Mountain Top Amateur Radio Association
January 2022
Volume 2, Issue 1

MTARA NEWS

President Lorna's KJ6GFS Message

Greetings from your neo-President, Lorna, KJ6GFS ~~

We've got a New Year, a New Board, and many New MTARA Members to broaden the pool of amateur radio communicators who are such an important asset to our community. Welcome !

The storms that occurred over Christmas and New Years presented many of us mountaintop folks with communications and travel challenges. The extended power-, internet-, and cell phone outages gave many of us the opportunity to experience firsthand and, in some cases, for the first time, the reality of "When all else fails, ham radio works." I, for one, have been inspired by these inconveniences to upgrade my radio skills.

The damage to several of our roadways, Highway 18 in particular, has resulted in disruptions to everyday activities and delays in travel. Fortunately, travel up and down the hill has improved greatly with the reopening of Highway 18 for one-way pilot car escorts past the washed-out area above Upper Waterman Canyon.

January is the time of Quartzfest, and several of our members will be attending between January 23 and January 29. Tracy, WM6T, is in charge of the seminars to be presented at this annual ham adventure in the Arizona desert.

Our MTARA meetings, scheduled for the first Tuesday of each month, will be on Zoom for the foreseeable future. Hope to "see" you all there!

Seven Three, Everyone ~~ Lorna

Officers

- **President:**

Lorna Polley, KJ6GFS

- **Vice-President:**

Chet Olson, AE6CO

- **Treasurer:**

Nancy Karlson, K6CUB

- **Secretary/Newsletter**

Debbie Johnson, WB6LVC

- **Ed/Membership:**

Tracy Lenocker, WM6T

- **Past Presidents:**

John Snedden, KT7P

Vic Marquez, KK6WKI

The Rim of the World ARES group is an ARRL affiliated organization and part of the Mountain Top Amateur Radio Association

Monthly Club Meetings

Club meetings are held on the first Tuesday of each month. Meeting begin at 7:00 p.m. and last until approximately 9:00 p.m.

Our meetings are open to everyone; so bring a friend, and keep the hobby growing.

There is always a presentation that will pique your interest and add to your knowledge.

Until further notice, all meetings will be held on Zoom. When this changes you will be notified of the location.

See you on Zoom!

Membership

Membership in MTARA is open to any individual interested in learning more about Amateur Radio. An FCC issued license is not required, but is encouraged. Membership is on an annual basis, running for the calendar year. There are no prorated membership fees. Club fees are $20.00 for a single membership and $30.00 for a family membership. The necessary forms can be found on the club's home page @ MTARA.club. Current members only need to send in their dues to MTARA, PO Box 2441, Lake Arrowhead, Ca. New members will need to download and send in their forms and payment to the same address.

TREASURES REPORT

Our ending December Balance was

$11,124

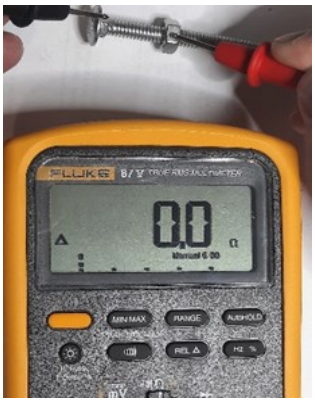
73, Nancy N6CUB

Evaluating Construction Articles—AJ6FN

To begin the New Year, I thought I'd bring up the importance of evaluating information we find in various ham radio articles and DIY plans. A good friend of mine found a good step-by-step article describing how to make an antenna loading coil. I read and followed along until the author said, “If you have some blue Loctite, it wouldn’t hurt to add a little to the second jam nut.” He mentioned using blue Loctite three times in this article. For those who are not familiar with Loctite, Loctite is a thread-locking product that prevents nuts, bolts, screws, etc. from coming loose due to vibration or normal use.

I didn't know for sure whether Loctite is an insulator or a conductor so I visited the Loctite website searching for the answer. There was nothing on the website to answer my question but I did find that Loctite offers make some electrically conductive products. Not finding the information I wanted on the Internet, I conducted a simple experiment. Not scientific to be sure, but good enough for me to draw a solid conclusion and demonstrate how important it is to confirm information we run across on the Internet.

I found two nuts and two bolts in the garage that were similar to each other. One nut was screwed onto its bolt without using Loctite. The nut was not tightened against a surface, just threaded onto the bolt. The resistance of this combination was zero ohms, a good electrical contact (see photo).



