



Official Publication of the
West Allis Radio Amateur Club

Hamtrix

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

Volume 70, Issue 3 March, 2021

MARCH CLUB HAPPENINGS



NUT NET

3.985mhz

Monday-Saturday

8:15am CT

NUT NET

Breakfast

8:30am fourth

Tuesday

of the month

Milwaukee-Florida Net

Every Day on 14.290 Mhz

7:00AM - 9:15AM ET

6:00AM - 8:00AM CT

Sunshine Committee

If you know of a member who could use a bit of cheer or support,

Barb Garnier (KD9HPS) is now the Sunshine Committee Chair.

Contact her: 414-529-3536 or barbsewsblue@gmail.com.

Virtual Club Meeting March 9, 2021 7pm

Using Zoom

Program

Wisconsin QSO Party

Chuck Dellis, W9WLX

Zoom Meeting

Meeting ID: 647 484 5588 - Password: warac

<https://zoom.us/j/6474845588?pwd=WjRRQ3E5bHVlYDY5aGNhazNwZlh0dz09>

Zoom phone in info on page 15



Wisconsin QSO Party Sunday, March 14th

<http://www.warac.org/wqp/wqp.htm>

WARAC 2-meter net

Every Wednesday at 8pm

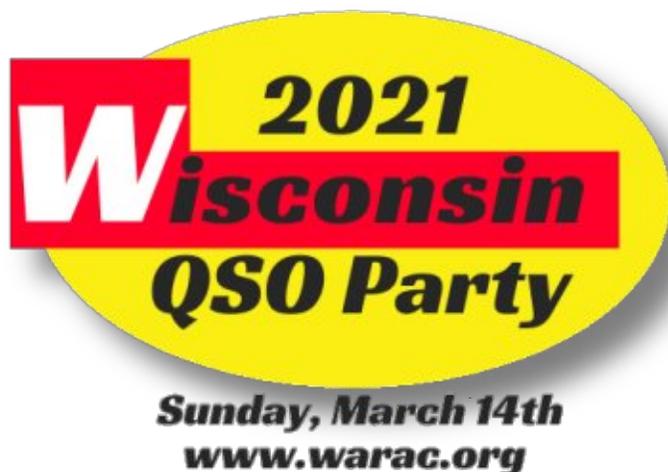
SEWFARS W9TJK Repeater 146.820

standard (-) offset 127.3 Hz CTCSS

if repeater down try 146.55 simplex

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The President's Shack

Another month gone with the promise of spring to come. With this being Wisconsin that in no way means winter won't throw in a few days of cold weather and/or snow!

Mike WO9B took advantage of the early spring weather and tested his park activation set up at a park. Using the nut net as an indicator it seems people are beginning to

My morning nut net breakfast shack HI HI



eye their antenna set ups with the possibility of fixes and/or improvements.

I'm still learning my Yaesu FT-891 I have a lot of new things to find uses for Also working on my CW skills. Our Monday evening CW practice net is helping and gives me incentive to keep practicing.

I'm still experimenting with options with my neighborhood AM Broadcast station interference. It is more noticeable with the new radio (FT-891) than the old (FT-817). So far I have found that running the signal through my tuner significantly reduces the interference. The evening power/Antenna pattern change has some effect on the interference. So I'm not sure where we are going with this.

The reality is the Fan dipole set up I have needs some tender loving care after years of service. That may be the first major fix. There are high pass filters available that may be a option. I would love to try one for a while and see what effect that would have. I wish I had the lab quality equipment I had available when I worked at the FAA . That would have supplied answers to many of the questions.

Enjoy the weather, everyone, and hope to hear many of you during the Wisconsin QSO party.

73

Frank KA9FZR • — • —•

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From the Editor

No editorial due to being occupied by the President's Shack

WARAC Club Meeting Minutes

February 9, 2021

Due to the nature of the COVID-19 crisis and Governor Tony Evers “Emergency Order #12 Safer At Home Order”, Chuck W9WLX hosted the Zoom Meeting.

The club meeting was called to order 7:05 pm by Frank KA9FZR.

Approximately 12 virtual current and past club members were identified by the Secretary Dave WB9OWN. There were no visitors.

Club Presentation: “First Impressions” of some new radios, IC-705 by Chuck Dellis W9WLX, FTDX10 by Howard WA9AXQ and FT891 by Frank Humpal KA9FZR.

