

"THE REPEATER"



Choosing the Right Coax: A Practical Guide for Amateur Radio Operators

PRODUCT REVIEW CORNER

ALLSCAN UC120



THE ELMERS INSIDER

APARTMENT & HOA ANTENNAS

SALEM HAM FAIR 2026

SALEM HAM FAIR BUYERS GUIDE

LEARN HOW TO SHOP & HUNT FOR GOOD DEALS

GET LOOPY with W7EAZ

"GOING LOOPY" WITH LOOP ANTENNAS

S.A.R.G. UPDATES

WHAT'S THE INFO "SARG"



2026 SALEM HAMFAIR MADNESS !!

EVENTS and DATES

SALEM HAM FAIR 2026

February 21st
9a.m.-3p.m.

Polk County Fairgrounds
Tickets sold at the door \$10
Children under 12 free with a
purchased Adult ticket
Free Parking

SARG Board Meeting

Sunday February 22nd

Details on how to join
the meeting will be
posted on WA7ABU
Group.io page.

Upcoming Contest

Feb 22nd ARRL DX CW
Feb 28th S Carolina QSO Party
Mar 1st N Carolina QSO Party
Mar 8th ARRL DX SSB
Mar 15th Oklahoma QSO Party
Mar 15th Idaho QSO Party
Mar 22nd Virginia QSO Party
Apr 19th Ontario QSO Party

WORLD RADIO

LEAUGE

Best Logging
App on iPhone,
Android, and
Web App



2025 Salem Ham Fair at Polk County Fairgrounds

There's no gathering more eagerly anticipated than the February Salem Ham Fair. By mid-February, most of us have been cooped up indoors for months, which makes this the ultimate see-and-be-seen event for amateur radio enthusiasts in the Willamette Valley. For many, the day starts early—around 7:30 a.m.—at the small diner just next to the fairgrounds, where groups of operators gather over plates of biscuits and gravy, eggs, bacon, and plenty of coffee. It's here that the plans are made: strategies are drawn up to conquer the ham fair one aisle at a time, track down that long-sought radio, or reconnect face-to-face with friends not seen since last year's meetup. Sponsored by the Salem Repeater Association, the event proudly holds the title of Oregon's biggest and best computer and electronics swap meet. The Salem Ham Fair takes place at the Polk County Fairgrounds, 520 S. Pacific Highway West, in Rickreall, Oregon.

Tickets are sold at the door beginning at 7:30 a.m. on the day of the event. Admission is \$10 per person, and children under 12 are free when accompanied by a paying adult. For those traveling in from out of town, RV camping is available for \$25 per night, making it easy to stay close and get an early start on the action.

Registration details and additional information can be found at <http://www.n7cfo.com/amradio/hf/SALEM26.pdf>. Whether you're hunting for gear, swapping stories, or just soaking in the atmosphere, the Salem Ham Fair is the perfect way to kick off the ham radio season with good food, good friends, and great finds. Do not be afraid to ask questions if you are not sure what your looking at, or ask how it may be used best. There are a lot of items you will see that you may have never seen before, but it might just be the thing you have needed, you will not know until you ask.

The Art of the Ham Swap Meet: How to Shop Smart and Score the Best



There is no treasure hunt quite like a ham swap meet. Tables stretch across fairgrounds and gym floors, loaded with radios that have stories to tell, mystery boxes filled with connectors, and that one piece of gear you didn't know you needed—until you saw it. But a successful swap meet experience isn't about luck alone. It's about preparation, patience, and knowing how to spot value. If you approach it strategically, you can walk away with outstanding equipment and a great deal.

Step One: Do Your Homework Before You Arrive

The best swap meet shoppers do their research before they ever leave the driveway. Know what you're looking for. If you're hunting for a specific radio, look up recent selling prices online so you have a realistic idea of market value. Check completed sales, not asking prices. Know the common failure points of that model. Does it have known display issues? Final amplifier problems? Fragile ribbon cables? Knowledge gives you leverage and protects you from impulse buys.

Make a list before you go. It's easy to get distracted by shiny knobs and vintage glow. A short list keeps you focused. Also decide ahead of time what your maximum budget is. Swap meets are full of temptation, and cash disappears faster than RF on a dead band.

Speaking of cash—bring small bills. Vendors appreciate exact change, and having twenties and tens makes negotiating smoother.

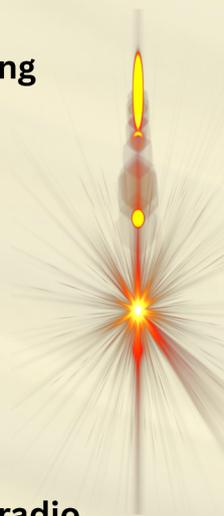
Step Two: Walk the Entire Floor First

The number one mistake at a swap meet? Buying the first decent deal you see.

Resist.

Do a full walk-through before spending serious money. You may find the same radio three tables down for less. Prices vary wildly depending on the seller's motivation. Some vendors are clearing out space. Others are testing the high end of the market. A full lap gives you perspective.

While walking, take notes. Snap photos (with permission). Mentally tag the tables that deserve a second visit. The first pass is reconnaissance. The second pass is where deals happen.



The Art of the Ham Swap Meet: How to Shop Smart and Score the Best



Step Three: Inspect Like a Technician

When you find something promising, slow down and inspect it carefully.

For radios:

- Check knobs and switches for stiffness or wobble.
- Inspect the display for dim spots or missing segments.
- Look at the rear connectors for corrosion or stripped threads.
- Smell it. Burnt electronics have a very distinct odor.
- Ask if it powers on. If power is available, test it.
- Bring a small 12V battery and coax jumper if you're serious about buying.

For accessories:

- Check coax for cracks or stiffness.
- Look at PL-259 connectors for poor solder work.
- Inspect microphones for frayed cords.
- Make sure power supplies are clean inside the vents.

Cosmetic wear is not always bad. Honest wear often means regular use, which can be better than something that sat damp in a garage for 20 years.

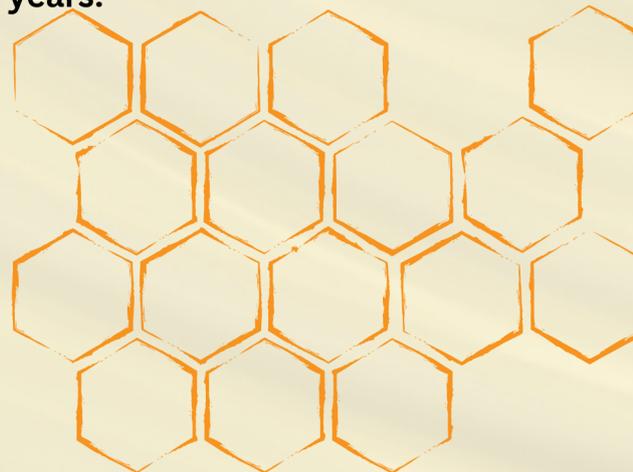
Step Four: Ask the Right Questions

A good question is worth more than a low offer.

Instead of asking, "Does it work?" try:

- "When was the last time you had it on the air?"
- "Has anything ever been repaired on it?"
- "Did you use it mobile or base?"
- "Why are you selling it?"

You'll learn a lot by listening carefully. Most hams are proud of their gear and will tell you its entire life story if you give them a minute.



The Art of the Ham Swap Meet: How to Shop Smart and Score the Best



Step Five: Negotiation Without Being “That Guy”

Swap meets are not retail stores. Negotiation is normal—but respect matters.

Here’s the trick:

Don’t insult the seller. If something is marked \$300, offering \$100 rarely ends well. Instead, try:

“Would you consider \$250?”

If the seller hesitates, pause. Silence is powerful. If you’ve done your research and your offer is fair, you’ll often meet somewhere in the middle.

Another powerful move? Bundle.

“I’ll take the radio and the tuner together—what’s the best you can do?”

Bundling often unlocks better pricing.

Step Six: Timing Matters

Early birds get rare gear.

Late shoppers get deals.

If you’re hunting something specific and uncommon, be there when doors open. If you’re bargain hunting, some of the best discounts happen in the final hour when vendors don’t want to pack items back up.

Step Seven: Hidden Gems to Look For

Some of the best values at swap meets aren’t the radios. Keep an eye out for:

- Quality coax at a fraction of retail.
- Ferrite chokes and toroids.
- Test equipment.
- Antenna hardware.
- Vintage microphones.
- Power distribution blocks.
- Connectors sold in bulk.

Small accessories can dramatically improve your station and are often overlooked.

The Art of the Ham Swap Meet: How to Shop Smart and Score the Best



Step Eight: Don't Forget the Real Purpose

A ham swap meet isn't just about gear.

It's about eyeball QSOs.

It's about shaking hands with someone you've worked on 40 meters.

It's about stories, coffee, and shared excitement for radio.

Sometimes the best "find" of the day is a new contact, a future project partner, or an idea you hadn't considered.

Final Thoughts

Shopping a ham swap meet successfully is part strategy, part knowledge, and part patience. Do your homework. Walk the floor. Inspect carefully. Negotiate respectfully. And most importantly, enjoy the experience.

The magic of a swap meet isn't just in the equipment—it's in the community. And if you shop smart, you'll head home not just with good deals, but with gear you'll be proud to put on the air.



THE 529th FAIR SUPPORT BOOTH

Are you planning to purchase radios or other appropriate equipment at the Ham Fair? Bring it by our booths and we can look at the purchase and test the equipment to the best of our abilities, with limits.

BOOTHS 31,32,33,34

WA7ABU 145.290 Repeater Net Schedule



Monday

Technical Discussion Net: 1000-1100, TBD

Lunch Bunch: 1200-1230, Kirk K1RKS

Technical Discussion Net: 1900-2000, K7ZMQ Steve

Learning Linux : 20:30 NOTIF Mike

Tuesday

Technical Discussion Net: 1000-1100, Scott KF7GGN

Lunch Bunch: 1200-1230, Darrel W7DDE

**Project Net: 1900-2000, Brett KG7GDB

**Homesteading Net : 19:00-20:00 K9CAN Kris

Wednesday

Technical Discussion Net: 1000-1100, Brett KG7GDB

Lunch Bunch: 1200-1230, Russell KE7QXR

Slow Scan TV Net: 1900-2000, Dan WA7ABU (picture swapping using SSTV mode).

Thursday

Technical Discussion Net: 1000-1100, Gary K7VBY

Lunch Bunch: 1200-1230, Tim KI7KPF

** The Tuesday Net at 19:00 alternates every week its topic as seen to the right and Above

Mesh Network Discussion Net: 1900-2000, Brett KG7GDB

Friday

Technical Discussion Net: 1000-1100, Joe KC7ZZX / Daniel K7CGO

Lunch Bunch: 1200-1230, Rita KM7BEA

Space Net/Above Ground Net: 1900-2000, Kris K9CAN

Saturday

Ham Shopping Club Swap Net: 1900-2000, Dan WA7ABU

Sunday

LDS Emergency Net, Lebanon: 1800-1830, Rotating Net Control

S.A.R.G REPEATERS

- 145.290 MHz FM ~ 930 feet -AllStar 54326 & Echolink 592473 - Silverton Hills
- 145.190 w/100 Hz tone - WA7ABU Repeater Site ~4000' near Gates
- 444.950 MHz Yaesu Fusion , Wires-X, & FM w/ 100 Hz tone - Newburg
- 444.600 MHz Yaesu Fusion & FM w/ 100 Hz tone - McCully Mtn, Lyons (no I-5 or Portland coverage)
- 147.060 MHz FM -1720 Feet - Mc Cully Mtn, Lyons

Other Repeaters in our area worth mentioning

- 441.100 FM w/100Hz tone - Yaesu Fusion C4FM -480 feet - Shaw K7GIB
- 440.725 MHz Digital only - No Tone - Yaesu Fusion -700 Feet- Salem Paul KB7PPM
- 440.8625 DStar Repeater - Ref 29A - Paul KB7PPM
- 440.225 MHz FM 100Hz Tone - Junction City - 350ft K9CAN

DID YOU KNOW?

The word "HAM" was originally an insult meaning "A Poor Operator" - amateurs proudly adopted it!

The first voice transmission over radio was made by Reginald Fessenden in 1900.



ALLSCAN UCI120

**ARE RADIOLESS NODES
THE FUTURE OF VOIP?**

The UCI120 was designed primarily for radio-less AllStar node applications, but its flexibility makes it useful far beyond that single role. At its core, the UCI120 is a high-quality USB communications interface that provides clean audio input and output for amateur and commercial radio microphones and speakers, without requiring a physical radio connection. This makes it ideal for AllStar, EchoLink, ROIP, VOIP, paging systems, and remote control applications where dependable audio quality and PTT signaling are essential.

AllScan's radio-less node concept pairs a compact MiniPC like the Raspberry Pi with the UCI120 to create a complete, efficient communications node. Early versions of the hardware were designed strictly for AllStar use, but it quickly became apparent that the interface could support a wide range of push-to-talk communication systems. In traditional AllStar terminology, USB audio interfaces are often called URIs (USB Radio Interfaces), but since the UCI120 does not interface directly with a radio, the term USB Communications Interface more accurately describes its role. The AllScan ANR100 platform now refers to an integrated MiniPC and UCI120, preconfigured and tested for reliable operation with ASL3.

Despite its small size and low cost, the UCI120 delivers excellent audio performance with wide dynamic range. As with any high-quality audio system, microphone selection plays a critical role in achieving the best results, and the use of a properly matched microphone is strongly recommended. The interface works well with a variety of computing platforms, including MiniPCs, thin clients, and Raspberry Pi systems, provided they meet basic memory and storage requirements.

ALLSCAN UCI120

Low-power devices such as the Dell Wyse 3040 have proven especially effective, offering fanless operation, excellent thermal performance, minimal power consumption, and long-term reliability when left running continuously.

Because the UCI120 does not key a transmitter, it supports full-duplex audio by default, allowing simultaneous transmit and receive audio. This capability improves conversational flow,

reduces doubles, and enhances situational awareness—advantages that are especially noticeable in networked communications. The interface works with a wide range of software, including AllStar, EchoLink, and other VOIP applications. Many Windows and Linux applications can recognize the UCI120's PTT input through standard HID signaling, while others can use serial control, keyboard mapping, or software-based triggers to achieve the same result.

Building and operating an AllStar node has been made significantly easier by the documentation and community support provided by AllStarLink. The AllStar ecosystem is fully open-source and supported by a large, experienced amateur radio community. Modern distributions such as ASL3 bring AllStar up to date with current Linux and Asterisk releases, supporting both x64 systems and Raspberry Pi platforms while delivering improved audio quality and system stability compared to older node designs.

