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Contact Us

- Via [Facebook](#)
- Via WWW.AC6EE.ORG
- U.S. Mail:
 - TARA
 - P.O. Box 134
 - Keene, CA 93531

A Word

Dan Mason, AB6DM, President

Greetings, TARA friends!

Spring is still trying to push past Winter, and I get snow every weekend! I hope either Spring or Summer takes control by Field Day.

So now we are talking about doing a tour and POTA activation of the nearby Manzanar Internment Camp sometime in May. Then in July, August, or September a trip to visit the USS Midway Radio Room, where you can get into the radio room for free if we make a coordinated visit and a radio contact with the operators on board. Some of us will be paying admission to tour the entire ship and staying overnight.

Our 2024 ARRL Field Day planning is under way. We have secured High Country Park again, two porta-potties, and a set of band pass filters. You should very soon see some signup sheets for other items.

Don't forget to check out our new 10M Tech net on Saturdays at 6 PM. If you don't have the equipment for it, contact me and I will get you into the OTH of one of our welcoming Elmers to get experience. Adam KG6QDZ visited Dave WA5GUL and had a blast operating there.

Foxhunt transmitters have been found for purchase. We hope to generate a foxhunt event this year along with an

antenna build if needed.

On Saturday, April 13th at 11:00 AM is our next VE session. It will be at the Tehachapi Salvation Army, located at 538 E Tehachapi Blvd, Tehachapi, CA 93561. Get yourself ready for an upgrade, or bring us some new blood.

We have a couple opportunities to do volunteer radio service for Tehachapi events that will likely result in a donation of around \$300 each. More to come.

EDITORS' Note:

The May edition, in anticipation of Field Day, will feature your Field Day Preparations — please describe what you plan to do for Field Day whether operating with the club, from home or out in the field your preparations may help someone else improve their operation.

Send them to w6qpa@ac6ee.org by 30 April 2024.

Portable Antennas

Camping / Hiking Antennas

Ray Gretlein — W6QPA

I've worked QRP portable, off and on, over the last 25 + years. I'm always looking for another portable, packable, light weight antenna to try. Two favorites are the [SOTABEAMS Hopper III](#) and the [QRPGuys 40 - 30 - 20 meter vertical](#).

The **SOTABEAMS Hopper III** is a "linked" dipole that I use as an inverted-vee to cover 40-30-20 meters. Their Tactical Mini pole is a 6 meter long carbon-fiber mast I use for the support. With these two items I have 3.2 pound package that fits my backpack well. With it I've worked DX in Japan as well as Portugal on 10 watts.



With the **QRPGuys Tri-Band Vertical**, I use the same SOTABEAMS Tactical Mini mast as above for the vertical support. This antenna requires radials and is base loaded with a kit-built "match" to select the desired band. This package weighs in at 3.4 lbs. My first use was on 30 meters, in 2021, running 10 watts using FT8. My first contacts over a 3 hour period included DX in



Venezuela, Asiatic Russia, Canada and a number of CONUS midwest

and east coast stations.

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?

Kenwood ATU Tune-up

Will Perry, WA6LDQ

This Kenwood TS-450S has been on the bench a few days now. It works fine, all functions and controls operate properly. The rig is sensitive and puts out a 100 watts on all bands.



