

# The Hamgram

August 2021



## Ride The Ridges

Communications support Sept 18

Bikers, many bikers, return to the hills and donuts of Winona Saturday, Sept. 18, for Ride The Ridges and members of the Winona Amateur Radio Club will be there too. The Winona Rotary Club fundraiser needs the radio club's help with communication over the large and RF-lacking area traversed by the ride.

Riders tour the blufflands of Southeastern Minnesota and experience some of Minnesota's most scenic areas. Beautiful scenery – from lush valleys along quiet streams to majestic bluffs overlooking the Mississippi River.

The challenge is not climbing some of the long, steep hills or riding up to 100 miles but in maintaining radio

contact in areas where cell service and even emergency public service radios fail. Even the well-traveled US 61 south of Winona is an RF black hole....except for amateur radio. Radio operators, experienced and non-experienced, can have a good time helping with Ride-The-Ridges working at rest stops, on SAG wagons and with emergency responders.

Let Dan Goltz, WKØW, know if you can participate in this fun and interesting event. We will discuss our participation at the 7 p.m. Thursday, Aug. 19. The meeting will be on Zoom at <https://minnstate.zoom.us/j/3120290434> Password: WarcBoard

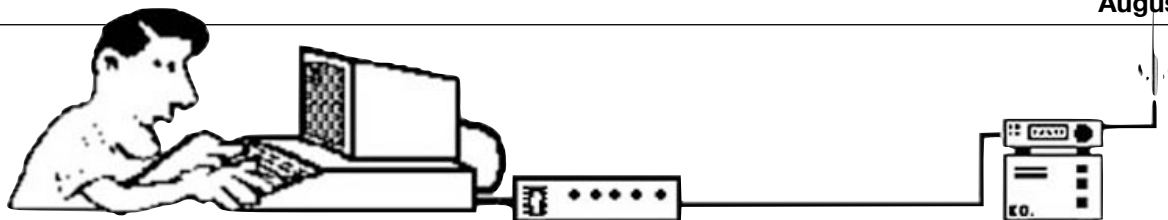
Screaming old cars racing up a twisty, narrow road are the recipe for radio fun Saturday, Sept. 24, near Waumandee. That's where the Waumandee Vintage Time Trials test skills of drivers and their at-least 30 year old cars.

Members of the Winona Amateur Radio Club are key to the time trials from relaying the "ready-set-go" to spotting fouls on the course.

Volunteers are treated royally during the event with snacks at their stations, a very nice lunch and, finally, with a great dinner catered by the Waumandee House.

Let Erik Brom, WBØNIU, know if you can participate in this fun and interesting event. We will discuss our participation at the 7 p.m. Thursday, Aug. 19. The meeting will be on Zoom at <https://minnstate.zoom.us/j/3120290434> Password: WarcBoard





## The packet racket: How can I play?

By Ken Weigel, W9GM

By now you've probably been hearing some chatter about the legacy digital mode packet. This blurb is not to explain how it works; there have been a few recent presentations on that. There's also plenty of information on the web if you just Google it. This article has to do with what equipment and software you need to actually get on and check it out.

With the addition of the new Winona ARC packet node (W0NE-7) near Witoka, there has been a new or renewed interest in packet. Although there is quite a bit of activity on HF packet, I'll stick mainly to what is needed for VHF. However, much of the information here can be applied to HF as well.

There are three basic avenues one could go down (or that I'll be going down here).

### TNC w/ Terminal Software

With this setup, you would have a full-blown TNC such as a Kantronics KPC-3 or KPC-3+. There are others that were made by MFJ and other companies, but these are two very common units. The KPC-3+ is considered by some to be the gold standard of TNC's. The KPC-3 non-plus is no longer made, but can be found at sites like QRZ.com or QTH.com/Classifieds, and occasionally at Swap Meets. It is still a very capable TNC.

