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A Word

Dan Mason, AB6DM, President

Hello, TARA friends!

Some of you have already heard about the prestigious award given to our own Micah Martin, KN6VUT, by the ARRL. The award is called the Philip J. McGan Memorial Silver Antenna Award. Micah has won this award for year 2025. Micah's recognition is not yet published on the web site, but the ARRL staff sent an email explaining it.

The Philip J. McGan Memorial Silver Antenna Award is given to ARRL PICs, PIOs and other PR volunteers who strive to keep Amateur Radio visible in their communities by publicizing special events, writing press releases, creating media for radio and television and maintaining good relations with local media among many other valuable activities.

The McGan Award is for promotion of Amateur Radio to the non-amateur community; it is not awarded for work done within a club or organization that primarily benefits the Amateur Radio community. That being said, Micah has created new interest in amateur radio in both Tehachapi and the surrounding regions. Many of these new people have in turn joined TARA.

Read more about the award at: <https://www.arrl.org/phil-mcgan-award>

So, again, everyone please give Micah a hearty "Congratulations!" next time you see him. We appreciate all of his hard work for both Ham radio and for TARA.

Micah has planted the seed of many new hams. Now it's up to all of us to make those new hams feel welcome and to help them grow.

It is time to start preparations for our next Winter Field Day. We will soon pick a WFD Director and start the work that goes into executing it.

Our next VE session will be on October 11th, 11:00 AM, right after our Village Grill breakfast at 8:00 AM.

If are interested in a certain meeting presentation subject or a special ham activity, contact me at 661-203-8398 or better impresaspeed@yahoo.com.

73,

Dan - AB6DM

Hospitality

Valerie Mason – Hospitality Chairperson

The club has been sooo busy! Great practice on our radio's though, and that is the basic idea to me.

Congratulations to Micah Martin on his award! 😊 Thank you to the guys who put in the application for him, Mike Hardee and Ray Gretlein. 😊

Trying to grow the emergency communications part has kept us busy as well. The ERT (Emergency Radio Team) is growing, and we need many more people. Come to a meeting to learn more if you're willing to join us. Contact Dave Walter or Dick Brown for gate passes if you are coming from outside of BVS.

Wireless Wednesday has been up to 16 people, I believe. Wow! It's a great time to get questions answered, find out what's going on in the club, get some radio's updated (keeps John Dyer busy. Hope he gets all his lunches, lol.). I met many new people.

Next big event is for the Chamber of Commerce this Saturday and Sunday for Mountain Festival. Please contact Micah M to offer help. There's usually 5 or 6 of us willing to walk around. But covering for 2 days would be easier with more people. Yes, we can use help and rotate people. Thank you in advance.

The Club meeting is Thurs at 7 pm at Tehachapi PD. Please come a little early (like 15 minutes) to get tickets purchased before the 7 pm flag salute. We have a cash 50/50 and an

item raffle drawing. Please bring small bills, like ones and fives. Thank you. We are back to two colors of tickets.

See you at the Tehachapi PD conference room before 7 pm Thursday evening.

'73 All
KK6WLQ

Valerie Mason

From our Public Information Officer, Micah Martin, KN6VUT

📶 In the wild heart of California’s high desert... a signal rises. Meet the Tehachapi Amateur Radio Association (T.A.R.A.), a truly remarkable species of resilience and community spirit! 🌄📡

🦋 From the whispering winds of Golden Hills to the sun-soaked ridges of Bear Valley, these radio operators gather not for fame or fortune—but for connection, education, and emergency response.

🚒 Enter the Bear Valley Springs Emergency Radio Team—T.A.R.A.'s fierce protectors! When wildfires blaze or the power grid goes silent, this fearless crew springs into action. 🧑‍🚒🔥📡 They relay vital info, keep the community linked, and stay cool when the heat's turned all the way up.

📺 But it's not just emergencies—T.A.R.A. also hosts career expos 🎓, educational talks 🗣️, and hands-on mentorships 🤝 that spark curiosity and build confidence in the next generation of ham heroes.



💡 In a world of fragile tech and digital overload, these operators remind us that true connection lives in skill, simplicity, and shared purpose. Every transmission they send is a heartbeat of Tehachapi—steady, caring, and oh-so-human. ❤️📶

👂📶 Listen closely. You just might hear the pulse of a community... carried on the wind.

EDITORS' Note:

The Dummy Load theme for September is - How I spent my Summer Vacation. Did you operate while on vacation? Or take a dedicated Hamcation?

We enjoyed and appreciated the articles submitted last month. You don't have to write a multi paragraph article to submit. It would be nice to have a few words from many of you about our theme for the month. If you have some thoughts for an article, send me an email with your phone number and we can build an article interview style with a few minutes on the phone.

The topics for October through December are not set yet! Any ideas?

In addition to your article on the topic above, we need your input on topics that you would like to see in future issues of The Dummy Load. Which aspect of Amateur Radio interests you. We would very much appreciate your thoughts and ideas. If you don't send me any ideas for future newsletter themes, then I get to pick them, and you get stuck with topics I like!

Send them to kn6zgi@ac6ee.org by Sept 8, 2025.

Do You Have a Hotspot? How Do You Use It?

Erik Axdahl, AK6MW

Assembling a Digital Radio Hotspot using Raspberry Pi

Digital voice modes such as Digital Smart Technologies for Amateur Radio (D-Star), Yaesu System Fusion (YSF), and Digital Mobile Radio (DMR) can be used not only via simplex or a repeater supporting your desired mode, but also via a personal hotspot that can be configured to use one or more digital modes of your choice. A hotspot is a (usually) small computer with a modem and RF transmit and receive capability, likely around 0.1 W. The author's hotspot is shown as an example in Figure 1. The principal benefit of a hotspot is to have local, on-demand access to your desired reflectors, talkgroups, etc. over RF while still using your familiar radio interface. Depending on your digital mode, you may be able to do

cross-mode communication (e.g., YSF → DMR) or connect to reflectors that themselves transcode cross-mode (e.g., D-Star, YSF, and DMR all together).

