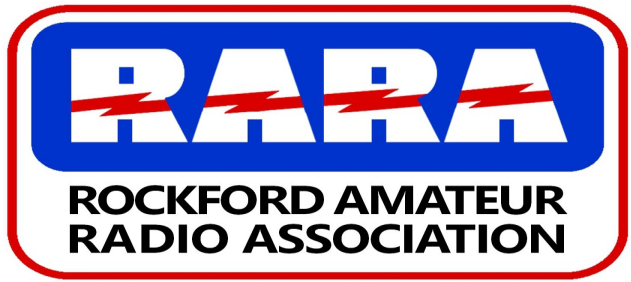


# HAMIRAG

Visit our website for more club and area ham information at <http://w9axd.org>, or join us on Facebook at this [LINK](#)



## RARA Mission Statement

A member association with common interest of public service to the community through the use of amateur radio.

## Presidents Message

Hello Everyone,

Our March program is going to be about a relatively new mode called FT8. Kerry, KD9MAP, is going to put on the presentation. FT8 is designed to **maximize communication even when signals are very weak** (as low as -24dB). This means that even low-powered stations and stations with sub-optimal antennas can make contacts worldwide. With its popularity, quickly working DXCC or WAS with FT8 is easily within reach of almost any station.

We have had two new members join RARA in February. Cheryl Landeck, WB9FPH, and Ted Kusner. Thank you very much for your support for our organization, and I hope we can provide a great resource for your ham radio hobby.

I hope to see everyone Friday night! Please let me know if you have any questions.

73, Kurt Eversole - KE9N

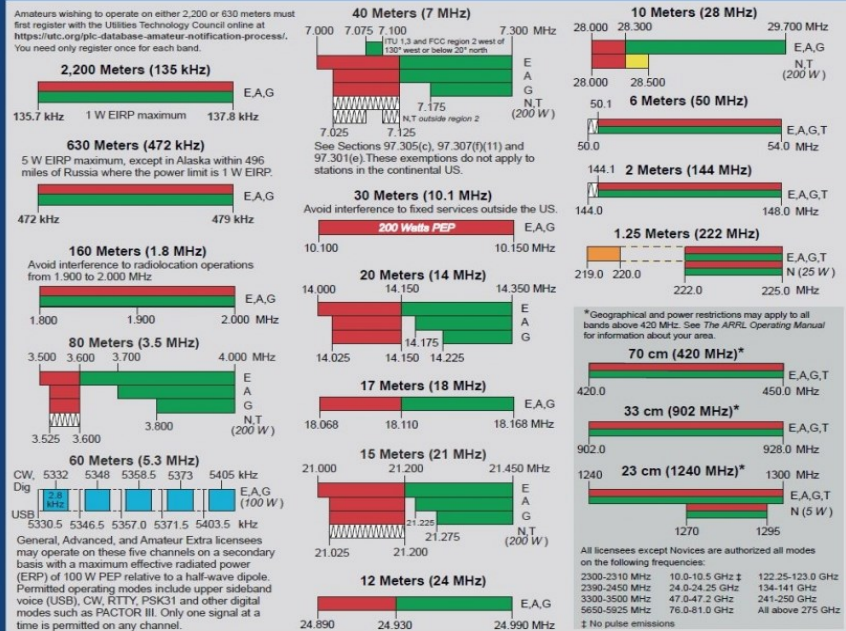
March 2023

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## US Amateur Radio Bands

US AMATEUR POWER LIMITS — FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.



**KEY**

Note: CW operation is permitted throughout all amateur bands.  
 MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz. Test transmissions are authorized above 51 MHz, except for 219-220 MHz.

- █ = RTTY and data
- █ = phone and image
- █ = CW only
- █ = SSB phone
- █ = USB phone, CW, RTTY, and data
- █ = Fixed digital message forwarding systems only

E = Amateur Extra  
 A = Advanced  
 G = General  
 T = Technician  
 N = Novice

See [ARRL Web](http://www.arrl.org) at [www.arrl.org](http://www.arrl.org) for detailed band plans.