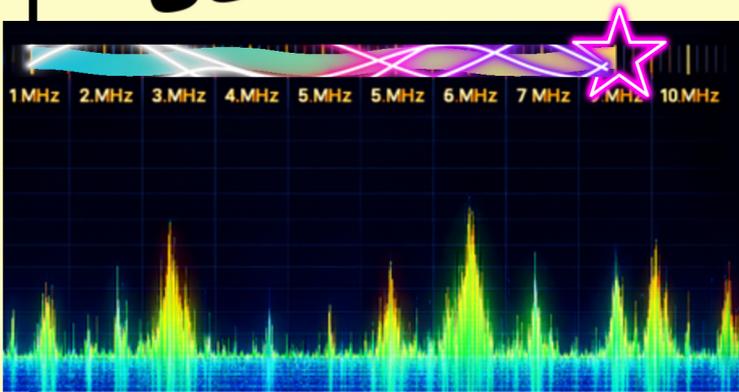
Radio-less AllStar nodes offer several practical advantages over traditional radio-based nodes. They are well suited for home offices, shacks, vehicles, RVs, hotels, and secondary locations where wired Ethernet or Wi-Fi is available and RF coverage is unnecessary. Eliminating the radio reduces complexity, lowers power consumption, and avoids unnecessary RF emissions in close-quarters environments. In addition, radio-less nodes are highly portable, energy efficient, and inherently quieter than systems that rely on multiple radios operating nearby.

These nodes also integrate smoothly with other communications platforms. Digital voice modes can be bridged using open-source solutions such as DVSwitch, and EchoLink compatibility is easily enabled with simple configuration changes. Compared to closed or proprietary systems, this open architecture provides higher audio quality, greater flexibility, and long-term sustainability. Combined with reliable hardware and thoughtful system design, the UCI120 and radio-less AllStar nodes represent a modern, efficient, and highly capable approach to networked amateur radio communications.

ALLSCAN UCI120

THE BRASS TAX

All that is good and well, but how does this radioless node work, does it perform, does it make the cut in today's overhyped and flooded market of shiny appliances with buttons and touchscreens. On a scale of 1 MHz -10 MHz, 10 MHz being the best of the best, my spectrum analyzer reads a whopping 9.125MHz!



MY EXPERIENCE, NO FRILLS, STRAIGHT TALK, NO INTERFERENCE!

Let me start by saying this up front: I bought my own UCI120, and I was not asked or compensated to review it. I'm sharing this purely based on hands-on experience and a genuine appreciation for how well it works. I've experimented with several devices that aim to do similar things, but this was my first radio-less AllStar node, and honestly, it set the bar very high. The ALLSCAN UCI120 is one of those rare pieces of gear that simply does what it's supposed to do. Setup is straightforward, operation is effortless, and once it's running, it just disappears into the background and lets you communicate. While I personally favor AllStar over EchoLink or digital voice systems, it's worth noting that the UCI120 supports a wide range of modern protocols, giving it plenty of flexibility.

One of the things I enjoy most about the UCI120 is how portable it can be. I built a small go-box that includes a DC-to-DC power bank, a backup 12-volt battery, the UCI120, and a Raspberry Pi running ASL3. I added a speaker and I use the Alinco EMS-57 hand microphone suggested by the vendor for transmit, which is honestly one of my favorite parts of the setup. Using a real hand mic gives it that familiar "radio feel," and the transmit audio quality is excellent—it feels very much like operating a mobile radio, just without the RF. Whether it's sitting on my desk at home or packed up for portable use, the UCI120 fits right in.

The one variable you do need to get right is internet connectivity—but thankfully, that part is easy. The UCI120 simply needs an internet connection to access the ASL3 (AllStarLink 3) network, and that connection can come from just about anywhere. Home Wi-Fi, a phone hotspot, a cellular hotspot device, or even Starlink all work just fine.

ALLSCAN UCI120

There's no need for port forwarding, complicated firewall adjustments, or any special networking configurations. Simply connect it to the internet, and it's ready to go. For operators looking for a clean, reliable, and enjoyable way to run AllStar without a traditional radio, the UCI120 truly stands out. In addition, ALLSCAN offers a wide range of options and configurations to fit different operating styles and station needs.

If you're interested in learning more about the UCI120 or the other products offered by ALLSCAN, you can visit their website at <https://allscan.info/>.

As for technical support, it truly stands out. While I haven't experienced any issues with my own device, I have reached out with questions about the UCI120 and other products they offer. Each time, their responses have been prompt, professional, and highly knowledgeable.

ALSO CHECKOUT THE NEW ALLSCAN UCI200



My go-box setup

Suggested Microphone Alinco EMS-57

The Elmer's Insider

HOA AND APARTMENT ANTENNA WOES

Homeowners associations and apartment managers often oppose amateur radio antennas primarily because of aesthetic concerns. Large antennas, towers, or visible wires are frequently viewed as visual clutter that disrupts uniform architectural styles and carefully maintained appearances. HOAs are designed to preserve a consistent “look and feel” within a community, and antennas—especially those associated with amateur radio—are often perceived as industrial, temporary, or unsightly, even when they are structurally safe and professionally installed. From the HOA perspective, allowing one visible antenna can set a precedent that leads to more individual modifications, weakening their ability to enforce visual standards.

A second major concern is liability and safety, whether real or perceived. Property managers worry about antennas falling during storms, causing injury, damaging buildings, or interfering with utilities. Even though properly installed amateur radio antennas are engineered to withstand severe weather, HOAs and apartment owners tend to take a risk-averse stance. They may also fear potential interference complaints, misunderstandings about radio frequency exposure, or disputes between neighbors, all of which create administrative headaches they prefer to avoid.

Finally, HOAs and apartment complexes operate on control and governance, and amateur radio antennas represent an exception to standardized rules. These organizations rely on blanket policies that are easy to enforce across many residents, and antennas introduce technical complexity that board members often do not understand. Rather than evaluate installations on a case-by-case basis, HOAs frequently choose outright bans because they are simpler to manage. As a result, amateur radio antennas are often restricted not because they are inherently dangerous or disruptive, but because they challenge uniform rules in communities built around predictability and centralized decision-making.

THE GET AROUND

Even in communities with strict HOA rules or apartment restrictions, amateur radio operators still have many viable options for getting on the air. The key is understanding that most rules are written to prohibit obvious antennas, not radio operation itself. By shifting from traditional towers and beams to low-visibility and non-permanent solutions, hams can operate effectively without drawing attention or violating lease agreements. Modern radio technology, digital modes, and antenna design have made it possible to achieve solid performance with antennas that are nearly invisible to neighbors and property managers.

HOA AND APARTMENT ANTENNA WOES

One of the most effective strategies is using stealth and disguised antennas. Thin wire antennas can be hidden in trees, along fences, under eaves, or inside attics, where they are completely out of sight. Balcony railings, metal gutters, and even downspouts can sometimes be used as radiating elements with the help of an antenna tuner. Magnetic loop antennas, which are compact and visually unobtrusive, are especially popular for apartment dwellers because they can be used indoors or temporarily placed outside and removed when not in use. These approaches allow operators to blend antennas into the environment rather than fight HOA rules head-on.

Another important tactic is temporary and portable operation. Many HOAs prohibit “permanent structures” but say nothing about equipment that is deployed briefly and then taken down. Portable vertical antennas, telescoping fiberglass poles, and window-mounted antennas can be set up during operating sessions and stored afterward. Some hams choose to operate primarily from parks, vehicles, or other portable locations while maintaining a minimal home setup for monitoring and local communication. This flexibility keeps operators compliant while still allowing regular activity on the air.

Finally, success in HOA and apartment settings often comes down to communication, education, and compromise. When antennas are discreet, professionally installed, and well-maintained, they rarely attract complaints. In some cases, calmly explaining amateur radio’s role in emergency communication and public service can help ease concerns, even if formal permission is never granted. By combining modern antenna designs, portable techniques, and a thoughtful approach to community rules, amateur radio operators can continue to enjoy the hobby and provide valuable communication capabilities—proving that HOA restrictions are obstacles to be navigated, not absolute barriers.

TESTED AND PROVEN SOLUTIONS

HF ANTENNAS

IMD-107 - HOA Special - INVISIBLE EAVES ANTENNA

<https://tn07.com/imd107-hoa-special-virtually-invisible-eave-antenna>

Whether you purchase an antenna similar to this, take a moment and study its set up. This is a very effective antenna in its design. It’s an antenna that runs the length of your eaves and can be tucked away without being seen. Based on the size of your house and the length of your eaves, it could be short or long in its size. With some careful design and planning you could have yourself a loop antenna that circles your entire house. This design is similar to the ICOM AH-4 antenna design that I will cover next

HOA AND APARTMENT ANTENNA WOES

iCOM AH-4 RANDOM WIRE ANTENNA

<https://www.dxengineering.com/parts/ico-ah-4?srsId=AfmBOoqcmm7ZNVu3wknkM7HQy6gcNqP13DgZumEF8tVZGmx7BMdXpmv>

This is my favorite antenna setup. Its extremely versatile, keep in mind though this device is not an antenna by itself, its part of an antenna setup. Its an antenna tuner/coupler. The antenna portion, which is attached at the top of this device can take many forms, but for this situation I will give you a few options that will offer stealth.

There are so many ways in which this coupler can and will assist you in getting on the air while hiding from prying eyes. The one I hear a lot of chatter about is the flagpole antenna. An important fact here is that the AH-4 will most likely work better in HOA's vs apartments because the AH-4 requires a bit more real estate to setup an antenna that will work on HF bands . If you would like more information on this coupler check out last months volume of this publication. In there, you will find a detailed example of my setup with pictures and step by step instructions on my build.

You could also set this up as a ground loop antenna. Of course this will take a bit more work to disguise the wire by digging up a skinny, long run of your yard but the trench would not need to be really deep. I would suggest looking around the intrernet for details on a good ground loop design and instructions to achieve best results.

This coupler could also be used in a way similar to the first antenna I shared on the previous page. You could run a wire around the eaves of your home and with a bit of luck you could be on the air.

THE FLAGPOLE ANTENNA

<https://greylineperformance.com/collections/hoa-flagpole-antenna>

A flagpole antenna is one of the most effective and widely accepted solutions for stealth amateur radio operation in HOA-restricted neighborhoods. From the outside, it appears to be nothing more than a standard residential flagpole, often displaying the U.S. flag or a decorative banner, which aligns with community norms and HOA rules. Internally, however, the flagpole is engineered to function as a vertical HF antenna, with the radiating element concealed inside the pole and an insulated base that allows RF energy to be efficiently transmitted.

HOA AND APARTMENT ANTENNA WOES

Because flagpoles are commonly permitted for patriotic or decorative purposes, this design allows radio operators to remain compliant while maintaining a permanent, weather-resistant antenna installation.

Electrically, the flagpole antenna operates like a vertical radiator and relies on a hidden radial or ground system buried just below the surface or tucked discreetly under landscaping to complete the antenna system. When properly installed and tuned—often with the help of an antenna tuner—the flagpole antenna can perform very well on multiple HF bands, making it suitable for local, regional, and even DX communication. Its greatest advantage is not just performance, but discretion: neighbors see a flag, not an antenna, and HOAs see a compliant structure rather than a rule violation. This combination of practicality, effectiveness, and invisibility has made the flagpole antenna a cornerstone solution for amateur radio operators who want to stay active on the air without drawing unwanted attention.

ATTIC SPACE ANTENNA

<https://chameleonantenna.com/products/cha-f-loop-3-0>

Attic antennas are one of the most practical and HOA-friendly solutions for amateur radio operators living in deed-restricted communities or apartment complexes. Because the antenna is installed entirely inside the home, it is completely invisible from the outside, eliminating the aesthetic concerns that typically drive HOA restrictions. Thin wire antennas, compact dipoles, and small loops can be routed along rafters, trusses, or the attic floor without structural changes to the building. This allows operators to remain fully compliant with HOA rules while maintaining a permanent antenna system that is always ready for use.

From a performance standpoint, attic antennas are a compromise, but a very workable one. Height is limited compared to outdoor installations, and roofing materials such as metal, foil-backed insulation, or radiant barriers can reduce efficiency. However, modern transceivers, digital modes, and antenna tuners help offset these limitations. On HF bands, attic wire antennas often perform surprisingly well for regional contacts, emergency communication, and even long-distance DX under good conditions. Careful placement, minimizing nearby electrical noise sources, and using common-mode chokes can significantly improve results.

Beyond performance, attic antennas offer important practical advantages. They are protected from weather, require no exterior maintenance, and avoid the safety and liability concerns that worry HOAs and landlords.

HOA AND APARTMENT ANTENNA WOES

For many operators, attic installations serve as a stepping stone into the hobby, proving that effective amateur radio operation does not require towers or visible hardware. With thoughtful design and realistic expectations, attic antennas allow hams in HOA environments to stay active on the air while keeping both neighbors and property managers happy.

The Chameleon F-Loop is an impressive compact magnetic loop antenna that delivers surprisingly good performance for its size, especially on the HF bands where space is limited. Its build quality feels robust, and the tuning mechanism is smooth and intuitive, making it approachable for both portable use and stealth installations where larger antennas aren't practical. While no small loop can quite match a full-size outdoor antenna for efficiency, the F-Loop consistently provides solid SWR and respectable signal strength, particularly when used with an antenna tuner and thoughtful placement. Its versatility, ease of setup, and stealthy form factor make it a strong choice for apartment dwellers, HOA environments, or POTA/SOTA ops who need a high-performance antenna that doesn't dominate the yard.

VHF/UHF

In some ways this can be easier to achieve with a greater number of options. Stealth antennas for VHF and UHF operation are especially well suited to HOA-restricted neighborhoods and apartments because effective antennas at these frequencies can be very small and easily hidden. Simple designs such as slim J-poles made from twin-lead, roll-up antennas, or thin wire dipoles can be installed in attics, closets, or even along curtain rods without being visible. Magnetic-mount antennas placed temporarily on balconies, filing cabinets, or metal appliances can also work well and be removed when not in use. Because VHF/UHF signals rely more on line-of-sight than antenna size, these discreet solutions often provide excellent performance for local repeaters, emergency nets, and simplex operation, allowing operators to stay active on the air while remaining fully compliant with HOA rules and apartment lease agreements.

J POLES

https://grapevineamateurradio.com/products/ed-fong-j-pole-antennas-dual-band-220-and-roll-up?srsIid=AfmBOorEkoWvkSCmVqeaGp_ZL59VcljW6MmvXjj_4rld0_d hFH ua B7sUv

The J-pole antenna is a popular and practical choice for VHF and UHF amateur radio, especially on the 2-meter and 70-centimeter bands. Its appeal comes from a combination of simplicity, efficiency, and ease of construction.