There are a few turnkey hotspot options out there, but if you are willing to do a little DIY you can arrive at an inexpensive solution and still get up and running relatively quickly. You may even benefit from additional configurability and repairability. This article will describe at a high level how to procure and configure a hotspot. This article is not a comparison of the modes against each other, or how to use any given mode. It is assumed that you know how to use your digital mode of choice using your particular radio.



Figure 1. A typical digital hotspot

Hardware

There are a few different options for doing a DIY build of a hotspot, but I'll just focus on what I used and can attest to. You will need the following items to get your hotspot up and running:

- Raspberry Pi Zero 2W (with Headers)
- Mokxihit Upgraded MMDVM Hotspot Hat Board
- 5V/2A USB A Power Supply
- MicroSD Card Reader or a SD Card Reader with a MicroSD → SD Adapter.

As of the writing of this article, everything you need to build your hotspot can be purchased for roughly \$60-70 including shipping. That assumes you have a spare USB power supply sitting in a drawer and already have a way to read or write MicroSD cards from your computer. If not, make sure you pick up those items as well.

The Mokxihit MMDVM Hotspot Hat Board comes as a kit that includes an MMDVM hat board, antenna, micro-USB cable, no-name 8 GB microSD card, enclosure (with screws),

and header pins. If you are comfortable with soldering and have the inclination, you can save \$1 and buy the Raspberry Pi version without headers and use the headers that come with the MMDVM hotspot kit. Otherwise, you can just buy the Raspberry Pi version with headers and you'll just end up having unused pins.

Software

A couple of free and open source operating system alternatives to run your hotspot include Pi-Star from <https://pistar.uk> or WPSD from <https://w0chp.radio/wpsd/>. The choice of which to use is a matter of personal taste. Both have a browser-based interface via your local network. WPSD is derived from Pi-Star (which itself is derived from earlier works) and has a few more features but a more complicated user interface. Hardware-wise, Pi-Star runs just fine on a Raspberry Pi Zero W (if you want to save a couple bucks), but WPSD does require a Raspberry Pi Zero 2W or better.

I would encourage you to try both out and see which you might like more. For Pi-Star, go to <https://www.pistar.uk/downloads/> and download the latest image (e.g., Pi-Star_RPi_V4.2.3_18-Apr-2025.zip). For WPSD, go to <https://w0chp.radio/wpsd/#download-wpsd> and download the image that matches the Raspberry Pi Zero 2W hardware (e.g., WPSD_RPi-Bookworm.img.xz). For WPSD, you will need a way to unarchive .xz files, which MacOS does natively and 7-zip can do in Windows. Once you have your image downloaded, use image flashing software such as Balena Etcher (<https://etcher.balena.io>) to write the disk image to your microSD card.

For networking, you have the choice between WiFi and Ethernet (if you have a spare Ethernet USB dongle). For WiFi, both operating systems by default cause your Raspberry Pi to act like a WiFi access point upon first boot so you can connect to it directly and configure it with your network's SSID and password. Alternatively, for WPSD, there is a handy tool on the WPSD Project website to generate a file with your networking information that you can copy into the root folder of your flashed microSD card. This will cause it to connect to your WiFi network by default upon first boot.

Hotspot Configuration

The configuration of your hotspot system will vary depending on, for example, what hotspot hat board you pair with your Raspberry Pi computer. For the Mokxihit hat, a sheet of configuration settings for using the Pi-Star operating system is provided with the hardware. If you choose to use WPSD as an alternative, the settings won't necessarily look the same or have the same options as those in Pi-Star. Specifically, for the Mokxihit, I have provided the proper settings for specific parameters in Figure 2. If you have chosen a different hat and it's not immediately obvious what settings you should choose, you can login to WPSD from your local network using a command line interface that supports ssh (e.g., Terminal in MacOS, or similar in a Linux operating system) by executing the command `ssh pi-star@wpsd` and using the password `raspberrypi`. You will be greeted with the screen in Figure 3 and can then use the command `sudo wpsd-detectmodem` to identify parameters such as modem type, port, and baud rate.

Radio Mode:	<input checked="" type="radio"/> Simplex <input type="radio"/> Duplex	? Duplex mode requires Dual-Hat/Duplex Modems
Radio/Modem Type:	MMDVM_HS_Hat (DB9MAT & DF2ET) for Pi (GPIO)	
Modem Port:	<input type="text" value="/dev/ttyAMA0"/>	! Typically there is no need to manually change/set this; for advanced settings/usage.
Modem Baud Rate:	<input type="text" value="115200"/>	
MMDVM Display Type:	<input screen)"="" type="text" value="OLED Type 3 (0.96"/>	Port: <input type="text" value="/dev/ttyAMA0"/>
Nextion Display Settings:	Layout Type: <input type="text" value="G4KLX"/>	Idle Brightness: <input type="range" value="20%"/>

Figure 2. WPSD configuration settings for the Mokxihit hat.

This is...



Version Status

- WPSD Dashboard Web Software:
Ver. # 2860c1b7f8
- WPSD Support Utilites and Programs:
Ver. # 2750fe4e6c
- WPSD Digital Voice and Related Binaries:
Ver. # d2bb0ce055

[?] Your WPSD dashboard can be accesed from:

- <http://wpsd.local/>
- <http://wpsd/>
- <http://192.168.50.209/>

[i] WPSD command-line tools are all prefixed with "wpsd-".
Simply type `wpsd-` and then the TAB key twice to see a list.

WPSD Project: (C) Chip Cuccio, W0CHP -- Made in Winona, Minn. USA

[!] WPSD is Free Software, and comes with ABSOLUTELY NO WARRANTY.