- Chuck began by stating the IC705 transceiver is Icom first QRP rig in many years. Chuck then conducted virtual visual tour (used his iPhone as a video camera walk through) of the radio features which there are many. The radio should be familiar to today’s smart phone users with it’s built-in Bluetooth and GPS functions. The radios VHF & UHF bands are well served with the inclusion of with APRS and DSTAR functions. A nice touch. <https://www.icomamerica.com/en/products/amateur/handheld/705/default.aspx>
- Howard described his Yaesu FTDX10 transceiver as 160m to 6m, Superhet, down conversion 9Mhz to 28 Khz SDR radio transceiver. It has 2 knob frequency tuning, Yaesu’s multi-function display with unique SDR waterfalls affectionately known as the “star wars’ display. This radio ranked #3 on Bob Sherwoods receiver test data. <http://www.sherweng.com/table.html>
- Frank bought FT-891 to replace his FT-817, 100 watts, 160m – 6 meters transceiver. Uses the same microphone, same famous deep Yaesu menu which Frank reports as “not particularly difficult.” Frank states he’s heard loud and clear on the 80 meter “morning nut-net” and is pleased with is purchase.

Frank KA9FZR and Mike WO9B have been practicing CW between themselves at night and have announced “Come join us” on Monday Night at 8pm, meeting first on 147.135 Mhz, 127.3 PL repeater. AA9RK has just joined the CW practice net.

General Discussion.

- Wisconsin QSO Party is March 14th. Phil Gural is unsure about activating Menomonee County, C19 concerns. The W9FK station call is up for grabs, “Who wants it?”
- Swapfest discussion. Mike Johnson will be the official contact spokesperson concerning Swapfest 2022 status. All status questions go through him.
- Field Day 2021, What is the club officially going to do? Don’t know at this point.
- Club has lots of electronic material to sell – Call Steve Dryja.

Hamtrix Clarification Department:

1) In the last issue of Hamtrix the secretary erroneously reported Chuck W9WLX was stepping down from his Field Day leadership position due to the lack of club participation - this was not accurate. Chuck resigned from his Field Day Chairman role effective for 2021. Several members had expressed an interest in scaling back the Field Day effort. Chuck agrees that this is the correct direction for the club but his desire is to continue to be more involved in Field Day operation. Chuck believes that now would be a good time for new WARAC Field Day leadership.

2) Concerning the question “**Is 630 Meters Band practical for Amateur use?**”

I would re-answer the question the following way.

- This is an experimenters band.
- Not all 50 states have an active operator! QSL cards are big deal.
- If you like 160 meter propagation you will feel at home here.
- I've worked W6, heard KH6 & FL7 and copied an occasional EU station.
- 630 has hardcore CW contingent, operates morning and night grayline propagation. You will be encouraged! This band is for you MJ.
- If you like building antennas, this is your band! Everyone starts with longwire.
- Digital communications is predominate mode, (FST4 has replaced JT9) If you start dabbling with other digital modes (FT8, PSK, RTTY), you will attract attention and Q's!
- There is very little SSB operation in Midwest.

January minutes were approved. (TU Erwin)

General meeting was adjourned about 9:03 pm.

Unofficial meeting ended about 9:25 pm.

Respectfully Submitted,

David Garnier WB9OWN

Secretary WARAC, December 8, 2020

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West Allis Radio Amateur Club – Sign In Sheet

General Meeting Zoom Call Listing

9Feb2021

Name	Call	Member
1 Frank Humpal	KA9FZR	Yes
2 Chuck Dellis	W9WLX	Yes
3 Steve Dryja	NO9B	Yes
4 David Garnier	WB9OWN	Yes
5 Phil Gural	W9NAW	Yes
6 Al Hovey	WA9BZW	Yes
7 Mike Johnson	WO9B	Yes
8 Tom Macon	K9BTQ	Yes
9 Bill Reed	N9KPH	Yes
10 Howard Smith	WA9AXQ	Yes
11 Paul Sperbeck	W9PCS	Yes
12 Phil Tollefson	WA9AQL	Yes
13 Erwin Von de Ehe	WI9EV	Yes
14 Bill Spellman	WQ9A	Lapsed

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March 2021 * Hamtrix * By Michael Johnson, WO9B

Scanning the Channels

So you've got your nifty DMR radio tied into a very cool Hotspot all magically stitched together with a Frankensteinish code plug. All is up and running and you've even made some contacts on the main BrandMeister talkgroups. But alas after a week or two the initial "wow factor" wears off. If you are listening to BM TG3155 (Wisconsin) maybe you get your buddies to gab once or so a week. Maybe a little more. The rest of the time not much is happening on good old 3155. You know there are a bunch of people on DMR, but where are they and how do I find them? Better yet, how do I listen in on conversations I am interested in.