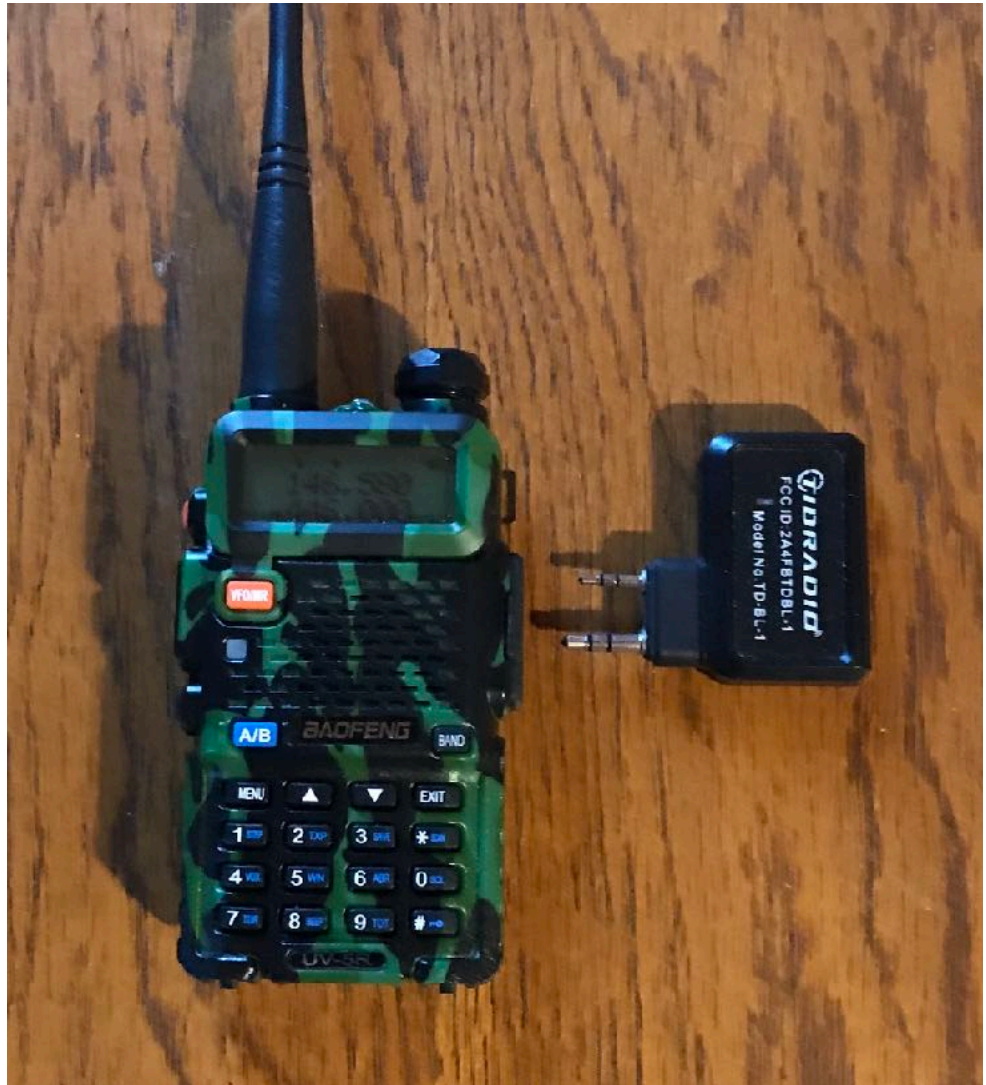
After testing it on the air I noticed the internal antenna tuner was making a screeching noise when activated. Antenna tuners in these older rigs use two small electric motors with nylon gears to tune for best SWR. After many years the motor bearings and nylon gears sometimes need lubrication. Standard oil lubricant can crack and destroy nylon gears. I used a silicone based lubricant called “Blaster” available from most auto supply stores. That did the trick and the tuner now works smoothly and quietly.

Baofeng Gadget

Will Perry, WA6LDQ

I think all of us have experienced the frustration of programming our Baofeng HT's with the keypad a few times. Thankfully, Chirp and cloning comes to our rescue and makes the job so much easier.

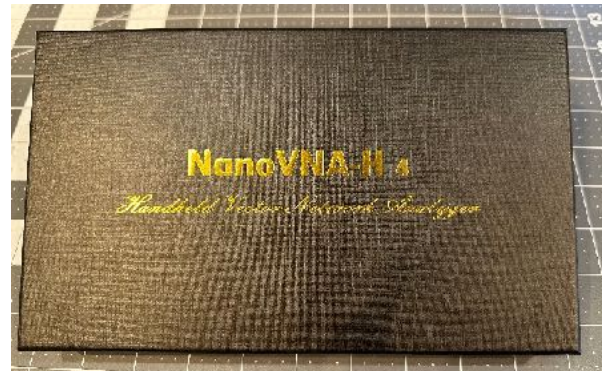
But there are times when you may want to program a repeater or make a menu change while on the go or traveling and you have no computer. For year's I've inserted a small laminated menu card in between the radio and the battery to assist me. Well, here's a small dongle that plugs into the Baofeng and allows programming via Bluetooth with your cellphone. It has an internal battery that's rechargeable with a USB cable. There's a small led that indicates power and flashes while programming. The dongle is inexpensive and available on [Aliexpress](#).



What is a NanoVNA and Where Would You Use One?

Stephen Lee, KN6ZGI

A NanoVNA is a small inexpensive Vector Network Analyzer. It is a tool like high-end Network Analyzers used in many microwave design and test labs. A VNA can be used to measure VSWR, impedance and insertion loss. It can also be used to measure phase delay and as a Time Domain Reflectometer. A TDR is typically used to measure cable length or find a damaged point in a transmission line (cable).