HOA AND APARTMENT ANTENNA WOES

Electrically, a J-pole is a half-wave vertical radiator that is fed at the bottom through a quarter-wave matching stub shaped like the letter “J.” This matching section transforms the high impedance of the half-wave radiator into something close to 50 ohms, allowing the antenna to be fed directly with coaxial cable—no ground plane or radials required.

J-pole antennas are especially well suited for HOA-restricted neighborhoods and apartment living because they combine good performance with a very low visual footprint. Unlike large directional antennas or ground-plane verticals with obvious radials, a J-pole is a slim, vertical design that can be tucked out of sight along a balcony railing, mounted inside an attic, or even installed indoors. Roll-up versions made from twin-lead can be hung behind curtains or stored away when not in use, making them easy to deploy without attracting attention or violating appearance rules.

Another advantage is that J-poles do not require radials or a ground plane, which simplifies installation in places where outdoor space is limited or modifications are restricted. This makes them ideal for apartments where access to soil, roofs, or exterior structures is not allowed. Despite their simple construction, J-poles perform very well on VHF and UHF, providing strong, vertically polarized signals that work perfectly with local repeaters and simplex operation. For many operators, a J-pole offers better real-world results than small “rubber duck” antennas while still remaining discreet.

Finally, J-poles are popular in HOAs and apartments because they are inexpensive, easy to build, and easy to remove. A basic J-pole can be constructed with minimal tools and materials, allowing operators to experiment without a large investment. If a move or inspection requires the antenna to come down, it can be removed quickly with no permanent changes to the property. This blend of stealth, simplicity, and solid performance makes the J-pole one of the most practical antenna choices for amateur radio operators living under HOA rules or in multi-unit housing.

MAGNETIC LOOPS

<https://www.alphaantenna.com/product/vhf-uhf-hf-emcomm-magloop-magnetic-loop-100-watts-alpha-antenna/>

Magnetic loop antennas have become a favorite solution for amateur radio operators living in HOA-restricted neighborhoods and apartments because they deliver real on-air capability while remaining compact and discreet. Unlike traditional wire or vertical antennas that rely on length and height, magnetic loops use a small conductive loop and a high-Q tuning capacitor to resonate efficiently in a very small footprint.

HOA AND APARTMENT ANTENNA WOES

Many loops are small enough to sit on a balcony, patio, or even indoors near a window, making them ideal where outdoor installations are prohibited or closely regulated.

One of the strongest advantages of magnetic loops in HOA and apartment settings is their excellent noise rejection. Magnetic loops are far less sensitive to electric-field noise generated by household wiring, appliances, and electronics, which means they often sound noticeably quieter than wire antennas in urban environments. This makes weak signals easier to copy, even when the antenna is located indoors. Although magnetic loops are narrower in bandwidth and must be retuned when changing frequency, modern designs use smooth or motorized tuning systems that make this process quick and straightforward.

While magnetic loops cannot match the raw efficiency of large outdoor antennas, they perform remarkably well for their size and location, especially on HF bands. They are also visually unobtrusive, easily removed, and require no permanent mounting—key factors for renters and HOA residents. When paired with modest power levels and thoughtful placement, magnetic loops allow operators to stay active on the air, work regional and DX contacts, and enjoy the hobby without violating rules or attracting unwanted attention. For many hams facing antenna restrictions, magnetic loops represent the perfect balance between performance, stealth, and practicality.

ph text

ATTIC VERTICALS and DIPOLES

<http://www.wiscountl.com/celwave/antennas/pd1121/index.htm>

Attic dipoles and vertical antennas are among the most practical solutions for amateur radio operators living in HOA-controlled neighborhoods or apartments, because they provide permanent, effective antennas while remaining completely invisible from the outside. Since the entire installation is contained within the structure of the home, attic antennas neatly sidestep the aesthetic concerns that drive most HOA restrictions. Lightweight wire dipoles can be routed along rafters or trusses, while compact verticals can be mounted between joists or in unused attic corners, all without altering the exterior of the building or drawing attention from neighbors or property managers.

From a performance perspective, attic antennas are a compromise, but often a very workable one. Attic dipoles tend to perform well for regional HF communication and emergency nets, offering predictable radiation patterns and relatively quiet reception when placed away from household wiring

HOA AND APARTMENT ANTENNA WOES

Attic verticals, while shorter than their outdoor counterparts, can still be effective when paired with short counterpoise wires or radials laid along the attic floor. Roofing materials play a role—metal roofs and foil-backed insulation can reduce efficiency—but modern radios, antenna tuners, and digital modes help offset these losses. Careful placement and the use of common-mode chokes can further improve results.

Beyond performance, attic dipoles and verticals offer major practical advantages for HOA and apartment dwellers. They are protected from weather, require little maintenance, and can often be installed or removed without permanent modifications—an important consideration for renters. Perhaps most importantly, they demonstrate that effective amateur radio operation does not require visible towers or outdoor antennas. With thoughtful design and realistic expectations, attic-mounted dipoles and verticals allow operators to remain active, experiment with antenna systems, and stay fully compliant with HOA rules while enjoying the full spirit of amateur radio.



FLAGPOLE ANTENNA



EAVES ANTENNA



FOLDED ATTIC DIPOLE



ICOM AH-4 TUNER/COUPLER



CHAMELEON F LOOP

“GOING LOOPY?”



By Mark Holt W7EAZ

I believe around 1990 I began to see an advertisement in several radio magazines touting incredible results of “Iso-Loop”, (by AEA, Advanced Electronics Applicatoins) “Magnetic Loop” that closely matched the characteristics of their bigger brothers, the dipole antennas. I was wondering if the issue of the magazines were published in April given the fact that their claims seemed like what you’d hear from early snake-oil salesmen. A very popular myth of amateur radio antenna theory states that “bigger is better” and that small antennas cannot ever hope to approach the performance of a full-sized antenna at some significant portion of the operating frequency wavelength.

Proponents of this myth sometimes cite reasoning such as “capture area is smaller”, and therefore a smaller antenna “captures less signal”. The flaws in this reasoning are not particularly obvious.

For now, let it suffice to say that the efficiency of an antenna is not dependent upon its size, but upon its losses. A full-sized resonant antenna (dipole or vertical) has a “radiation resistance” of about 50-75 ohms. Any power dissipated by this resistance is radiated as a signal. Because the resistance of the antenna conductors (loss resistance) is usually very low, often below 1 ohm, a full-sized antenna is very efficient. Most of the power is dissipated by the radiation resistance (as signal) and little is lost to the resistance in the antenna conductors.

When an antenna is considerably shortened, the radiation resistance drops dramatically and the feed impedance becomes capacitive. To match such an antenna to a 50-ohm transmitter, a series inductor (commonly known as a “loading coil”) is required to tune out the capacitance of the shortened antenna. Because a significantly shortened antenna has a much lower radiation resistance, the losses of the loading coil become very significant and the antenna’s efficiency is reduced dramatically.

Let’s look at some of the fundamental first stages of a receiving station:

First of all, what is the first element of any ham station? The antenna of course. What is the second? The radio of course.

This is where some investigation about the first stages of the receiving station should focus.

Let’s go back to AC-101 and refresh some of the more prominent points to ponder.

First Stage:

Resonant Antenna:

Where:

$c = \text{speed of light } (3.0 \times 10^8 \text{ m/s})$

$f_0 = \text{frequency in Hz}$

Most commonly used is:

Second Stage:

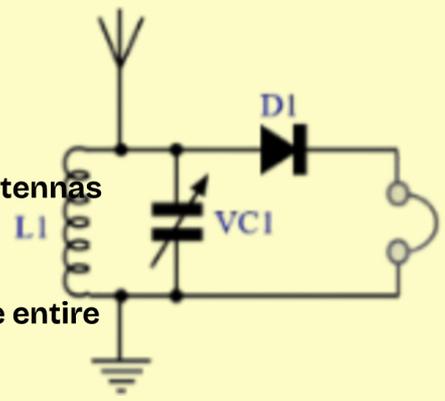
RF Front End: (typical)



"GOING LOOPY?"

A simplified tunable receiver. The key word here is "tunable". ALL antennas have one specific resonant frequency.

Myth #2 that prevails in the amateur world is: "my dipole covers the entire band." We will explore this in more detail below.



L1 and VC1 form a parallel circuit whose resonance can be changed by VC1. If the antenna has a resonant wavelength of, let's say, 7.0MHz and the combination of L1 and VC1 has a resonant frequency of 7.0MHz, which frequency is where the most power will be transferred from the resonant receiving antenna to the detector circuit. Changing either the length of the antenna or changing the resonance of the parallel circuit will cause less power to be transferred to the detector at the desired 7.0MHz frequency.

In general, we don't adjust our resonant dipole antenna to change frequencies we want to use to make it more efficient. We put tuners between our radio and antenna to make the antenna appear to be resonant to our receivers. This introduces a small but sometimes significant inefficiency into our antenna/radio system. Remember, antennas are resonant on only ONE frequency or an even harmonic, generally higher in frequency.

It would be quite advantageous to be able to change the resonant frequency of the antenna in order to match the frequency the receiver is listening to!

ENTER THE TUNABLE MAGNETIC LOOP

Tunable magnetic loop antennas have several advantages:

- Ability to change resonant frequency of the antenna
- Narrow bandwidth; thus, reducing broadband noise. This helps your radio's AGC by not clamping down due to extra broadband signals/noise
- High Q which increases apparent power transfer to your radio
- Lower radiation resistance as compared to a $1/2\lambda$ dipole ($m\Omega$)
- Less affected by height above ground

I have been experimenting with magnetic loops for over 10 years. If you look on my QRZ.com page (<https://www.qrz.com/db/W7EAZ>) you will see 2 examples of my early experiments with loop antennas, including my experiment with a 12ft – 80 meter loop talking to Southern California with less than 4 watts.

To get over the 'snake oil' syndrome around magnetic loop antennas I decided to build my own. Using several online loop calculators (easily found by search engines) and comparing their results I arrived at a solution.

My first loop was made from some leftover copper tubing from a plumbing project and a cannibalized manual tuner. The designed frequency was from 7.0MHz to 14.3Mhz. It turned out successful with a 3.9ft diameter copper loop and a 10pf-350pf single stage rotor capacitor.

“GOING LOOPY?”

However, it wasn't without some pitfalls to begin with. When I finished my first homemade loop, I mounted it on a mast and plugged my antenna analyzer to see how well the design parameters ended up. I used a Timewave Technology TZ-900 antenna analyzer to check my loop.

I started scanning for the resonant frequency with the capacitor fully meshed. To my frustration, I could NOT see the resonant frequency. I tried several frequency bandwidths and could not find it. It felt like it was a total loss.

Just out of curiosity, I connected it to my Yaesu FT-817 radio and set it to 7.1MHz. I changed the capacitor and heard a noise peak in the speaker. WHAT? Was it working? I unplugged the loop from the radio back into the analyzer. I scanned from 3MHz to 15MHz to see if I could find the resonant frequency. Still nothing. I was baffled. I changed the connecting coax thinking it was bad and masking the problem. Same scenario and same scan. No resonant point.

Once again, connected the loop to the radio and this time tuned to 14.10MHz. Once again, the noise peaked when the capacitor was almost totally unmeshed which was the anticipated position. Still baffled

I finally phoned a friend who was an antenna specialist in his business. When he arrived, I connected the loop to my analyzer. He said these 6 unforgettable words: “Change the resolution of your sweep!” SHEESH – It was measuring millimeters with a yard stick!

BINGO!

When I scanned around my expected frequency by only 150KHz bandwidth, the resonant frequency showed up with very steep out of resonant slopes. 2:1 SWR range is only 25KHz.



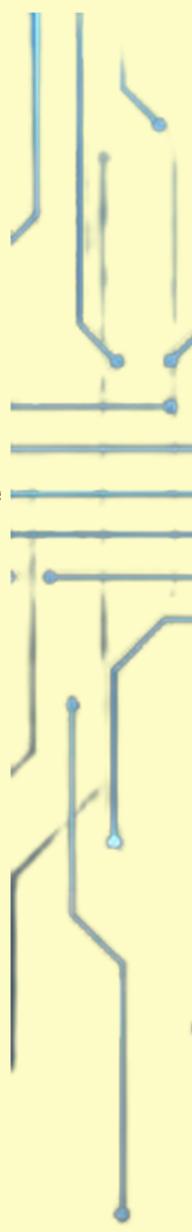
LOOP ANTENNAS **ARE NOT FOR** **EVERYONE**

Retuning: No matter how you cut it, having to retune the loop antenna frequently as you tune across a band is tedious. As you are tuning around the band, how many

times do you reach over and hit your tuning button on your radio or re-peak your radio's auto-tuner? If you tune while transmitting to get a good SWR reading, you are wasting spectrum space and possibly causing QRM.

In fact, your radio may follow your tuning and you could be unaware your radio is tuning to a 50 Ohm matching frequency.

Automatic loop tuning is coming of age. There are advances in all 3 manufacturers of magnetic loops which make tuning a loop easier than the one I made with manual tuning, even though it was easy to do to achieve a perfect match.



“GOING LOOPY?”

Due to their very narrow bandwidth, even small changes in frequency will put your receiver out of the bandwidth and your radio will not be matched for peak power transfer, either receiving or transmitting. text

THE NITTY GRITTY OF MAGNETIC LOOPS

This is where it gets down and dirty and possibly mind numbing. My investigation led me to ask 5 significant loop factors:

1. How is the Q factor calculated in a resonant circuit?
2. How does the Q factor affect magnetic loop antennas?
3. How is bandwidth determined in a resonant circuit only containing capacitance and inductance?
4. How is apparent power measured in a resonant LC circuit?
5. What is the most critical element of a magnetic loop antenna?

1. How is the Q factor calculated in a resonant circuit?

The Q factor (quality factor) of a resonant circuit can be calculated using the following formula:

Where:

Q is the quality factor.

f_0 is the resonant frequency of the circuit.

Δf is the bandwidth of the circuit.

Alternatively, the Q factor can be expressed in terms of the energy stored and energy dissipated: $Q =$

Another common expression for the Q factor in terms of resistance, inductance, and capacitance is:

Q

Where:

R is the resistance in the circuit.

