



MAY 2024

Volume 13 Issue 5

# VE3ERC-LUB

- President:** Reg VE3RVH
- Vice-President:** Frank VA3FJM
- Secretary:** Tom VE3DXQ
- Treasurer:** Ted VE3TRQ
- Trustee:** Wes VE3ML
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- Website Admin:** Ted VE3TRQ
- Lighthouse:**
- Maple Syrup Display:**
- Newsletter:** Bob VE3IXX
- ERC Website:** <https://ve3erc.ca>

## ERC REPEATERS

- UHF 444.700 + TONE: 131.8**
- UHF 444.700 + TONE: 123.0**
- VHF 147.390 + TONE: 123.0**
- VHF 147.255 + TONE: 131.8**
- EMERGENCY SIMPLEX: 146.550**
- UHF-IRLP node 2404,ECHOLINK VE3ERC-L**
- VHF- IRLP node 2403,ECHOLINK VE3ERC-R**



Thanks to Kevin VA3RCA for this picture from the Dayton Hamvention. See more on Dayton on page 16.

**In an emergency, tune  
 Into our repeaters,  
 UHF 444.700 or  
 VHF 147.390 or  
 HF 3.755 LSB or  
 Simplex 146.550  
 For coordination and  
 assignments.**



# THE PREZ SEZ!

This club is Radio-ACTIVE  
The club is Radio-ACTIVE

## President's Update for May 2024

Hello to all Ham operators.  
Another year slowly going by and the annual hamfest at Roseville police building. There are three tables available under our club. So bring your valuables to sell. Get rid of your junk which may be a treasure for someone.

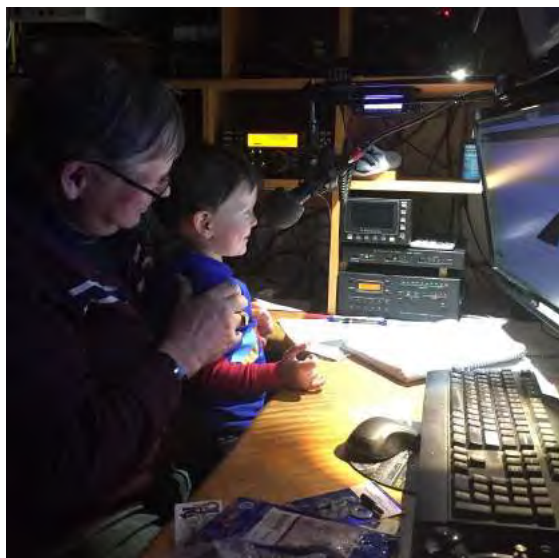
I would like to thank, at this time, all those stepping up to fill our executive committee; such as president- Frank va3fjm: Vice - president Tom ve3dxq. : secretary Rod va3mzd: Treasurer Ted ve3trq : Trustee Wes ve3 ml.

Oh and do not forget that your annual club membership renewals which are now due. Enjoy your summer time with family and friends as well as time on you radios.

Reg VE3RVH.



## Budding Hams



Grandsons of Ken VE3KCY (on left) and Bob VE3IXX on the right.



# EFHW antenna construction

By Ted Rypma VE3TRQ

**A**nd here's my latest antenna experiment, an EFHW for 80M, 134 feet long, with 13.5 ft counterpoise (the green wire going down the roof), fed with a 49:1 UNUN in the box. Coax goes straight into the attic where the choke is located. Choke is three element, low/mid/high frequency, oriented one inside the other.

Mounted on parts for electrical service stack, through-roof, into the garage attic. Antenna wire still needs to be pulled up into the tree with the rope that is already in place. Fun climbing onto the roof many times.



Choke is seen in the inside attic picture. Picture of the back of the house from the road shows the stack at the peak on the left.



Choke is seen in the inside attic picture. Picture of the back of the house from the road shows the stack at the peak on the left. EFHW attachment stack is just visible at the left roof peak

The Article at the bottom describes the choke(s), all concentric. I'll follow up with a description and some construction details





Attachment for the UNUN to the stack - aluminum plate and pipe clamps. Rubber shims were used at the plate-to-mast interface.



(E) Cost Effective Chokes

**Left: Low-Band;  
Right: Mid-Range &  
Low-Band**

**(Modern Ugly Chokes)**

The concept shown here was first introduced by George Cutsogorge, W2VJN in the 2010 issue of the ARRL Handbook.

**Ian White, GM3SEK** designed the 3 chokes pictured here, using common low cost ferrite cores.

These chokes have high CMI (over 4 k-Ohms), [but only] across a limited frequency spectrum. Therefore it takes 3 different chokes to cover the entire HF spectrum. You can use them independently of each other to cover specific ranges, or all three in series to cover 160 thru 10m.



The top left picture shows the insulator stuck in the tree. The one below is the insulator where it was supposed to be. Others are just some pics of the finished antenna.



First User of my Antenna!  
Seems the birds like my new EFHW antenna! (left)





# From the PAST

Margaret Hamilton; lead software engineer of the Apollo Project, stands next to the code she wrote by hand that was used to take humanity to the moon. [1969]



Thanks to Tony VE3DWI  
For sending this Blast from the  
Past.