Lab grade network analyzers can cost thousands of dollars. A NanoVNA can be purchased for less than \$100. I purchased mine for \$86 last summer on Amazon. It is an [AURSINC NanoVNA-H4 V4.3](#) with a frequency range of 10KHz – 1.5GHz. An inexpensive and versatile tool for any amateur radio operator.



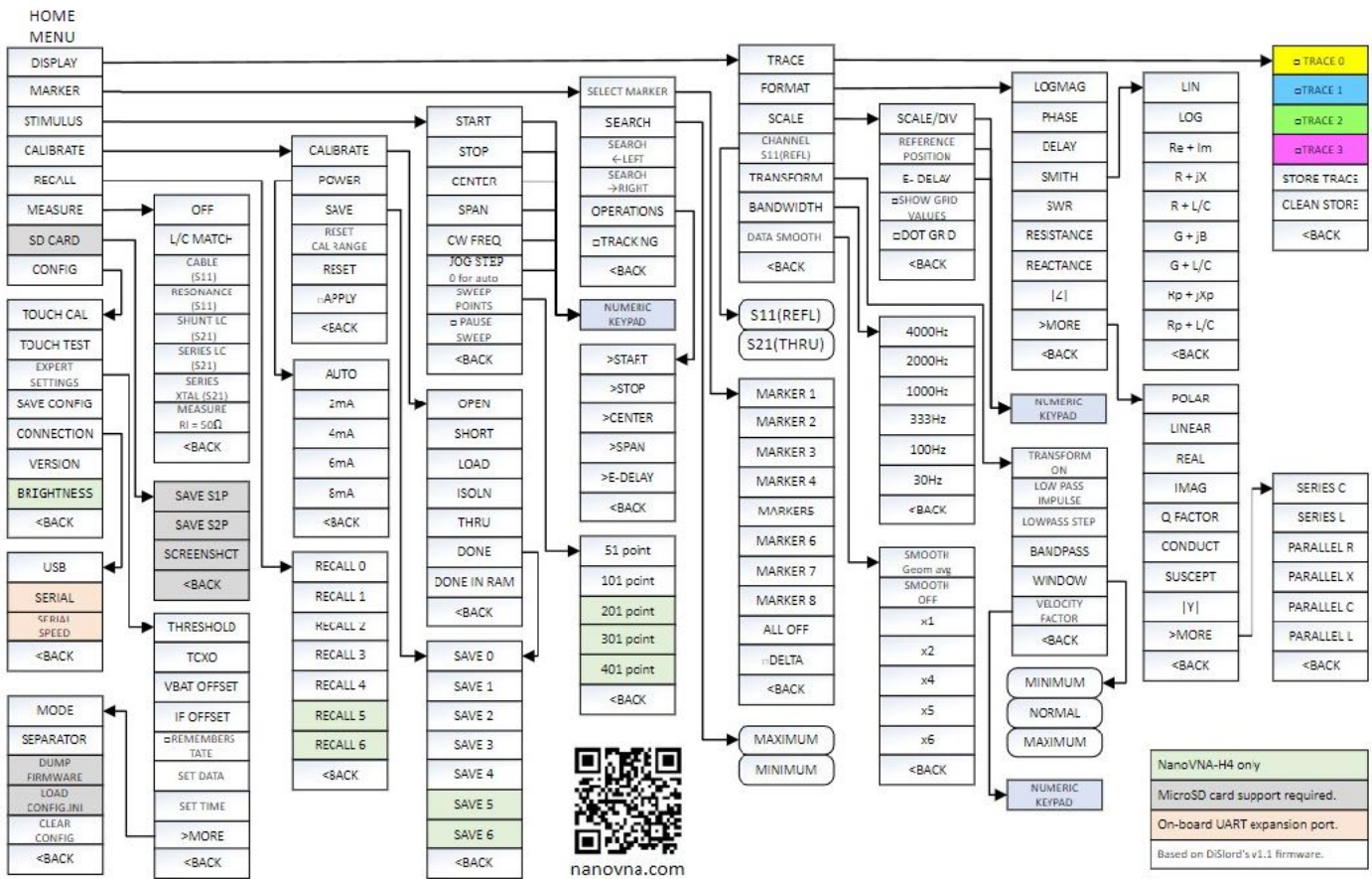
This unit comes with the calibration standards shown on the left side of the photo. A Short, Open and 50 ohm load. It also includes an SMA Female barrel, two SMA test cables, charging cable, computer cable, stylus for the screen selections and a hand strap.