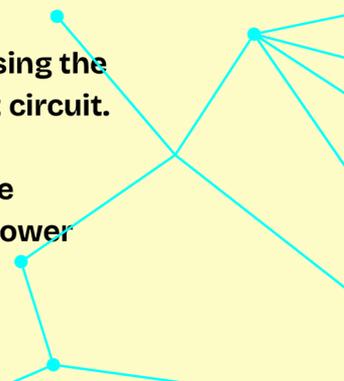
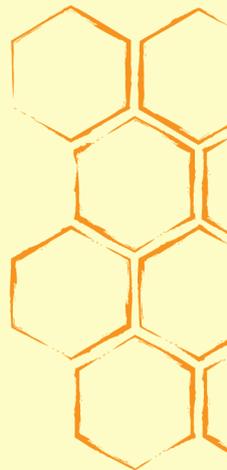
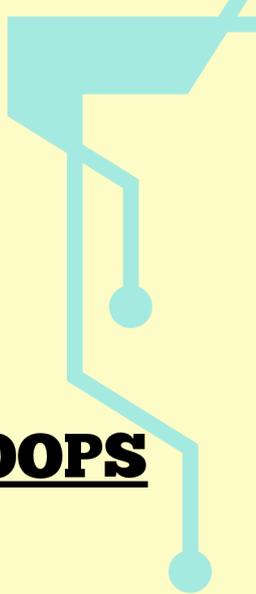
L is the inductance.

C is the capacitance.

As you can see the lower 'R' (resistance) the less it affects 'Q'.

It's important to note that these formulas represent different ways of expressing the Q factor based on the specific parameters and characteristics of the resonant circuit.

The Q factor provides a measure of the sharpness of the resonance peak in the frequency response of the circuit. Higher Q values indicate a sharper and narrower resonance, while lower Q values indicate a broader resonance.



“GOING LOOPY?”

2. How does the Q factor affect magnetic loop antennas?

The **Q** factor, or quality factor, is a measure of the efficiency of an electrical circuit or component. In the context of magnetic loop antennas, the **Q** factor plays a significant role in determining the performance of the antenna.

The **Q** factor is defined as the ratio of energy stored to energy dissipated in one cycle of oscillation.

In a magnetic loop antenna, the loop is usually made of a conductor with a capacitor connected across it to form a resonant circuit. The **Q** factor of the magnetic loop antenna is influenced by several factors:

Losses in the Loop: The **Q** factor is affected by the losses in the loop, including resistive losses in the conductor material. Lower resistance leads to higher **Q**, indicating less energy loss.

Capacitor Quality: The capacitor connected across the loop contributes to the overall **Q** factor. Higher quality capacitors with lower losses can result in a higher **Q** factor.

Radiation Efficiency: The **Q** factor is also influenced by the efficiency of radiation. A higher **Q** factor can result in a narrower bandwidth but increased efficiency in transferring energy from the transmitter to the antenna and eventually to free space.

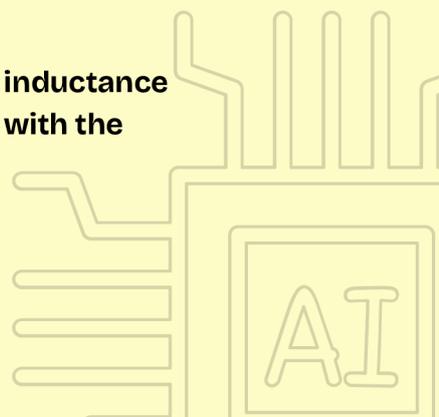
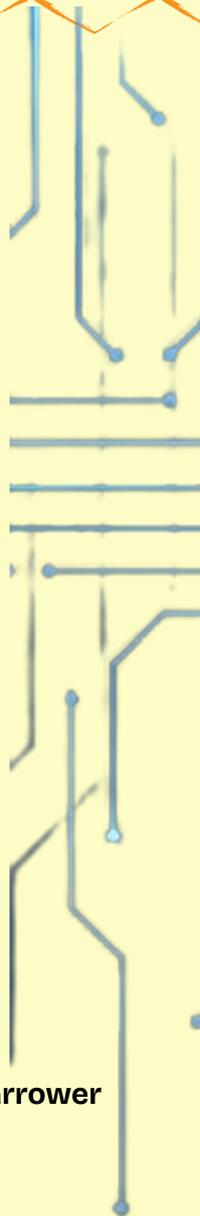
Frequency of Operation: The **Q** factor tends to increase as the operating frequency of the magnetic loop antenna decreases. This is because the loop's physical size becomes a larger fraction of the wavelength at lower frequencies, leading to increased capacitive reactance.

The **Q** factor is a critical parameter in magnetic loop antennas because it directly affects the antenna's bandwidth and efficiency. A higher **Q** factor generally results in a narrower bandwidth but can enhance the antenna's selectivity and sensitivity.

Magnetic loop antennas are often used in applications where space is limited, and their performance is highly dependent on achieving a good balance in the **Q** factor based on the specific requirements of the communication system.

3. How is bandwidth determined in a resonant circuit only containing capacitance and inductance?

The bandwidth (Δf) of a resonant circuit containing only capacitance and inductance can be determined using the **Q** factor (**Q**) and the resonant frequency (**f_o**) with the following relationship:



“GOING LOOPY?”

Where:

Δf is the bandwidth of the resonant circuit.

f_0 is the resonant frequency of the circuit.

Q is the quality factor.

This relationship illustrates that the bandwidth is inversely proportional to the Q factor. A higher Q factor results in a narrower bandwidth, and a lower Q factor results in a broader bandwidth.

To elaborate, the bandwidth is defined as the range of frequencies around the resonant frequency at which the power in the circuit has fallen to half of its maximum value (this is often referred to as the half-power or -3 dB points in the frequency response curve).

The relationship mentioned above provides a convenient way to calculate the bandwidth if you know the resonant frequency and the Q factor of the circuit. It's worth noting that the relationship between bandwidth, resonant frequency, and Q factor is a fundamental characteristic of resonant circuits, and it applies broadly, whether the circuit involves only capacitance and inductance or includes additional elements such as resistance.

4. How is apparent power measured in a resonant LC circuit?

In a resonant LC (inductor-capacitor) circuit, apparent power (S) is the vector sum of real power (P) and reactive power (Q). The formula for apparent power in an AC circuit is given by:

Where:

S is the apparent power.

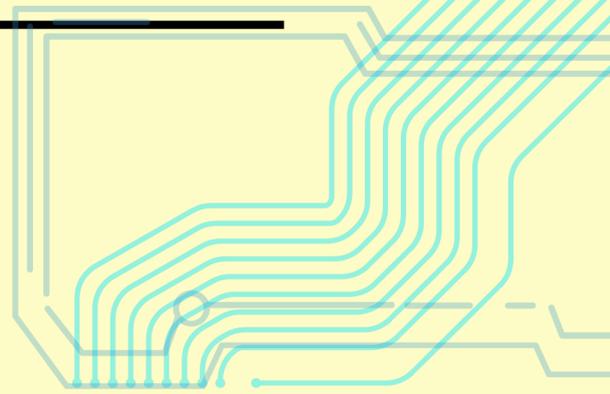
P is the real power (the power actually consumed by the circuit).

Q is the reactive power (the power oscillating back and forth between the inductor and capacitor).

The real power (P) can be measured using a power meter, and the reactive power (Q) can be determined using measurements of voltage (V), current (I), and the phase angle (φ) between voltage and current. In a resonant LC circuit operating at its resonant frequency, the reactive power (Q) can be significant, and the apparent power (S) is a measure of the total power in the circuit, accounting for both real and reactive components. To measure apparent power in a resonant LC circuit:

Measure Voltage (V): Use a voltmeter to measure the voltage across the circuit.

Measure Current (I): Use a RF ammeter to measure the current flowing through the circuit.



“GOING LOOPY?”

Determine Phase Angle (ϕ): Measure the phase angle between voltage and current. This can be done using an oscilloscope or a power analyzer that provides phase angle information.

Calculate Apparent Power (S): Use the measured values of voltage, current, and phase angle to calculate apparent power using the formula:

Keep in mind that in a resonant circuit, the relationship between voltage and current can be affected by the reactive nature of the circuit. The apparent power will depend on how well the circuit is tuned to its resonant frequency and the impedance characteristics of the inductor and capacitor.

5. What is the most critical element of a magnetic loop antenna?

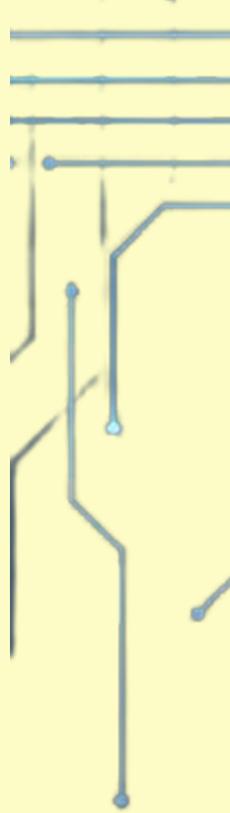
The most critical element of a magnetic loop antenna is often considered to be the capacitor. In a magnetic loop antenna, the loop itself is typically made of a conductor, and a capacitor is connected across the loop to create a resonant circuit. The capacitor plays a crucial role in determining the resonant frequency, bandwidth, and overall performance of the magnetic loop antenna.

Here are some reasons why the capacitor is considered a critical element:

Resonance: The capacitor, in conjunction with the inductance of the loop, determines the resonant frequency of the antenna. Achieving resonance is important for optimal performance and efficient energy transfer.

- 1. Bandwidth:** The capacitor affects the bandwidth of the antenna. A well-designed capacitor can help achieve a desirable balance between a narrow bandwidth for selectivity and a broader bandwidth for versatility.
- 2. Efficiency:** The efficiency of the antenna is influenced by the quality of the capacitor. A high-quality capacitor with low losses contributes to better energy transfer and radiation efficiency.
- 3. Voltage Handling:** The capacitor must be able to handle the voltage across its plates, especially in high-power applications. Choosing a capacitor with appropriate voltage-handling capabilities is crucial to prevent arcing and damage.
- 4. Tuning:** The capacitor is used for tuning the antenna to different frequencies. A variable capacitor allows for tuning across a range of frequencies, making the magnetic loop antenna versatile.

When designing or selecting a magnetic loop antenna, careful consideration of the capacitor's characteristics, such as capacitance range, voltage rating, and loss tangent, is essential to achieve the desired performance. Additionally, the mechanical construction and durability of the capacitor are important factors, especially in outdoor or harsh environments.



“GOING LOOPY?”

POSSIBLY THE MOST IMPORTANT PART

If you've read this far, congratulations on wading through the arduous descriptions and calculations.

From my own observations, my PreciseRF loop efficiency I've noticed, has been incredible. I recently checked into the Western Digital Net 1 using FLDIGI (Digital mode), which covers most of the west coast, with 1 watt on 80 meters to the net control in Brookings OR, 265 miles south of my QTH. I've had a FT-8 contact with 3-1/2 watts to Las Vegas, Nevada. That equates to 4mW/Mile. My loop is mounted on the steel pipe that protects my water heater and furnace from vehicles running too far into the garage. This was for testing purposes only and is not the final deployment location.



Now, to Myth #2:

Effective Noise Rejection:

The tight bandpass of the tuned loop effectively improves the front-end selectivity of the receiver. The loop design and orientation (vertical/horizontal) help filter out the local QRM under many conditions.

Killing your AGC (Automatic Gain Control):

Here's how broadband noise in your 'full-band' dipole can impact AGC:



“GOING LOOPY?”

Killing your AGC (Automatic Gain Control):

Here's how broadband noise in your 'full-band' dipole can impact AGC:

Antenna Trimmer or Preselector that was a portion of receiver technology has simply disappeared. Many 'boat anchor' radios had this functionality. I have not seen this in about 50 years since I used a Hallicrafters SX-101 receiver. (see above) It was used to enhance the signal to noise ratio from a poorly resonant antenna. In other words, a pre-match tuning control. Now we use external tuners. Being 'rock bound' (crystal controlled) we were more careful tune our antennas around a few KHz of our crystal frequency of choice.

Broadband noise can have several effects on AGC in radio receivers. AGC is a feedback system used in radio receivers to automatically adjust the gain of the RF (Radio Frequency) and IF (Intermediate Frequency) amplifiers to maintain a relatively constant output level despite variations in the input signal strength.

False Triggering: Broadband noise, being random and present across a wide range of frequencies, can cause the AGC to falsely trigger and decrease the gain even when the incoming signal is predominantly noise. This can result in unnecessary attenuation of noise, reducing the overall signal-to-noise ratio (SNR) and potentially degrading reception quality.

Reduced Sensitivity: If the AGC responds too aggressively to broadband noise, it may reduce the receiver's sensitivity to weak signals. The AGC might decrease gain in response to noise, limiting its ability to effectively distinguish and amplify weak desired signals.

Interference Amplification: Broadband noise may contain interference from other electronic devices or atmospheric sources. If the AGC attenuates this interference, it could degrade the reception of wanted signals and lead to a noisier listening experience.

Dynamic Range Limitations: AGC is designed to prevent overload in the presence of strong signals. However, if broadband noise is at a relatively high level, it can limit the dynamic range of the receiver. The AGC may reduce gain to avoid saturation from strong signals, but this might result in a lower gain setting even when the desired signal is weak.

Adaptation Time: Rapid changes in the broadband noise level can cause the AGC to constantly adapt, leading to fluctuations in gain. This adaptation time may result in a perceived change in audio volume or a momentary drop in signal quality.

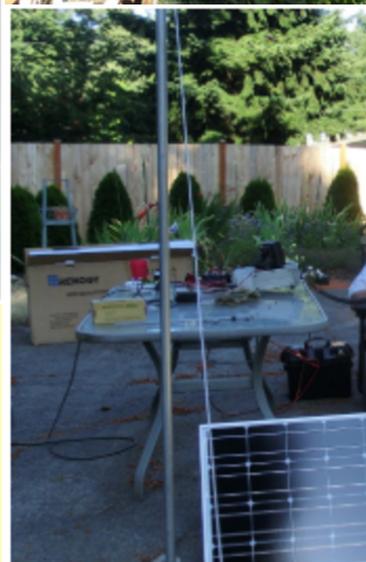
“GOING LOOPY?”

To mitigate the impact of broadband noise on AGC, modern receivers often employ sophisticated AGC algorithms (DSP) that take into account the nature of the incoming signals, distinguish between noise and desired signals, and adapt more intelligently to varying signal conditions. Additionally, the use of narrowband filters and signal processing techniques can help improve the selectivity of the receiver and reduce the impact of broadband noise on AGC.