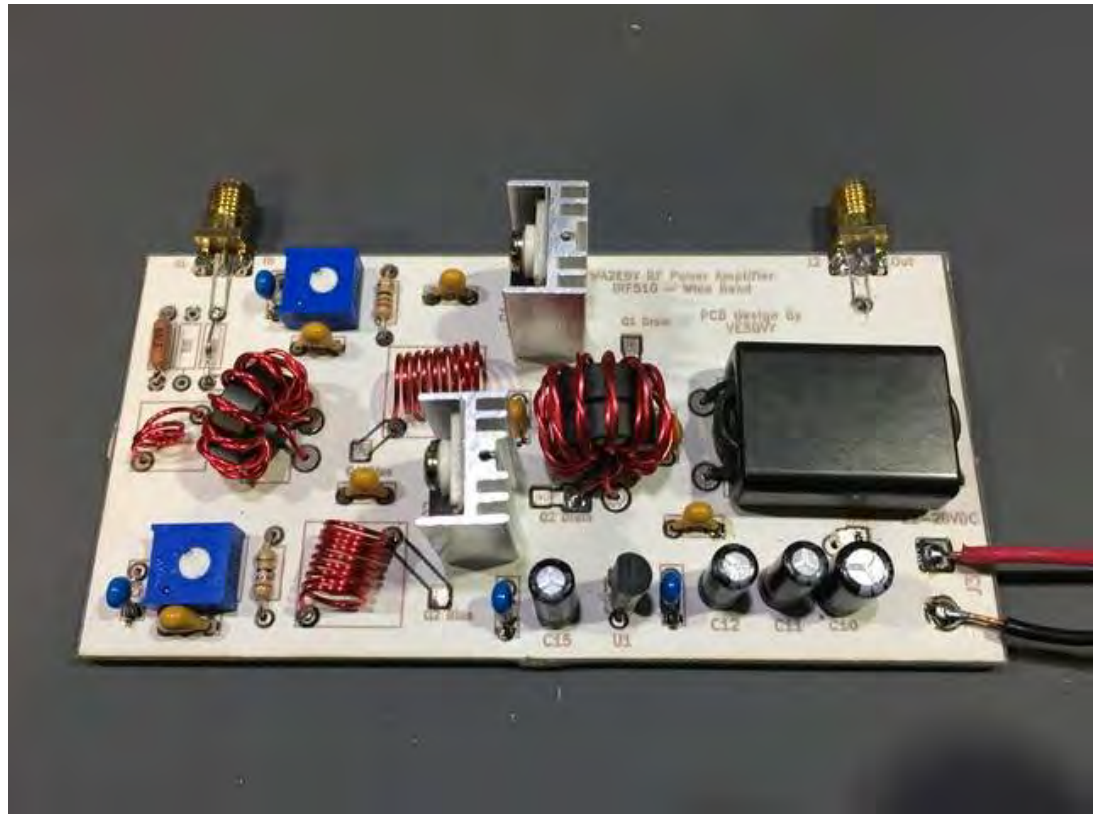
# MOSFET RF Power Amps

By Hagen Kaye VE3QVY

So, I've been reading and experimenting with MOSFETs for RF power amps. Built this, to learn some more...

First thing, the heat sinks are way too small, this thing suffers from thermal runaway quickly. So I cooled with bursts of 'Dust off' which is a spray can of air that comes out really cold. I feel like I earned my stripes as a HAM experimenter, blowing up two sets of MOSFETs while tweaking the amp, and learning more about this stuff.

This design is a classic from 1999, when regular MOSFETs were \$1 and RF MOSFETs were about \$70. So you didn't want to blow up too many \$70 parts. (in this case blowing up two sets would have cost me \$280)



Fast forward today, and I can get a really good RF MOSFET from DigiKey (and I have them) for \$4 - \$6.

So what is the difference between a regular MOSFET and a RF MOSFET? A few things.

First a regular MOSFET (and these are used in turn on/off stuff, switching power supplies, etc), the part that connects to the heat sink is electrically connected to the drain of the MOSFET. An RF MOSFET has the source of the MOSFET where the heatsink connects.

As it happens, in an RF Amp its better to have the source of the MOSFET connected because

- 1) in a push pull amp these are connected to ground and you can just bolt the two MOSFETs to the same heatsink.
- 2) Having the source connected to the heatsink means it will perform better at RF frequencies because of inductance inside the transistor from the wire that connects to the pin.
- 3) The 'gate' of a regular MOSFET is built so it is actually really long bunch of squiggly lines on the chip - in some cases the squiggles if stretched out to the straight line can be a meter long, while RF MOSFETs favor shorter gates and multiples of them. The capacitance is the same, however because they are shorter in RF MOSFETs there is no complication of signals being out of phase (at higher RF frequencies inside a MOSFET a portion could be full on and the end be full off, which really doesn't work too well)

There are other important differences which explains why this \$1 MOSFET (today it's \$1.20) is a really bad part when the \$70 MOSFET is now \$4. The information on using



these new part is sparse on the Internets and peeps are still building new RF amps as a hobby the old way.

Anyways, having fun building stuff to learn. Have a bunch of \$4 to \$6 RF MOSFETs that I'm willing to blow up trying to get a RF Power Amp up and running.