It's a good question and rest assured, you are not alone. Any of the digital voice modes offer a confusion of talkgroups, reflectors and rooms with little familiarity to analog vhf/uhf systems. What's worse is they may have little activity, bursts of QSO's or nonstop banter. In the analog world, it is a simple matter to program your radio with a bunch of local repeaters and just hit the scan button to find a conversation or two. When you are starting out, that is a great way to learn about activity and to find your place in the conversation. After a while, you knew what you liked, what was going on and how you wanted to fit in.

Well there is good news on the DMR front. Assuming you are using the BrandMeister Network, you can set up an unlimited number of Talkgroups as "Static" talkgroups on your hotspot which when coupled with having your radio in promiscuous or digital monitoring mode will turn your DMR setup into a talkgroup scanner. Now you can monitor talkgroups to your heart's content, searching for meaningful activity. This is not my idea, but I happened upon this Youtube Video: <https://www.youtube.com/watch?v=diAahlJXgk> by K9WLW. My first reaction was not positive, but after thinking about it...well, it really works.

In lieu of the 50+ talkgroups that K9WLW set up, I limited myself to WI and MI talkgroups. I currently have 13 talkgroups setup as he suggests. They are monitored all the time. Certainly, from time to time something pops up that I don't care for, say a net or some run-on conversation, but for the most part, it has really helped me to get to know what's happening on the DMR BrandMeister Network in WI and MI. Give it a try.

To get you started, the WI BrandMeister Talkgroups I currently monitor are:

3155 Wisconsin
 31550 Wisconsin TAC
 31551 WI Fusion (DMR crossover to Yaesu System Fusion Wis-Link)
 31555 WI DMR (DMR crossover combining P25, WiresX XLX414 Reflector)
 31556 WI Ares/Emcomm

Next Month: Carpe Talkgroup: Controlling your talkgroups

Thoughts on Field Day

These are some thoughts I had on field day and where we are as a club and in our hobby.

If you have any ideas you would care to share with the group I would be happy to publish them.

Pulling up the ARRL Field Day web page I found this explanation of the reason for Field Day

“To contact as many stations as possible on the 160, 80, 40, 20,15 and 10 Meter HF bands, as well as all bands 50 MHz and above, and to learn to operate in abnormal situations in less than optimal conditions.”

The ARRL has been doing this since around 1933 so it has a long history.

It showcases Ham radio in one of its service activities. The ability to operate off the grid when there is no grid to operate off of. We do that for 24 hrs and see how many people we can talk to and trade info with.

It is good practice but does require a significant personal presence to do. Using our present set up younger members are required to set up the site safely. There is also a significant lead time to organize and run the operation.

Can we do it differently but still keep some of the fun and off grid practice?

These are just some of my thoughts. This article is just to start a discussion!

Could we use the Park Activation model where you pick a park and come set up and operate for a limited number hours? That would test our response to a unexpected emergency and require less man power and set up time.

Shortening the operating time may mean not needing generators, simpler set up and protection from the elements.

Simpler antennas could be used that could reduce the contacts or not depending on the will of the propagation Gods.

Holding it in a park may expose us to more people.

Not running overnight would mean we would not have to have people on site all night. We could close up shop and pack up at sunset and come back at sunrise and start again if we choose to.

I'll bring it up at the meeting. So bring some thoughts.

Frank KA9FZR

Hamtrix Sales Corner

Microcontroller Projects for Amateur Radio

All the information you need to build fascinating projects using the Arduino, STM32 ("Blue Pill"), ESP32, and Teensy 4.0 micro-controllers.

Unfamiliar with C or C++ programming? No problem. Microcontroller Projects for Amateur Radio provides all the introduction you need to build projects such as a programmable power supply, a signal generator, a DSP mic processor, and more!