**ARRL We're At Your Service**

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 email: [hq@arrl.org](mailto:hq@arrl.org)

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Getting Started in Amateur Radio:  
 toll-free 1-800-326-3942 (860-594-0355)  
 email: [nowham@arrl.org](mailto:nowham@arrl.org)

Exams: 860-594-0300 email: [vec@arrl.org](mailto:vec@arrl.org)

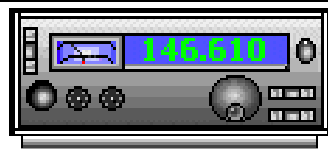
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**NEXT MEETING**  
**FRIDAY**  
**March 10, 2023**  
**7:00pm**

**“All About Operating FT8”**

By  
**Kerry, KD9MAP**

**Google Meet Link:**  
<https://meet.google.com/ajq-ovzb-vdq>



## Local Events and Information

### UPCOMING EVENTS

**March 10, 2023** - General RARA Meeting 7:00pm on Google Meet

**March 22, 2023** - RARA Board Meeting 7:00pm on Google Meet

**April 14, 2023** - In Person Meeting at Gerry's Pizza

**April 26, 2023** RARA Board Meeting 7:00pm on Google Meet

### 2023 RARA Officers and Board

#### Officers:

President - Kurt Eversole, KE9N, 815-389-2784, [kurt.eversole@gmail.com](mailto:kurt.eversole@gmail.com)

Vice President - Tom Shouler, N9VJU, 815-633-0089, [n9vju@comcast.net](mailto:n9vju@comcast.net)

Secretary - Larry McFall, KD9HKX, 815-900-1820, [lpmcfall@charter.net](mailto:lpmcfall@charter.net)

Treasurer - Gordon Seaman, KC9NEX, 815-262-0294, [kc9nex@gmail.com](mailto:kc9nex@gmail.com)

#### Directors:

Kevin Puckett, N9EGF, 815-218-1551, [krpuckett@gmail.com](mailto:krpuckett@gmail.com)

Ron Callahan, N2RON, 608-289-0198, [ron.n2ron@gmail.com](mailto:ron.n2ron@gmail.com)

Larry Lisle, K9KZT, 815-397-9595, [l.lisle@usa.net](mailto:l.lisle@usa.net)

Kerry Tatlow, KD9MAP, [kd9map@gmail.com](mailto:kd9map@gmail.com)

Webmaster - Kerry Tatlow, KD9MAP, [kd9map@gmail.com](mailto:kd9map@gmail.com)

Repeater License Trustee - Gordon Seaman, KC9NEX, 815-262-0294, [kc9nex@gmail.com](mailto:kc9nex@gmail.com)

Hamrag Editor/Repeater Chairman - Kurt Eversole, KE9N, 815-389-2784, [kurt.eversole@gmail.com](mailto:kurt.eversole@gmail.com)

### Local Net Information

**Mon** - 7:00pm - RARA Info. Net & CW Lesson, 146.610 (-) offset, pl 114.8  
8:00pm - McHenry Cnty. RACES Net, 146.835 (-) offset, pl 91.5

**Tues** - 7:00pm - Health & Tech Net & CW Lesson, 146.610 (-) offset, pl 114.8  
7:00pm - Rock County Public Service Net, 145.450 (-) offset, pl 123.0

**Wed** - 7:00pm - Stephenson Cnty. ARES Net, 147.390(+) offset, pl 114.8  
7:30pm - Greater Beloit Radio Net, 147.120 (+) offset, pl 123.0

**Thurs** - 7:00pm - Northern Illinois Skywarn Training Net, 147.195 (+) offset, pl 114.8, with the Health & Tech Net & CW Lesson following.

**Fri** - 8:00pm - Friday Night Fun Net, KC9GCR, 146.610 (-) offset, pl 114.8

**Sat** - 8:00pm - Saturday Ragchew Net, 146.610 (-) offset, pl 114.8  
9:00pm - Saturday Night Fun Net Milw., 146.910 (-) offset, pl 127.3

**Mon. thru Friday** - 8:00am to 9:00am - Senile Net, 14.287 (HF USB)

## Rookie Roundup 2023

Rookie Roundup is a contest aimed at Amateurs licensed for three years or less. This six-hour event is held three times per year (April, August and December). Rookies can contact anybody, while "Old Timers" make contact with only Rookies. Mentoring is a big part of this event!

"Old Timers" should also take note of this event. Consider opening your station up to a rookie (or two) and become an elmer. Remember, the more operators are on the air, the more fun the 'Roundup will be for everyone.

Be sure to read the rules before the event. It is also helpful to be familiar with the logging and submission processes ahead of time. You're in the right place; browse this page for information and tips on operating the Rookie Roundup. We hope to hear you on the air!

You can be a Rookie if you were first licensed in 2022, 2021, 2020 or 2019 - send the year you were first licensed in the exchange. If you were licensed before 2019 you can also be a Rookie if you made your first Amateur Radio contact during 2022, 2021, 2020 or 2019 or if you haven't made any contest contacts on the contest mode (SSB, CW, or RTTY) before the Rookie Roundup contest, send the current year (2021) in your exchange - either of these reasons qualify you as a Rookie for just one year.