You install a microSD memory card in the slot on the top edge to record your calibrations and data. Data files can be stored in several formats. Screen captures are saved as bmp files. These can be loaded and viewed on a computer later. The analyzer can be operated stand alone or connected to a computer using a program called NanoVNA Saver. I have not used it with a computer yet, because I can get almost all the data I need in stand alone mode.

The analyzer has two ports. Port 1 or S11 is used for reflection (SWR) and transmission measurements. Port 2 or S21 is used for transmission measurements (cable loss).

Below is the menu map for the analyzer.

NanoVNA Menu Structure Map

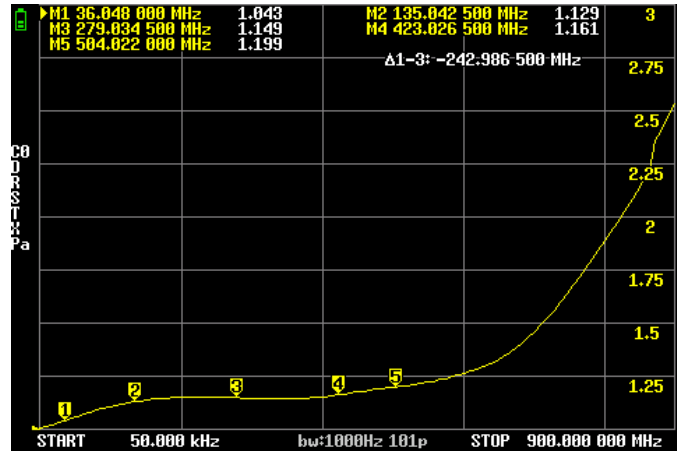


Here are the steps to make an VSWR Measurement:

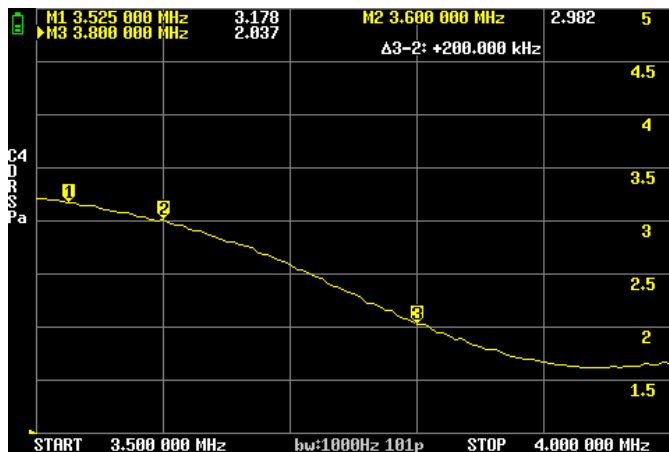
1. Select one Trace. Up to four are available.
2. Select the Channel S11 (REFL) and Format, SWR. Set the Scale/Div as needed.
3. On the STIMULUS tab set the Start and Stop frequency range.
4. On the CALIBRATE tab set select CALIBRATE.
5. Install the Open standard on Port 1 and select the OPEN tab to scan the Open standard.
6. Install the Short standard on Port 1 and select the Short tab to scan the Short standard.
7. Install the 50 Ohm load standard on Port 1 and select the Load Tab to scan the Load standard. Then select the DONE Tab. Then Save the calibration.

8. Now remove the Load standard and connect the device you want to test. It could be your new antenna you just installed or your new portable antenna you built for Field Day and POTA. You can set up to 8 markers on the trace. Each marker reports the frequency and measured value.
- 9.

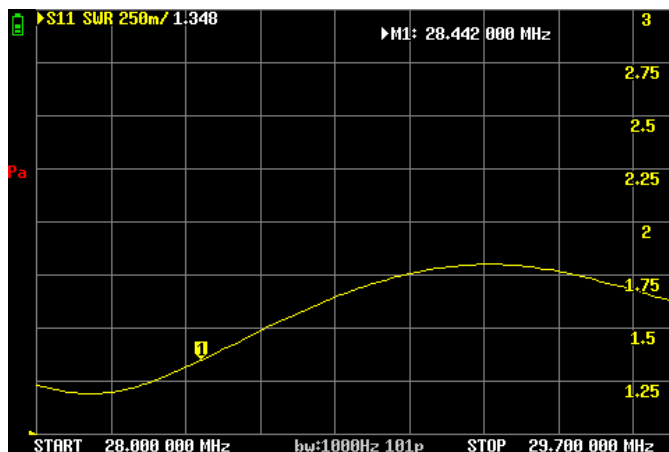
This is the measurement I made of my Dummy Load while I was writing this. It is rated 1.15:1 DC-500 MHz . Marker M5 reads 1.119 @ 504.022 MHz . This measurement indicates it slightly out of spec at frequencies above 400MHz but that is probably within the acceptable measurement error of this inexpensive analyzer.