Some of the practical hands-on projects featured:

- The Morse Code Tutor - learn and practice sending and receiving methods, with or without Farnworth encoding.
- The CW Messenger allows you to send up to 50 "canned" CW messages, that are completely changeable in the field without a PC.
- The Mini Dummy Load is small enough to fit in a shirt pocket, can handle up to 30W, includes an OLED display that shows RF power, yet can be built for around \$20!
- The Double-Double Magnetic Loop antenna sets a new standard for small (3' diameter), multi-band operation and includes remote tuning.

Special Member Price! Only \$34.95 (regular \$39.95)

Product Details

Softcover: 400 pages

The club has some items for sale, as for those with unknown condition, come over and plug them in. :-)

As I get time I go out to the garage and plug stuff in with basic testing.

The following prices are for club members:

Tektronics 7704a Oscilloscope working \$100 (see Picture next 2 pages)

Tektronics 7603 Oscilloscope working \$100 (see Picture next 2 pages)

Tektronics 5113 Oscilloscope working \$75 (see Picture next 2 pages)

Tektronics D40 Oscilloscope working \$50 (qty3)

Hammarlund SP-600 Unknown condition \$100 (Qty 2) (see Picture next 2 pages)

Motorola R-390 working \$200 (see Picture next 2 pages)

Icom 1.2ghz mobile radio unknown condition \$25

450mhz liner amplifiers 100watts unknown condition \$40 (qty2) (see Picture next 2 pages)

Kepeco 20amp power supply, one working other unknown \$50 (see Picture next 2 pages)

Lambda 80amp power supply unknown condition \$100

Kepeco 2amp power supplies unknown condition \$25 (qty 4)

Many antenna books \$5 ea.

Many Tektronics manuals \$5 ea unless its a service manual then it's \$10

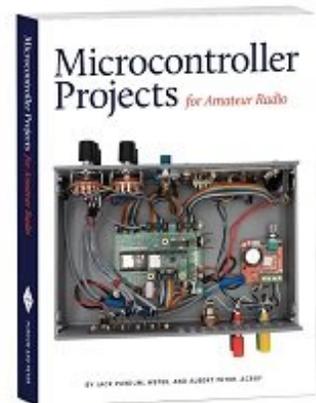
20 pin IC sockets \$1 per tube

40 pin IC sockets \$1 per tube

If you come over and buy stuff the more you buy the better the prices get ;-)

One Copy
New
Price \$25.00
Donated to club by
Howard WA9AXQ

Call or email Frank
KA9FZR
KA9FZR@gmail.com
414-425-0794





Hammarlund SP-600 Unknown condition \$100 (Qty 2)



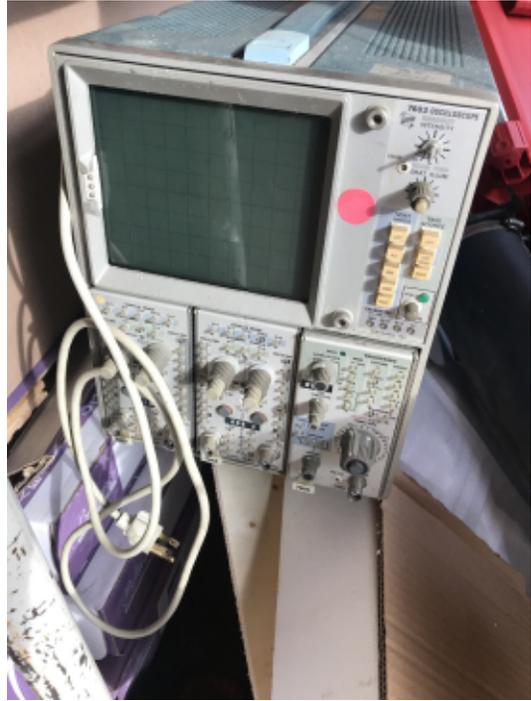
Kepco 20amp power supply, one working other unknown \$50