The KPC units have all the necessary electronics to take what is typed on the terminal or terminal program, convert it to the tones, and send it to the transmitter. It does just the reverse for received packet signals. This type of TNC also has

a pbbs, which is a personal bulletin board system. This is used for storing messages for the packet station sysop, or others that can connect to the TNC.

So now you have the TNC, you just need some software to communicate between the computer and the TNC.

There are two types of software you can use, and both that I mention are free. One is a simple terminal emulator program. A common program is PuTTY. You connect your computer to the TNC, start up PuTTY, and you're off to the races. Oh, of course you also have your radio connected to the TNC as well. You can now enter commands to change TNC parameters, leave messages on the pbbs, or connect to other packet stations to chat or leave messages.

The second software option is a program called Outpost Personal Message Manager. This program is similar to an email client. In the suite of Outpost programs, besides Outpost PMM, there is a terminal emulator (IPSerial). IPSerial can be used instead of PuTTY. I highly recommend Outpost PMM and IPSerial. Once set up, Outpost automates checking for messages on your pbbs, or other packet systems. You can create messages and send them as you would with regular email programs.

One advantage this setup has is that you only need the computer turned on or connected when you want to check for messages, or connect to another station.

Otherwise the TNC and radio will work happily on their own.

**TNC in KISS Mode /w Software**

TNC's such as the Kantronics family of KPC's and KAM's can be put into the KISS protocol mode. While in this mode, most of the electronics within the TNC are taken out of the picture, and only part of the internals are used in the process of coding or decoding signals. This is because in KISS, most of the work is done by a packet program running on the computer. In KISS mode, you no longer have an internal pbbs available; it would now be part of the packet software. There are also KISS only TNC's such as the TNC-X. KISS TNC's can only be used with packet software, whether for regular packet, or APRS. KISS TNC's cannot be run as standalone units.

BPQ32 or LinBPQ by G8BPQ, and JNOS are packet programs that will run a KISS TNC or one put in the KISS mode. BPQ32 is the Windows version, and LinBPQ is the Linux version. LinBPQ can also operate on a Raspberry Pi. Both the W0NE-7 and KU0HN-7 nodes use a Raspberry Pi, whereas I am using the Windows version. I suggest you get the help of an Elmer if you are going to start out with BPQ or JNOS, it will shorten the learning curve! Another way to run a KISS TNC is to use the combination of the EasyTerm terminal program by UZ7HO, along with AGWPE (packet engine) by SV2AGW. EasyTerm has a nice terminal screen, and incorporates a pbbs. Normally EasyTerm is used in conjunction with a sound card TNC, but AGWPE allows

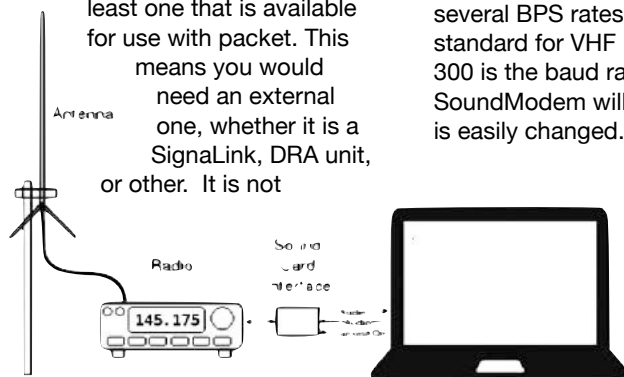
**See "Packet," page 3**

## Packet, continued from page 2

EasyTerm to work with a hardware TNC in KISS mode. This is a nice combination, but to work, the computer is always on and connected, since this is a computer based system.

### Sound Card w/ Sound Modem (TNC)

The third way to get on packet is to use a sound card, along with sound modem software. This combination takes the place of a hardware TNC. I'm not sure if there are any VHF radios that come with an internal sound card, or at least one that is available for use with packet. This means you would need an external one, whether it is a SignalLink, DRA unit, or other. It is not



recommended that you use the internal sound card of the computer itself. It is important that with whatever sound card you use, there is a way to key the radio. The DRA and SignalLink units have this feature.