Rookies will attempt to make as many contacts as possible during this 6-hour event. Rookies work everyone - and non-Rookies work only Rookies.

**All events run for 6 hours (from 1800 to 2359 UTC) on the dates shown below.**

**Sunday, April 16, 2023, using SSB**

**Sunday, August 20, 2023, using RTTY**

**Sunday, December 17, 2023, using CW**

**For more information go to this link: <http://www.arrl.org/rookie-roundup>**



## State QSO Parties for March

March	For more information click here: <a href="https://www.qsl.net/va3rj/contest_usa.html">https://www.qsl.net/va3rj/contest_usa.html</a>	
Oklahoma	Oklahoma QSO Party	1500Z, Mar 11 to 0200Z, Mar 12, 2023 and 1500Z-2100Z, Mar 12, 2023
Idaho	Idaho QSO Party	1900Z, Mar 11 to 1900Z, Mar 12, 2023
Wisconsin	Wisconsin QSO Party	1800Z, Mar 12 to 0100Z, Mar 13, 2023
Virginia	Virginia QSO Party	1400Z, Mar 18 to 0400Z, Mar 19, 2023 and 1200Z-2400Z, Mar 19, 2023



# Easy APRS

## Easy APRS iGate by KD9MAP

I know very little about packet radio, so I looked for an easy, cheap way to try it. I found Direwolf software free online. With that, I found that I could set up an iGate on my PC without having to buy a TNC or any other additional interfaces. Download Direwolf here: <https://github.com/wb2osz/direwolf>

An iGate listens for APRS traffic on VHF, and forwards the packets it hears to the internet over my broadband internet connection. iGates are an essential part of the APRS scheme. For the radio frontend, I used a **handy-dandy RTL-SDR v3 dongle receiver** and an indoor VHF ground-plane antenna.

Once Direwolf was installed on the PC, I edited its sdr.conf file to add my callsign and a "passcode." You can get a passcode from <https://aprs.do3sw.de/>, among other places. I also added a PBEACON line to supply the lat/long coordinates for my QTH. Now the sdr.conf file looks like this (I removed comment lines to save space here):

```
ADEVICE null null
CHANNEL 0
MYCALL KD9MAP
IGSERVER noam.aprs2.net
IGLOGIN KD9MAP passcodegoeshere
PBEACON sendto=IG delay=0:30 every=10:00 symbol="igate" overlay=R lat=42.246570 long=-89.064310
```

To run the software, here's the command (on Linux, which I use. For Windows, you'll have to RTFM. Sorry.):

```
rtl_fm -f 144.39M - | direwolf -c sdr.conf -r 24000 -D 1 -
```

The software now announces:

```
Now connected to IGate server noam.aprs2.net (44.184.136.10)
Check server status here http://44.184.136.10:14501
[ig] # aprsc 2.1.10-gd72a17c
[ig] # logresp KD9MAP verified, server T2ALBERTA
```

That's encouraging. It means my iGate is now connected to the APRS North American server over broadband. It is ready to forward received VHF IP packets to the global internet. When somebody drives by, and the software hears their transmitted packets, the iGate delivers their packets to the rest of the world. Now I waited for somebody to drive by; had to wait awhile. Eventually Direwolf displays something like:

```
KD9AER audio level = 69(14/17) [NONE] |||||___
[0.2] KD9AER>T2QS2R,WIDE1-1,WIDE2-1:`uX5 p]k/]6X}Steve is here=<0x0d>
MIC-E, truck, Kenwood TM-D710, In Service
N 42 13.2200, W 089 00.2500, 55 MPH, course 65, alt 810 ft
Steve is here
```

KD9AER is passing through Rockford within range of my rcvr. The software automatically forwards this packet to the internet. I check that with website [aprs.fi](http://aprs.fi), which provides all the tools needed to see all APRS traffic on the planet. Here's the raw packet my iGate forwarded on behalf of KD9AER:

```
2023-02-25 09:33:39 CST: KD9AER>T2QS2R,WIDE1-1,WIDE2-1,qAO,KD9MAP:`uX5 p]k/]6X}Steve is here=
```

I can also see KD9AER on the [aprs.fi](http://aprs.fi) map view, and by passing my mouse cursor over his mapped trail, I can see that indeed it was my station that reported his location. If my iGate was not running at the time, his location would **not** have been reported, and his map position would **not** have been updated. So that shows the importance of having many geographically distributed gateways in the APRS scheme.