Motorola R-390 working \$200



Tektronics 5113 Oscilloscope working \$75



Tektronics 7603 Oscilloscope
working \$100



Tektronics 7704a Oscilloscope working \$100



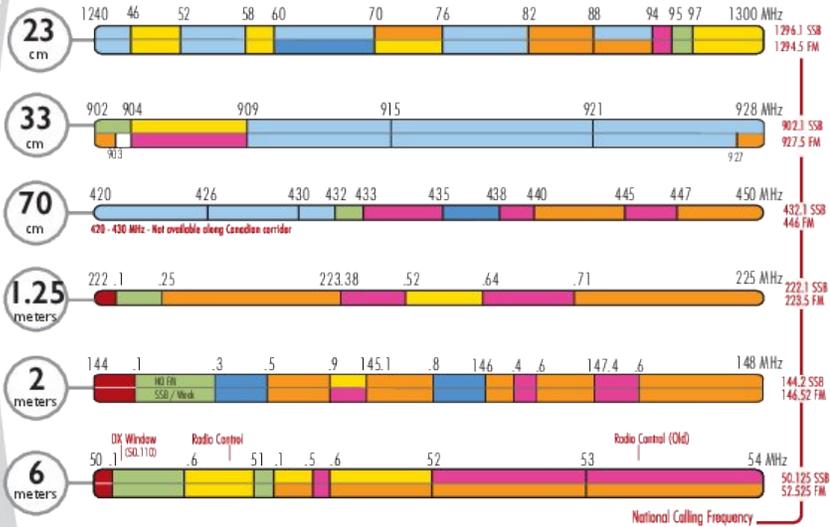
450mhz liner amplifiers 100watts unknown condition \$40
(qty2)



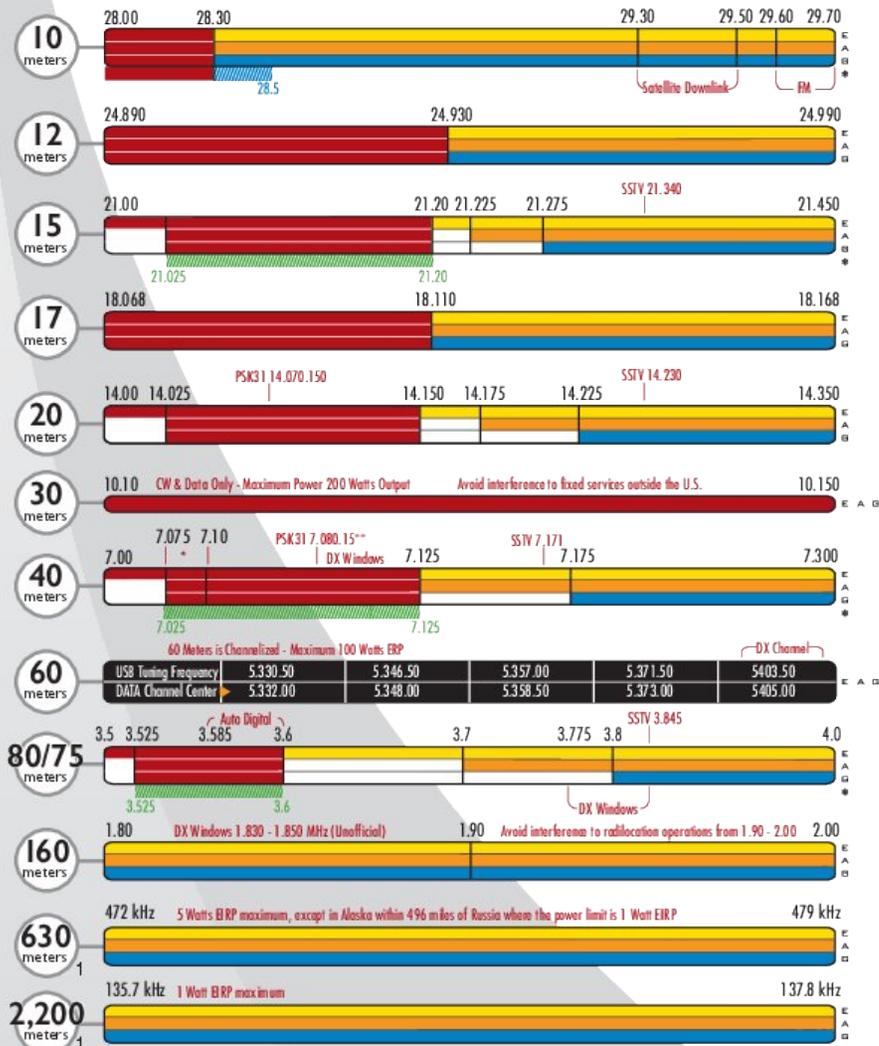
This Band Plan is meant to be a general guide and local band plans take precedence.

