



Just for the Helena of It Run

Neither rain, nor sleet, nor snow can keep CCARC hams from manning their race stations and monitoring the racers. But then it only rained during the last hour of the event on the morning of October 19. And, of course, the real heroes were the runners who kept going through it all.

The race committee sends their thanks and hugs! below.



Dearest Hams,

We had a wonderfully successful year and want to take a moment to personally thank you for your friendship and for the many hours of volunteer communications to make this event (and others!) safely happen. You all are deeply appreciated.

We are looking forward to our 5th year and continuing to work together.

Special thanks to Al WA1TYB.
Big Hugs, Jo Lee Hawkins

To Our Volunteers and Community

From Kathleen Koford for the committee

Now that the dust has settled, we want to say a heartfelt THANK YOU to all the volunteers who helped make the 2025 Just for the Helena of It race the success that it was. With your help, this event raised over \$38,000! More than \$34,000 will be donated to The Friendship Center, and over \$4000 will be donated to Girls Thrive. We could not do this without your help, support, and generosity. You guys make it happen. We are humbled each year by this community's continued support. Thank you for choosing us, for supporting our event, and for being the incredible people that you are. We hope you had a great time on Sunday, and we hope you will choose to volunteer with us again next year. Mark your calendars, Just for the Helena of It 2026 will be Oct.18th. Hopefully with less rain! Thank you again for your time, heart, and commitment to making Helena an incredible place to live.



Station 4: Bill N7MSI and Marla KM7LIB

Beers, Baluns, BBQ

By Stacy Webb KK7CJV

(Our sister club, Gallatin Valley Radio Club, held a very successful workshop and barbecue on October 25. Several CCARC members attended.)

Stacy says: Thank you to all who came and made the event a success! Eric KE7NLU began with a short spiel on baluns and their use in the ham shack, then the antenna-builders got to work. The end-fed was the most popular build while a couple built the off-center fed and a dipole cut for 20 meters. There was an even split of CCARC and GHRC antenna builders. Several others swung by to chat over a beverage or brat. While Dan KK7OTC chatted with the others, his son and foreign exchange student took in the sights of the antenna farm and dabbled with the CW key and trainer by SparkGap labs. They had a blast. It warmed my heart to see a couple of newbies (high schoolers) and the well-seasoned in the hobby come together to learn and build. It displayed great hope for the future of the hobby.



About That...

I went to the Baluns, Beers, and BBQ event at Eric and Stacy's place in Bozeman. There were a few other CCARC members there as well. I didn't go with my reporter's hat on, so I'll just say that a lot of baluns and antennas were built and tested. We all seemed to have a very grand time! Eric made the most delicious broccoli salad side dish, too. My advice to anyone reading this: plan to attend any other events Eric and Stacy put on. You won't be sorry!

~John Dorr K5LBP

I went to Beer, Baluns, and BBQ this weekend and got some photos of the off-center fed antenna I made. I attached them below.

~Andrew Mazanec KM7CBP



The Remote-Control Rock Crawler That Became Three Hobbies!

By Devin Felix KM7AXU

It all began one day when my good buddy Nate was out of state visiting family and sent me a text “a friend of mine is selling this RC car for \$100, do you want it?” I knew that remote control anything would certainly be a deep rabbit hole for me, so I had always sort of avoided it. Against my better judgment, I told him yes, and he came back to town with it. The next time we met, he handed me the car and suggested I do some welding for him instead of the money. In my eyes that basically made it free, so I accepted.

In the coming weeks we ventured out to a few local spots like Scratch Gravel Hills or just any spot with big rocks to drive our tiny cars all over. I had my \$100 jeep, and he had his fully custom four-wheel rear steer crawler he had built. It didn't take very long for me to NEED to build one for myself. Many weeks and parts later I had 4 different custom-built rigs of varying sizes and I was fully consumed. Turns out my favorite part is actually building. Unfortunately, that's the part that my wallet completely hates.