Last login: Sun Jul 27 15:22:25 2025 from 192.168.50.54

```
[pi-star@wpsd:~ $ sudo wpsd-detectmodem
Detected MMDVM_HS Port: /dev/ttyAMA0 (GPIO) Baud: 115200 Protocol: V1
Modem Data: MMDVM_HS_Dual_Hat-v1.5.2 20201108 14.7456MHz dual ADF7021 F
W by CA6JAU GitID #89daa2000380056340000124E575257
```

Figure 3. WPSD welcome screen and command for detecting modem parameters

Depending on your desired digital radio mode, you will need to configure settings for D-STAR, DMR, YSF, etc. accordingly. In WPSD, when you enable a digital mode via the toggle in the configuration screen, a new section will be available where you can enter configuration information for that mode. For example, for D-Star you will enter RPT1 and RPT2 callsigns. These will match whatever you have registered with the D-Star network. For DMR, you will enter your DMR ID and any applicable security codes. And so on...

Radio Configuration

The configuration of your radio to work with your hotspot will vary depending on your model and digital mode. For example, I am using an Icom ID-50A. For my radio, to access my hotspot I need to add a new repeater with a frequency that matches the chosen frequency of my hotspot and put it in a duplex mode with a zero-offset frequency (to work with the Mokxhit simplex hat). For your particular situation, you will need to follow your manual's instructions for how to put your radio into the correct digital mode to connect to your desired reflectors, talkgroup, etc.

Useful Links

- REF, XRF, DCS, XLX modes: <https://dvnz.nz/ref-xrf-dcs-xlx-whats-the-difference/>
 - A primer on the different types of reflectors.
- REF Reflector List: <http://www.dstarinfo.com/reflectors.aspx>
 - A list of REF reflectors and their location and status.
- XLX Reflector List: <https://w0chp.radio/xlx-reflectors/>
 - A list of XLX reflectors and their location, status, and description.
- Nets for Echolink, D-Star, and D-Rats: <http://www.wx4qz.net/elk.htm>
 - A frequently updated list of nets available on Echolink and D-Star.

Ray Gretlein, W6QPA

My Amateur Radio Hotspot

Shortly after I joined TARA, eight (?) years ago, I met this ham who was showing some of his radio toys... you all know him as Will, WA6LDQ. One of the toys was a Kenwood handheld, the D-74. This is a tri-bander 144/220/440 MHz. It had GPS/APRS built-in as well as a wide range HF receiver AND a digital voice mode called D-Star. I was enamored, with this little rig, the only HT I had was a 30'ish year-old Kenwood 2 meter unit that had severed well and was without fault. I mentioned the D-74 as a desirable toy to my family (dropping a few heavy hints at various times of the year); one year my wife gave me a birthday gift of the D-74!

I thoroughly explored its features and used everything ... Except for digital voice. Those of you familiar with digital voice know that D-star is one of at least six digital voice protocols. D-Star was developed by Icom and implemented by Kenwood as their digital voice protocol. Unfortunately, D-Star is poorly represented in the southern San Joaquin valley ... there are

no D-star repeaters that I can reach from my QTH! I needed a D-star hot-spot if I wanted to exercise the D-74s D-Star capability.

I looked into the commercially available hotspots; however, I enjoy tinkering and put off any hotspot until I could learn enough to assemble one. One day reading an article about ham radio application for the Raspberry Pi I came across Pi-Star. Pi-Star creates a hot-spot, a digital repeater with an internet connection, allowing my D-74 a presence in the world-wide digital voice networks. This application knits together a number of digital voice software modems and digital voice tools with an RF module and provides a web-based user interface that made configuring the software and hardware fairly simple.

As shown on the right, Pi-Star supports six popular digital voice protocols as well as several cross-protocol bridges. I currently only have D-star enabled. I hope to add cross mode bridges in the future.

I enjoy listening mostly to REF-001C which is listed as world-wide use. I have spoken with hams in the UK and Oceania in the afternoon local time.

Pi-Star:4.1.10 / Dashboard: 20250606

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Expert | Calibrate | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp
w6qpa-pi-star	5.10.63+	Raspberry Pi Zero W Rev 1.1	2.84 / 1.78 / 0.72	48.7°C / 119.7°F

Control Software	
Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Mode <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

MMDVMHost Configuration			
Setting	Value		
DMR Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
M17 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input type="checkbox"/>		
DMR2YSF:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
POCSAG:	<input type="checkbox"/>	POCSAG Paging Features	
MMDVM Display Type:	OLED Type 3 <input checked="" type="checkbox"/>	Port: /dev/ttyAMA0 <input checked="" type="checkbox"/>	Nextion Layout: G4KLX <input checked="" type="checkbox"/>

Apply Changes

Pi-Star:4.1.10 / Dashboard: 20250606

Pi-Star Digital Voice Dashboard for W6QPA

Dashboard | Admin | Configuration

Modes Enabled	
<input checked="" type="checkbox"/> D-Star	<input type="checkbox"/> DMR
<input type="checkbox"/> M17	<input type="checkbox"/> NXDN
<input type="checkbox"/> P25	<input type="checkbox"/> YSF
<input type="checkbox"/> DMR XMode	<input type="checkbox"/> YSF XMode
<input type="checkbox"/> FM	<input type="checkbox"/> POCSAG

Network Status	
<input checked="" type="checkbox"/> D-Star Net	<input type="checkbox"/> DMR Net
<input type="checkbox"/> M17 Net	<input type="checkbox"/> NXDN Net
<input type="checkbox"/> P25 Net	<input type="checkbox"/> YSF Net
<input type="checkbox"/> DMR2NXDN	<input type="checkbox"/> DMR2YSF
<input type="checkbox"/> YSF2DMR	<input type="checkbox"/> YSF2NXDN
<input type="checkbox"/> YSF2P25	<input type="checkbox"/> POCSAG Net