IN CONCLUSION

Installing a tuned loop antenna, will significantly reduce the noise to the bandwidth of the tuned loop. It makes a great 'Antenna Preselector' for SDR (Software Defined Radios) that are becoming prevalent in today's ham radio world. I worked 2019 Field Day with my magnetic loop without significant out of band interference. SDR's have an enormously broad front-end bandwidth since they are made to listen to frequencies from 30KHz to 30MHz + 50MHz. I have two loops- one for 80m-40m and another for 30m-15m and both are semi-automatically tuned. I guess you can say I've gone loopy!

The Western Digital Net is on 3.581 MHz USB and meets on Thursdays. It is also referred to as the "McARCS Western Digital Net" Links to their pages are broken as of 11/10/25



Say what ya will, but the fact is....Mark W7EAZ likes his loops and rightfully so, he has had great success with them.

Choosing the Right Coax: A Practical Guide for Amateur Radio Operators

If antennas get the glory in amateur radio, coaxial cable quietly does the heavy lifting. Every signal that leaves your transmitter or enters your receiver must pass through your feedline, and the type of coax you choose can significantly affect performance. From HF backyard setups to VHF/UHF repeater sites, understanding coax types helps you make smarter decisions and avoid unnecessary signal loss.

What Is Coaxial Cable?

Coaxial cable, commonly called “coax,” consists of a center conductor, a dielectric insulator, a shield (braid and/or foil), and an outer jacket. The design keeps the signal contained and protected from external interference while maintaining a consistent impedance—typically 50 ohms for amateur radio applications.

Not all coax is created equal. Differences in conductor size, shielding, dielectric material, and construction determine how much signal loss occurs and how well the cable performs in different environments

Common Coax Types in Amateur Radio

RG-58

One of the most widely recognized coax types, RG-58 is small, flexible, and inexpensive. It works well for short runs and low-power applications. However, it has relatively high signal loss at VHF and UHF frequencies, making it less suitable for long feedline runs.

Best for:

- HF short runs
- Temporary setups
- Mobile installations (short distances)

RG-8X (Mini 8)

A step up from RG-58, RG-8X offers lower loss and better shielding while remaining flexible. It's a popular choice for portable operations and modest base station installations.



Choosing the Right Coax: A Practical Guide for Amateur Radio Operators

Best for:

- HF base stations with moderate run lengths
- Portable and Field Day setups
- 100–500 watt applications (depending on quality)

RG-213

A full-size coax cable with solid shielding and durability, RG-213 has been a workhorse in amateur radio for decades. It handles higher power well and performs better over longer runs than the smaller cables.

Best for:

- HF base stations
- Medium-length runs
- Higher power operation

LMR-400 (and similar low-loss cables)

LMR-400 and equivalent low-loss coax types are designed to reduce attenuation, especially at VHF and UHF. These cables have lower loss per foot and are ideal when every decibel matters.

Best for:

- VHF/UHF base stations
- Long runs to towers
- Weak-signal work

They are stiffer than RG-8X or RG-58, so plan routing carefully.

Hardline (Heliax and similar)

Hardline coax is used in commercial and repeater installations where minimal loss is critical. It features solid or corrugated outer conductors and offers extremely low attenuation.



Choosing the Right Coax: A Practical Guide for Amateur Radio Operators

Best for:

- Repeater sites
- Tall tower installations
- Long-distance feedline runs

This is usually overkill for most home stations but invaluable in high-performance systems.

Understanding Coax Loss

All coaxial cable introduces signal loss. The higher the frequency and the longer the run, the greater the loss. For example:

- On HF, even modest coax performs reasonably well.
- On 2 meters, losses become more noticeable.
- On 70 centimeters and above, loss increases dramatically.

This is why low-loss coax becomes more important as frequency rises.

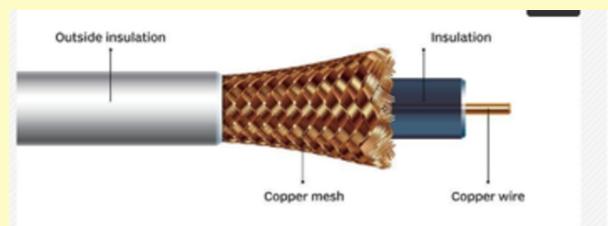
A useful rule of thumb:

If you're investing in antennas and radios, don't let cheap coax become the weak link.

Shielding Matters

Quality coax includes better braid coverage and sometimes foil shielding. Good shielding reduces:

- RF leakage
- Noise pickup
- Interference



In urban environments with lots of electronics, shielding quality can make a noticeable difference in receive noise.

Connectors and Installation

Even the best coax can underperform if connectors are poorly installed. Key tips:



Choosing the Right Coax: A Practical Guide for Amateur Radio Operators

- Use quality connectors (PL-259, N-type, BNC as appropriate).
- Solder carefully or use proper crimp tools.
- Seal outdoor connectors with self vulcanizing tape
- Avoid sharp bends and crushing the cable.



Self Vulcanizing tape for weatherproofing connections

Water intrusion is one of the most common causes of coax failure.

Choosing the Right Coax for Your Station

Ask yourself:

- How long is the run?
- What frequency will I operate most?
- How much power am I running?
- Is this permanent or portable?
- Is flexibility important?

Diagram of Coaxial Cables Types



For HF with a short run, RG-8X may be perfectly adequate.

For a 50-foot run to a 70cm antenna, LMR-400 is likely the smarter investment.

Final Thoughts

Coax may not be as exciting as a new transceiver or beam antenna, but it plays a critical role in overall station performance. A well-chosen feedline reduces loss, improves signal strength, and protects your equipment. In many cases, upgrading coax yields more noticeable improvement than upgrading radios.

In amateur radio, every decibel counts—and your feedline is part of the signal chain. Choose wisely.

QRZ RESOURCE

During my research I found a Coaxial Length Calculator on QRZ. Check it out and if you find it useful, pass it along to your fellow amateur radio operator friends!

<https://forums.qrz.com/index.php?threads/coaxial-losses-electrical-lengths.487556/>

Coaxial Cable	OD (mm)	VF	Loss Attenuation in dB per 100m				
			50 MHz	70 MHz	144 MHz	432 MHz	1296 MHz
FXL-1480	39.8	0.89	0.5	0.7	0.9	1.7	3
AV46-50 (LDF6-50)	39.6	0.92	0.57	0.68	0.99	1.79	3.3
FXL-780	27.7	0.88	0.8	1*	1.4	2.5	4.4
AV46-50 (LDF6-50)	29	0.91	0.8	1.1	1.4	2.5	4.5
LMR-900	17.3	0.87	1.2	1.5	2.1	3.8	6.8
LMR-540	15.4	0.88	1.5	1.9*	2.6	4.6	8
AV44-50 (LDF4-50)	15.9	0.88	1.5	1.8	2.5	4	8.3
LMR-400	15	0.87	1.8	2.1	3.1	5.5	10
Ecoflex-15 Plus	14.6	0.86	1.9	2.3*	3.2	5.8	10.5
Ecoflex-15	14.6	0.86	2	2.4	3.4	6.1	11.4
M&P Hyperflex 13	12.7	0.86	2.1	2.5	3.6	6.6	11.7
M&P Ultraflex 13	12.7	0.86	2.1	2.6	3.9	7	12.5
LMR-500	12.7	0.86	2.3	2.7	3.9	7	12.5
M&P Broad-Pro 50	10.3	0.85	2.45	3	4.28	7.7	12.8
AV42-50 (LDF2-50)	9.7	0.88	2.4	3.3	3.8	6.5	13
FSJ4-50B	13.5	0.81	2.4	3*	4.2	7.5	13.4
Westflex-103	10.3	0.85	2.7	2.9	4.5	7.5	15
M&P Hyperflex 10	10.3	0.87	2.8	3.4	4.9	8.6	15.5
LMR-400	10.5	0.85	2.9	3.4	4.9	8.7	15.5
M&P Ultraflex 10	10.3	0.83	2.8	3.2	4.7	8.7	15.6
Aircell Plus	10.3	0.83	2.9	3	4.6	8.4	15.6
Hi-100	9.8	0.84	2.8	3.2	4.9	8.8	16
Ecoflex-10 Plus	10.2	0.85	2.85	3.3	5	8.9	16.2
Ecoflex-10	10.2	0.85	2.8	3.2	4.9	8.9	16.5
RG-213 (Foam)	10.3	0.80	2.9	3.5	4.9	9	17
M&P Ultraflex 7	7.3	0.83	4	4.9	6.9	12.4	22.3
LMR-300	7.2	0.85	4.5	5.3	7.7	13.6	24.1
Aircell 7	7.3	0.83	4.5	5	7.6	13.6	24.8
RG-213	10.3	0.86	4.5	5.3	7.8	14.3	26
LMR-240	6.1	0.84	5.7	6.7	9.7	17	30
M&P Hyperflex 5	5.4	0.87	5.8	6.7	9.7	17.3	30.5
M&P RG-214 ASU	10.8	0.66	4.6	5.24	8.3	15.4	31.8
M&P Airborne 5	5	0.85	7	8.2	11	19.1	34.2
Aircell 5	5	0.82	6.6	8	11.3	20	35.7
Mini RG-8	6.5	0.78	7.75	9.3	13.8	25.7	50.2
M&P RG-58 CU	5	0.66	10.8	13	19.3	35	63
RG-58	5	0.66	10.5	12.5	18.1	32.1	60
M&P RG-174 ASU	2.8	0.66	18.5	21.3	32	57.3	107

COAXIAL LENGTH CALCULATOR	
Enter Velocity Factor	0.87
Enter Frequency (MHz)	50.150
e.g. 50.150	
Full Wavelength	5.20 m
1/2 Wavelength	2.60 m
1/4 Wavelength	1.30 m
5/8 Wavelength	3.25 m
3/4 Wavelength	3.90 m
7/8 Wavelength	4.65 m
1 Wavelength	5.20 m
1.2 Wavelength	6.24 m
1.5 Wavelength	7.80 m
2 Wavelength	10.40 m
2.5 Wavelength	13.00 m
3 Wavelength	15.60 m
3.5 Wavelength	18.20 m
4 Wavelength	20.80 m
4.5 Wavelength	23.40 m
5 Wavelength	26.00 m
5.5 Wavelength	28.60 m
6 Wavelength	31.20 m
6.5 Wavelength	33.80 m
7 Wavelength	36.40 m
7.5 Wavelength	39.00 m
8 Wavelength	41.60 m
8.5 Wavelength	44.20 m
9 Wavelength	46.80 m
9.5 Wavelength	49.40 m
10 Wavelength	52.00 m
10.5 Wavelength	54.60 m
11 Wavelength	57.20 m
11.5 Wavelength	59.80 m
12 Wavelength	62.40 m
12.5 Wavelength	65.00 m
13 Wavelength	67.60 m
13.5 Wavelength	70.20 m
14 Wavelength	72.80 m
14.5 Wavelength	75.40 m
15 Wavelength	78.00 m

COAXIAL LOSS CALCULATOR	
Enter total coaxial length including TX/RX	19.5 m
Enter coax loss per 100m @ chosen frequency from table opposite	1.8 dB
Total TX/RX coaxial loss	0.35 dB

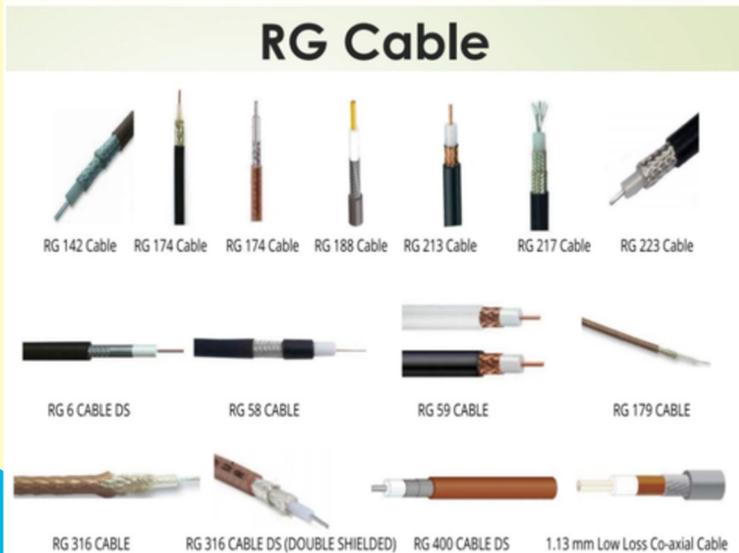
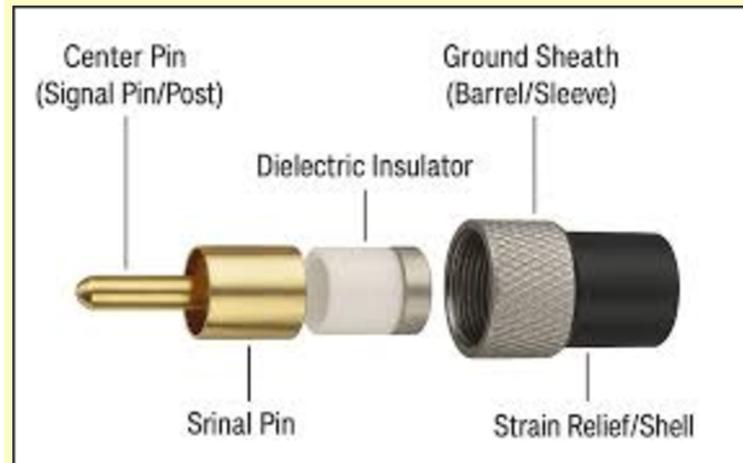
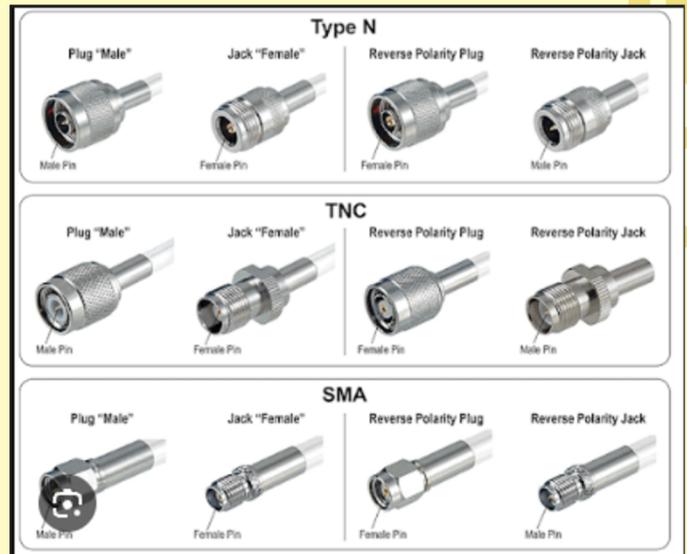
POWER COMPENSATION	
Enter required power at the aerial	100 Watts
Coaxial Loss	20.00 dB
Required transmitter output due to coaxial power loss	108.4 Watts

INSTRUCTIONS	
Coaxial Length Calculator: Enter the velocity factor as given in the table above and the desired frequency in MHz (e.g. 50.150) in the blue boxes then press the enter/return key. The results will be calculated for you. Use the Multiple 1/2 Wavelength table to determine the most suitable length. The final cable length should end with an odd 1/4 wavelength which will act as an impedance transformer to achieve resonance. Note: Enter 0.85 in Velocity Factor input box to calculate aerial lengths for any frequency. Ideal for making dipoles etc.	
Coaxial Loss Calculator: Enter coaxial length and loss per 100m as given in the table above. You can use this calculator for any cable not specified in the table above providing you have the loss data per 100m for the desired frequency.	