- Amateur TV Fast Scan
- Satellite
- CW
- Digital
- FM Simplex
- SSB & Weak Signal (No FM)
- FM Repeater

U.S.A. Amateur Radio VHF/UHF Band Plan



U.S.A. Amateur Radio MF/HF Band Plan



- Extra Voice - CW - Image
- Advanced Voice - CW - Image
- General Voice - CW - Image
- CW - RTTY - DATA
- Novice / Technician - CW
- Novice / Technician - Voice
- No Privileges

E: Extra A: Advanced G: General
* Novice and Technician

Under restructuring, all Advanced license classes retain their operating privileges.

*Amateurs wishing to operate on either 630 meters or 2,200 meters must first register with the Utilities Technology Council online at: <https://utc.org/plc-database-amateur-notification-process/>. You will need to register once for each band.

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Some Thoughts on RTTY on 630m, Al K2BLA

Our foray into RTTY operation on 630m caused some confusion. Here is some info that may help clear up the confusion.

RTTY is one version of MFSK where M is the number of tones used not "minimum frequency shift keying" which is another use of the term MFSK. In the case of classic RTTY, $M=2$. All WSJT modes are MFSK with M much greater than 2. The RTTY tones are called mark and space with mark the higher of the two. In the early days of RTTY, we generated FSK by using a diode or transistor to switch a small capacitance across the VFO resonant circuit of our transmitter. When RTTY was not being used, the capacitor was switched out and the VFO dial read the correct frequency. The old shift was 850Hz and higher quality VFO's could resolve down to 1kHz and being off by 850Hz would be noticeable. This is the origin of term "dial frequency". It also became the reference frequency when specifying an RTTY signal because that was what your VFO read and was the frequency of the mark tone.

When the first soundcard RTTY programs became available they chose LSB for the programs. This is because LSB was used on 80/75m where RTTY started because it was easier to achieve the necessary frequency stability for RTTY on the lower bands. The reason LSB was used on 80m can be traced back to a very popular homebrew SSB generation scheme using a 9MHz crystal filter for SSB generation and a 5.0 - 5.5MHz VFO. The sum frequency produced 14.0 - 14.5MHz USB and the difference frequency generated 4.0 - 3.5MHz LSB. To this day USB is used for 20m and LSB for 75m.

When using LSB with a soundcard, the audio tones or "baseband signal", has the mark frequency LOWER than the space frequency. When the transmitter inverts the spectrum for LSB, the mark tone is the HIGHER of the two which is where it should be.

WSJT is configured to use USB. It would make sense to use USB for RTTY so that it would be the same transmitter or transceiver settings as WSJT and would minimize confusion. Therefore the classic RTTY soundcard programs must be set to "REV" or reverse so that the baseband mark tone is HIGHER than the space tone as the spectrum is not inverted on USB.

The classic standard for the baseband mark tone is 2125Hz with a 170Hz shift or 2125Hz for mark and 1955Hz for space. Setting the "dial frequency" to 474.2kHz, the same as WSJT, puts the mark and space tones above the "WSPR band" which is 1.4kHz to 1.6kHz above the dial frequency. The 170Hz shift RTTY signal using 45.45 baud is about 250Hz wide so the RTTY signal has a lower baseband frequency limit of 1915Hz which is 315Hz above the top end of the WSPR band or a 315Hz guard band. This guard band is more than 1.5 times the width of the entire WSPR band.

WSPR should function perfectly fine with a 315Hz guard band. The guard band between the lower end of the WSPR band and the other WSJT modes is ZERO. However all the WSJT signals are very narrow and they can coexist with very little or no guard bands. All of this is predicated on not overloading our transmitters and generating spurious signals which is the case for any WSJT or soundcard operation.

For us to use RTTY without harmful interference on 630m we must be sure not to have mark or space tone frequencies too low. This can be done by using 474.2kHz dial frequency and USB, (the same as WSJT), and a 2125Hz standard baseband mark frequency as shown above.

! gather that some radios have an RTTY mode and displays the mark frequency as the dial frequency rather than the "virtual carrier" or "suppressed carrier" frequency which is the norm for 5SB. This makes a lot of sense as the mark frequency is the reference frequency for RTTY. However, the radio has to know the baseband mark frequency in use which is manually set or the radio has to communicate with the soundcard software. Then you would have to set the "dial frequency" to $474.2 + 2.125\text{kHz}$ or 476.325kHz to get the frequencies outlined above which requires a dial that can be set in at least 5Hz

steps to be exact. Some radios may have only 10Hz steps but to be within 5Hz of the desired RTTY frequencies is probably not an issue. But you would have to be careful to return the dial frequency to 474.2kHz when going back to WSJT. Therefore caution must be used when using an FSK or RTTY mode on a modern radio. Using SSB mode rather than an RTTY mode would be simpler. If your radio has the ability to tailor the selectivity filter in the SSB mode to be more compatible with the RTTY signal that would be a real plus. But soundcard RTTY programs have their own filtering which is adjustable and using a standard SSB filter would probably work fine.