I think this is pretty cool! Sad to say, there isn't a lot of APRS traffic around here. Looking at this morning's [aprs.fi](http://aprs.fi) map, at this moment I'm the only iGate operating in the city of Rockford, and I catch only one or two APRS vehicles per day. Next I'll try receiving HF packet, to see if there's more happening there.

I love the idea of packet radio (passing Internet Protocol packets via amateur radio,) but it's not nearly as popular as I hoped. (Maybe it's because the low 1200-9600BPS bandwidth severely limits practical applications.) I could set up a dedicated "permanent" VHF iGate here on a Raspberry Pi, but there isn't enough traffic to justify the expense of the RPi and a separate VHF antenna for a "permanent" dedicated installation. But it's easy to try, and I hope my instructions here save you hours of research if you try it yourself! Or you can read the ...

### 132 page Direwolf User Guide:

<https://packet-radio.net/wp-content/uploads/2018/10/Direwolf-User-Guide.pdf>

73,  
DE Kerry, KD9MAP

# Hamfest 2023

Buy/Sell Amateur Radio Equipment, Electronics and Computer Gear



**Sunday**

**March 19, 2023**

**Free Parking!**

Admission: \$8.00 8' Table Space - \$15.00/ea

**Amateur Volunteer Exams (ARRL VE Team N9RK) starting at 9:30 AM**

**— By Appointment Only —**

You **MUST** contact Rick, [n9rk@vintagesb.net](mailto:n9rk@vintagesb.net)

in advance to make the appointment – **FRN Number Required**

**Presented by: TRI COUNTY AMATEUR RADIO CLUB - W9MQB**

**Talk-in on the 145.49 Repeater CTCSS of 123.0**

JEFFERSON COUNTY FAIRGROUNDS  
ACTIVITY CENTER  
503 NORTH JACKSON AVE.  
JEFFERSON, WI 53549

- Vendors will be admitted at 6:00 AM
- Vendors-only unloading zone on West side
- Food and beverages available
- General Admission and Sales begin at 8:00AM



**Take I94 to Exit 267, (Johnson Creek) Head South on 26 to the Hwy 18 Exit. Exit East on Hwy 18 and turn left onto Jackson Ave. Look for the Fairgrounds sign.**



Next year's date: To be Determined



**Hamfest Advanced Registration Form**

Registration DEADLINE is: March 12, 2023

Admission: \_\_\_\_\_ X \$8.00 = \$ \_\_\_\_\_ Note: Table Reservation does not include Admission.

8' Tables: \_\_\_\_\_ X \$15.00 = \$ \_\_\_\_\_ Total Amount: \$ \_\_\_\_\_

Name: \_\_\_\_\_ Call Sign: \_\_\_\_\_

Email: \_\_\_\_\_ @ \_\_\_\_\_

Street: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Reservations require that we receive your payment in advance. Please send payment & SASE to this address:

TCARC-Hamfest 2023, P.O. Box 411, Johnson Creek, WI 53038

Phone: 414-455-5493 Mike AE9MZ, Email: [hamfest@w9mqb.org](mailto:hamfest@w9mqb.org) Subject: Hamfest 2023

# Hamfest Information

52<sup>nd</sup> Annual

# Madison Hamfest



Sponsored by MARA, the Madison Area Repeater Association  
A Non-Profit Organization

**Saturday April 15, 2023**  
**8:00 AM until 12:00 PM**

The MARA Hamfest features vendors of new and used equipment for Amateur Radio, Electronics, Computers, computer parts and software. Come see our huge Flea Market in the Mandt Community Center's spacious 26,000 sq ft main hall.

**VE testing starts at 10:00 AM.**

Vendor space is sold on a **"first come, first served bases"**

**Location:** Mandt Community Center (Same location since 2000)  
**GPS:** North 42.91157 West 89.21647  
**Address:** 400 Mandt Parkway, Stoughton, Wisconsin  
**Directions:** Take US Hwy 51 South from Madison to downtown Stoughton, WI.  
Turn South on 4<sup>th</sup> Street and the Mandt Center is 3 blocks ahead on the left  
**Talk in:** MARA's Wide Area Repeater 147.150 MHz (+600) pl 123.0  
**Parking:** Free  
**Seller Setup:** Friday night 6:00 PM to 8:00 PM and Saturday morning, 6:00 AM

## Ticket, Table and Chair Prices

Tables are limited to availability!