One option when using a sound card is to use the combination of EasyTerm and SoundModem by UZ7HO. These two programs work great. SoundModem can be used on several modes besides normal packet, along with several BPS rates. 1200 BPS is standard for VHF packet, and 300 is the baud rate for HF. SoundModem will do both and is easily changed. As stated above,

EasyTerm has a built-in pbbs. Dire Wolf by WB2OSZ

is another sound modem program, and can be used in place of the UZ7HO SoundModem. BPQ32 and LinBPQ work well using either Dire Wolf or UZ7HO's SoundModem. I use SoundModem, and both the W0NE-7 and KU0HN-7 nodes use Dire Wolf.

This article should get you pointed in the right direction. Please feel free to contact me with any questions or comments at [ken@w9gm.com](mailto:ken@w9gm.com). I hope to hear you making some packet racket soon.

*Disclaimer: I am not associated with any of the companies that manufacture or sell the products that have been mentioned in this article.*

1. <https://kantronics.com/>
2. <https://mfjenterprises.com/products/mfj-1270x>
3. <https://www.qrz.com/>
4. <https://swap.qth.com/>
5. There is a third type of software which will not run on modern computers.
6. <https://www.putty.org/>
7. <https://www.cantab.net/users/john.wiseman/Documents/index.html>
8. <http://uz7.ho.ua/packetradio.htm>
9. <https://www.sv2agw.com/downloads>
10. <https://www.tigertronics.com/slusbmain.htm>
11. <http://www.masterscommunications.com/>
12. <https://github.com/wb2osz>



## High power!

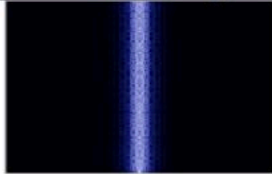


Try out the Russian built BURST-2000A HF power amplifier with its 2200 W PEP output power (SSB and CW). It does all HF bands, including WARC bands and 6 meters with a rated input power of 15 W. It is

## FT-8 Burnout: there's more to digital

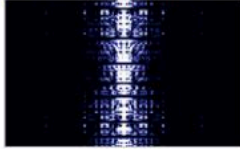
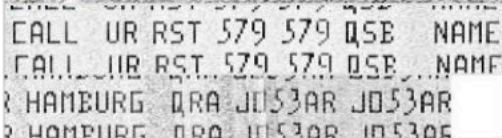
By Sholto Fisher, K7TMG

Contrary to what the title suggests this article is not about FT-8 or the effect of driving a radio too hard. Rather it is about remembering there are other interesting digital modes being used on HF and that they make for some pleasant distraction when users had enough of the FT-8 rat race! 20 years ago it was common to hear PSK31 on the watering hole frequencies. In fact, often there were so many simultaneous PSK31 QSOs taking place it was difficult to find a slot with enough room from adjacent signals to even call CQ. This was the beginning of an exciting age of sound-card based digital mode experimentation. It seemed like there was a new mode to try every week! Suddenly we did not need expensive hardware to try out new modes which was de rigeur until the turn of the century. It was sometimes necessary to have a box for each mode such as Packet, AMTOR, G-Tor, Clover, and Pactor. Many users have likely downloaded software such as FLdigi, MixW, or MultiPSK at some time and possibly even made a few QSOs in different modes already. Some users perhaps have never been

BPSK31 (Binary Phase Shift Keying)
14,070 USB, 7,070 USB, 3,580 USB
Many including FLdigi, MultiPSK, MixW, Digipan, Airlink Express, et al.