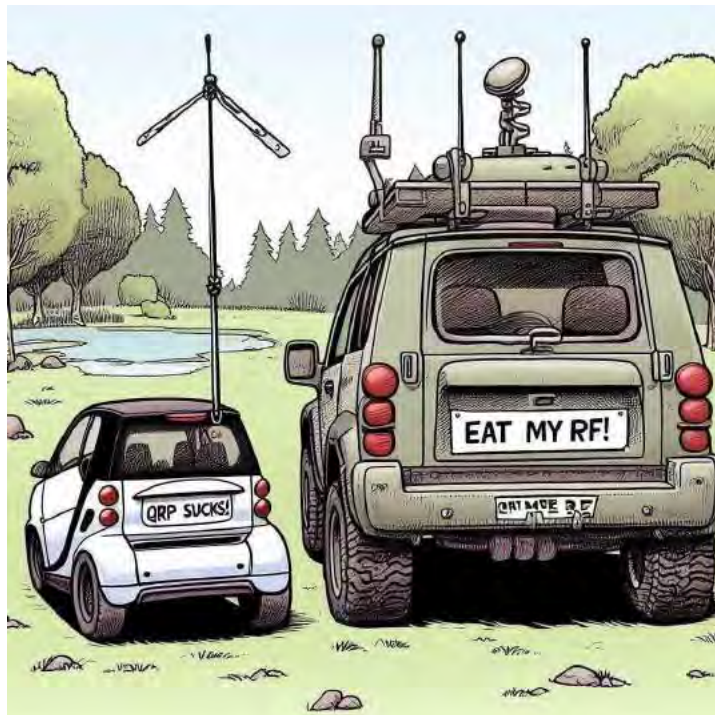
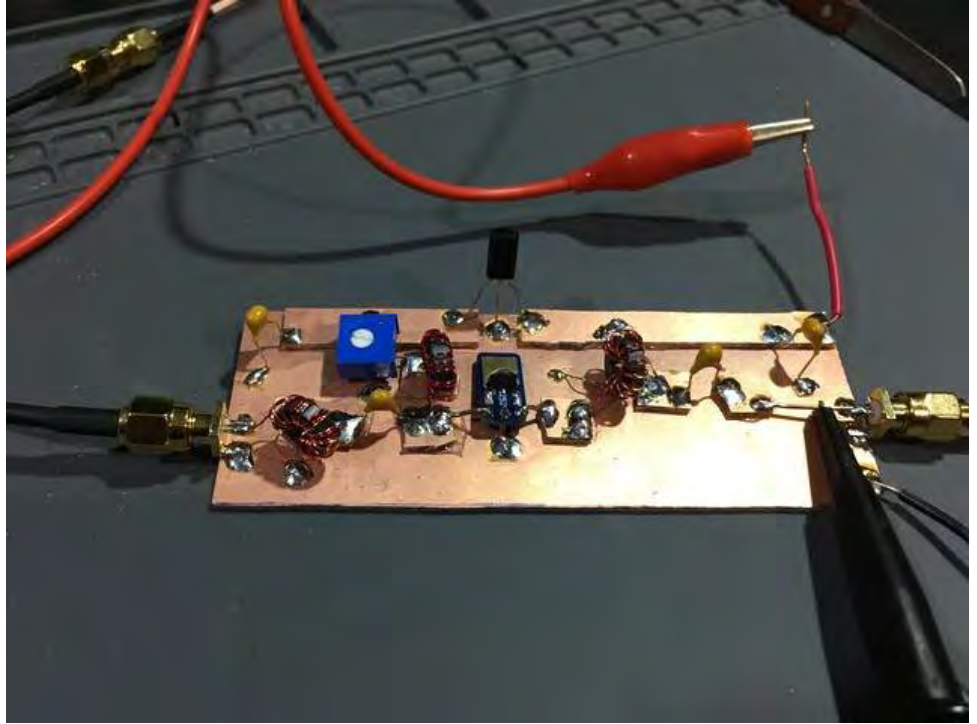
Hope this makes sense, there is a lot of fun in experimentation. Have some new materials coming to help rapidly prototype new RF amps!

Experimenting today with the fancy \$4 RF Mosfets. I did the construction Manhattan Style. I cut up little bits of a PCB board, glue it to a bigger PCB. This gives you a nice ground plane, and these little squares make it easy to try different ideas.

This is a class A amplifier using a RF MOSFET - 3Mhz - 30 Mhz and has about 25db gain. You can get about 35% efficiency (ideal is 50% with class A) This board will be the driver stage of a push pull amp.

So far so good, playing with input/output impedances (measuring and matching).

My goal is to get a really good QRP+ RF amp that can put out ~7 watts or a little bit more on the 20m/40m bands, with very little harmonic distortion. Part of a longer term project of building my own radio.





## CONTRIBUTIONS TO VE3ERC-CLUB NEWSLETTER

Do you have an article you'd like to submit? Or photos? Do you have any comments you'd like to make?

Perhaps you'd like to share a photo of your shack, a special project you are working on or a special interest!