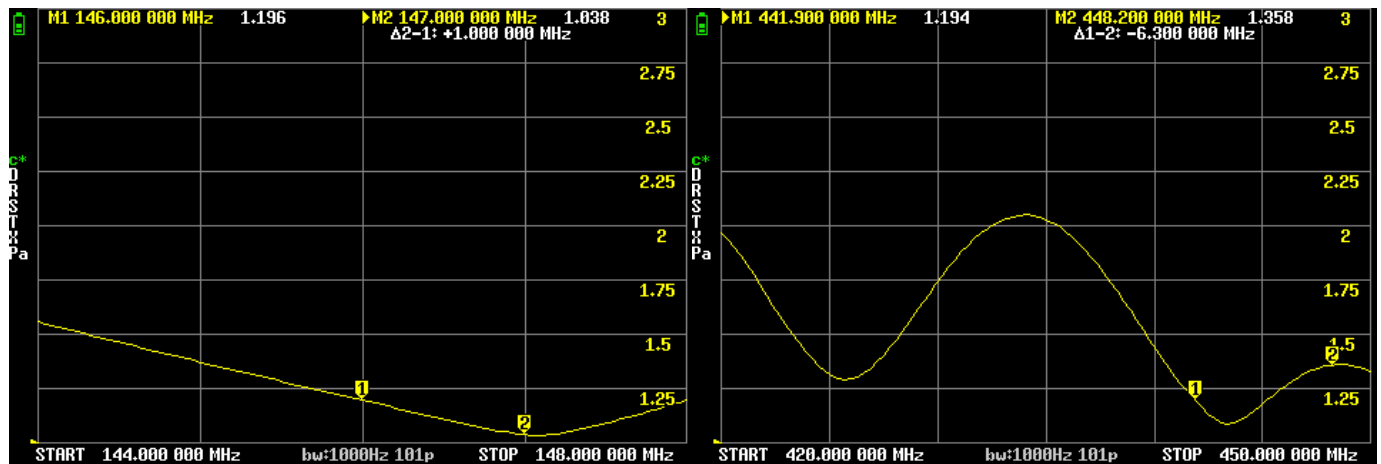
I ran some scans on some of my current antennas.



Here is the EFLW antenna and Balun I fabricated. The first scan is 80M the second is 10M.



These are scans of my mobile antenna mag mounted on my truck for 2M and 70CM bands. I recently moved it to a more permanent mount at the rear of the bed. It will be interesting to see if the VSWR changed significantly.



This small analyzer has a huge range of capabilities. It can be used to tune an antenna in the field or during fabrication. Make a quick check on your cables to confirm they are still in good condition. Check the band pass on a filter. Locate a fault on a buried cable or on a tower. This is one of the more versatile tools for testing RF components in the amateur radio bands.

There is a vast array of YouTube resources available on measurements using the NanoVNA. Here are some links to additional resources:

- <https://nanovna.com/>
- <https://github.com/NanoVNA-Saver/nanovna-saver/releases>
- <https://groups.io/g/nanovna-users>

I hope this information helps you get to know the NanoVNA and it's uses. 73...

The Operating Room

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

My Journey into HF

Micah Martin, KN6VUT

I received my first HF rig for Christmas, and have been slowly learning HF. I received a '(tr)uSDX' QRP 5 watt multi-band rig.



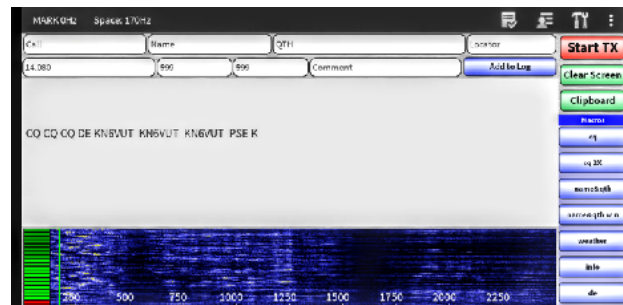
This rig works off of a USB cable for 2.5 watts, or 12v for the full 5 watts.

This rig has a C.W. decoder, and several slots to program pre-written C.W. messages. It also plugs into a computer USB port to run software for data modes such as FT8, RTTY, etc.

I have a plug that connects the rig from the rig's USB plug to my Android phone's USB plug.