Also known as PSK31, or simply PSK. Other speeds and modulation exist. Fairly common mode. Makes for a very good conversation mode with decent decoding in most HF conditions. Pre-recorded phrases (macros) can be used if users aren't fast on the keyboard but they miss out on some wonderful chats.

successful using a digital mode other than FT-8. Let us look at some of the more interesting modes we can use today which are found in these computer programs.

When conditions on HF are poor, users might consider an MFSK mode (multi-frequency shift keying) to punch through the noise. One such mode is Olivia and it's on-air performance is remarkable. There is a

Feld Hell (Hellschreiber)
14,065 – 14,072 USB, 10,140 USB, 7,070 USB, 3,580 USB
FLdigi, MultiPSK, MixW, IZ8BLY Hellschreiber

Old school but fun mode! Variants exist using PSK or FM modulation but rarely encountered. Recovered text scrolls on users screens. A great mode for a chat and how well it is 'decoded' is really down to the users own eyes.


variety of sub modes in Olivia but typically users will mostly see the 16 or 8 tone waveforms. Typical bandwidths vary from 250Hz to 1000Hz. The Olivia 16/500 is possibly the most usual encountered.

One of the oldest digital modes in use is Feld Hell.

Invented in 1929 by Rudolf Hell it saw use in One WWII and later on by press agencies. This is an OOK mode (on-off keying) and is a lot of fun! It is really an image mode which sends a scrolling 'ticker-tape' of text. There is no decoding necessary since the text is on the screen.

A commonly heard mode in the early 2000's was MT63. Employing 64 differential binary phase-shift keyed tones, this mode also makes use of an interleaver which gives temporal resistance against fades or static crashes. The interleave period could be chosen from short, medium, & long. In practice, users will encounter only the long interleave variety. Three bandwidths exist; 500 Hz, 1000 Hz, and 2000 Hz. Most common is the 500 Hz sub-mode.

MT63 is another fun mode to try and quite resistant to errors. VOA Radiogram often uses MT63 in its broadcasts (see <https://voaradiogram.net>)

When users have had enough FT-8 why not give these modes a try? People might just find that they enjoy actually talking to someone rather than a robot.

**~~-Don't be worried about your smartphone or TV spying on you. Your vacuum cleaner has been collecting dirt on you for years.~~**

# WARC Executive Board (unofficial minutes)

Wednesday, July 7, 2021, via Zoom

**Attendees:** Lance Tagliapietra, ADØUT; Dan Goltz, WKØW; Russ Marsolek, NØQK; Marv Rodvold, AC9TO; Paul Schumacher, KØZYV; Erik Brom, WBØNIU; Harro Hohenner, KG6RLM; Mike Foerster, WØIH; Clare Jarvis, K0NY; Tom Wilmot, W0MK; Bob Seaquist, W9LSE.

7:14 p.m. Called to order by Paul Schumacher, KØZYV

**Treasurer's Report:** Harro Hohenner, KG6RLM

Balance on 6/30/2021	\$4,636.25
Income:	
Dues	\$30.00
Sale of excess water from F.D,	\$10.00
"Donations" from F.D. swap	\$59.00

Expenses:

Field Day expenses	
Food (picnic)	\$286.15
assorted supplies	\$15.00

Balance reported by bank \$4,434.10

Paid members 49

- Inactive 37

**Minutes:** Bob Seaquist, W9LSE

**Public Service:** Dan Goltz, WKØW. There have been a couple Skywarn call outs since the last report, with good response. This season there has been one net control from the LEC, and that worked well. Others nets have been conducted from the net control operator's home, mostly due the the late hour of the storms and lack of daylight. That has also gone well, and it is nice to be able to do both if needed.

We are making good progress with our preparation for Ride the Ridges and the Waumandee Hill Climb events scheduled for September. Erik Brom, WBØNIU, met with the RTR coordinator and pre event

registration is far above that from previous years. Both pledged



KEITH LAKEN, KEØIJ, ERECTED A RACK FOR ANTENNAS AND PIPES AT THE WITOKA SITE.

participation and equipment response are very favorable, and we don't expect any problems in that regard.