I then applied Loctite liberally to the threads of a second bolt and threaded the nut onto the bolt and into the area where I had applied Loctite. I let this dry for a full 24 hours. The next evening, I measured the resistance between the nut and the bolt. It was 1.6Meg ohms DC resistance! Having an antenna connection where the whip portion of the antenna is insulated from the coil just can’t be good. Who knows how much better his antenna might have performed if he had low resistance connections throughout?

I think I can say without reservation, **do not use Loctite on antenna connections**. I have used Loctite products on nuts and bolts for many years and these are fantastic products. However, many thread-lock products are insulators and are not suitable for use on electrical connections.

So what are our options? I like to use lock washers on antenna connections to keep them tight. I often use star type washers if I want them to bite into a metal surface when tightened. I also use split ring lock washers on plated metal when I don’t wish to have the washer cut into the plating which can hasten corrosion. I suppose a second nut tightened against the first used as a locknut is also a good option if there is enough bolt to accommodate an additional nut. Finally, for screws/nuts that don’t require the holding power of Loctite, I often tighten the screw/nut and then put a dot of fingernail polish on the screw where the head of the screw meets the surface or on the nut so the dot is on both the nut and the screw threads just to keep the screw from working its way loose. Nail polish will not be drawn into the threads by capillary action like Loctite, so it does not interfere with electrical connections.

This is just one example of something I found on the Internet that could potentially sabotage an otherwise successful project for the shack or field. I’m sure all who share their knowledge are well meaning but no one knows everything and some things we see or hear are just not correct. Our best bet is to think about the issue, do some research, ask our ham friends, and if necessary, some experimentation.

I emailed the author of this antenna coil article and sent the photos of the resistance measurements. He appreciated the new information and said that he had not given the Loctite issue any thought. He also indicated that he would edit and re-post his document now that he has new information.

Happy New Year and Happy Ham Radio!

73, Greg ~ AJ6FN

Elecraft AX2 Antenna—WM6T

Last month I saw an email from one of the founders of Elecraft that they had developed another very small antenna for the KX2 and KX3 radios.

I have their first antenna the AX1 but there were a few issues in using it the way I wanted. 20 meters was fine and 40 meters was impossible. The BNC connector rotated and was hard to stabilize on a tabletop.

I was hoping that this new version called the AX2 would have less problems. So, for $85 I ordered one right away. It arrived on Saturday, November 28th and those of you who live in the mountains know that getting mail or a package on a Saturday is a long wait in line and packages are only available for a 2 hour periods. So over to the Lake Arrowhead post office I went. After my wait, I was handed my antenna package.

The antenna was nice and small and excellent for POTA, SOTA or backpacking in general. The maximum length is 6-inches for the whip and 2-1/2 inches for the base unit. It comes with a 13-foot radial wire. One of the instructions says to not touch the antenna while transmitting as you might get an RF burn. I appreciate that they put in that warning in just for me.

I grabbed my KX2 and set up outside on the upper deck patio table. I was planning on just listening to hear what I could on 20 meters. It was about 16:00 local when I started. The set up took about 5 minutes of which most of the time was stretching out the radial.

There were a lot of SSB signals all over the band. I tuned to the CW portion and there was a lot of traffic there too. As I listened I heard K5RX 599 in Texas. Well I just thought I would respond to his call. After two tries I made contact and received a 579. So on the upper deck next to the house I made my first contact with that little antenna. I got a piece of paper and wrote down that contact.

Then I spun the dial a bit and heard PJ4K pretty strong. He is in Bonaire in the Caribbean. After my first try he came back with my call sign and a 559 signal report.

I made two more contacts to K5YR in Texas and XE2Bin Mexico. All four contacts were made in a period of 15 minutes. After I broke down and started putting everything away I realized I never used the ATU to tune the antenna.

It is a very small antenna that can be used in HT pedestrian style or on a tabletop. There are optional pieces for mounting on a tripod or a stability bipod leg which I used in this setup. There is a 40 meter coil extension which I have not tried. This antenna would work great also on a IC-705 since the antenna is set for 20 meters and no tuner is needed.

