CLIFF-HANGER

April 2023 Newsletter

Join Us For Our Monday Night ATARA Off-Grid Radio Team Net at 8:00 PM on Simplex 146.400!!

All Amateur Operators Invited. You Do Not Have To Be a Member to Participate.

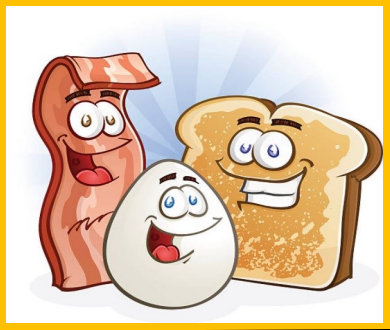
ATARA Club Breakfast

When: Sat, April 8th, 2023
8am – 9am

Where: Scramblers,

1377 Ety Road

Lancaster, OH 43130, USA



CLICK EACH LINK BELOW

Ohio HamFest's

Meeting Schedule

2nd Tuesday Exams

3rd Tuesday is ATARA OFF-GRID Meeting

4th Tuesday Club Meeting

[Cuyahoga Falls Amateur Radio Club Hamfest 4-15-2023 Cuyahoga Falls, Ohio]
[Tusco Amateur Radio Club Hamfest 4-22-2023 Dover, Ohio]
[Athens Hamfest 4-30-2023 Athens, Ohio]
[Lucas County Amateur Radio Trunk Sale & Swap Meet 5-7-2023 Toledo, Ohio]
[RV Radio Network Hamfest 5-13 to 5-17-2023 Berlin, Ohio]
[Dayton HamVention 5-19 to 5-21-2023 Xenia, Ohio]

Remember Our Thursday ATARA Night Net

8:00 PM on 145.210 Repeater also now on EchoLink W8ATR from 8 PM until 9 PM only.

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"A Candid Interview with"

Brad Howard "KE8SVT" of ATARA

Member Organizations:

All Things Amateur Radio, (ATARA)

Franklin County Amateur Radio Emergency Service, (ARES)

Franklin County EM & HS, Auxiliary Communications, AUX-C

Central Ohio Severe Weather Network (COSWN)

Central Ohio Radio Club, (CORC)

Southwest Columbus Ham Radio Club, (SWCHRC)

My older Brother Kevin, KD8DNO, has had his license for a while and finally gave me the big push towards getting my ham license. He knew with my many years in the fire & EMS world I would enjoy ham radio. So, I blame him for my spending a lot of money on all the equipment and radios I have purchased for mobile field use as well as my home shack radio equipment.

I studied and got my technician license in September of 2021. Being a new ham, I saw the many areas open to amateur radio operators and knew I had a lot to learn. My first radio was a Yaesu FT3DR HT, which I purchased from Ham Radio Outlet. This radio lit the powder keg of what was to come.

Now I have a radio, now what? I got the local repeaters programmed into my radio and listened. I joined the Central Ohio Radio Club, (CORC) and chatted on their repeaters. I found out that people have meetings on the radio called nets. The important thing I learned was to just listen. This helped me learn the procedural processes so I didn't sound stupid, I can manage that well enough without any help.

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"A Candid Interview with"

Brad Howard "KE8SVT" of ATARA

I listened and checked-in to the Franklin County ARES net and recognized a voice of a person whom I worked with in my fire & EMS life. We chatted after the net on the radio, and he helped me to become a member. Joining this group got me going in the public service arena of providing emergency communications during events such as the Arnold Classic and the Columbus Marathon. I quickly learned that I truly enjoyed these types of functions and wanted to do the best I possibly can.

Doing these events and wanting to be ready for pretty much anything started my expensive journey of purchasing a lot of equipment for field deployments. My home shack got an upgrade with a Yaesu FTM-300DR dual band radio along with an antenna which materialized on the top of my house. Now I have more power and can get farther. I read that a go-box is essential for field deployments, so I purchased a second FTM-300DR during the construction of making my go-box and battery power.

I am glad my engineering background helped me figure out how to fit ten pounds in a five-pound box. The statement that a go-box project is never done is a very true statement. My go-box got a solar panel controller and a Yaesu FT-891 all mode HF radio to fill an empty space. Later came an antenna for each radio. The more research I did, the more I purchased and built. I liked the idea of a portable backpack radio that had enough power which has served me well for doing quite a few events.