<b><u>Hamfest general admission tickets:</u></b>	<b>Purchased on website</b>	<b>\$8.00 per person</b>
<b><u>Ages 12 and younger: FREE</u></b>	<b>At the door <u>CASH ONLY!</u></b>	<b>\$10.00 per person</b>
<b>Eight-foot vendor table fees</b>	<b>Purchased by April 1<sup>st</sup></b>	<b>\$20.00</b>
Admission tickets are <b>NOT</b> included	<b>After April 1<sup>st</sup></b>	<b>\$25.00</b>
In the price of tables		
<b>Chairs</b>		<b>\$5.00</b>
<b>AC Service</b>		<b>\$30.00</b>
Admission ticket along with table rental is <b><u>Required</u></b>		<b><u>At the door is CASH ONLY</u></b>

**MARA is not responsible for theft or damage. All orders are final – No refunds.**

Hamfest tickets, and vendor table space can be purchased at the MARA website: [www.w9hsy.org](http://www.w9hsy.org) If you have questions about purchasing tickets, chairs, table space. Please check the web page or contact us by e-mail at [hamfest@w9hsy.org](mailto:hamfest@w9hsy.org) or call 608-205-1994

# Why would I want a “Ham” radio license?

By Larry, AC9GO

Whenever I make a suggestion that someone should get a ham radio license, I often get a questioning look and a “Why?” Sometimes I’ll hear, “I don’t want to learn the Morse code”, or “I can’t afford that”, or “I don’t know anything about electronics” OK, let’s take care of a couple of those right now. The Morse code is no longer required for any of the three licenses currently available for Amateur radio in the United States. You can actually get into the hobby for under \$100. That includes a transceiver, and an antenna. In every major disaster, hams around the world, in any country that allows ham radio, were there to provide communication because all communication in the area was down because of the emergency.

Have you ever thought what it would be like to be an astronaut? Ask an astronaut. Hams talk to the International Space station frequently, and yes, with the technician license you can do that. In fact, you will find yourself talking to people you never thought you would if you are a ham long enough. A friend of mine was talking to a man in Jordan one day, and the man asked him what he did. My friend was principal, and told him a little about his school, and then asked the man what he did. The reply from the ham in Jordan was that he was King. My buddy said “king oh ok” and laughed. A few days later he got a beautiful QSL card from the palace in Jordan, signed by King Hussein (callsign JY1). He also had a card from Senator Barry Goldwater of Arizona (callsign K7UGA). One night I made contact with a bank president, and the next contact was with a member of a rock band in New York City. You never know who you are going to talk to next.

When all forms of public communication are down, Ham radio is the first to come back. Many years ago, the Rockford Amateur Radio Association, called on a number of hams in the area to provide communication for the Plainfield area category 5 tornado that leveled several buildings in the Plainfield, Illinois area. Whole subdivisions were leveled. Many people had lost everything, and many people were killed in the event. We were asked to come in and help replace a number of hams that had been there all week long. Our job was to assist the Salvation Army by delivering meals to people in the area that were in the process of trying to find their belongings, or in the case of the workers trying to set up power and phone poles or any of the other jobs created by the destruction. The scene was horrendous. Whole subdivisions were being bulldozed into huge piles and set on fire. School busses had been tossed around and mashed like giant bread loafs. Parts of the school had been knocked down as if hit by a giant wrecking ball, yet in the middle of the destruction, people were warmed by a hot meal, or fresh clothes and amateur radio was there sending messages back and forth to serve the needs of the community.

Everything required for a license can be learned at home on a computer with free “YouTube.com” videos and practice tests on “Hamstudy.org”. On YouTube, search “technician ham radio license”. Skip the ones asking for money, and try the other classes first. There are many free self study classes available on line. There are several free ham radio tests available on line. Hamstudy.org is the test site I used when I decided to go for the Amateur Extra class license about 10 years ago. All you need to get started is the technician class license. Start there. The questions are all multiple choice and they come from a bank of questions put out by the FCC (Federal Communications Commission). Out of the question pool you will have 35 questions on a test and you only need 26 right to pass. The electronics you need for the test involve a few simple formulas.