Al K2BLA - Tubadoc@cfl.rr.com

WARAC Members:

The club's new fiscal year began November 1st, which means that dues for the 2020 to 2021 year are payable now.

Since we are not holding physical meetings due to the COVID 19 virus, we are asking that you handle your membership in one of the following ways:

Life Members

- Please mail the club (PO Box 511381, New Berlin, WI 53151) a completed application so that we can update our membership records.

Other Members

- The preferred method of payment would be via PayPal using the "Friends and Family" option. By using this option, the club does not incur the usual PayPal transfer fee. Use this address: waracpp@warac.org.
- Mail a check payable to WARAC at PO Box 511381, New Berlin, WI 53151.
- If you prefer, you can mail a cash payment to this address as well. A receipt will be emailed to you at your address of record
- **Whichever option you choose, we would appreciate having a completed application mailed to us so that we can ensure that our membership records are up to date.**

And please, please, please try to take care of your dues payment by the end of December. We will be publishing a new electronic membership directory early next year, and if we haven't received your dues by this date, your name will not be included in the directory.

Thanks in advance for your help! • _• _••



West Allis Radio Amateur Club, Inc. MEMBERSHIP APPLICATION

Name	Call	Handle
Address		
City	State	Zip
Phone	Email Address	
Spouse's Name	Wedding Ann.	Birthday
License Class	Expiration	Licensed Since
Membership In	<input type="checkbox"/> ARRL	<input type="checkbox"/> Amsat
		<input type="checkbox"/> Other
Operational Station	<input type="checkbox"/> Fixed	<input type="checkbox"/> Mobile
		Bands:
Would You Be Willing To Serve	<input type="checkbox"/> On A Committee?	<input type="checkbox"/> As An Officer?
Club Activities You Would Like To Participate In		
<input type="checkbox"/> Field Day	<input type="checkbox"/> Programs	<input type="checkbox"/> Sweepst
<input type="checkbox"/> Hamfest	<input type="checkbox"/> Sunshine	<input type="checkbox"/> Education
<input type="checkbox"/> Public Relations	<input type="checkbox"/> Scholarship	<input type="checkbox"/> QSO Party
Class Of Membership:	<input type="checkbox"/> Full	<input type="checkbox"/> Associate
		<input type="checkbox"/> New
		<input type="checkbox"/> Renewal
Dues Paid:	<input type="checkbox"/> Full \$15.00	<input type="checkbox"/> Associate \$15.00
	<input type="checkbox"/> Family \$15.00	<input type="checkbox"/> Student \$15.00
	<input type="checkbox"/> Retired \$15.00	

I hereby apply for membership in the West Allis Radio Amateur Club, Inc. in the membership class indicated above. I agree to abide by the Constitution and By-Laws of the club and any rules or conditions that may be set forth in accordance with the Constitution and By-Laws.

Applicant	Date
Secretary	Date
Treasurer	Date
Accepted for Membership	Date

Meetings on the 2nd Tuesday of the month at:
New Berlin Community Center
14755 W Cleveland Avenue

Bring your completed application to a club meeting or mail with dues payment to this address:
West Allis Radio Amateur Club, Inc.
P. O. Box 511381
New Berlin, WI 53151-1381

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 147.135+ 141.35 the CW portion is on HF 28.060 MHZ

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.

----Zoom Telephone info----

Dial by your location

+1 646 558 8656 US (New York)

+1 669 900 9128 US (San Jose)

+1 253 215 8782 US (Tacoma)

+1 301 715 8592 US (Germantown)

+1 312 626 6799 US (Chicago)

+1 346 248 7799 US (Houston)

Meeting ID: 647 484 5588

Passcode: 434973 • —• —••

Officers and Board

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Vice President

Steve Dryja, NO9B

Secretary

Dave Garnier WB9OWN

Treasurer

Bill Reed N9KPH

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Phil Tollefson, WA9AQL

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Mike Johnson WO9B

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