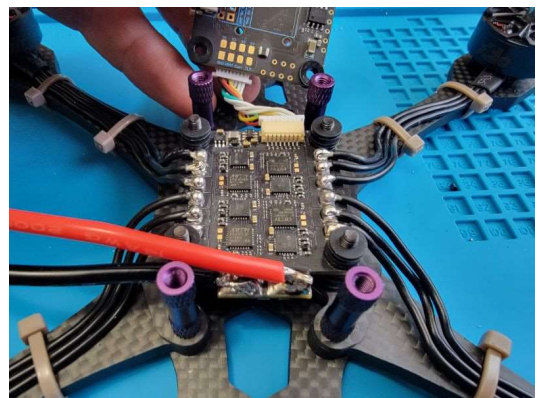


Soon after I was browsing around YouTube and found a few videos on building drones. Not your average DJI Spark “tripod with wings” types but fully custom and completely manual flight drones known as FPV, or first-person view. These are flown by using a set of goggles that allows the pilot to operate the aircraft as if they're sitting in it.

This is where I really started to learn about the world of radio waves and how they influence so much of the world around us today.

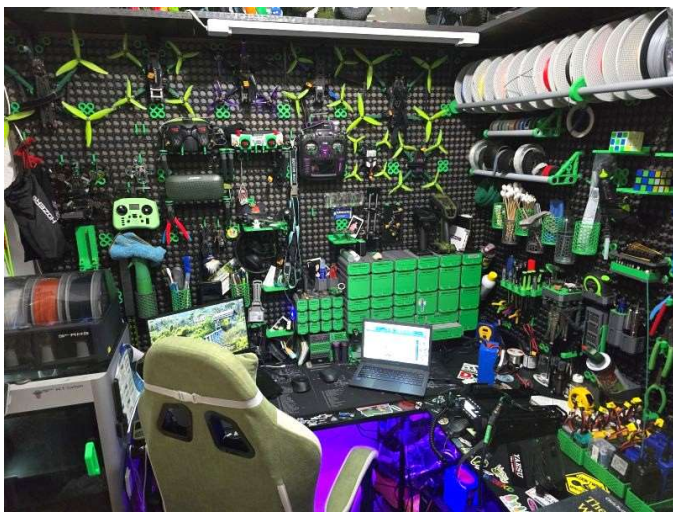


I was completely hooked. For an FPV drone to work, two radio links are required. One for control, and the other for video feed. Just as with ham radio there are many different antenna types for different situations. My goggles, for example, use four antennas each. How these are set up is entirely up to the individual pilot. On my two sets I have two circularly polarized omni-directional antennas on top and two patch antennas on the front for more directional reception. The challenge with patches is knowing where your craft is so that you can point your face at it.



I soon discovered that many video transmitters do not come with the FCC part 15 certification required for legal use, thus my initial need for a ham license. On top of that, even my main choice for a video transmission unit would require a license if I wanted to use anything other than the factory antennas it came with.

With this knowledge in mind, I began to study for my exam. Ham radio is another one of those rabbit holes I knew I would love but sort of avoided for a long time. Well, now I actually had a need for it, and there was no more avoiding the inevitable. Of course, I couldn't just get my technician and stop at the bottom. I wanted to have fun with it! Little did I know exactly how much fun I was going to have with it. The ham community in Helena is extremely friendly, and I've already met so many wonderful people. From picnics and volunteering at races to POTA contacts made on my way to Belgrade for yet another antenna building workshop, I am having an absolute blast and completely hooked. So much so that I've almost completely switched hobbies.



I still love flying and rock crawling, and I have even picked up 3D printing and meshtastic. But the real learning and adventure is in radio and I'm definitely here to stay.

I decided to string some coax out the back door of my apartment to a 17' vertical in the yard while I think through and type this all up. I've managed to make over 70 contacts on FT8 from Japan and

Hawaii to Russia, Virgin Islands, and even some in Canada. It honestly blows me away that I can throw a little energy out of a tiny metal stick in the ground with a battery on my desk and that can end up on the other side of the world almost instantly. Then another signal comes back to me saying they heard it.

This is too much fun! I always love telling Nate that this is all his fault. If he hadn't given me that car, I never would've discovered amateur radio. A few of my friends and family call me a nerd. To which I always reply, "It's a badge I proudly wear with honor."

A Way Back Machine

By John Dorr K5LBP

My dad's mobile rig dates back to the 1950s and 1960s. His call sign is now my vanity call sign.