Radio Info	
Trx	TX D-Star
Tx	438.475000 MHz
Rx	438.475000 MHz
FW	HS_Hat:v1.5.2
TCXO	12.2880 MHz

D-Star Repeater	
RPT1	W6QPA B
RPT2	W6QPA G

Gateway Activity							
Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
17:02:35 Aug 9th	D-Star	YG3BRB/DODY (GPS)	CQCQCQ via REF001 C	Net		TX 19+ sec	
17:02:32 Aug 9th	D-Star	N9NRA (GPS)	CQCQCQ	Net	9.5	27%	9.9%
17:01:07 Aug 9th	D-Star	W3NYC (GPS)	CQCQCQ	Net	0.3	0%	0.0%
17:00:26 Aug 9th	D-Star	KQ4RME (GPS)	CQCQCQ	Net	0.0	0%	0.0%
17:00:04 Aug 9th	D-Star	W1KGK/TIME (GPS)	CQCQCQ	Net	3.4	25%	1.1%
16:59:53 Aug 9th	D-Star	AD0KP (GPS)	CQCQCQ via REF001 C	Net	1.1	98%	0.0%
16:57:46 Aug 9th	D-Star	KQ3Q/705 (GPS)	CQCQCQ via REF001 C	Net	2.8	30%	13.2%
16:45:53 Aug 9th	D-Star	KF4NUZ/51AE (GPS)	CQCQCQ	Net	0.9	0%	0.0%
16:44:44 Aug 9th	D-Star	KC2SZ/IC80 (GPS)	CQCQCQ	Net	0.5	0%	0.0%
16:41:22 Aug 9th	D-Star	WT1W/IC92 (GPS)	CQCQCQ	Net	0.0	0%	0.0%
16:34:12 Aug 9th	D-Star	W1KGK B (GPS)	CQCQCQ via REF001 C	Net	1.1	98%	0.0%
16:34:09 Aug 9th	D-Star	W6NML/D75 (GPS)	CQCQCQ	Net	1.4	32%	0.0%
16:29:23 Aug 9th	D-Star	W1VM (GPS)	CQCQCQ via REF001 C	Net	12.0	31%	6.6%
16:28:17 Aug 9th	D-Star	KQ4KK/KENT (GPS)	CQCQCQ via REF001 C	Net	2.4	92%	12.2%
16:26:28 Aug 9th	D-Star	W5RKA/D74A (GPS)	CQCQCQ	Net	49.2	26%	7.4%
16:25:27 Aug 9th	D-Star	WN3Y/ID52 (GPS)	CQCQCQ	Net	15.6	25%	6.9%
16:24:23 Aug 9th	D-Star	KG4CWC/BOB (GPS)	CQCQCQ	Net	23.9	23%	8.2%
16:22:07 Aug 9th	D-Star	N8E0D (GPS)	CQCQCQ	Net	9.8	31%	4.9%
16:21:45 Aug 9th	D-Star	K7SEE/BILL (GPS)	CQCQCQ	Net	59.2	26%	7.8%
16:18:32 Aug 9th	D-Star	VK6WGB/DZY (GPS)	CQCQCQ	Net	3.2	29%	0.0%

Local RF Activity							
Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI

I also use REF 483C for CW Academy specific conversations.



I had an unused Raspberry Pi 3B+ that would run the Pi-Star software. I did a bit of research and settled on a Multi-mode Digital Voice Modem (MMDVM) hat for the RPi from AURSINC.

I found the RPi 3b+ to be way more processor than was needed so rehosted the MMDVM Hat to a Raspberry Pi Zero W. My current configuration is small (2-3/4x1-1/4x1-1/4 not including the stubby antenna) and sits on a shelf providing coverage for my QTH and a 100 meters or so outside.

On the Bench

This is a semi-regular column for members to share the off-the-air aspects of their ham radio activities. Using a sports metaphor, on-the-bench refers to a player not currently active in the game. So, applying that in a ham radio context, what is “On-the-(work)bench” in your shack?

QRP Labs QMX Hi-Band (20-10 Meter) Build

Ray Gretlein, W6QPA

It's been almost exactly a year since I assembled my first QMX (80-20 meter version), its taken that long for me to recover (just kidding, just haven't made the time) The QMX is a feature-packed, high performance, 5-BAND 3-5W, CW and Digi-modes and recently added SSB transceiver kit, including embedded SDR, 24-bit 48 kbps USB sound card, CAT control, synthesized VFO with TCXO reference. (See this [website](#) for the details). All this capability in this small package also makes it a challenging assembly project ... at least for me. It's comprised of five PC boards with a host of surface-mount components pre-installed (or I would not have even tried it).