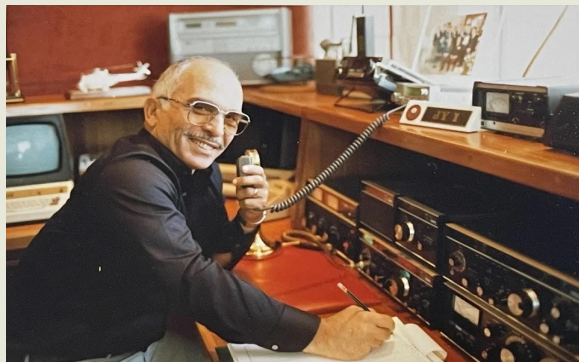
Ham radio is like a fraternity. (Yes, ladies are welcome!) Hams work together for the common good. During covid we got together on the air two times a week just to check with each other. That is on top of our regular get togethers or “nets” each week. We still have five out of each seven days a week scheduled locally. This does not include nets that go on daily for hams to talk around the state, country or world.

And here is a bonus for the ladies. There are almost 780,000 amateur radio operators in the United States and only 15% are women. At least one survey says that most wives of “hams” would rather have their husbands engaged in an educational hobby like ham radio at home than following a team at a sports bar.

Join us on the air. Just a little time and a simple transceiver and a license and who knows, the next person you talk to could be Princeton professor Joe Taylor, a Nobel prize winner for a special digital form of communication he developed, or Joe Walsh famous for his guitar work with the Eagles and several other rock bands, maybe an astronaut, or you might just be stuck with me AC9GO. If you need help just let us know. My email is [larry.schubert@gmail.com](mailto:larry.schubert@gmail.com).

I’ll be looking for you on the air.

73, Larry AC9GO



## The K7RA Solar Update

This was a busy week for geomagnetic storms. A solar wind stream from an equatorial hole and a CME blew geomagnetic numbers seemingly off the scale, with the planetary A index on Monday hitting 94. Aurora was visible as far south as 40 degrees latitude. Imagine a line running from Reno, Nevada through Provo, Utah then Denver, then the Kansas-Nebraska state line, Quincy, Illinois, Dayton, Ohio and Philadelphia.

This week the source of the 10.7 cm solar flux, the DRAO observatory at Penticton, British Columbia, was again saturated by solar wind on February 25 and the measurement was 279.3. NOAA corrected this to 152. The other recent saturation was on February 17 at 343.1.

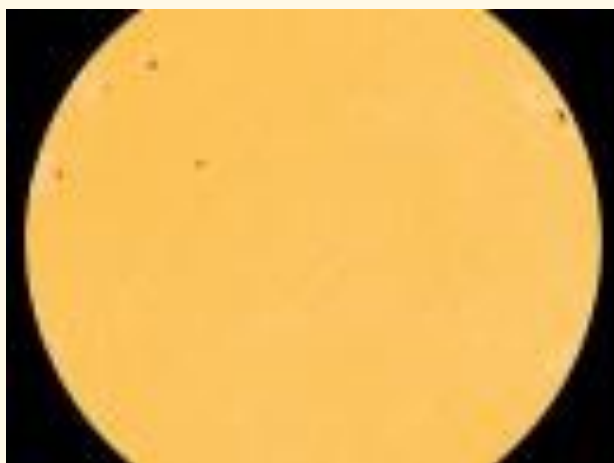
This week we saw two new sunspot groups appear on February 23, another on the following day, another on February 27, on February 28 one more, two more on March 1, and another on March 2. Average daily sunspot number rose from 107 to 126.3, but average daily solar flux declined from 162.4 to 158.2. Average daily planetary A index rose from 10.6 to 27.7.

Over the next few weeks it appears that solar flux values should hit a peak around March 17-18.

Predicted solar flux is 165 March 3-5, 170 and 175 on March 6-7, 180 on March 8-9, 165 on March 10-12, 170 on March 13-15, 175 on March 16, 180 on March 17-18, then 175, 170 and 165 on March 19-21, 160 on March 22-23, 155 on March 24-26, 150 on March 27-28, then 145 on March 29-30, then 140, 145, 150, 155 and 160 on March 31 through April 4, then 165 on April 5-8, and 170 on April 9-11.

Predicted planetary A index is 5, 12, 20, 18, 16 and 8 on March 3-8, 5 on March 9-14, then 15, 8, 8, 5, 8 and 15 on March 15-20, 5 on March 21-23, then 12, 16, 56, 32, 16 and 10 on March 24-29, 8 on March 30-31, then 16, 18, 15 and 8 on April 1-4, and 5 on April 5-10.

Note the predicted A index of 56 and 32 on March 26-27, suggest a return of this week's disturbance in the next solar rotation.



### Editors Note

If you would like to have something published, please call me, or email me at [kurt.eversole@gmail.com](mailto:kurt.eversole@gmail.com)

**Cut-off for the April 2023 Hamrag will be Friday, March 31, 2023**

Kurt - KE9N, Editor

### **FRIDAY MORNING BREAKFAST**

Meets every Friday morning from 8:00 am until about 10:00 am. An informal gathering of ham folks, no affiliations necessary, good food and good company.