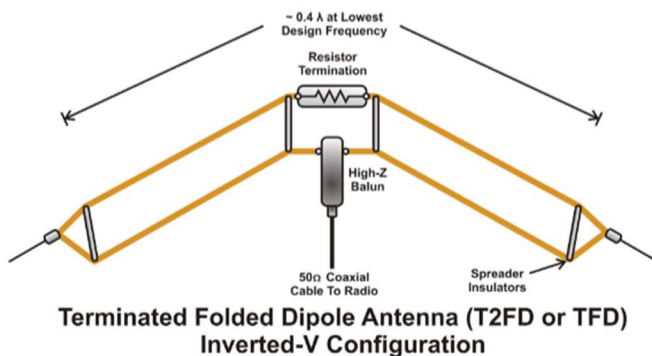
“Big Blue” Broadband Folded Dipole

By Matt Carlson AA7VG

After nearly 12 years of service, my Radiowavz FTD90 antenna finally failed. I like to work FT8 at home. FT8 runs at 50% duty cycle with a full carrier. I suspect that I may have burned out my antenna by working it with too much power. I decided to take advantage of the nice October weather to build a new version rated for higher power and to add 160m and 6m to my capabilities.

Broad Band Terminated Dipoles (BBTD), Tilted Terminated Folded Dipoles (T2FD) and Balanced Termination Folded Dipole (BTFD) antennas can be designed to cover a large range of frequencies between 1.8 and 30 MHz. Longer length antennas generally provide better low frequency efficiency but take up a larger footprint of land. Your mileage may vary using this antenna, but as a general coverage antenna for ham and shortwave broadcast, the simplicity can't be beat even though an individual dipole on a specific band may outperform this broad band dipole.

Background history of the name T2FD Antenna: prior to 1949, the term TFD or TTFD originally stood for Tilted Folded Dipole, Terminated Folded Dipole, Terminated Tilted Folded Dipole, or Tilted Terminated Folded Dipole. See 1949 article snippet below. By 1950 or 1951 it was widely known in commercial, military, and amateur radio. The TTFD term was converted to T2FD (T-squared FD) and then T2FD.



Features and Specifications:

- Covers 160-6m
- Good for tight spaces
- Can vary wire length to fit your available space
- Low SWR across all frequencies
- Good for ALE
- Good for NVIS on higher bands
- Low noise properties (good for areas with higher noise floors)
- Handles up to 600 w SSB, 300 w FT8 (50% Duty Cycle)



Details of the construction:

Every part of the antenna system has been painted blue. The paint protects the fiberglass pole from UV exposure and reduces the visual impact of the system from the street. This color helps to blend everything into the background of open sky.

The 16:1 Balun is mounted to the mast pole with a HDPE plate. The plate is mounted directly to the pole with studded mounting clamps. There is a small coax clamp at the base of the balun to provide strain relief on the coax cable. I used 14awg stranded copper wire with a blue color with rope hardware kits from DX Engineering to create a strong, yet removable, attachment point for the antenna wire. The weight is supported by

the carabiner, while there is very little strain on the spade connector at the end. This will allow me to quickly change antenna wire if necessary.

The feed point of the folded dipole is 40 feet above the ground. The ends of the antenna slope downward in an Inverted V configuration. The outside endpoints are on 20-foot masts.



Overall, I'm pleased with the final product. It's not the most efficient transmitter, but it's fantastic for listening. SWR levels across all the HF bands are 3:1 or better. With a desktop tuner, you can work every band without adjusting the antenna.



Also pictured:

- Diamond X50 Dual band base antenna at the top of the mast (45ft above the ground).
- Alpha Antenna HF J-pole Jr. This is an end-fed/Zepp hybrid which is 35ft long. I use it as a backup antenna.

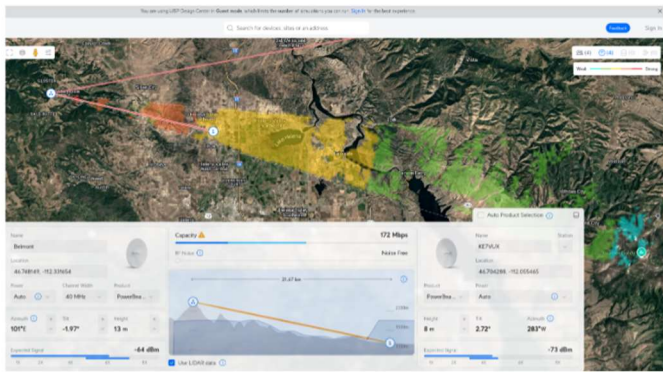
Bringing the Internet to Belmont

By Tom Mander KE7VUX

I believe it was Eric KE7NLU that inquired about getting Internet to Belmont that got me started on this path again. As a club, we've had this conversation off and on over the years, but never took it anywhere. This time, I took a deeper look. I started with SPLAT! to look at RF path coverages at 2.4 and 5.8ghz from Belmont. I pulled this into Google Earth to get an idea.



