nights, called the [WRT \(Weekly RTTY Test\)](#) which is a very good place to work on perfecting your settings. While the contest angle is by far the most popular, calling CQ can be successful, patience required however.

**The Setup:** Legacy RTTY relied on a maintenance intense "heavy metal" equipment load out. Current implementations are the familiar sound card based digital methods. So if you are FT8 active, your station is all set for RTTY. It is a matter of software along with figuring out the vagaries of your particular radio/computer gear. Once you make your choices, searching out the particulars on the internet and YouTube is well worth your time. Also, AA5AU's website, as mentioned above, is invaluable. It's a little wordy, but is a store of great information. Getting started boils down to three steps: Pick a software, Pick a modulation (AFSK or FSK), Pick a band!!!

**Software:** There is a [TON of RTTY software](#) available. Sticking to the mainstream offerings to get up and running, there are two candidates to consider: (1) [FLdigi](#) and (2) [MMTTY](#). Actually, you should download both of them as sometimes one works better than the other. A big criteria in selecting software is integration with your computer system. Keeping in mind that RTTY activity is primarily contest oriented, my primary application is MMTTY as it integrates with N1MM contesting software. MMTTY also supports either FSK or AFSK RTTY, which is the next subject. For casual QSO's, easy setup and simple contesting, FLdigi works well and integrates with logging software, where MMTTY does not. FLdigi however does not do FSK. When getting started, pick one and play with it. Can't make a bad choice.



**AFSK or FSK:** This is a big topic and there is no right answer, so here goes. Technically, RTTY is FSK modulation. Frequency Shift Keying was originally accomplished by varying the carrier frequency of the transmitter between the two frequencies (Mark and Shift) to the rhythm of the Baudot Code. That worked with radios from the '40s and works with our radios today. That is how RTTY was done until the 90's when the sound card techniques made it on the scene. With current sound card tech, there is virtually NO DIFFERENCE between FSK and AFSK as far as the encoding and decoding of the signals are concerned. There are some technical differences and one or the other may be an advantage to you and your station:

**Decoding:** The FSK / AFSK choice affects only the transmitted signal. Both choices rely on the computers sound card and software for decoding the received signal.

**Ease of Setup:** Setting up AFSK is typically easier than FSK. My shack's radio proved to be very difficult to setup for FSK, but trivial for AFSK. Most radios, and I looked at Yaesu and Icom, fully support FSK without additional hardware or cables. For FSK you need to setup a menu item for triggering RTTY transmit via RTS or DTR, which should be covered in your manual. My Kenwood required an additional cable with a keying switching transistor circuit. My Yaesu FT-891 only made me dig around for the one menu item that needed changing. Setting up AFSK was simply a matter of selecting the correct sound card and USB port...for both radios.

**Lower Sideband:** AFSK works by generating the two tones via the soundcard and then transmitting them through the radios sideband circuits. By convention RTTY uses Lower Sideband. The FSK mode will default to Lower Sideband. If you have the wrong sideband selected, your signal, both receive and transmit, will not be understood. Your RTTY software will have a button which will allow you to reverse the two tones so you can easily correct the situation. BTW, FLdigi is setup to use Upper Sideband and it will make the correction to Lower Sideband automatically. That of course is not confusing. To be fair, FLdigi works with a ton of digital modes and all of them, excepting RTTY, are Upper Sideband. I think they made the correct decision.

**Frequency Readout:** Here is the issue that finally got me to switch to FSK. When working a contest, the contest software spots stations by frequency. The convention for reporting station frequencies for RTTY gets a bit complicated with AFSK as the radio dial's frequency is typically reported as the highest frequency in the Lower Sideband pass band. However, the RTTY signal is actually offset by the mark frequency, which in the case of AFSK can be whatever you select, though 2125 Hz is the norm. The long and short is that the signal is not where it is reported as being. With FSK, however, it is spot on...literally. That turned out to be a big issue for me as I wanted to be able to use the spotting features in my contest software.

**Filters:** Most radios offer significantly different filter setups for FSK versus AFSK. Listening to the FSK setup is far more pleasant on both my Yaesu and Kenwood than the AFSK mode. I have unsuccessfully attempted to match the AFSK settings and finally gave up. My ears thank me for making the change.