COAXIAL GUIDE

Choosing the Right Coax: A Practical Guide for Amateur Radio Operators

Coax Description	Outside Diameter (in)	Dielectric Material	Center Conductor Material	Shield Material	dB/100 ft	
					@ 400 MHz	@ 10 GHz
RG-58C	0.195	PE	Ag/Cu	Ag/Cu Braid	14	
RG-119	0.465	ST	Ag/Cu	Ag/Cu Braid	3.8	
RG-120	0.523	ST	Ag/Cu	Ag/Cu Braid	3.8	
RG-122	0.16	PE	Ag/Cu	Ag/Cu Braid	18	
RG-142/A/B	0.195	ST	Ag/Cu	Ag/Cu Braid	9	
RG-177	0.895	PE	Ag/Cu	Ag/Cu Braid	2.8	
RG-178/A/B	0.072	PTFE	Ag/Cu	Ag/Cu Braid	29	
RG-211/A	0.73	ST	Ag/Cu	Ag/Cu Braid	2.3	
RG-212	0.332	PE	Ag/Cu	Ag/Cu Braid	6.5	
RG-213	0.405	PE	Ag/Cu	Ag/Cu Braid	5.5	
RG-214	0.425	PE	Ag/Cu	Ag/Cu Double Braid	5.5	
RG-215	0.463	PE	Ag/Cu	Ag/Cu Braid	5.5	
RG-217	0.545	PE	Ag/Cu	Ag/Cu Braid	4.3	
RG-218	0.87	PE	Ag/Cu	Ag/Cu Braid	2.5	
RG-219	0.928	PE	Ag/Cu	Ag/Cu Braid	2.5	
RG-223	0.211	PE	Ag/Cu	Ag/Cu Double Braid	8.8	
RG-303	0.17	PTFE	Ag/Cu	Ag/Cu Braid	9	
RG-304	0.28	PTFE	Ag/Cu	Ag/Cu Braid	6	
RG-316	0.102	PTFE	Ag/Cu	Ag/Cu Braid	20	
RG-393	0.39	PTFE	Ag/Cu	Ag/Cu Braid	5	
RG-400	0.195	PTFE	Ag/Cu	Ag/Cu Braid	9.6	
RG-401 Semi-Rigid	0.25	PTFE	Ag/Cu	Cu Solid Jacket		33
RG-402 Formable	0.141	PTFE	Ag/Cu	Sn/Cu Braid		50
RG-402 Semi-Rigid	0.141	PTFE	Ag/Cu	Cu Solid Jacket		41
RG-403	0.116	PTFE	Ag/Cu	Ag/Cu Braid	29	
RG-405 Formable	0.086	PTFE	Ag/Cu	Sn/Cu Braid		82
RG-405 Semi-Rigid	0.086	PTFE	Ag/Cu	Cu Solid Jacket		65



KEY: BH = Bulkhead, R/A = Right Angle, RP = Reverse Polarity

WHAT'S THE INFO

"SARG"

Awesome
NEWS

*great
work!*

CONGRATULATIONS WA7ABU !

A big congratulations to Dan Bathurst, WA7ABU, for his persistence and dedication in achieving full coordination for the "706" repeater. After an unexpected issue arose within the ORRC process, Dan worked diligently to address concerns and move the project forward.

Even after reducing transmitter power and downgrading the antenna system, he continued collaborating with the ORRC Board to ensure all requirements were satisfied. The process involved years of discussion, technical adjustments, and significant investment of time, resources, and patience.

Dan's determination ultimately paid off, and the successful coordination of the "706" stands as a testament to his commitment to serving the amateur radio community.

S.A.R.G BOARD MEETING : FEB 22nd 7p.m.-8:30p.m.

Our next Sunday Board Meeting is scheduled for February 22nd.

If you are interested in attending you are welcome to join in on the fun. the meeting will be closed for comment but you are welcome to attend. Meeting starts at 7pm and usually last 1 hour, then we will open to public comment for 30 minutes or until all comments have ceased. Check Groups.io for meeting details and the link to join!

WOULD YOU LIKE TO BE A NET CONTROLLER?

We are looking to train new Net Controllers to help with some of our 21 Nets that we proudly bring to the "529" community. If you are interested in learning more you can reach out to Dan WA7ABU, or Kris K9CAN and we will discuss your options. By signing up to participate as a Net Control Trainee you will not be required or asked to run a Net immediately, we are interested in training interested parties to help fill in when others need a day off, giving you the opportunity to fill in and get experience.

“ON THE AIR” ETIQUETTE

RULES OF ENGAGEMENT

Before making contacts—whether across the world or within your local community—it is essential to understand proper radio etiquette. This aspect of amateur radio is often overlooked, yet it plays a crucial role in fostering meaningful and respectful communication. I encourage you to review this section carefully and refer back to it regularly to ensure a positive and impactful experience on the air. Since its inception, amateur radio has been built upon a foundation of knowledge, experimentation, curiosity, and mutual respect. It remains a vibrant space where like-minded individuals come together to exchange information, share experiences, relay messages, and expand their understanding of the craft.

Regardless of the frequency, you will find operators who communicate thoughtfully, professionally, and with a commitment to maintaining high standards of discourse. While there may be occasional disruptions from individuals who do not adhere to these principles, they often find themselves isolated, as most operators choose not to engage with those who fail to uphold the values of the amateur radio community. Respectful and constructive communication is at the heart of this hobby, and it is what brings operators together. By following established etiquette and best practices, you will not only enhance your own experience but also earn the respect and camaraderie of fellow operators. Adhering to these principles will ensure that you are welcomed into a community of knowledgeable and supportive individuals, all eager to share and grow together in this incredible field.

REPEATER ETIQUETTE

Listen Before Transmitting

- Always wait and monitor the frequency for a moment before speaking.
- Ensure you're not interrupting an ongoing QSO (conversation) or net.

Identify Properly

- Use your callsign clearly every 10 minutes and at the end of your transmission, per FCC rules.
- Use ITU phonetics when possible, especially during Net's

Be Polite and Respectful

- Treat all operators with respect, even if you disagree.
- Avoid heated debates, politics, religion, or controversial topics that can cause friction.

Don't Interrupt QSOs

- Wait until a conversation is finished before calling another station.
- If you want to join, say your callsign during a pause and wait to be invited in.

Avoid Jamming or Kerchunking

- Don't "kerchunk" the repeater (keying up without speaking just to test), if desiring no response, use the phrase "testing only".
- Never deliberately interfere with others' transmissions—it's illegal and unethical.

Leave Space Between Transmissions

- Always leave a 1–2 second gap after another person finishes to allow others to break in.
- Many repeaters have a time-out timer and need time to reset.

Support Net Control Stations

- During nets, follow the Net Control Operator's instructions.
- Don't transmit unless requested or acknowledged.

Use the Repeater Properly

- Don't use it for excessive testing, tuning, or long idle conversations.
- If you're testing equipment, do so quickly and identify your intent.

Use "Break" Appropriately

- Use "Break" only for urgent or emergency communication.
- If someone breaks in, yield the frequency and assess the situation calmly.

Keep it Short and Clear

- Use concise transmissions. Long-winded monologues tie up the repeater and frustrate others waiting to use it.

Pause between transmissions to allow emergency traffic or others to break in.

There are inappropriate conversations, and then there are subjects you do not personally align with, know and respect the difference. Respect one another.

WHAT DOES THAT SWR NUMBER MEAN ANYWAY

SWR 1.0 – 1.5: Optimal Range

This is the ideal SWR range. If your Standing Wave Ratio is under 1.5, your antenna system is performing well. While you might be able to reduce it closer to 1.0 through additional fine-tuning, equipment changes, or relocation of your antenna, the improvement in performance from 1.5 to 1.0 is generally minimal and not very noticeable. The real gains are seen when lowering SWR from much higher levels.

SWR 1.5 – 1.9: Acceptable with Room for Improvement

SWR in this range is still workable and should provide decent performance. However, there is room to improve. Often, if your antenna is properly tuned and the SWR remains here, the issue may lie with the mounting location or compatibility between the antenna and vehicle. While it's possible some setups can't get below this level, performance should remain acceptable for most casual use.

SWR 2.0 – 2.4: Needs Attention

SWR in this range is less than ideal. Occasional short transmissions might not harm your radio, but it's advisable to correct the issue. Common causes include poor mounting location or a mismatch between antenna and vehicle. Consider relocating your antenna or switching to one better suited for your setup. If you've already tuned the antenna, further troubleshooting is recommended.

SWR 2.5 – 2.9: Problematic

At this level, performance will be noticeably reduced, and there's a real risk of damaging your radio during frequent or prolonged transmissions. Avoid operating in this range until the issue is corrected. It's often the result of an unsuitable mounting location or incompatible antenna equipment. Reevaluate your setup and make necessary adjustments to bring the SWR down.

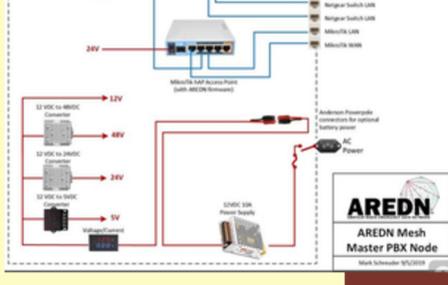
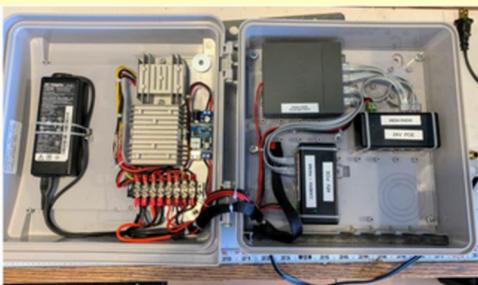
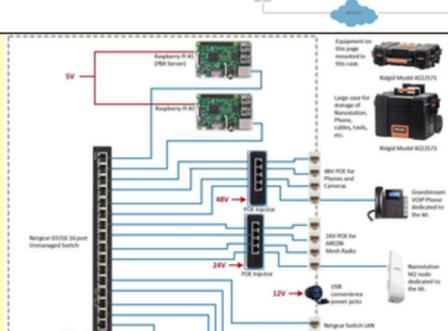
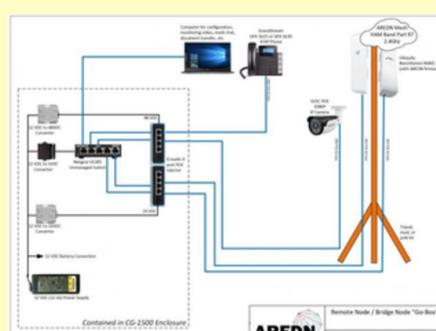
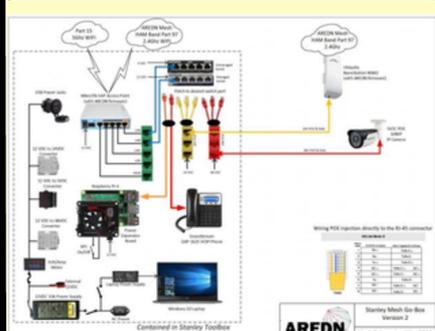
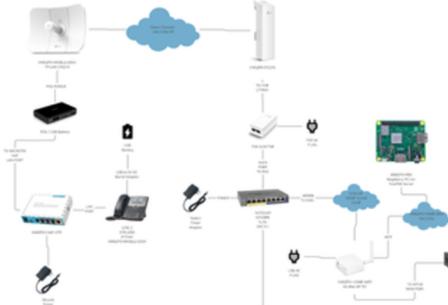
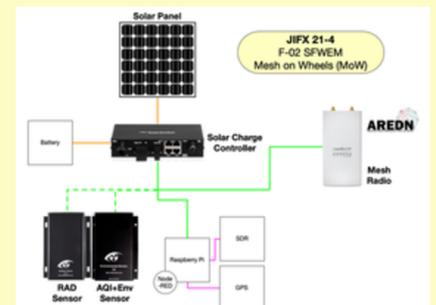
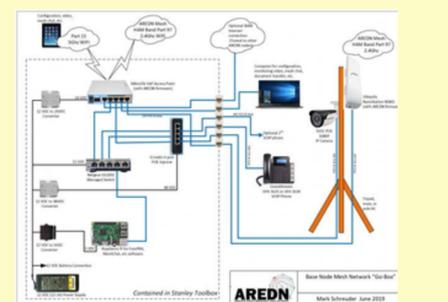
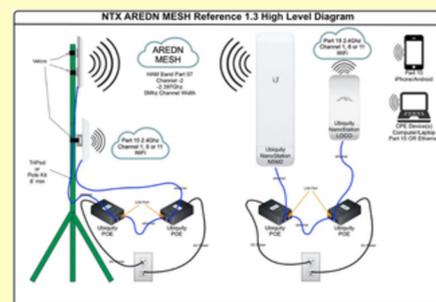
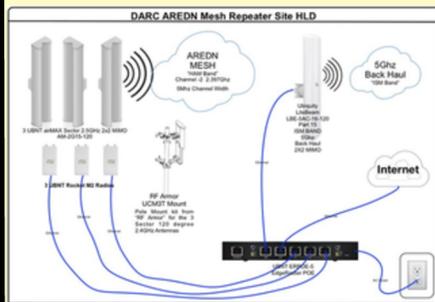
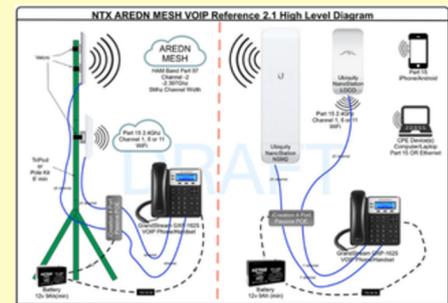
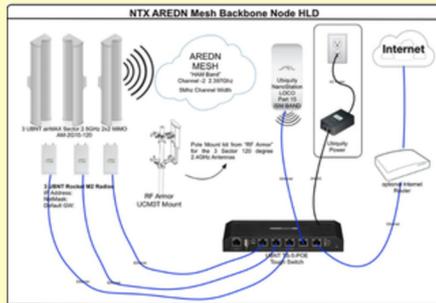
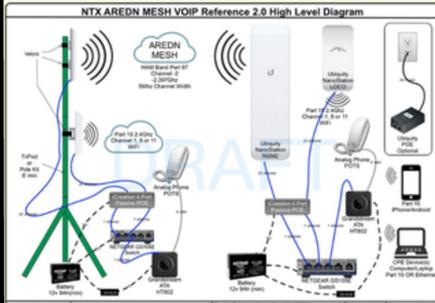
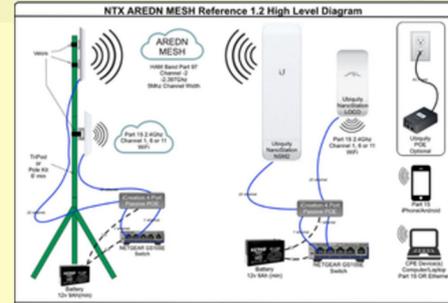
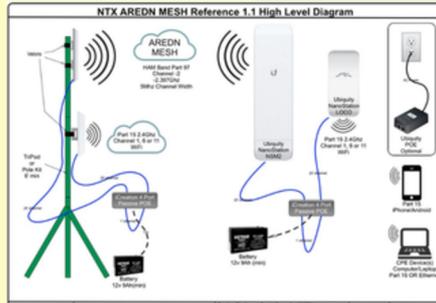
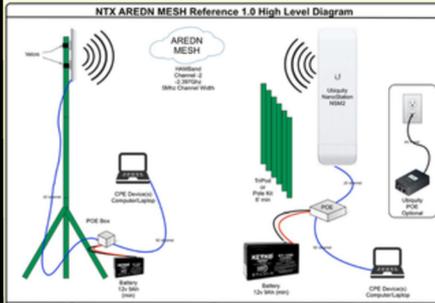
SWR 3.0+: Critical