SEND THEM TO:

Bob [bobve3ixx@gmail.com](mailto:bobve3ixx@gmail.com)  
(519-787-2279)



## WEDNESDAY NITE NET CONTROLLERS

**APRIL 10 - HAGEN VE3QVY**

**APRIL 17 - FRANK VA3FJM**

**APRIL 24 - MEETING**

**MAY 1 - TOM VE3DXQ**

**MAY 8 - TED VE3TRQ**

**MAY 15 - TONY VE3DWI**

**MAY 22 - MEETING**

**MAY 29 - BRIAN VA3DXK**

**JUNE 5 - BILL VA3QB**

**JUNE 12 - BOB VE3IXX**

**JUNE 19 - REG VE3RVH**

**JUNE 26 - MEETING**

**JULY 3 - HAGEN VE3QVY**

# Tech Tips



This is the stand that I bought at Walmart in Dayton for \$6 .....didn't realize that it came with a adjustable phone holder... it fits the QCX rig perfect... pretty cool.  
I Have to grab another for the portable vertical antenna !!!!!  
It appears that they are cheaper here and online !!  
73 Mike VE3MKX

<https://www.walmart.ca/en/ip/vivitar-mini-pistol-grip-tripod-black/6000201804376>

[https://www.aliexpress.com/item/1005006669876666.html?spm=a2g0o.productlist.main.21.c397DGWiDGWivP&algo\\_pvid=07ec9651-2d37-4f7b-9c86-78aaa886df24&algo\\_exp\\_id=07ec9651-2d37-4f7b-9c86-78aaa886df24-10&pdp\\_npi=4%40dis%21CAD%219.89%214.94%21%21%2151.35%2125.67%21%402103237317162993992581391eee8f%2112000037975065296%21sea%21CA%210%21AB&curPageLogUid=tW95aFEW0qWh&utparam-url=scene%3Asearch%7Cquery\\_from%3A](https://www.aliexpress.com/item/1005006669876666.html?spm=a2g0o.productlist.main.21.c397DGWiDGWivP&algo_pvid=07ec9651-2d37-4f7b-9c86-78aaa886df24&algo_exp_id=07ec9651-2d37-4f7b-9c86-78aaa886df24-10&pdp_npi=4%40dis%21CAD%219.89%214.94%21%21%2151.35%2125.67%21%402103237317162993992581391eee8f%2112000037975065296%21sea%21CA%210%21AB&curPageLogUid=tW95aFEW0qWh&utparam-url=scene%3Asearch%7Cquery_from%3A)





# Elmira Radio Club VE3ERC Annual General Meeting Minutes

## Wednesday, May 22, 2024

By Rod VA3MZD

**VENUE • Elmira Fire Hall – 44 Howard Ave, Elmira, Ontario**

7:00pm Virtual Eyeball QSO – Setup, Social time & Coffee 7:30pm

Meeting Call to Order, Welcome -

Frank VA3FJM called the meeting to order at 7:32pm EDT.

Roll Call & Quorum – In attendance in person at the Firehall were: Ken VE3KCY, Andy Burgess, Rich VE3DCC, Paul VA3PDC, Judd VE3WXU (in person!), Reg VE3RVH, Hagen VE3QVY, James VE3JLC, Tom VE3DXQ, Frank VA3FJM, Rod VA3MZD, Steve VE3BVS, Bill VA3QB, Ted VE3TRQ, Roger VE3RKS, Rich VE3NUL. In attendance via Zoom - Gary VE3JGK, Tony VE3DWI, Marianne VE3MXT, Bruce VE3QB, Mike VE3FE, Linda VE3CZ

Quorum was established with 22 members out of 52

Adopt Agenda - Rod VA3MZD • Motion to adopt Agenda of May meeting

Moved by Rod VA3MZD, Seconded by Steve VE3BVS that the Agenda be adopted as circulated. Errors and Omissions were corrected. Carried.

Presentations/Speakers/Workshop

None

Secretary's Report Rod VA3MZD • Motion to accept Minutes of April Meeting. Rod moved that the minutes of the April meeting be adopted as circulated. Seconded by Steve VE3BVS. Carried.

Treasurer's Report Ted VE3TRQ • Monthly Financial Reports -Motion to accept Treasurer's Report • 2024 Annual Dues are due by AGM in May! Ted VE3TRQ presented the monthly income and expenses. Income was significantly higher this month as 30 of the members have already paid their dues. An email reminder to those 20+ members who have not yet paid up will be issued. Moved by Ted VE3TRQ and Seconded by Paul VA3PDC that the May financial be accepted. Carried.

President's Report - Reg VE3RVH

Reg VE3RVH thanked the members present for the good turnout for the AGM and thanked Hagen for taking his Wednesday slot in the Morning Net Controller's chair.

AGM and Election - see below for slate of candidates

Officer Elections - Rich - VE3CC

Rich VE3DCC called for nominations from the floor for each of the Executive positions. As each nomination period closed, the acclaimed executive position was announced as follows:

**President- Frank VA3FJM,**

**VP- Tom VE3DXQ,**

**Trustee- Wes VE3ML,**

**Treasurer- Ted VE3TRQ,**

**Secretary- Rod VA3MZD.**

Paul VA3PDC thanked the outgoing Executive for their service and welcomed the newly formed Executive.