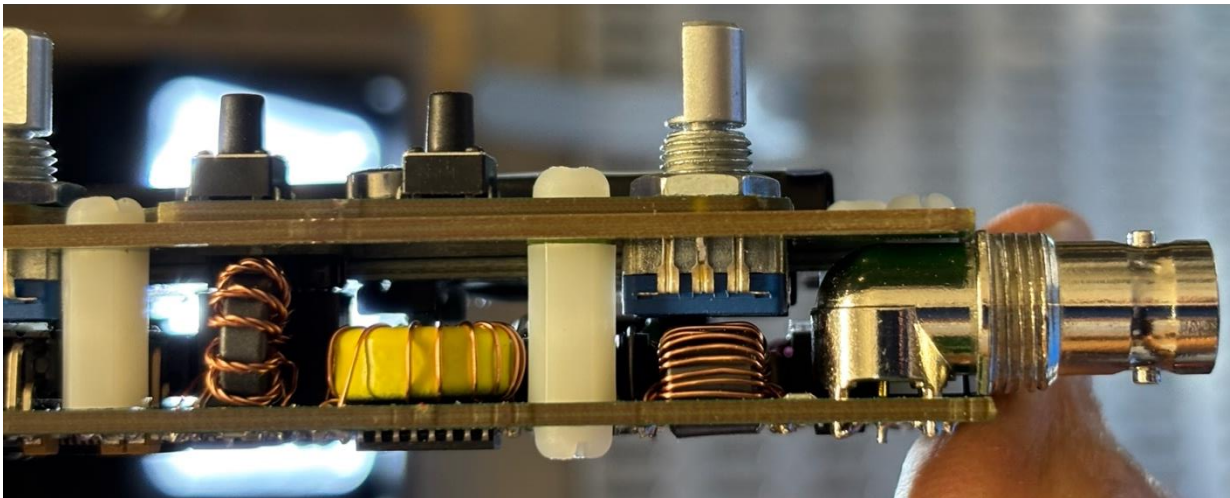
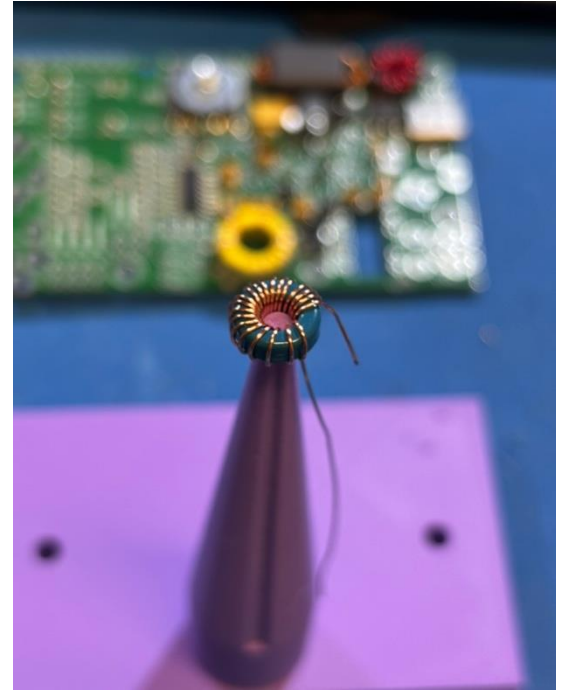




After a number of hours, I had the boards populated with through-hole resistors, capacitors, diodes, transistors and many hand-wound toroid inductors and transformers.

The first build I complained of the tedium of winding these small toroid coils.

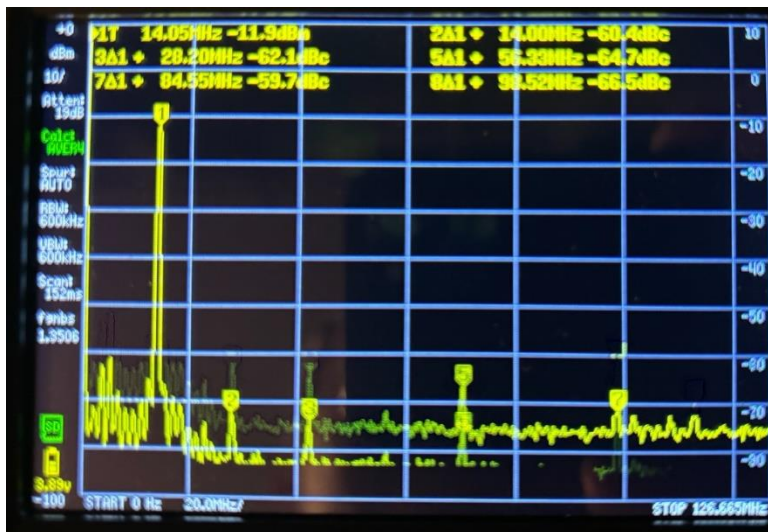
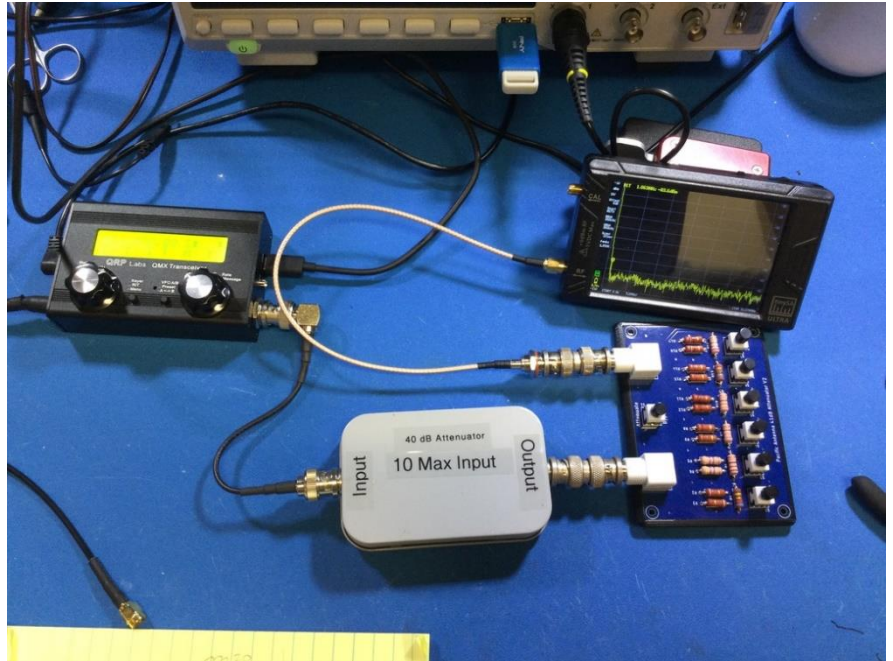
For this build, a friend, Larry KM6OQI, printed up a handy device to hold the toroid core while I wound the turns. What a help!



Once the boards were mated and stacked, I ran through the pre-powerup instructions and checked everything, connected a dummy load and applied power using a current-limiting lab power supply dialed down to 7 volts, the minimum voltage to run the digital portion of the radio and current-limit set at 150 mA. It came up, no smoke, no smell of burnt components. Success!