This is a serious warning zone. Transmitting with an SWR above 3.0 can quickly damage your radio. If your SWR meter pegs all the way to the right, it's a sign of a major installation error. The most common culprits are poor grounding, incorrectly assembled antenna studs, faulty coaxial cable, or improperly connected meters. You should stop transmitting immediately and perform a thorough inspection of your entire antenna system.



AREDN is not just for EMERGENCIES

AREDN SETUPS



Winter Weather Precautions

How to Secure Your Connections!



Keeping your amateur radio coaxial cable and connectors free from water intrusion is crucial to maintaining signal quality and preventing corrosion, signal loss, and potential equipment damage.

Here are several effective methods to protect your coax and connectors from water ingress:

1. Use High-Quality Weatherproof Connectors

- Compression-Sealed Connectors – Use connectors with built-in rubber gaskets or O-rings that create a weather-resistant seal.
- Waterproof Coaxial Connectors – Some manufacturers, like Times Microwave, offer waterproof PL-259, N-type, or SMA connectors.

2. Apply Coaxial Sealant (Self-Amalgamating Tape)

- Coax Seal (Mastic Tape) – A moldable rubber-like tape that sticks to itself, creating a weatherproof seal.
 - Self-Amalgamating Silicone Tape – Stretches and bonds to itself without adhesive, forming a water-tight barrier.
 - Application Tip: Wrap the connector and the first few inches of the coax to ensure full coverage.

3. Use Heat Shrink Tubing

- Waterproof Heat Shrink Tubing with an adhesive lining can be applied over connectors to provide extra insulation and sealing.
- Application Tip: After sealing with tape, slide heat shrink over the connector and use a heat gun to shrink it for added durability.

4. Use Coaxial Boot Covers

- Rubber or silicone coaxial boots can slip over connectors, offering additional protection from moisture and UV exposure.

5. Apply Dielectric Grease

- Prevents moisture buildup and corrosion inside connectors while maintaining good electrical contact.
- Application Tip: Apply a small amount inside PL-259, N, or SMA connectors before mating them.

6. Elevate and Properly Route Coax

- Avoid Low Spots – Ensure coax does not form loops or dips where water can collect and seep in.
- Run Coax at a Downward Angle – When entering enclosures or shack walls, have the coax run downward before entry to prevent water from following the cable inside.

7. Use Proper Drip Loops

- Before the coax enters your radio shack, create a drip loop (a downward bend) so that water drips off the loop instead of following the cable into the connectors.

8. Enclose Outdoor Connections in a Junction Box

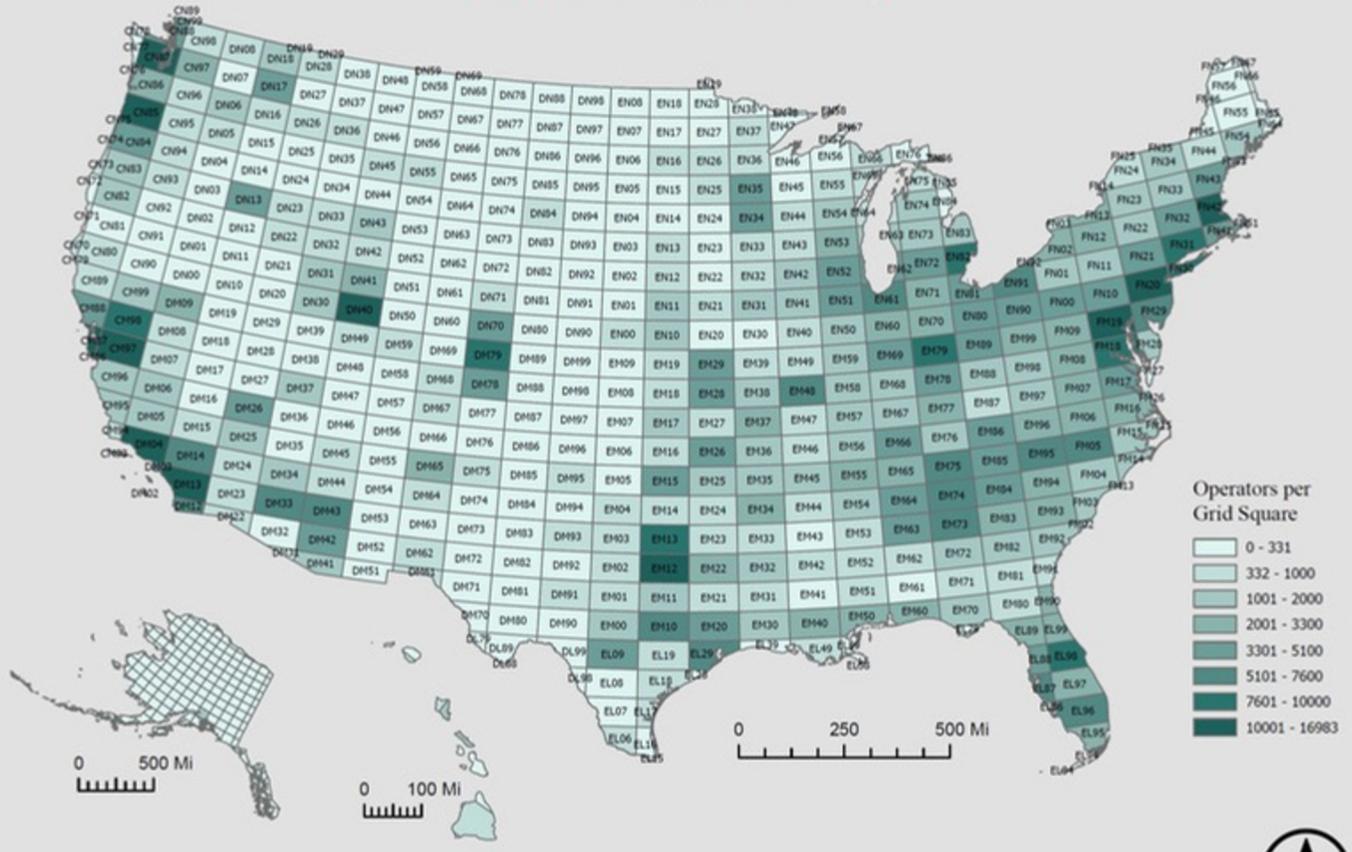
- For long-term installations, place connectors inside a weatherproof electrical box or PVC enclosure.
 - Use waterproof cable glands to pass coax into the box, ensuring a tight seal.

9. Periodically Inspect and Reapply Protection

- Over time, sealants and tape degrade due to UV exposure and weathering.
- Check all outdoor connections at least once a year and reapply tape or sealant if necessary.



U.S. Grid Square Map

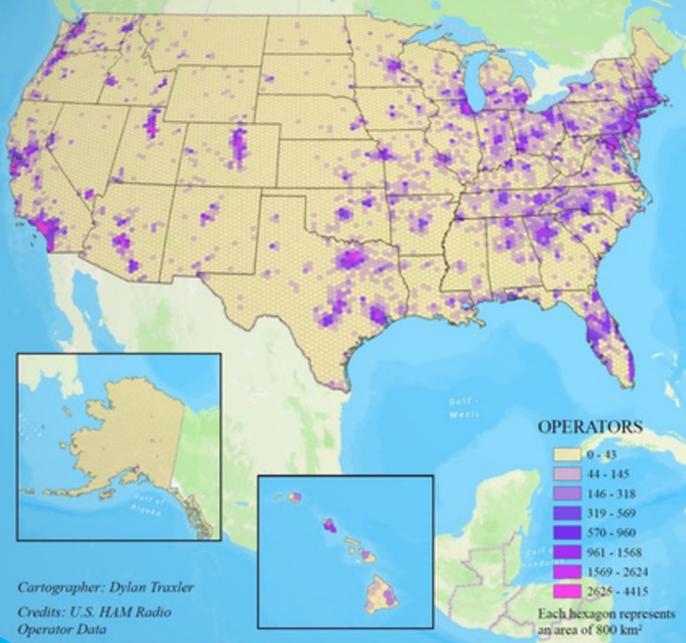


Cartographer: Dylan Traxler

Credits: U.S. Grid System Data & U.S. HAM Radio Operator Data



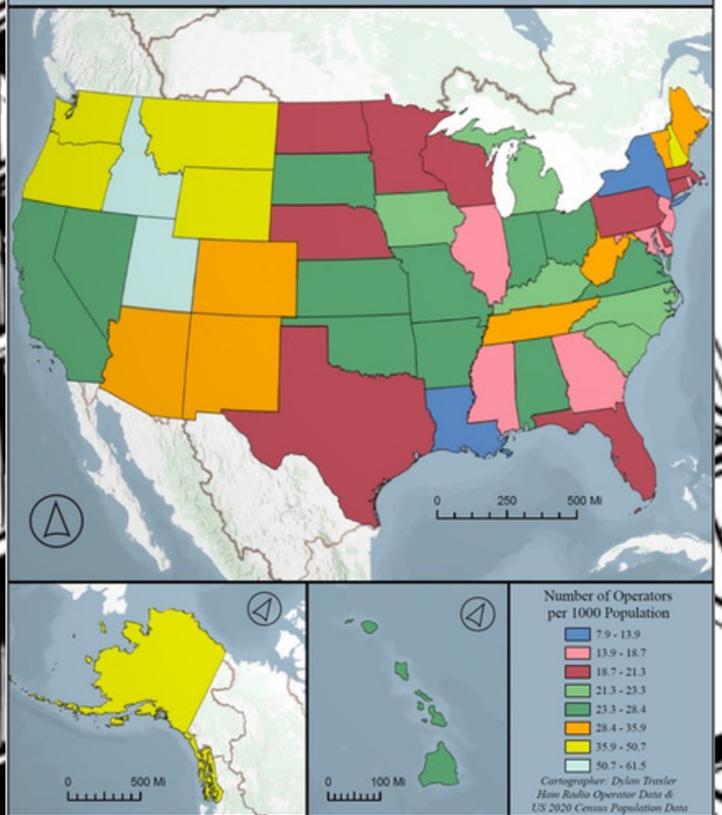
HAM RADIO OPERATORS



Cartographer: Dylan Traxler
Credits: U.S. HAM Radio Operator Data

Each hexagon represents an area of 800 km²

HAM Radio Operators / US State Total Population



Cartographer: Dylan Traxler
HAM Radio Operator Data & US 2020 Census Population Data

CONTEST SCHEDULE

FEBRUARY 16th - March 15th

[VISIT CALENDAR HERE](#)

February 16 - 22

• VHF-UHF FTB Activity Contest	1700Z-2100Z, Feb 18
• AGCW Semi-Automatic Key Evening	1900Z-2030Z, Feb 18
• Walk for the Bacon QRP Contest	0000Z-0100Z, Feb 19 and 0200Z-0300Z, Feb 20
• NTC QSO Party	1900Z-2000Z, Feb 19
• ARRL Inter. DX Contest, CW	0000Z, Feb 21 to 2400Z, Feb 22
• REF Contest, SSB	0600Z, Feb 21 to 1800Z, Feb 22
• Russian PSK WW Contest	1200Z, Feb 21 to 1159Z, Feb 22
• Feld Hell Sprint	1900Z-2059Z, Feb 21
• World Wide Argentina DX Contest	0000Z-2359Z, Feb 22
• High Speed Club CW Contest	1400Z-1700Z, Feb 22
• Classic Exchange, Phone	1400Z, Feb 22 to 0800Z, Feb 23 and 1400Z, Feb 24 to 0800Z, Feb 25
• Classic Exchange, Phone	1400Z, Feb 22 to 0800Z, Feb 23 and 1400Z, Feb 24 to 0800Z, Feb 25

February 23 - March 1

• QCX Challenge	1300Z-1400Z, Feb 23
• QCX Challenge	1900Z-2000Z, Feb 23
• RSGB FT4 Contest	2000Z-2200Z, Feb 23
• QCX Challenge	0300Z-0400Z, Feb 24
• SKCC Sprint	0000Z-0200Z, Feb 25
• UKEIJC 80m Contest	2000Z-2100Z, Feb 25
• RSGB 80m Club Championship, CW	2000Z-2130Z, Feb 26
• CQ 160-Meter Contest, SSB	2200Z, Feb 27 to 2200Z, Mar 1
• UBA DX Contest, CW	1300Z, Feb 28 to 1300Z, Mar 1
• South Carolina QSO Party	1500Z, Feb 28 to 0159Z, Mar 1
• North American QSO Party, RTTY	1800Z, Feb 28 to 0559Z, Mar 1
• NA Collegiate Championship, RTTY	1800Z, Feb 28 to 0559Z, Mar 1
• UBA Spring Contest, 2m	0700Z-1100Z, Mar 1
• NSARA Contest	1200Z-1600Z, Mar 1 and 1800Z-2200Z, Mar 1
• SARL Hamnet 40m Simulated Emerg Contest	1200Z-1400Z, Mar 1
• North Carolina QSO Party	1500Z, Mar 1 to 0100Z, Mar 2
• WAB 3.5 MHz Phone	1800Z-2200Z, Mar 1