**Computer Sound Path:** Using AFSK results in your signal being generated completely in your computer. Be aware that incorrect sound path settings can result in the odd computer noise being transmitted. It is no different than any of the other digital modes. I personally find that my Windows computer seems to have a mind of its own and from time to time the sound settings get messed up. Just something to keep in mind.



**RTTY on the Bands:** Most RTTY activity can be found on the portion of the bands just above the FT8 subband, typically 083 to 090. Consider this a starting point only. Contest operations will move well beyond those borders, but will always respect the FT8 activity. 20 and 40 meters are the most popular. As with other digital modes, it is very helpful to setup keyboard macros to handle typical tasks: CQ's, SK's, introductions, ect. Contest software is virtually all macros. I have found the contests to be a lot of fun and I keep it in the casual mode. It is fun and enjoyable spending an hour or so tuning the contest ops and making QSO's. You will eventually start to recognize some of the bigger players. It is just a good time and great way to enjoy a Saturday morning coffee.



083..... Australian Jigger Bug. The Simplex Auto was invented in 1920 and made by Leo Cohen in Melbourne, Australia. This is a Simplex Auto Standard Model in nice shiny all nickel plated finish, made in about 1941.

## From the editor

September already, must have skipped a month or something! A reminder it is time for a Sendik's fund raiser. This Saturday September 7 2024 11 am to 4 pm. A good time for eyeball a QSO and make some money for the club. Come on down to the Mooreland & National Sendik's in New Berlin.

Not much else going on here. My daughter sent this web site (another use of radio) <https://motus.org/about/> She also mentioned she had heard a talk about it.

Listened to a talk yesterday about using the technology on kestrels and wood thrush. She was saying that often they have ham radio operators help set the systems. Talk isn't posted yet, but will be at <https://www.dnr.state.mn.us/fishwildlife/outreach/webinar-archive.html> when it is ready.

So many possibilities.

So will keep it short this time.

Frank KA9FZR Hamtrix editor

# Swap Corner

If you have something ham related you are looking for or you would like to sell or give away. I would be happy to post them in Hamtrix

Editor

ELMER

by Rich Regent, K9GDF



**2024 Challenge for our membership. Have someone you meet, Ham or Ham wannabe come to a meeting this year!**

**NOTE**

**Although this is published in Hamtrix. This is not a "West Allis Radio Amateur Club" sanctioned event. Still looks like it would be fun I'm in Frank Editor of Hamtrix**

## **The Antenna Fun is Heating Up! Tom Langer de KD9FPC**

"...you've got to ask yourself one question: 'Do I feel lucky?' Well, do you..."

As you'll recall, last month I wrote about an antenna challenge. Thanks to the WARAC board for allowing this craziness. This month we'll continue with some more unique sample antennas to build and try. You are welcome to build any antenna that adheres to these competition rules:

- 1:** No ladders allowed. Only 2-step step stools if you *really* need one.
- 2:** At least 95% of the work must be done on the ground.
- 3:** No antenna launchers of any kind.
- 4:** Can, and likely should be, done with other hams.
- 5:** If you need to buy coax or connectors, that is OK. Wire is OK if you already have it.
- 6:** Keep track of the antenna's SWR, number of contacts made, call signs of those you contacted, a signal report and a basic drawing with some details about the antenna. These should all be sent to me at or via mail to Tom Langer 2407 N. 93<sup>rd</sup> St. Tosa, 53226. Deadline is 10/31/24. Do put your call and name with your materials.
- 7:** Either HF, VHF/UHF. CW, digital and SSB.
- 8:** In November the results will be given to the Board to be reviewed at a meeting. The most unique, successful rig will get a \$5 coffee card from me. And another card to whomever makes the furthest distance.

So, off we go with some more unique antennas...