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"A Candid Interview with"

Brad Howard "KE8SVT" of ATARA

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April Newsletter

Dangers of Benzene

Safety Talk

Safety Officer: Kevin Frank, K8KDF safety@atara-w8atr.fun

Benzene.....

Benzene is 1 of 119 agents listed as “carcinogenic to humans” by the **International Agency of Research on Cancer,** also known as IARC. A **carcinogen** is defined as any substance or agent that tends to produce a cancer. It is a widely used chemical in industrial processes as well as in consumer goods. Because of its widespread use, many individuals can face exposure to this substance both on and off the job.

What is Benzene and Where is it Found?

On OSHA’s Substance Data Sheet for benzene, it states that: Benzene is a clear, colorless liquid with a pleasant, sweet odor. The odor of benzene does not provide an adequate warning of its hazard. As mentioned above, the substance is found in many industrial processes. It is also in crude oil and a major part of gasoline. Most of the benzene in the environment comes from our use of petroleum products. In the home, it is found in glues, adhesives, cleaning products, paint strippers, and tobacco smoke.

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April Newsletter

Dangers of Benzene

Safety Talk

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The Effects of Overexposure to Benzene (source: OSHA's Substance Data Sheet)

Short-term (acute) overexposure: If you are overexposed to high concentrations of benzene, well above the levels where its odor is first recognizable, you may feel breathless, irritable, euphoric, or giddy; you may experience irritation in the eyes, nose, and respiratory tract. You may develop a headache, feel dizzy, nauseated, or intoxicated. Severe exposures may lead to convulsions and loss of consciousness.

Long-term (chronic) exposure. Repeated or prolonged exposure to benzene, even at relatively low concentrations, may result in various blood disorders, ranging from anemia to leukemia, an irreversible, fatal disease. Many blood disorders associated with benzene exposure may occur without symptoms.

Best Practices to Reduce Exposure to Benzene

OSHA has set the exposure limit to 1ppm for an 8-hour workday and a 5ppm exposure limit for a 15-minute frame. For most people, the exposure to benzene is by gasoline and its vapors, however, some individuals may be exposed to it elsewhere.

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April Newsletter

Dangers of Benzene

Safety Talk

Safety Officer: Kevin Frank, K8KDF safety@atara-w8atr.fun

Some best practices to reduce your chances of being overexposed to benzene are:

- Do not breathe in the vapors of gasoline.
- Fuel in a well-ventilated area.
- Avoid areas with excessive automobile exhaust as much as possible.
- Avoid any water that could possibly be contaminated with benzene.
- Do not smoke cigarettes, and do not be in areas where you could be exposed to secondhand smoke.
- Practice good hygiene and protect your skin. Washing your hands prior to eating can reduce the chance of exposure through ingestion, and limiting skin exposure can reduce the absorption of benzene through the skin.

At work, use engineering controls to reduce or eliminate exposure to benzene. If exposure is still over the limit, respirators must be worn that are sufficient enough to protect individuals from overexposure.

Summary

Off the job, it is much easier to reduce your exposure; however, doing so at work could be more difficult if you do not understand the dangers. Talk with a supervisor or safety representative to find out the sources of benzene on the job as well as the safeguards implemented to protect against overexposure. Some of the biggest hazards at work are the ones you are not aware of.

April Newsletter

Links That You Will Find Helpful

ARRL Links....

[ARRL Home Page]
[Hanfest and Convention Calendar]
[FCC Licensing Search]
[Ham Radio Band Chart]
[ARRL Ohio Section Page]

Weather & Space....

[Space Tracker]
[Central Ohio Severe Weather Network]
[Weather Spotter Training Schedule]
[Lightning Tracker Maps]

Useful Links for Ham Radio....

[Parks on the Air]

[QRZ Lookup]

[Ohio Repeaters]

[Repeater Book]

[Repeater Builder Information]

[Ham Radio Information with Map]

[Netlogger Download]

[Never Ending Ham Radio PDF Collection]

Calulators & Antenna's....

[Antenna Calculator]
[Ground Plane Calculator]
[Basic Wire Antenna's]
[Random Wire Lengths]
[VK5AJL on Baluns]

Batteries & Circuits....

[Learn About Batteries]
[All About Circuits]
[Electronic Notes]

Manufactures....

[Yeasu Home Page]
[Kenwood Amateur Radio Home Page]
[Icom America Amateur Radio Home]

Continued Information....