*Everyone is welcome to attend.*

***“The Spring Garden Family Restaurant”***  
4820 N. 2nd Street  
Loves Park, IL 61111





# Little Canned Oscillators by KD9MAP

Often you can find new-old-stock DIP-packaged canned crystal oscillators cheap on eBay. Sometimes you find them for a frequency that lies in the CW subband of a ham band. These can be used for code oscillator practice, QRPp or QRP operating, or FOX-hunting beacons. One example is the CTH11001 28.224 MHz oscillator, available for a dollar apiece on eBay, free shipping, in qty 24. (I have a half-dozen of them here; if anybody wants one to play with, please email me at kd9map@gmail.com.)

For code practice, just add a key and a 5VDC (or 3.3VDC) power supply, leave the oscillator output as no-connection, and place the circuit near your 10m rcvr. Even with no antenna on the oscillator output pin, you'll probably hear it fine; if not, you can add a little pigtail to the output if you need it.

Here's a prototype FOX xmtr I cobbled together out of a CTH11001, plus a \$7 STM32 'Blackpill' microcontroller board, and a 2N2222 NPN as a common-emitter switch to key the oscillator power. (You could use any other inexpensive little microcontroller board, like an Arduino Nano or Raspberry Pico.) This transmits a CW signal consisting of my callsign, repeated once every minute or so.

Here's the bit of code I wrote to send my callsign. (I used STM's CubeMX toolchain to build and load the code, but there is some Arduino IDE support for STM32, and Arduino IDE might be easier to use than the official STM32 software):

```
void send_then_delay(int level, int d) { digitalWrite(level); delay(d); }

void send_dot_dash_string( const char *p )
{
while ( 1 )
{
switch ( *p )
{
case '.': { send_then_delay(HIGH, q_1); send_then_delay(LOW, q_1); break; }
case '-': { send_then_delay(HIGH, q_3); send_then_delay(LOW, q_1); break; }
case ' ': { delay(q_3); break; }
default: return;
}
p++;
}
}
...
digitalWrite ( LOW );
while (1) /* main loop */
{
send_dot_dash_string ( "-. . . . . - - . . . . ." );
digitalWrite ( LOW );
delay ( 20000 );
}
}
```

If you want to hook it to a real antenna, or an amp and antenna, you have to add an LPF to kill the nasty harmonics that a square-wave oscillator loves to emit. I built this little LPF, and it tested OK on the NanoVNA, 20dB attenuation at 50MHz. T50-6 toroids nine turns = 0.33 uH

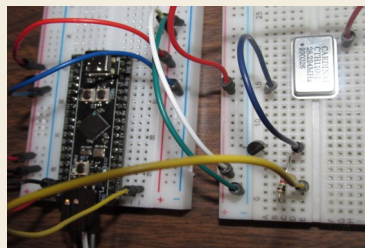
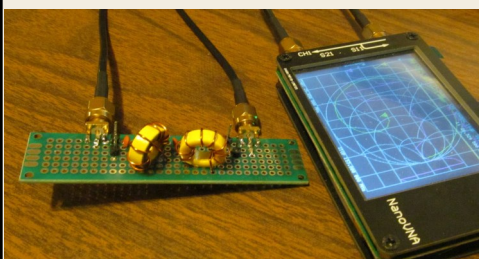
Some info on LPF design:

Schematic linked below:

<https://linearparts.com/images/10M-LPF.jpg>

<http://www.qrp-labs.com/images/lpfkit/gqrplpf.pdf>

And here's the breadboarded fox xmtr:



Here's a link to an audio file of my handheld Alinco rcvr listening to the fox xmtr:

<https://drive.google.com/file/d/1-FOe0xmQrgTzswDyC3CmOFw0VCcUyHvA/view?usp=sharing>

CTH11001 oscillator datasheet:

[https://linearparts.com/documents/CTH11001\\_28\\_224.pdf](https://linearparts.com/documents/CTH11001_28_224.pdf)

Info on STM32 BluePill board. (I used a BlackPill [a counterfeit BluePill] because it's cheaper, and I know how to hack it, but the BluePills have better support and may be a better, less-frustrating choice for non-hackers. I picked this article at random, but there's tons of other good info on the internet for the STM32 platform):

<https://predictabledesigns.com/introduction-stm32-blue-pill-stm32duino/>

## News Around the Globe

### Schools Set to Talk with Astronauts via Amateur Radio

Amateur Radio on the International Space Station (ARISS) has announced that several schools are planning to communicate with orbiting astronauts in the coming weeks.