Mike Foerster, WØIH, and WBØNIU have been working on the portable repeater to improve the sensitivity that caused some problems in the past.

Russ Marsolek, NØQK, offered space in his shop to store some of the club's equipment that has been stored at the Witoka tower.

I attended the first in-person Winona County Emergency Coordinating Committee meeting July 27 in more than a year. Several participants were aware of the RTR and Waumandee events. The problem we have had in the past with delayed text messaging for Skywarn call outs is not exclusive to WARC. Some fire departments are not getting notifications until the next day or not at all. Emergency Management has been in touch with the cell phone providers and the only response he receives is that they are looking into it. There are principally four emergency call-out systems including Code Red, SMS, and Active 911 and none seem to be reliable.


**Witoka:** Mike Foerster, WØIH. Keith Laken, KEØIJ, erected a rack for antennas and pipes; junk metal and other garbage has been removed. The portable repeater has been improved somewhat and now WBØNIU is testing it with weak signals.

**Packet:** Erik Brom, WBØNIU. The system is receiving good reports. Recently it connected directly with a radio in downtown Minneapolis.

**General Club Meeting:** Lance Tagliapietra, ADØUT. Due to the uncertainty posed by the Covid 19 Delta variant, club meetings will continue on Zoom (<https://minnstate.zoom.us/j/3120290434>)

Password: WarcBoard) for the near future.





# The Geostationary Lightning Mapper

*GLM measurements help the weather, aviation, disaster prep, and fire communities with:*

- Early warning of lightning strikes
- Tornado lead times & false alarm reduction
- Identifying storm intensity
- Detection of heavy rainfall & flash flooding



## Drone test offered locally

The Federal Aviation Administration has introduced new requirements requiring all drone pilots to pass an additional aeronautical knowledge and safety test.

CVTC (Chippewa Valley technical College) of Eau Claire has been named an FAA-Approved Test Administrator of The Recreational UAS Safety Test (TRUST). This will help make this activity more accessible and available to our region.

The test is available virtually for your convenience and allows you to earn your credentials and operate safely in the airspaces of our community.

<https://www.cvtc.edu/academics/certificates/aviation/faa-approved-ta-trust>



Winona Amateur Radio Club, Inc. P.O. Box 1451, Winona, MN 55987

### WØNE Repeaters

146.640 PL 100.0 Hz \*

146.835 PL 131.8 Hz \*\* FM Voice C4FM Digital

444.225 PL 100.0Hz FM Voice C4FM Digital

442.150 PL 100.0 Hz. FM Voice C4FM Digital

\* SkyWarn Net when activated.

\*\* Sundav Niah Net—8:30 p.m.

Winona Amateur Radio club meetings are 7 p.m., third Thursday of the month on Zoom video conferencing. The monthly program is open to the public. ( <https://minnstate.zoom.us/j/3120290434> Password: WarcBoard)



President: Paul Schumacher, KØZYV, [pschumacher@winona.edu](mailto:pschumacher@winona.edu)

Vice President: Lance Tagliapietra, ADØUT, [lancetag@hbc.com](mailto:lancetag@hbc.com)

Treasurer: Harro Hohenner, KG6RLM, [Harro@hohenner.com](mailto:Harro@hohenner.com)

Secretary: Bob Seaquist, W9LSE, [seaquist.robe@eagle.uwlax.edu](mailto:seaquist.robe@eagle.uwlax.edu)

Custodian: Erik Brom, WBØNIU, [ewbrom@hbc.com](mailto:ewbrom@hbc.com)

At Large: Dan Goltz, WKØW; Clare Jarvis, KØNY

Dues: \$30 per calendar year per license holder. \$35 per calendar year for all licensed members of the same family within the same household.

Send dues to: Treasurer, P.O. Box 1451, Winona, MN 55987

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