Local Weekly Nets

	Repeater	Time	Activity	Purpose
Monday	MTARA—2	7:00 p.m.	Weekly Check-In	MTARA News
Monday	144.330 MHz	8:00 p.m.	'Gordo Net'	Simplex Readiness
Tuesday	MTARA—5	7:00 p.m.	"Debbie Net"	Educational Topics
Wednes-day	HF	7:30 p.m. First Wednesday	7.223 MHz	Band(s) Status
Friday	MTARA—5	5:00 p.m.	YL Happy Hour	It's Friday
Daily	CBARC	7:00 a.m.	Tech. Net	Elmer Sessions

Upcoming Calendar 0f Events

- January 17th—ARRL Field Day Survey Due
- January 23rd-29th—Quartzfest, Quartzsite, AZ
- February 1st—MTARA Club Meeting on Zoom
- February 10th-13th—2022 ARRL National Convention, Orlando, FL
- February 18th-19th—ARRL Southwestern Division Convention, Yuma, AZ

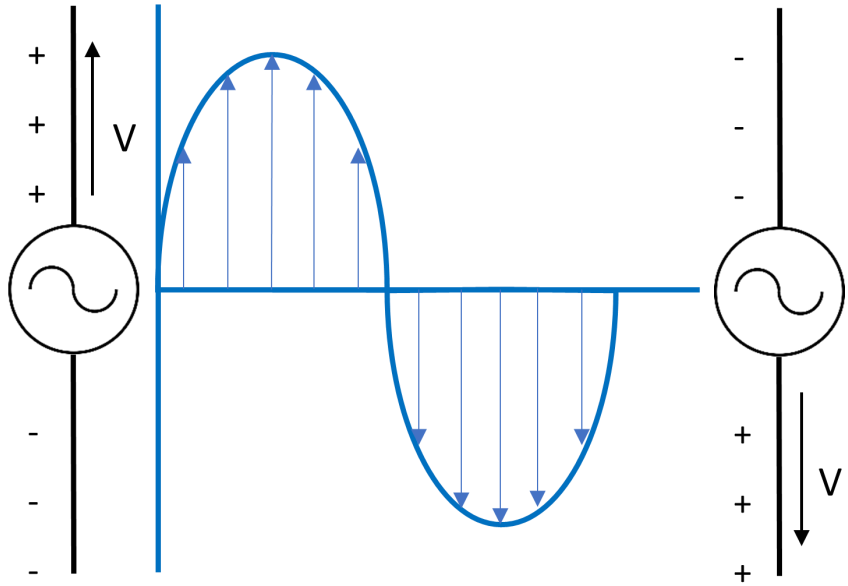
Ponder the Pool—AA6GJ

Ponder the Pool is my column for the MTARA Newsletter. Every month I pick a point to ponder (a question) from one of the three FCC question pools and try to explain it more and review the concepts because,

"If you don't use it, you lose it!"

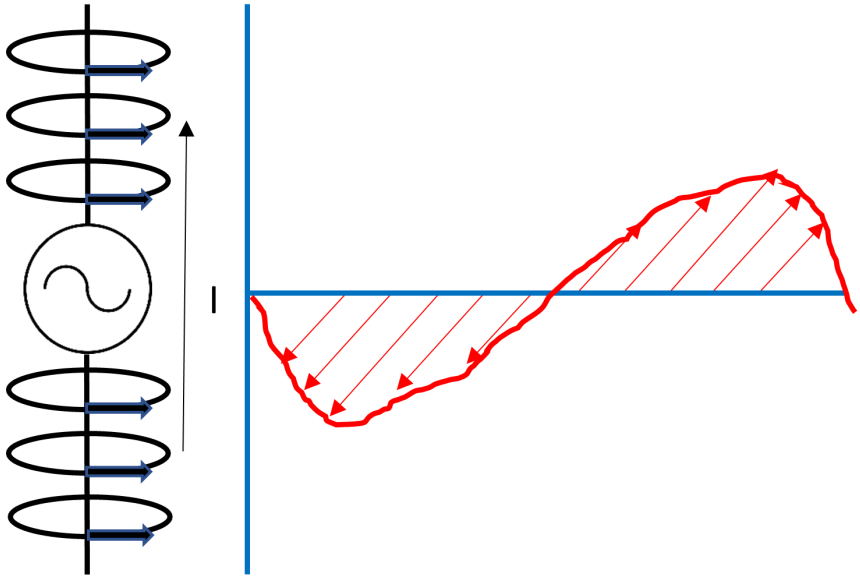
This time, we will ponder a question from the Technician Class pool:
Questions No. T3B03 (Pg. 55 in Gordo's Technician Book)
T3B03 – What are the two components of a radio wave?

The "radio waves" the question is referring to are actual known as "electromagnetic waves or EM." This is important to know because of the two components in the EM wave. Let's first consider how electrons move in a piece of wire or in a dipole.