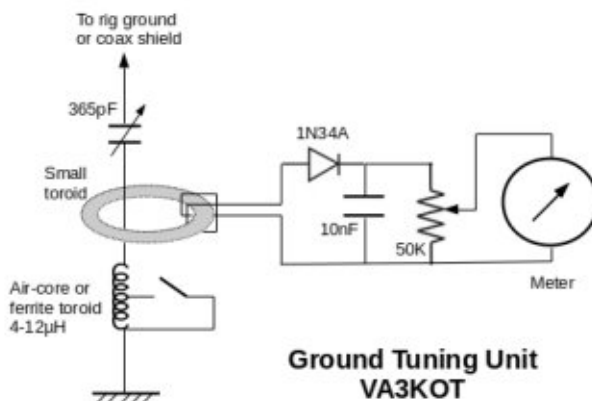
Here is one very interesting antenna. Using the GTU design shown below, John of Ontario, CA has developed a self-contained grocery trolley, portable, radio setup. The entire antenna is a foot by a foot. I will have John explain:

*The GTU connects to my aluminum hand cart which provides a capacitive link to ground. Inside is a series connected variable capacitor and inductor. A current sensing circuit with a meter is used to see when the ground current is at a maximum for optimum tuning.*

John also uses a short whip with coil tuning for 10 to 40 meters.

Using this design, he strolls through the neighborhood pulling his small grocery cart along with him. While there are no details on what type of radio or power is used, sounds like a great antenna project for the

## 80m Band Mobile 12"x12" By VA3KOT



contest! The entire thing can be assembled indoors and is usable at home, out on the driveway, at an H.O.A., for a walk, out for a POTA day, whatever. Fits nicely in a trunk.

The next one I had a chance to look at a while ago was a piece of wire lying on the ground. That's it. Just wire. The key was that the designer had cut a series of wires, each at a specific length for the different bands he wanted. He then brought all of these wires to a DIY antenna switch made out of pieces from his "treasure box". Then brought coax from the switch to the radio. On a couple he did end up making homemade baluns.

This operator tends to work QRP with CW. He was successful on his first try. While he did need to keep trimming wire for a bit, the antenna was a great success. He ran it alongside his house in flower beds. It was even grounded to an existing 8' ground post which is bonded. He reports getting decent readability reports and has had contacts all over the U.S. and in Canada. No report on how snow impacted results. But I suspect there was a wide path of snow melted through the garden beds.

Another unusual antenna I saw was at a field day. The person had turned their tent into an antenna. The tent was one that used an outside "exoskeleton" of metal poles to support the walls. This creative ham had bonded all of these poles and pieces into an integral unit using bits of wire screwed to the pieces and then connected at the site. On the top was also a very short whip mounted to a pole. Yup, the antenna needed some help with tuning. But after that was sorted out, he had a "tent ham log" to record his contacts.

OK engineers in the crowd. How about creating your own slot or rectangular patch antenna? I would bet yet another coffee card that if done properly you will have success at the UHF and beyond frequencies with just a very small antenna. They are all the rage as marine antennas.

Last idea for today. I did see a fellow ham in the U.K. who put a 2x4 in the ground, about 6 feet long... broom sticks and old fiberglass poles, even a fishing pole, could work as well. Then, using wire, create a very low (5' or so) antenna by bring 2 wires (each cut to match the band you are after, say 40m and 20m) at about 5' off the ground. Stake the ends in the ground creating what is essentially a very low NVIS antenna. If you have little space, try a 10m antenna.

Could ramble on for a while. But, trying to create unique antennas is one way older hams can use their knowledge to and just have some fun, and newer hams to learn a lot about propagation and antennas. For those looking to upgrade their license, it's a great way to put what you are learning to work. And for others, I suspect it will be just great fun. Let's see your ideas!



**DON'T KEY LIKE A PHONE MAN**



## **SLOW SPEED CW QSO NET**

*Monday's - 8:00 PM - WBOAFB Repeater 147.045 + 127.3 Tone*

### **CW Practice**

One of the best and maybe the only way to get better at CW is practice. Having someone else who also wants to practice also helps. Just makes it more fun.

The West Allis Radio Club is going to try to help. We are running a CW practice net on Monday at 8pm The repeater is 147.045+ 127.3 the CW portion is on HF

Mike WO9B has been joining me and setting up some practice but we are open for suggestions on where to go with this. Come join us.

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