I then discovered Ubiquiti has their own path planning tool at ispdesign.ui.com. I used their tool to confirm what SPLAT! was telling me. It was also easier to make real time adjustments to parameters. I did discover that when I moved the "Belmont" spot from the peak to our actual tower location, I needed a little more elevation to overcome the crown of the mountain top. I experimented with the height of the antenna to see what would work and what wouldn't and settled on around 50' of elevation. I also experimented with different antenna systems and ultimately went with a slight overkill, with hopes of increasing success.



Ubiquiti PowerBeam 5AC Gen2 units were selected. These feature a 420mm dish, with 25dbi of gain procured at ~\$85 each, one for Belmont, one for me.

At my QTH, I added a small “TV antenna” bracket to my workshop, at the bottom of the roof peak to avoid unwanted reflections from the steel roof and to position it under my 80/160 dipole, pointing towards Belmont. I was able to use my spotting scope to site the towers on top of Belmont and point it roughly in the right direction. I was pleasantly surprised when I did a “scan” and found I was seeing the “SkiGD” wifi network from Great Divide.

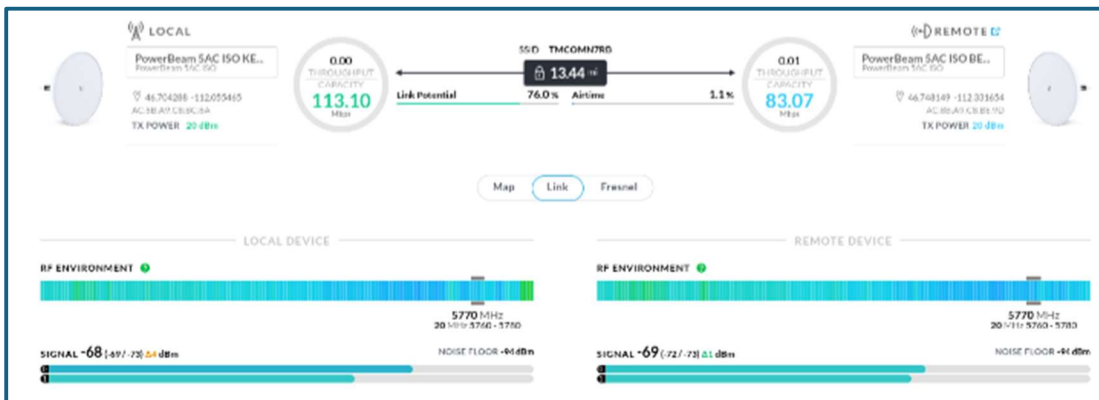
Bill N7MSI climbed the tower and installed the Belmont end, at around 50'. After adding a little down-tilt we started to get a signal from my house. Bill then adjusted the antenna a bit to peak the signal. A few days later, I did the same on my end. After adjusting the frequency a bit, we landed at:

Using a 20Mhz bandwidth for around 100Mbit of capacity – far and above what we needed. With the dish on the tower, the outdoor rated Cat8 wire terminates at a Ubiquiti lightning arrestor mounted on the tower, then another run of outdoor shielded Cat8 goes into the repeater shack and then down into the second cabinet. This terminates at a small Linksys EA6350 Wi-Fi router running OpenWRT. We now have an N7RB and N7RB5 Wi-Fi network inside the shack – one on 2.4Ghz, the other on 5.8Ghz – for local access to the network. When the door is closed, it doesn’t reach very far outside.

Ethernet network cables go from the EA6350 over to the switch supplied by KE7NLU that then drives the UPC switchable power device, the ethernet switch, and the laptop Eric left behind that has the repeater programming software installed and the programming cables connected.

The EA6350 runs OpenVPN. Tunnels from my QTH over the network connection up to Belmont allow authorized users to VPN to the network on Belmont and access the Laptop, or the power switch, or whatever else we might install.