When first assembled the radio has no software, just a bootloader. When connected to a PC via the USB cable, QMX boot-loaded makes the QMX's memory appear as a "USB drive". I was able to download the current rev (1.02.0) of the software from the QRP Labs website and copy it to the "USB drive". With the software thus installed, the radio restarted and came to life. Phew, initial stage success.

Before putting a new build on the air, I like to make sure it is complaint with our FCC requirements and its own design specs. My test configuration uses a digital oscilloscope to check the RF voltage being generated into a dummy load from which the power output is calculated. I also use a TinySA spectrum analyzer (photo at right) to check that the signal produced meets the requirements that spurious signals (harmonics) are at least -43 dB below the fundamental signal. Here is the test configuration for the TinySA. It is fed from the output of the radio through several attenuators to get the signal level to a value that will not destroy the spectrum analyzer.



Here is the 20-meter spectrum graph showing the harmonic levels for the 3rd and 5th harmonics are minus 62.1 dBc and minus 64.7 dBc. All the bands showed their harmonics were below the minus 43 dBc requirement of Part 97.307(d).

The QMX contains a number of hardware test tools to check audio filters, RF filters, low-pass and band-pass filters, ADC I/Q performance, unwanted sideband rejection, and image rejection. I've not included prints from those tests, if you're interested let me know and I'll send you a copy.

The other check I run is to see if the radio is producing near the design power, if not I have to go back and adjust tuning of filters to make it right. This build came close enough for me. My worst the 12-meter band, at minus 2.6 dB relative to 5 watts. I generally use 20, 15, 10 meters, those are minus 1.6, minus 1.3 and minus 1.9 dB .

Band	Impedance (QRPLabs Dummy load) Measured with MFJ-226 Antenna Analyzer	RMS RF voltage (Siglent SDS-1202 oscilloscope)	Calculated Power [P=(Vrms*Vrms)/Impedance]	QMX internal Meter	QRPGuys Pwr/Swr/Dummy Load (Impedance 49.3 across these bands)	Average of Measurements	dB relative to 5 Watts
10	46.8	12.84	3.5	2.9	3.3	3.3	-1.9
12	47.3	11.66	2.9	2.6		2.7	-2.6
15	48.1	13.37	3.7	3.7	3.9	3.7	-1.3
17	48.5	13.22	3.6	3.7	3.9	3.7	-1.3
20	49	13.02	3.5	3.5	3.6	3.5	-1.6

Everything checked out so I went for on the air.

This is the first SSB QRP rig with which I've used voice mode (I usually stay in the digital modes). I was surprised when I heard a QSO wrap-up and called one of the participants... and received a call back. We had a brief chat before the QSB wiped me out. He was in San Diego County. So that was a plus, I'm now all mode capable with self-assembled QRP equipment.

The Operating Room

This is a semi-regular column for club members to share the on-the-air aspects of their ham radio activities.

Ray Gretlein, W6QPA

Flight of the Bumblebees CW Contest

Ray Gretlein, W6QPA/BB

The Flight of the Bumblebees CW contest ([FOBB](#)) is a four-hour QRP CW operating event held each year on the last Sunday of July. The event is sponsored by the [Adventure Radio Society](#) with the intent of encouraging outdoor portable QRP CW ham activities.

Bumblebees are those of us operating QRP portable. Objective is simple ... make as many contacts as possible. There were 268 bumblebees registered worldwide, so opportunities were a bit slim ... especially compared to 31,000 stations during Field Day in June.

This was my first attempt at this event. The kit for this was simple: [QRPLabs QMX 80-20](#) meter transceiver, [Begali Traveler key](#), the [Chameleon MPAS Lite 17' vertical w/radials](#), LDG QRP Auto Tuner, and the Microsoft Surface tablet for logging. All powered by a [Bioenno](#) 12volt 9A LiFePO4 battery. I did manage to get it packaged into a small backpack and a sling bag for the antenna -- better than my earlier kits.



I operated from a picnic table at Kern River Campground Day Use area overlooking Lake Ming. For 2-1/2 hours I alternated between Search-n-Pounce and Running (or trying to) on 20 & 40 meters. I heard about 7 bumblebees but was only able to contact 3. Not a rousing success but it was a fun chance to refine and exercise my POTA/SOTA/camping HF portable kit.