Treasurer's Annual Report - Ted VE3TRQ presented the year's financial report. The balance at the beginning of 2023 was \$8187.72 and at year end \$10784.37. Moved by Ted VE3TRQ, Seconded by Roger VE3RKS that the Annual Financial Report be accepted. Carried.

Committee Reports • Repeater Technical Committee - Tony VE3DWI

Tony reported that all repeaters were currently up and running. The VA3TET Wires-X repeater in Alma had gone down earlier this month. Ted VE3TRQ was able to reload the software remotely and it is now back up.

Unfinished Business

Hamfest - June 2, 2024

Reg VE3RVH announced that the Club would have 3 tables available for club members to sell surplus equipment. Those able to assist with setup of the Antenna and radio for ONTARS will meet at the venue at 7am with Frank VA3FJM and Steve VE3BVS.

Field Day - Bill VA3QB - June 22-23, 2024

Bill VA3QB would like those who have yet to sign up for Field Day to email him right away. Rod VA3MZD will send out an email to all members reminding them to RSVP to Bill if attending FD. Once he has a Roster, he will ask those attending to sign up to bring food items (salads, desserts, etc). Rumour has it that Hagen VE3QVY will be cooking meat. Ted VE3TRQ moved that Hagen VE3QVY be reimbursed for the food purchased, Steve VE3BVS Seconded. Carried. Setup/drop off will occur on Friday late morning at the airstrip on Line 86 north west of Northfield Road. Entrance off Line 86, then Lunch at Bonnie Lou's, then antennas etc in the afternoon. FD begins Saturday at 2pm EDT/1800 UTC and runs 24hrs. Facilities are available at the airstrip.

New Business

Frank VA3FJM reported on his experience with the military simulation exercise, known as Trilium, in April. The challenges of integrating military and civilian emergency communications



were highlighted. Future simulations are being planned.

.Announcements

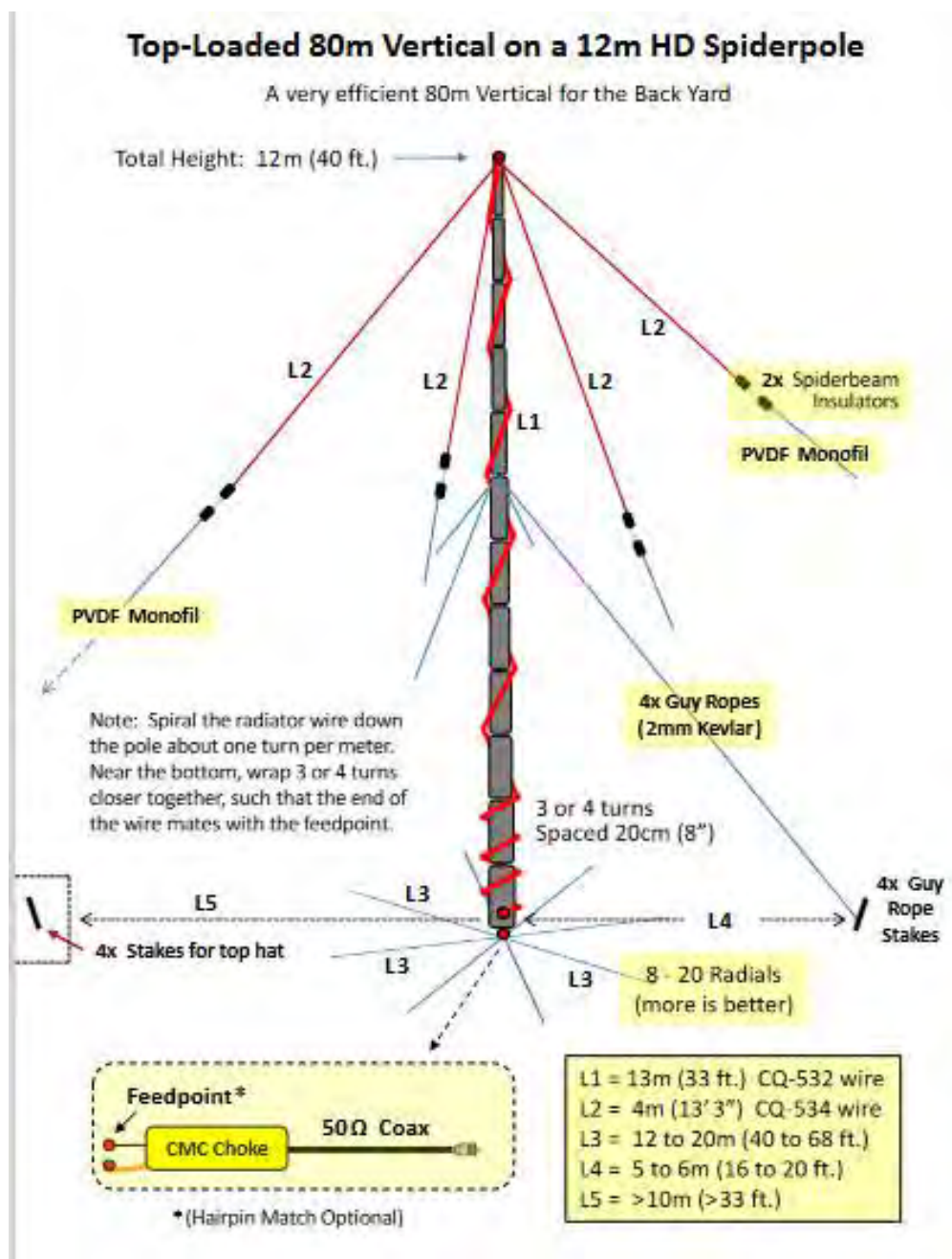
Next meeting: June 26, 2024 7pm

Wires-X Net - 4th Thursday of the month -Thursday, May 23, 2024 **TOMORROW!** Net Controller is Rod VA3MZD

Other Announcements?