Lana'i High & Elementary School in Lana'i City, Hawaii, will attempt the contact between March 20 and 24, 2023. Students attending the high school already study amateur radio and the research being done on the ISS, among other scientific pursuits.

Stone Magnet Middle School in Melbourne, Florida, will make their contact between March 27 and April 1, 2023. In their application, Stone Magnet wrote that they work to inspire students to develop interest in science, technology, engineering, arts, and mathematics (STEAM) careers. The school has a special program for science research, and students from that program place well in district and statewide science fairs each year.

ARISS is a cooperative venture of international amateur radio societies and the space agencies that support the ISS. In the US, participating organizations include NASA's Space Communications and Navigation program (SCaN), the ISS National Lab - Space Station Explorers, [ARRL The National Association for Amateur Radio®](#), and AMSAT.

ARISS is presently [seeking contact proposals](#) for the next round of school selections.

### Radio Merit Badge Sees Biggest Gain in Scouting

According to a *Scouting* magazine study of Merit Badges earned in 2022, Radio had the biggest jump.

It is now the 81st most popular Merit Badge, up from being 98th in 2021. Trailing just behind it on the biggest gains list is the Electronics Merit Badge, which jumped 15 spots, from 80th to 65th. To earn the rank of Eagle Scout, members must earn 21 badges, 14 of which are standard. The Scout gets to choose the remaining badges based on personal interests.

Many Scouts take part in Jamboree on the Air, which is being held October 20 - 23, 2023.

## ARRL Podcasts

### On the Air

Sponsored by [Icom](#)

ARRL has designated 2023 "The Year of the Volunteers," to shed light on the work of the hundreds of volunteers who make ARRL and amateur radio what it is. We've got a year-long, on-air event to go with it; Volunteers On the Air (VOTA) is already taking the bands by storm just 2 months into the fun. In this episode, "How to Be On the Air All Year with VOTA," we talk to ARRL Director of Operations Bob Naumann, W5OV, and ARRL Radiosport Manager Bart Jahnke, W9JJ, about rules, awards, special activations, and all things VOTA.



### ARRL Audio News

Listen to [ARRL Audio News](#), available every Friday. ARRL Audio News is a summary of the week's top news stories in the world of amateur radio and ARRL, along with interviews and other features.

The On the Air podcast is available on iTunes (iOS) and Stitcher (Android). The On the Air podcast and ARRL Audio News are also on blubrry -- [On the Air](#) | [ARRL Audio News](#).



website: [w9axd.org](http://w9axd.org)  
email: [w9axdrara@gmail.com](mailto:w9axdrara@gmail.com)

# 2023 RARA Membership\* Form

## Dues are \$25.00

*(This is an editable PDF Form. Fill in the information with your keyboard, then save the PDF, and then attach it to an email to: [w9axdrara@gmail.com](mailto:w9axdrara@gmail.com). See below for mail in information and/or PayPal information)*

Date: \_\_\_\_\_ (mm/dd/yyyy)

Name: \_\_\_\_\_ Callsign: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Phone - Home: \_\_\_\_\_ Cell: \_\_\_\_\_

Can we release your e-mail and phone number to members only? Yes \_\_\_\_\_ NO \_\_\_\_\_

Are you a member of the ARRL (American Radio Relay League)? Yes \_\_\_\_\_ NO \_\_\_\_\_

What things do you like to do with ham radio?

\_\_\_\_\_

What things do you want to do, but need more information to do so?

\_\_\_\_\_

Would you be available to make a presentation on some part of our hobby and what?

\_\_\_\_\_

Do you have any questions that we can help you with presently? If so, explain below.

\_\_\_\_\_

**Mail In:** Please fill out all the information on the form and mail it with \$25.00 to the following address:

Rockford Amateur Radio Association  
P.O. Box 8465  
Rockford, IL 61126

Make your check payable to: Rockford Amateur Radio Association.

**For Internet application and payment:**

To use PayPal, click on the link below. After clicking "Send" and then logging in, enter \$25.00 in the "Dollar Amount", and click "Send", to complete your payment to RARA. Also, **DON'T** forget to email your completed form to: [w9axdrara@gmail.com](mailto:w9axdrara@gmail.com) for your membership application. *Thank you for your support!*

PayPal Link:



\*Membership is based on approval of the RARA Board. The membership fee will be returned if you are not approved.