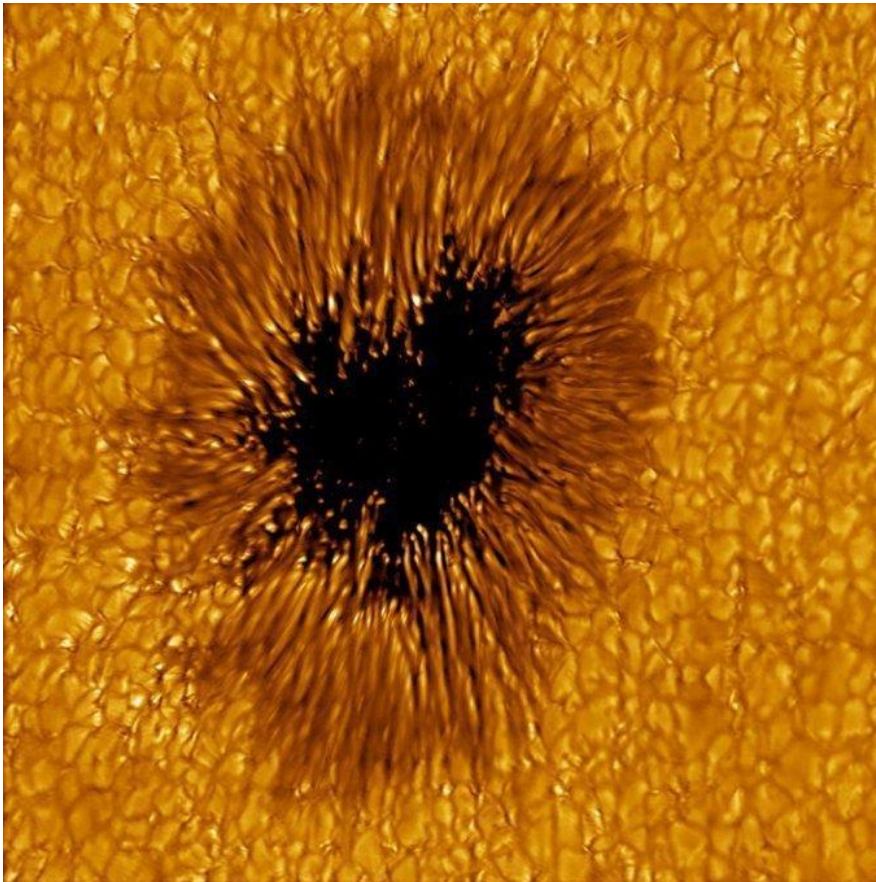
Tid-Bits

A collection of miscellaneous mostly amateur radio-related items.

This item was from a post on X

The most detailed image of a sunspot

The Daniel K. Inouye Solar Telescope in Hawaii has captured the most detailed image of a sunspot. The telescope has a mirror 4.24 meters in diameter and is located at an altitude of 3 km on the slope of the Haleakala volcano, where conditions are ideal for observing. The image shows the granulation of the Sun's surface: hot material rises in the center of the cells, cools and sinks down, which makes the edges of the cells darker. The sunspot looks like a magnet with a "funnel" whose edges go deep for several thousand kilometers.



Other Amateur Radio Clubs of Interest

From time to time we will include information from other clubs that may be of interest.

The [Long Island CW Club \(LICW\)](https://longislandcwclub.org/licw-newsletter/) is a large club based in Long Island, NY. Its main purpose is the promotion and teaching of Morse Code. LICW has a global membership of over 6700 members across all 50 states and 68 countries. At this time, they offer 168 classes each week to help amateurs learn and develop fluency in CW. They publish a newsletter three times a year with a variety of helpful articles. It is available at this link:

<https://longislandcwclub.org/licw-newsletter/> The Summer-Fall issue was just released.

Humorous

Vallerie - KK6WLQ

What noise does a 747 make when it bounces?

Boeing, Boeing, Boeing.

Scott - KB6CC - Parker Radio Association

New Homebrew Toy



ARRL Contest Calendar

This page provides a summary of events sponsored by the ARRL, the national association for amateur radio. The most current information is on the website at:

<http://www.arrl.org/contest-calendar>.

Another source for contest and on-the-air activity is WA7BNM Contest Calendar at

<https://www.contestcalendar.com/weeklycont.php>

August 2025

- 2-3 [222 MHz and Up Distance Contest](#)
- 16-18 [10 GHz & UP - Roundup 1](#)
- 16-17 [EME - 2.3 GHz & Up](#)
- 17 [Rookie Roundup](#)

September 2025

- 13-15 [September VHF](#)
- 13-14 [EME - 2.3 GHz & Up](#)
- 20-22 [10 GHz & Up - Round 2](#)

October 2025

- TBD [Collegiate QSO Party](#)
- 11-12 [EME - 50 to 1296 MHz](#)
- 20-24 [School Club Roundup](#)

November 2025

- 1-3 [Nov Sweepstakes–CW](#)
- 8-9 [EME - 50 to 1296 MHz](#)
- 15-17 [Nov Sweepstakes–Phone](#)

December 2025

- 5-7 [160 Meter](#)
- 13-14 [10 Meter](#)
- 21 [Rookie Roundup–CW](#)

TARA Calendar

This page is a summary of events sponsored by or involving our club.
All dates are subject to change. Please check the club Facebook and [website](#) for updates.

August 2025

- 2, 9, 16, 23, 30 — 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 3, 10, 17, 24, 31 — 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 3, 10, 17, 24, 31 — 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 6, 13, 20, 27 — 1900 hrs “Just Because” Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 6, 13, 20, 27 — 1300 hrs “Wireless Wednesday” at Taco Samich
- 7 — 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 9 — 0830 hrs, TARA Club Breakfast TARA Club Breakfast at P-Dubs, 20800 Santa Lucia St, Tehachapi, CA 93561 Reserve a spot with [Valerie Mason](#) by 1 August.
- 9 — 1100 hrs, VE Amateur Radio License Exam, 538 East Tehachapi Boulevard
- 14 — 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 26 — 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.
- 30 — 0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with [Valerie Mason](#) by August 18.

September 2025

- 3, 10, 17, 24 — 1900 hrs “Just Because” Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 3, 10, 17, 24 — 1300 hrs “Wireless Wednesday” at Taco Samich
- 4 — 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 6, 13, 20, 27 — 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 7, 14, 21, 28 — 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 7, 14, 21, 28 — 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 11 — 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 13 — 0800 hrs, TARA Club Breakfast at The Village Grill, 410 E Tehachapi Blvd, Tehachapi, CA. Reserve a spot with [Valerie Mason](#) by 1 September.
- 23— 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.
- 27 — 0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with [Valerie Mason](#) by 15 September.

October 2025

- 1, 8, 15, 22, 29 — 1900 hrs “Just Because” Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 1, 8, 15, 22, 29 — 1300 hrs “Wireless Wednesday” at Taco Samich
- 2 — 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)

- 4, 11, 18, 25 – 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 5, 12, 19, 26 – 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 5, 12, 19, 26 – 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 9 – 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 11 – 0830 hrs, TARA Club Breakfast TARA Club Breakfast at P-Dubs, 20800 Santa Lucia St, Tehachapi, CA 93561 Reserve a spot with [Valerie Mason](#) by 1 June.
- 11 – 1100 hrs, VE Amateur Radio License Exam, 538 East Tehachapi Boulevard
- 25 – 0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with [Valerie Mason](#) by June 18.
- 28 – 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.