This USB cable allows me to run apps from my phone directly to the QRP radio out in the field.

Running the ham apps from my phone rather than a computer lets running the radio in data modes much easier as the phone is small, portable and needs a lot less battery power.

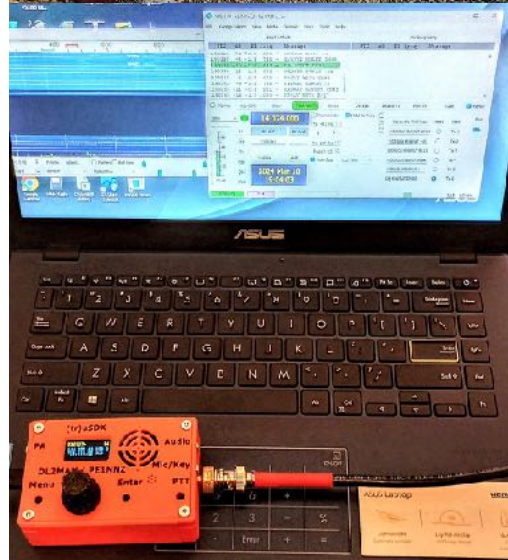
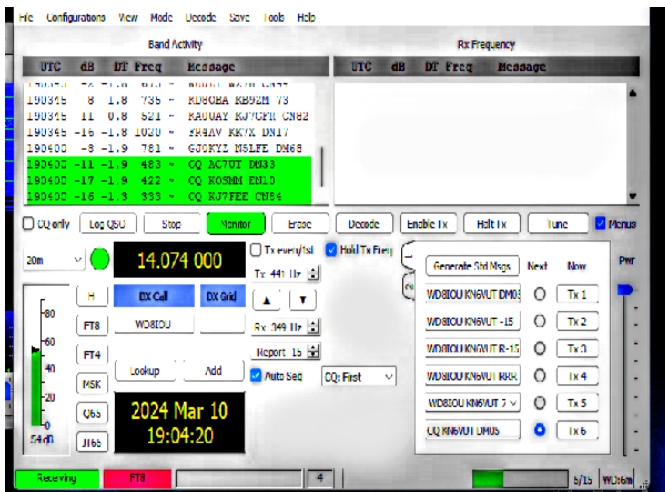


Ray W6QPA, loaned me a portable vertical antenna which I installed in my backyard. I stealthily installed it next to a line tree so the HOA won't notice it.

I've been fascinated by what my little QRP radio has been able to pick up.

I've been able to listen on phone to Hawaii, Canada, and the East Coast, sometimes loud and clear. Unfortunately, I haven't been able to make a contact.

I've been trying FT8 and seeing a lot of distant exchanges, but, again, I haven't made a contact on FT8 yet.



I've been working on the 20 meter band, usually in the afternoon, but mainly in the evening.

I'm slowly learning the 'art' of HF, picking up the voices as they fade in and out, fine tuning sideband until I get the best signal.

I believe I've been spoiled by the line of site, signal of 2m and 70cm. With 2m and 70cm the signal is pretty much, either there, or it isn't.

I'm learning HF fades in and out, and you have to tune, and listen to pick out what the person is saying, sometimes missing every few words as the signal fades in and out.

It's an addictive hobby that keeps pulling me in!

Field Day Operating Event

Ray Gretlein, W6QPA

We are making progress in our Field Day preparations for the club. Field Day is the fourth weekend of June - the 22 -23 this year. We will be operating again from the High Country Park in Bear alley Springs. Dave Walter, WA5GUL and I are helping Dan coordinate the volunteers this year. Speaking of Volunteers, you will be receiving an email in the next few days outlining what items and activities make up our field day effort and showing gaps where we can use your help. Please give serious thought to participating in this event and volunteer to take on a role or provide items needed to make our field day a success.

TidBits

A collection of miscellaneous mostly amateur radio related items.

Early Amateur Radio Equipment

David Walter - WA5GUL

Early Ham Radio Equipment: Pre 1914

The early ham radio equipment used prior to 1914 included spark gap transmitters, coherers, crystal sets and the like.

The very early ham radio equipment was very different to that which is used today.

The technologies that were used for the early ham radio equipment included spark gap transmitters, coherers, magnetic detectors and antennas that were very different to those used today.

Early ham radio transmitters

The transmitters used by these early radio amateurs were almost invariably spark gap transmitters.



Spark gap from high power transmitter dating from early 1900s.