There is an ONVIF camera installed near the door, but it was found to be emitting too much RFI. After adding toroids to reduce the RFI, it provides the novelty of looking at the snow conditions on top of Belmont as well as something to use to verify the VPN is working. Stacy KK7CJV added some



markings on the tower legs to help us visually identify the depth of snow.

New Club Members

By John Geach KS7R

Here are the three new amateurs who passed their exams last week and I presented them with a 1-year free membership to the club.

- Tom Engle Helena
t2engle@gmail.com
- Crispin Marsh Boulder
cskuzym@gmail.com
- Wayne Radochonski Three Forks
bighornbourbon@gmail.com

Unfortunately, they will need the government shutdown to end before they can get their callsigns.



Hello, All Montana DMR Users,

Recently, Paul W7PG and Jack KG0AL from Miles City installed a DMR UHF Repeater on Signal Butte just East of Miles City. It looks like it will cover Miles City and also up and down I-94.

For mobiles and portables, you will program your devices with 444.025 receive and 449.025 transmit with Color Code 1. You can find the info

also on the dmr-montana.net website. Talk Groups and Time Slots are listed on the website.

For a large state and very little population, the DMR systems are well covered in most of the State and linked to the BrandMeister Network.

Welcome to the DMR Network in Miles City!

Tom Gasta
PO Box 63
40 Westover Gulch Road
Jefferson City, Montana 59638
406-459-3625
<http://www.wr7hln.org>

Always Experimenting

By Ray Zinn K7ZIN

The radio is a WSPR radio putting out 200 [milliwatts](http://www.wspr.org). It is a digital signal, no voice, similar to FT 8, monitoring propagation 24/7 on all ham frequencies. It works well and is fun to monitor, also good for testing antennas. Twenty meters is by far the most popular frequency and seems to work around the clock. Forty meters seems to be a more localized frequency working west of Montana, while 10 meters has the longest distance.



Hams and Hobbies

Amateur radio enthusiasts are typically multitasked and participate or lead in other hobbies.

Examples:

- The BMW Motorcycle Club, mtbmriders.org
Bill Erhardt K7MT

- Capital City Classic Auto Club,
Front page below
Contact Darrell Beckstrom,
mtbeckstrom@gmail.com

- Rocky Mountain Land Rovers
<https://www.instagram.com/rockymountainlandrovers/> Jay KG7SYX or Daysee Swant K17CNG

- Last Chance Square Dancers
www.helenalastchancesquares.com
Bob Thola N9IB and Annie Bailey,
anniebailey825@yahoo.com



Keith Platts KM7AEM won a drawing for an HF rig recently. The radio was donated and updated by Bill N7MSI.

Capital City Amateur
Radio Club
Helena, Montana



Capital City Classic Auto Club

DEDICATED TO THE PRESERVATION OF ANTIQUE AND COLLECTIBLE MOTOR VEHICLES

Helena Chapter of the Montana Pioneer & Classic Auto Club, Inc.

Officers for 2025

President/Times Reporter:
Paul Christofferson
Vice President: Don Wood
Treasurer: Sharon Black
Secretary: Jerry Burrows
Newsletter Editor:
Darrell Beckstrom



November 2025
www.montanapioneerandclassicautoclub.org



2025 Upcoming Events

Every Friday starting in November at 9AM, we will have a get together at Super One Foods, until further notice Coffee is \$1.00 with free refills..

November 9th, 12:30 - November meeting at Montana City Grill.

May 1-2, Crusin the Drag in Great Falls

July 24-25--The Red Lodge Car Show

July 26--Flint Creek Valley Days Car Show



About this Plate
Contact the Vehicle Services Bureau, not your County Treasurer.

Vintage plates, authorized by § 61-3-411, MCA of the Montana Code Annotated, are available for vehicles that are: More than 30 years old, used solely as collectors' items, NOT for general transportation.

Administrative Cost: One-time; \$5 for vehicles weighing 2,850 pounds or less, \$10 for vehicles weighing more.
Production Cost: \$12

Editor: Marla Unruh KM7LIB
Editing and proofing: Kathe N1NYT & Al Simons WA1TYB.
Writers: CCARC members
Club website: n7rb.org
[CCARC Shack Tour](http://CCARCShackTour) - website with member profiles

JOIN US!

Membership \$25 per year. Contact Al Simons for application info.
al@simonshome.org

Winner!