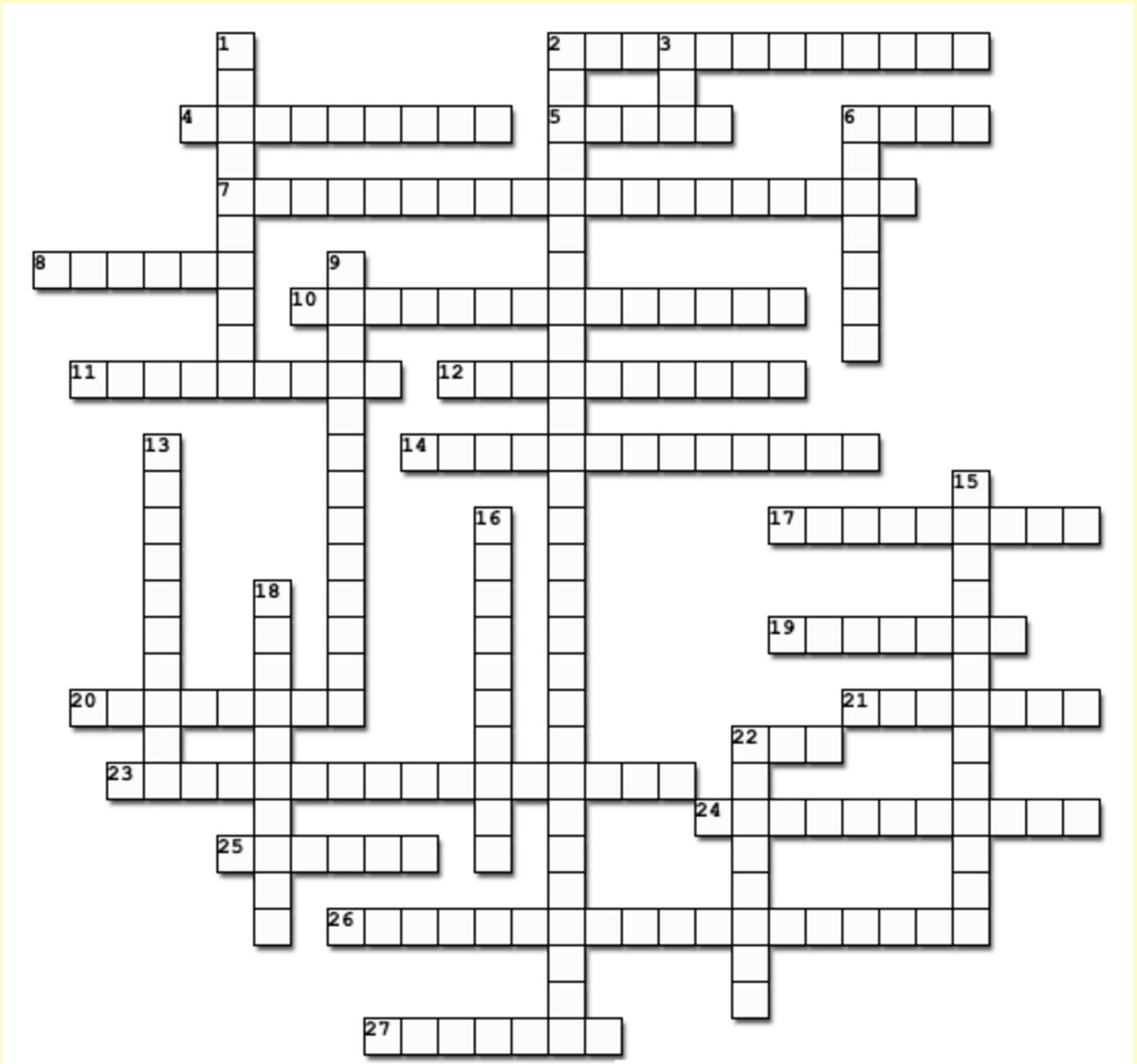
March 2 - 8

• RSGB 80m Club Championship, Data	2000Z-2130Z, Mar 2
• ARS Spartan Sprint	0100Z-0300Z, Mar 3
• AGCW YL-CW Party	1900Z-2100Z, Mar 3
• VHF-UHF FTB Activity Contest	1700Z-2100Z, Mar 4
• UKEIJC 80m Contest	2000Z-2100Z, Mar 4
• Walk for the Bacon QRP Contest	0000Z-0100Z, Mar 5 and 0200Z-0300Z, Mar 6
• NRAU 10m Activity Contest	1800Z-1900Z, Mar 5 (CW) and 1900Z-2000Z, Mar 5 (SSB) and 2000Z-2100Z, Mar 5 (FM) and 2100Z-2200Z, Mar 5 (Dig)
• SKCC Sprint Europe	2000Z-2200Z, Mar 5
• Novice Rig Roundup	0000Z, Mar 7 to 2359Z, Mar 15
• ARRL Inter. DX Contest, SSB	0000Z, Mar 7 to 2400Z, Mar 8
• Wake-Up! QRP Sprint	0600Z-0629Z, Mar 7 and 0630Z-0659Z, Mar 7 and 0700Z-0729Z, Mar 7 and 0730Z-0800Z, Mar 7
• Russian YL/OM Contest	0700Z-1059Z, Mar 7
• UBA Spring Contest, CW	0700Z-1100Z, Mar 8
• FIRAC HF Contest	0700Z to 1700Z, Mar 8
• Classic Exchange, CW	1300Z, Mar 8 to 0700Z, Mar 9 and 1300Z, Mar 10 to 0700Z, Mar 11

March 9 - 15

• 4 States QRP Group Second Sunday Sprint	0000Z-0200Z, Mar 9
• DARC CW-Training Contest	1800Z-1859Z, Mar 10
• VHF-UHF FTB Activity Contest	1700Z-2100Z, Mar 11
• RSGB 80m Club Championship, CW	2000Z-2130Z, Mar 11
• YB DX RTTY Contest	0000Z-2359Z, Mar 14
• SARL VHF/UHF FM Contest	0800Z, Mar 14 to 1000Z, Mar 15
• SARL Field Day Contest	0800Z, Mar 14 to 1000Z, Mar 15
• Commonwealth	1000Z, Mar 14 to 1000Z, Mar 15
• SKCC Weekend Sprintathon	1200Z, Mar 14 to 2400Z, Mar 15
• EA PSK63 Contest	1200Z, Mar 14 to 1200Z, Mar 15
• F9AA Cup, SSB	1200Z, Mar 14 to 1200Z, Mar 15
• South America 10 Meter Contest	1200Z, Mar 14 to 1200Z, Mar 15
• DIG QSO Party, SSB	1200Z-1700Z, Mar 14 (20m-10m) and 0700Z-0900Z, Mar 15 (80m) and 0900Z-1100Z, Mar 15 (40m)
• AGCW QRP Contest	1400Z-2000Z, Mar 14
• Stew Perry Topband Challenge	1500Z, Mar 14 to 1500Z, Mar 15
• Oklahoma QSO Party	1500Z, Mar 14 to 0200Z, Mar 15 and 1500Z-2200Z, Mar 15
• Idaho QSO Party	1600Z, Mar 14 to 0400Z, Mar 15 and 1400Z, Mar 15 to 0200Z, Mar 16
• TESLA Memorial HF CW Contest	1800Z, Mar 14 to 0559Z, Mar 15
• North American Sprint, RTTY	0000Z-0359Z, Mar 15
• UBA Spring Contest, 6m	0700Z-1100Z, Mar 15
• YOTA Contest	1000Z-2159Z, Mar 15
• Wisconsin QSO Party	1800Z, Mar 15 to 0100Z, Mar 16
• Run for the Bacon QRP Contest	2300Z, Mar 15 to 0100Z, Mar 16

SOLAR TERRESTRIAL TERMS/DATA



Across

2. Conditions on the Sun affecting Earth and radio
4. Solar flare that can cause HF radio blackouts
5. Ionospheric layer strongest during daylight hours
6. Common shorthand for the 10.7 cm solar flux index
7. Magnetic field carried by the solar wind
8. Atmospheric light display caused by solar particles
10. Solar event affecting satellites and radio propagation
11. Stream of charged particles from the Sun
12. Upper atmospheric region affected by solar radiation
14. Numerical index representing visible sunspots
17. Measure of solar radio emissions at 10.7 cm
19. Dark region on the Sun associated with increased solar activity
20. Propagation enhancement near the day-night boundary
21. Primary ionospheric layer for long-distance HF propagation
22. Southward magnetic field component affecting geomagnetic storms
23. Disturbance of Earth's magnetic field
24. HF signal loss caused by the D layer
25. Daily average of geomagnetic disturbance
26. HF blackout near polar regions
27. Global measure of geomagnetic activity

Down

1. Boundary between day and night on Earth
2. Rapid ionospheric change from solar activity
3. Massive solar plasma ejection toward space
6. Daytime ionospheric layer between D and F2
9. Region dominated by Earth's magnetic field
13. Sudden burst of energy from the Sun
15. Behavior of HF signals influenced by solar conditions
16. Approximately 11-year pattern of solar activity
18. Process of atoms losing electrons due to solar energy
22. Loss of HF communications due to solar events

**Answers will be offered within the
following ZINE publication
April 15th**

PCB Board Parts

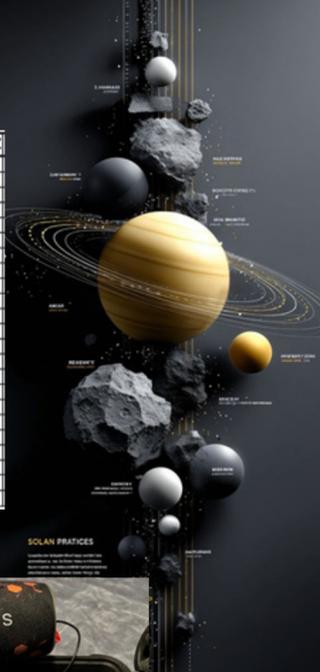
resistance	circuit symbol	variable resistance	
electrolytic capacitor		battery	
diode		LDR	
zener diode		fuse	
transistor		dc motor	
diac		LED light	
polyester capacitor		Relay	
triac		on/off switch	
MOV		mic	



ELECTRICAL SYMBOLS CHART

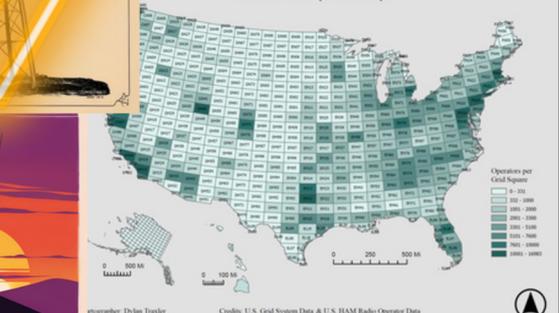
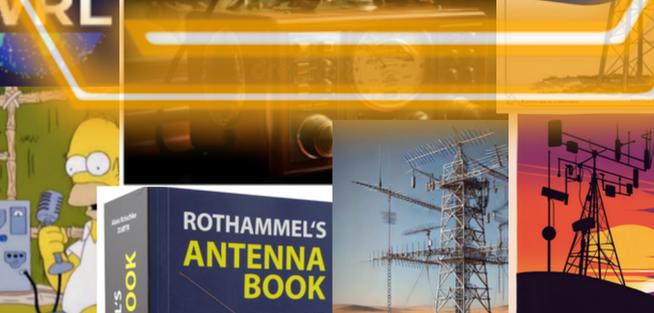
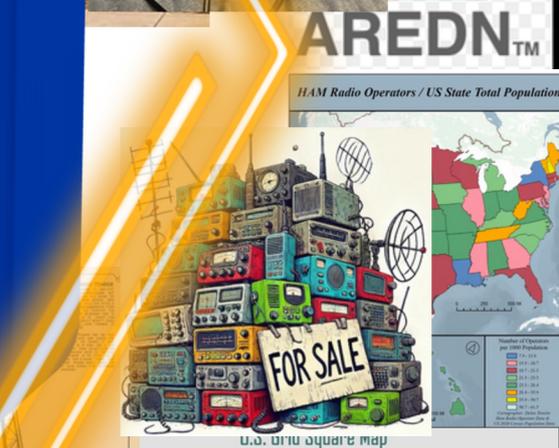
	resistor
	capacitor
	diode
	transistor
	motor
	LED
	switch
	fuse
	battery
	LDR
	zener diode
	triac
	diac
	polyester capacitor
	MOV
	mic

BAND	CHAN	FREQ.MHZ
FRS	3	462.6125FM
GMRS	20 / 675	462.675+FM
MURS	3	151.940 FM
CB AM	3 AM	26.985 AM
CB AM	9 AM	27.065 AM
CB SSB	36 USB	27.365USB
CB SSB	37 USB	27.375USB
CB FREEBAND	38 GAP	27.378USB
CB FREEBAND	E 2 HI	27.425USB
LOWBAND VHF	LOW	33.400 FM
LOWBAND VHF	PKDOT	42.980 FM
HAM VHF	2 M	146.520 FM
HAM VHF	2 M	146.550 FM
HAM VHF	6 M	51.000 FM
HAM HF	10 M	28.305USB
HAM HF	20 M	14.242USB
HAM HF	40 M	7.242LSB
HAM HF	60 M	5.357USB
HAM HF	80 M	3.818LSB
LAND SAR VHF	SARFM	155.160 FM
MARINE VHF	16	156.800 FM
MARINE VHF	72	156.625 FM
AIRCRAFT VHF	GUARD	121.500 AM



**FEELING GRATEFUL??
BUY ME A COFFEE
OR
DONATE TO THE ZINE
SAFE & SECURE**

PayPal



CONTRIBUTORS

KRIS GOLDEN-K9CAN
Editor in Chief/Writer

MARK HOLT W7EAZ
Contributing Writer

DEREK BEREZA VE5SD
Contributing Editor

ROTHAMMEL'S ANTENNA BOOK

2025

SEA-PAC

"529" Hall of the Greats

Richard Thomas WOEDF

Bruce Currier W7CCM