The most common way of generating the high voltage required was to use an induction coil and a mechanism which broke the circuit periodically. Car ignition systems of the day were often put to good use to accomplish this as the components could be bought relatively easily. The high voltage from the coil was then connected across the spark gap. Typically a spark gap could be two brass spheres placed about half an inch apart. One of the major problems found when using spark gaps was the large amount of audible noise they generated. As a result many amateurs enclosed their spark gaps to reduce

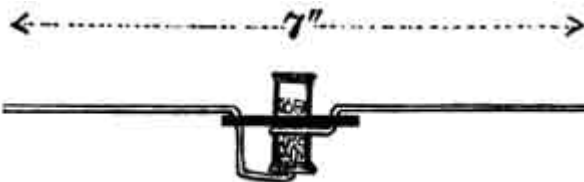
this.

With the spark generated the output was connected to the tuned circuit so that all the energy could be concentrated around a particular wavelength. In turn this was then connected to the aerial. Often the connection was made directly with no series capacitance in circuit with the result that the high voltage from the induction coil would appear directly on the aerial. Accordingly aerials had to be very well insulated and care had to be taken not to touch them.

The tuned circuits in the transmitters were grand affairs. The coils were often ten or more inches in diameter and often wound on beautifully finished formers. Tuning was again accomplished using taps on the coils but sometimes variable condensers were employed. In view of the high voltages which were used these condensers were large. They often employed meshed plates which could be moved in and out to vary the capacitance.

Early ham radio receivers

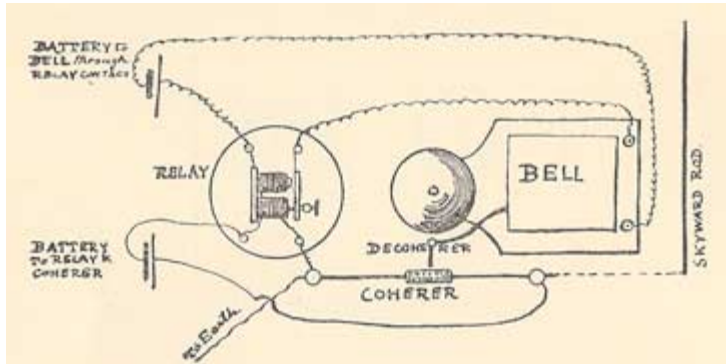
Since the introduction of the first licences there had been a number of major improvements in the technology which was used. Originally coherers were the only form of detector, but then in 1904 Ambrose Fleming invented the diode.



Constructional details of an early coherer from around 1900

This was followed around 1906 in America by de Forest who invented the triode. However the most important advance for the amateur experimenter was the crystal detector. As valves were very expensive it gave a cheap and

efficient method of detecting signals. A number of different types of these detectors were used. Early types used two crystals, but these gave way to more sensitive single crystal point contact detectors which were given the name "Cat's Whiskers".



Tuning in a receiver was generally accomplished using a variable inductor. Although capacitors (or condensers as they were called) could be used they were more difficult to make in a variable form.

Circuit of a coherer radio receiver

Early ham radio antennas

In the early days of amateur radio and wire-less technology in general, many factors were very new and there was little understanding about the ways in which some items worked. Antennas, or as they were often called, aerials were no exception.

Often they were developed by trial and error. As the frequencies were low, they were often quite large.

Often antennas consisted of as much wire raised as high as possible. Others followed more standard designs.

One design which gained popularity was called a "flat top" as it had a multi wire top. Another popular design consisted of a cage of about six wires separated by a hoop at each end.

Typical home made Morse key

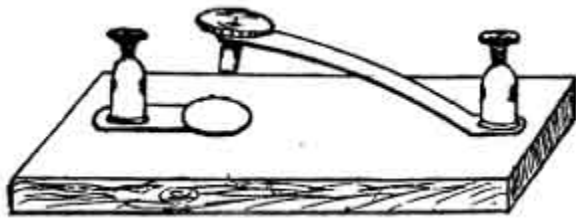
In these very early days of amateur radio it was not possible to buy ready built parts. Everything had to be made from scratch.

One example of this was a 'Morse tapping key' that was described in a book from the turn of the century called 'Wireless Telegraphy and Hertzian Waves' by S R Bottone.

This early item of amateur radio equipment was said to be "very convenient for the purpose of signalling and if the Morse system is used, it is more handy than a commutator."