Adjournment • Motion to adjourn the meeting

Roger VE3RKS moved that the meeting be adjourned. Frank VA3FJM adjourned the meeting at 8:36 EDT.



# CORRESPONDENCE

## POTA flow chart

By Rod Murray VA3MZD

For those who have yet to enter the POTA world, I ran across this flowchart which visually shows how it works. The POTA Documentation on their website is very thorough and lengthy. This overview might provide curious hams with enough insight so as to want to give it a go!

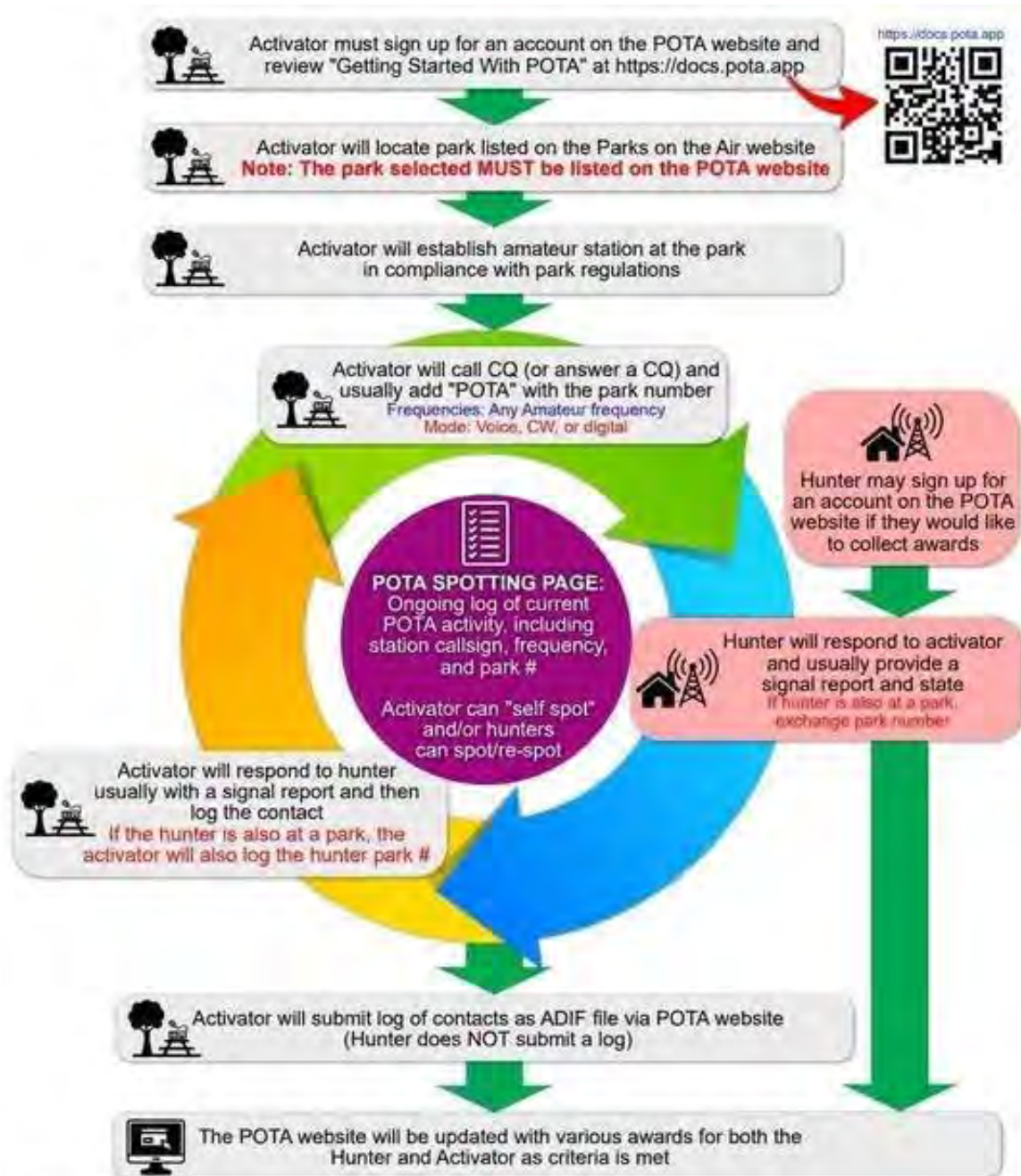


Diagram created by Dave N2MXX



Rod also sent the following and Tony VE3DWI sent the poem at the bottom of the page.