November 2025

- 1, 8, 15, 22, 29 – 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 5, 12, 19, 26 – 1300 hrs “Wireless Wednesday” at Taco Samich
- 5, 12, 19, 26 – 1900 hrs “Just Because” Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 6 – 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 8 – 0830 hrs, TARA Club Breakfast TARA Club Breakfast at The Village Grill, 410 E Tehachapi Blvd, Tehachapi, CA. Reserve a spot with [Valerie Mason](#) by 1 November.
- 13 – 1900 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 25 – 1800 hrs, BVS Emergency Radio Team Meeting at the BVS Equestrian Center Lounge.
- 29 – 0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room. Reserve a spot with [Valerie Mason](#) by November 18.

Reference Information

Local Repeater Information				
BVS APRS Digipeater	144.390	No tone	AC6EE-3	APRS
BVS Repeater Backup Freq.	146.700 145.580	123.0 Hz Tone Simplex	W6SLZ	Open Machine
BVS Repeater	440.625	100.0 Hz Tone	W6SLZ	Open Machine (WIN System node)
Tehachapi Repeater (Cummings Mtn.)	442.925(+)	141.3 Hz tone	KI6HHU	On the KERN System
Tehachapi Repeater (Double Mtn.)	446.320(-)	151.4 Hz tone	KI6HHU	On the KERN System

Local Repeater Information				
Tehachapi Repeater	444.225(+)	100.0 Hz TONE	KG6KKV	Overlooks Bakersfield
Tehachapi Repeater	447.120(-)	67.0 Hz Tone	KR6DK	Linked to KR6DK Bilingual Repeater Network
DMR Repeater	442.675	Offset: +5.000 ColorCode: 1	K6RET	Brandmeister, Bakersfield, CA The location is in the Tehachapi Mountains near Cummings Mountain
DMR Repeater	442.225	Offset: +5.000 ColorCode: 1	K6GTA	Brandmeister, Located about halfway up Bear Mountain at about 3,200' coverage to west side of the mountain in Bear Valley Springs
Tehachapi Simplex	145.58	No Tone		Local Simplex
Tehachapi Simplex	146.54	No Tone		Local Simplex

In addition to the repeaters listed above the following repeaters, part of the Kern System, can be reached from locations throughout the Tehachapi area and much of the San Joaquin Valley. They are linked together, and more information may be found at

<http://www.KernSystem.org>

KERN System Linked Repeater				
Frazier Mountain (8,000')	447.860	141.3 Hz Tone	KK6AC	Jerry Garis
Cummings Mountain (7,800')	442.95	141.3 Hz Tone	KI6HHU	Lee Bouchard
Double Mountain (8,000')	446.320	151.4 Hz Tone	KI6HHU	Lee Bouchard

ARRG Linked Repeaters				
Cummings Mountain (7,800')	444.425	100 Hz Tone		

ATTENTION:

For those interested in monitoring dispatch for the Bear Valley Springs Police Department

- KCSO Eastern Dispatch — 460.225
- KCSO East TAC — 460.125

All dispatch for BVSPD will be handled by the Kern County Sheriff’s Department

Club & Other Websites	
TARA website	http://www.ac6ee.org
TARA Facebook	https://www.facebook.com/TARAtchapiamateurradio/
Tehachapi-hams (email list)	https://groups.io/g/tehachapi-hams/
Antelope Valley Amateur Radio Club (AVARC)	http://www.k6ox.club/index.html
Kern County-Central Valley Amateur Radio Club (KCCVARC)	http://www.w6lie.org
ARRL	http://www.arrl.org
West Kern County Amateur Radio Emergency Services (WKCARES)	http://westernkerncountyares.org/index.html

Officers & Committee Chairs			
Officer/Committee Chair	Name	Call	Email
President	Dan Mason	AB6DM	ab6dm@arrl.net
1st Vice President	Dan Mason (Interim)	AB6DM	ab6dm@arrl.net
2nd Vice President	Micah Martin	KN6VUT	kn6vut@ac6ee.org

Officers & Committee Chairs			
Officer/Committee Chair	Name	Call	Email
Treasurer	John Dyer	KM6DXY	km6dxy@ac6ee.org
Secretary	Joe Jacobson	KJ7PUL	kj7pul@ac6ee.org
Technical Director	Dick Brown	W6SLZ	db24130@sbcglobal.net
Web Page & FaceBook Committee Chair	John Dyer	KM6DXY	km6dxy@ac6ee.org
Hospitality Committee Chair	Valerie Mason	KK6WLQ	val3mason@yahoo.com
Public Affairs Committee Chair	Micah Martin	KN6VUT	kn6vut@ac6ee.org
Newsletter Editor	Stephen Lee	KN6ZGI	Kn6zgi@ac6ee.org

Meeting and Club Membership Information

The Tehachapi Amateur Radio Association meets every second Thursday of the month at 7:00 PM (except for July - no meeting). Our meeting site is the Tehachapi Police Department Conference Room, 220 W C St, Tehachapi.

- Member Annual Dues: \$25.00/year
- Individual Memberships: <https://square.link/u/Q38FHI5A>
- Additional Family Member: \$12.50/per person
- Family Memberships: <https://square.link/u/Q38FHI5A>

The QR codes below can also be used to link to your favorite transaction application.



Square / SquareUp



PayPal



venmo

Membership Application

Download a copy of our Membership Application [here](#). Please share this with any friends, family or neighbors that are either hams or may be interested in amateur radio. Applications are accepted at all club meetings, or you may mail your application along with the applicable dues to the club Post Office Box:

Tehachapi Amateur Radio Association (TARA)
P.O. Box 134
Keene, CA 93531