"To make the instrument," Bottone described, "the following simple plan may be adopted. A piece of mahogany about 6 inches long, 3 inches wide and half an inch thick is selected and after having been squared and smoothed up is fitted with a drawing pin at the centre of the narrower edge. This drawing pin is put into connection with a terminal by means of a brass strap about half an inch wide and about 1/32 inch thick. At the other extremity of the board a hole is drilled for a second terminal, under the shoulder of which passes a rather stiff spring

(a piece of crinoline steel about half an inch wide will do very well), of such a length to reach and cover, when pressed down, the head of the drawing pin."



Design details for an early Morse key or as it was called a 'tapping key' from 1900.

"A hole must be drilled at this extremity of the spring, exactly over the head of the drawing pin, and in this hole must be fitted a stout piece of brass rod, which can be sweated or screwed into

the hole in the spring, and furnished above with a neat little knob of ebonite or boxwood."

Bottomone goes on to describe how best to use the key with a transmitter.

Humorous

David Walter - WA5GUL



BLACKCURRANT



RED CURRANT



DIRECT CURRANT



ALTERNATING CURRANT

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>

May 2024

- No ARRL Contests

June 2024

- 1-2 [International Digital Contest](#)
- 8-10 [June VHF](#)
- 15 [Kids Day](#)
- 22-23 [Field Day](#)

July 2024

- 13-14 [IARU HF World Championship](#)
-

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.

May 2024

- 4, 11, 18, 25 — 1800 hrs PDT ,10 Meter Technician Net every Saturday on 28.350 MHz
- 5, 12, 19, 26 — 1900 hrs PDT, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 1, 8, 15, 22, 29 – 1900 hrs PDT “Just Because” Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 2 – 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 9 – 1900 hrs, TARA Club Meeting, Tehachapi Police Department Conference Room, 220 W C St, Tehachapi.
- 11 — 0830 hrs, TARA Club Breakfast at Kelcy’s Restaurant, 110 W Tehachapi Blvd, Tehachapi, CA Reserve a spot with [Valerie Mason](#) by 4 May

- 10 — 11:00 hrs, VE Amateur Radio License Testing, 538 East Tehachapi Boulevard
- 20 — 12:00 Tehachapi Chamber of Commerce Luncheon
- 25 — 0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room...
Reserve a spot with [Valerie Mason](#) by 11 May.

June 2024

- 1, 8, 15, 22, 29 — 1800 hrs, 10 Meter Technician Net every Saturday on 28.350 MHz
- 2, 9, 16, 23, 30 — 1900 hrs, TARA Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 2, 9, 16, 23, 30 — 1930 hrs, BVS ERT Net (ARES) (W6SLZ VHF rpt, 146.70 - / 123.0)
- 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 at P-Dubs, 20800 Santa Lucia St, Tehachapi, CA 93561 Reserve a spot with [Valerie Mason](#) by 1 June.
- 13 – 1800 hrs, TARA Club Meeting Tehachapi Police Department, 220 W C St, Tehachapi
- 29 — 0800 hrs, BVS Emergency Radio Team Breakfast at BVS Mulligan Room.
Reserve a spot with [Valerie Mason](#) by 15 June.

July 2024

- 3, 10, 17, 24, 31 – 1900 hrs “Just Because” Net (W6SLZ VHF rpt, 146.70 - / 123.0)
- 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)
- 4 – 1900 hrs, TARA Board Meeting, Via Zoom (invite via email)
- 11 – 1900 hrs, TARA Club Meeting, Tehachapi Police Department Conference Room, 220 W C St, Tehachapi.
- 13 — 0830 hrs PDT, TARA Club Breakfast at Kelcy’s Restaurant, 110 W Tehachapi Blvd, Tehachapi, CA Reserve a spot with [Valerie Mason](#) by 6 July
- 16 — 12:00 PDT Tehachapi Chamber of Commerce Luncheon
- 27 — 0800 hrs PDT, BVS Emergency Radio Team Breakfast at BVS Mulligan Room...
Reserve a spot with [Valerie Mason](#) by 13 July

Reference Information

Local Repeater Information				
BVS APRS Digipeater	144.390	No tone	AC6EE-3	APRS

Local Repeater Information				
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
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 Repeaters				
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/TARatehachapiamateurradio/
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	Ray Gretlein	W6QPA	w6qpa@ac6ee.org
Secretary/Treasurer	John Dyer	KM6DXY	km6dxy@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	KK6WLO	val3mason@yahoo.com
Public Affairs Committee Chair	Micah Martin	KN6VUT	kn6vut@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 meetings are on Zoom and in-person, our meeting site is now the Tehachapi Police Department Conference Room, 220 W C St, Tehachapi.

Member Annual Dues: \$25.00/year

Additional Family Member: \$12.50/per person

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