The Bump sign altered into a dead Cassowary sign on the road up through the Daintree Rain Forest in the Cape York Peninsula, Queensland, Australia.



**\_CW Forever\_**

You must at times, thought into the past  
 Where some things go out, while others last.  
 What comes to mind is the Old Morse Code  
 That has weathered the storms from any abode.

To talk with one's finger is surely an art  
 Of any info you care to impart.  
 In most conditions the signals get through,  
 While the same about phone is simply not true.

Those dits and dahs cut through the trash  
 Of nearby noise or lightning's crash  
 To the sensitive ears of the ham receiver  
 That records this date with ardent fever.

He knows he's doing something unique,  
 In such conditions, that's quite a feat!  
 To roger the message that came off the air,  
 These brass pounders sure do have the flair

They say morse ops are a dying breed,  
 But don't despair, there's always the need.  
 When conditions get rough for the new automation,  
 Rest assured there is a need for your station.

CW is dying? Believe it never.  
 This mode will be 'round forever and ever.  
 But one thing is for sure—what we really need  
 Is to relate our knowledge to the younger breed.

To carry the torch long after we're gone,  
 To send Morse code through the air like a song.  
 When at last silent keys pull that final lever  
 We can rest in peace. It's CW forever.

# Dayton 2024 had it all: Four Days in May

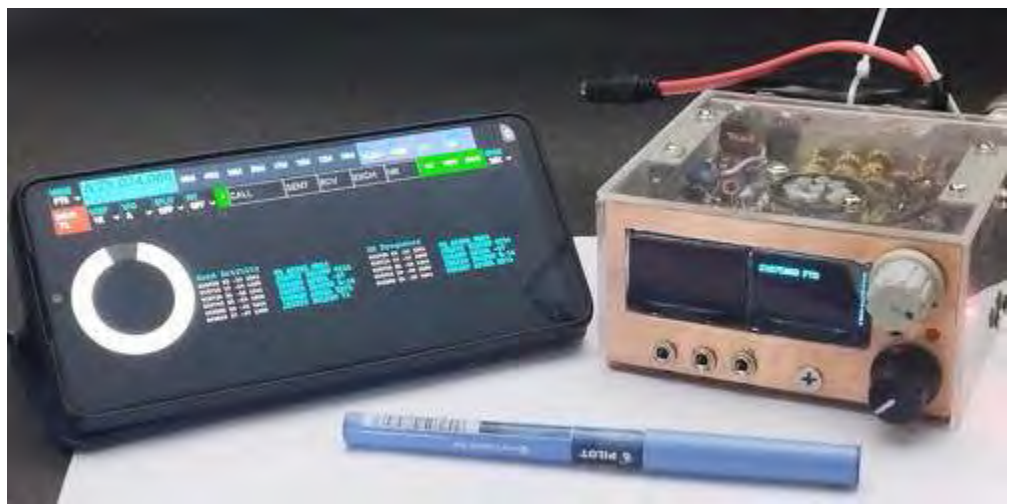
May 23, 2024 By Dan KB6NU

On Thursday, May 16, I attended Four Days in May (FDIM), an event put on by the QRP Amateur Radio Club International (QRP ARCI). The first FDIM was held in 1996, and QRP ARCI has held it every year since, excluding the Covid years. This year, nearly 300 people attended the event.



Like the name implies, there are FDIM events on Thursday, Friday, Saturday, and Sunday, but the main event is the series of talks on Thursday. These start at 8 am and run until 5 pm. This year, the talks included:

- The Construction and Use of a WhoZat by Jack Purdum, W8TEE. Jack is a retired professor from Purdue University, a frequent speaker at FDIM, and the designer of many microcontroller-powered ham radio projects, including transceivers and antenna analyzers. This year, he talked about his latest design, the WhoZat. WhoZat is a portable, battery-powered device that allows an operator to type in a call sign prefix and obtain information about the country associated with the callsign. It will give you the country name, and the azimuthal bearing from your location to that country. One of the takeaways from this talk is that the WhoZat is powered by a Raspberry Pi Pico, and Jack encouraged everyone to consider the Pico for future projects because it has more computing power and more memory than most Arduinos. In addition to talking about the WhoZat, Jack was promoting his latest book, *Digital Signal Processing and Software Defined Radio*. It's available on Amazon for \$45.
- Top 10 Junkbox Projects by Hans Summers, G0UPL. Hans is the genius(?), madman(?), entrepreneur(?) behind QRP Labs. In this talk, he extolled the virtues (as I have done) of a well-stocked junkbox. The project that resonated the most with me is the one-tube transmitter. The reason it resonates with me is that I've been threatening to build one for years myself. Hans actually did it, though. In fact, he made his first QSO with a transmitter he built from an ECL82 tube. At the end of his talk, Hans gave a little plug for his newest transceiver, the QMX+. The embedded SDR rig covers 160 – 6m, in a slightly bigger form factor than the QMX, for only \$125. It's incredible, really.
- zBitx–A Portable Station for the CW Operator by Ashar Farhan, VU2ESE of HF Signals. In this talk, Ashar described his zBitx, a portable CW/FT8 SDR transceiver. This isn't a radio that Ashar is selling (yet!), but it does look like a complete design. And, of course, that design is completely open source, something he ribbed one



of the other presenters about. The zBitx is a very small, portable CW/FT8 radio that uses a smart phone for an enhanced user interface.