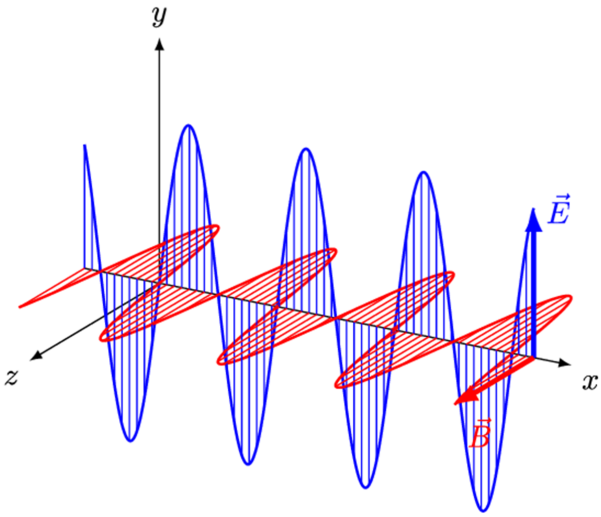


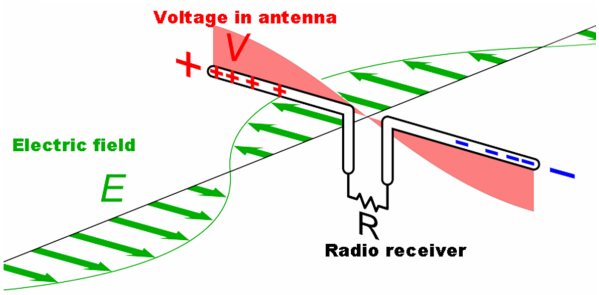
The wire on the left is a vertical wire dipole and so is the one on the right. They are one in the same.

There is an alternating voltage flowing in the left that, for sake of argument, is flowing from the negative to the positive, thus make the positive going part of the sine wave, then the voltage reverses itself and goes negative creating the negative going part of the sine wave. This is considered one cycle.



Following Ampere's Law, current (I) in the antenna produces a magnetic field around the wire. As the current varies, the magnetic field varies in magnitude and direction. This creates a field that is in phase with the electric field and perpendicular (transverse) to the electric field.
When we show them together, they look like the illustrations on the next page.





So, without going crazy with Ampere's Law and Maxwell's Equations, we can summarize by saying that an oscillating electric field creates a corresponding and transverse magnetic field which in turn creates another electric field and then another transverse magnetic field in phase and at the frequency of the oscillator. The oscillator, of course, is built into our amateur radios controlled by the "big knob" on the front. The oscillating voltage and associated current the E field creates travels down our coax or ladder line to our radios. The frequency is demodulated and "voila" we have radio! By the way, in ham radio, as you all know by now, the electric field is the important one because that's what determines our antenna polarization. Handi-talkies point up (vertical). Repeater antennas point up (vertical). Note that the antenna above is horizontal like our HF and weak signal dipoles.

So, there you have it, the official answers to these questions are:
T3B03 – Electric and Magnetic fields.

That's *Ponder the Pool* for another month. I hope it was helpful.
Stay tuned, next month we will come up with another question to ponder. 73 – Gary
If you have any questions or comments, drop me an email at AA6GJ@arrl.net .

POST SCRIPT

We are offering another Technician Class License Course

- February 2—March 9, 2022
- Six Wednesdays
- 5:30 to 8:30 p.m.
- On Zoom and It's FREE!
- *Contact us at: WestEndHamTest@outlook.com*

West End Amateur Radio Group

Mountain Top Amateur Radio Association

The Amateur's Code
by Paul M. Segal, W9EEA (1928)

The Radio Amateur is:

CONSIDERATE never knowingly operating in such a way as to lessen the pleasure of others.

LOYAL offering loyalty, encouragement and support to other amateurs, local clubs and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE with knowledge abreast of science, a well built and efficient station, and operation beyond reproach.

FRIENDLY with slow and patient operation when requested, friendly advice and counsel to the beginner, kindly assistance, co-operation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED Radio is an avocation, never interfering with duties owed to family, job, school or community.

MTARA Shirts, Jackets, and More

We have many items available with our club logo.

The information for ordering is as follows:

- Name Tags—Harlan Technologies, Name Tags by Gene (715) 340-1299, www.hampubs.com
- Mouse Pads—Check with Jodi, WA6JL
- Polo Shirts—Port Authority K420P Dark Green, L420 Dark Green, K100LS Dark Green. To order, contact Mary at Classic Images, (909) 338-2281, Tuesday through Friday. She will take your information and Callsign to be embroidered on the shirt. When completed, order must be picked at the business located at 23723 Rocky Dell Drive, Crestline, CA 92325
- Jackets—Forest Green or Black. Sizes Small to 6X For pricing and embroidery contact Mary at Classic Images same information as above.