This radio is powered by a Raspberry Pi, specifically the Raspberry Pi Zero 2 W. This module costs \$15 and runs Linux. Ashar says, "If Arduino was a matchbox RC car, this



Raspberry Pi is an Airbus A380, both in terms of size and speed. It can run WSJT X, fldigi, and full-stack SDR." The radio also takes advantage of the WiFi capability of the RPi. There's an app that runs on a smart phone that acts as a front panel.

At the end of his talk, instead of flogging a product, Ashar passed out a small PCB assembly called the sBitx Hat. Designed to plug into a Raspberry Pi, it includes an Si5351 clock generator and a 96 kbps, dual-channel audio codec. It looks it will be a fun thing to play with.

- Adventures of a QRP Evangelist by Cliff Batson, N4CCB, proprietor of the QRP School YouTube channel. Cliff gave us a primer on QRP operation and on how to make YouTube videos. He encouraged us all to go out and make videos. I'm not so sure about this myself. It seems to me that there is already too many ham radio videos to watch.
- Amplifying Your Adventures, Minimizing Your Power by noted YouTuber Tom Witherspoon, K4SWL. In his presentation, Tom concentrated on the personal and operating aspects of QRP, not the technical. The conclusion published in the proceedings does a good job of summarizing his talk. It reads, "Since my journey into ham radio began in 1997, I've encountered countless naysayers proclaiming, 'That won't work' or 'Life's too short for QRP.' These discouraging words often came from individuals who lacked firsthand experience in the field. Rather than accepting the pessimistic views, I've treated them as a checklist of challenges to overcome. My approach has been simple: get out there, experiment, and fully immerse myself in the moment. It's through this hands-on exploration that I've discovered the true joy and potential of QRP operations."
- Designing the Elecraft KH1: From Vision to Reality by Wayne Burdick, N6KR. Wayne certainly needs no introduction. His talk concentrated on how he made some of the decisions he made in designing the Elecraft KH1 hand-held HF transceiver. It was a great talk that gave quite a bit of insight into the design process. Personally, I'm not sold on the KH1, but Elecraft can't make them fast enough, so I guess that tells you how valuable my opinion is.
- The Amazing Thermionic Valve by Greg Latta, AA8V. Greg is a professor emeritus of electrical engineering from Frostburg State University. He delved into some of the theory of how vacuum tubes work and some of the practical applications.
- Stealth Operation from Hotel Rooms and Other Unlikely QTHs by Ross Ballantyne, VK1UN.

Unfortunately, Ross was unable to present, either in person or via Zoom. According to the paper in the proceedings, Ross was part of several peace-keeping missions to remote spots around the world. On these trips, he operated from many hotel rooms and gained quite a bit of experience doing so. For example, he writes that virtually all of his antennas are made from wirewrap wire, which he gets from Ali Express. To couple the wire antenna to the transmitter, he uses a Z-match tuner or a modified Z-match tuner called the FRI match ATU. It's a shame that Ross wasn't able to address us in person, as he sounds like quite an interesting fellow.

### **A walk with VU2ESE**

After the talks, I decided to take a walk and stretch my legs. Just as I got to the street, I ran into a friend of mine, Arun, W8ARU, and Ashar, VU2ESE. We decided to walk together, and ended up walking about a mile and a half or so.

Arun and Farhan have been friends for many years. In fact, Arun hired Ashar to work for a company that Arun owned when he lived in India. (Arun now lives in Ann Arbor, MI, which is how I got to know him.) Arun once told me he taught Farhan how to solder. I confirmed that story at Hamvention last year when Ashar visited the ARDC booth.

In addition to all his development activities, Farhan recently joined the board of directors of Amateur Radio Digital Communications (ARDC), the private foundation that I retired from last

May. We had a great chat about the future of ARDC and amateur radio in general, among other topics. It will be interesting to see in which direction the new board members take ARDC.

## Vendor Night

Thursday evening, FDIM holds Vendor Night. It's a great deal for vendors. There's no charge to participate as a vendor, and it's a lot of fun. A couple of years ago when I did Vendor Night, I also shared a booth with the Dayton Makerspace on Friday and Saturday at Hamvention and ended up selling more books in 2 hours at the FDIM Vendor Night than I did in 2 days of Hamvention.

This year, I sold about \$150 worth of books. What was even better was meeting everyone, including those who have used my books to get licensed or to upgrade. For example, Tom, K4SWL, came over and shared his story with me.

He said that one year his wife said that she would also get her ticket as an anniversary present. He gave her my study guide and ten days later, she had her license. How cool is that?

Kudos to QRP ARCI for another successful FDIM. If you'd like to get a copy of this year's proceedings, you can contact them by emailing [toystore@qrparci.org](mailto:toystore@qrparci.org) or [n8et@woh.rr.com](mailto:n8et@woh.rr.com). QRP ARCI also has some other goodies, if you're interested, in their Toy Store.