[EHam.net]

[DX Monitor]

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Links That You Will Find Helpful

Continued Information....

[Never Ending Ham Radio PDF Collection]

[The DXZone]

Where to Purchase....

[DX Engineering]

[GigaParts Technology Super-store]
[Ham Radio Outlet]

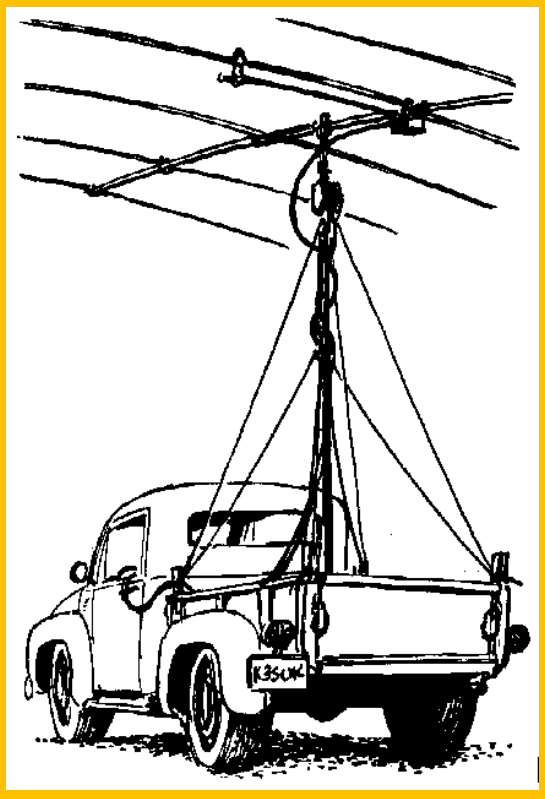
[R and L Electronics]

[Amateur Radio Supplies]

[Cheap Ham Homepage]

[DL Drake Company]

[Newark Electronics]
[Mouser Electronics]
[T Electronics Components]
[The RF Connection]
[The Palomar Engineers]
[NI4L Antennas & Electronics LLC]
[Online Components]



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April 2023 Newsletter

Antenna Build

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April 2023 Newsletter

Antenna Build









Homebrew-Training Group built 40 meter half-wave end fed antennas.

How Do You Make This Antenna....

https://www.youtube.com/watch?v=0mXyEnDpTWg

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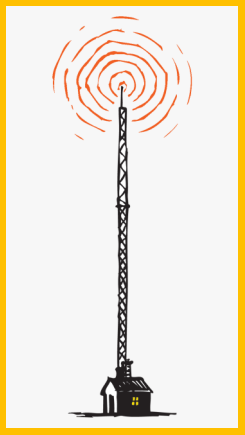
April 2023 Newsletter

Antenna Build



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April 2023 Newsletter

Elizabeth Klinc, KE8FMJ OHIO Section Public Information Coordinator

A topic of discussion that happens often in clubs is how to keep Ham Radio relevant. A lot of our population is getting older. We keep looking for ways to recruit new members and the younger generation. A lot of talking happens; sometimes, good ideas are even presented. How often do we see these ideas implemented, though? How many clubs have seen a significant growth or can feel that they are making a big difference with amateur radio? It has been especially difficult lately with the pandemic and restrictions put upon us on meeting. Even I, personally, have lost a lot of good people and friends lately in our shared hobby.

Among all this I recently received an email from a PIO wishing to share his club with me. To say I was impressed is an understatement. We should all strive to reach this level of involvement. Please allow me to share this club with you now by relaying part of the email.

From Jim Breibach, KE8SWY, PIO of All Things Amateur Radio Association (ATARA):

Who is ATARA? ATARA is a highly active amateur radio club based in Lancaster, OH. As our name implies, we are about always learning and exploring any segment of amateur radio that interests our members. We are a relatively new, and ARRL affiliated club. We started in June of 2021 with just a handful of hobby enthusiasts and are about to pass the 50-member mark as our club continues to grow rapidly.

Our club was started with the foundation and framework to include youth, minorities, and non-licensed individuals alike to share and enjoy the hobby of amateur radio. ATARA has an official Outreach group lead by two female club members, we have a youth lead Social Media Coordinator (SMC) position that will be sharing aspects of our club meetings and events on social media; including live video segments.

We have an off-grid team that is in a constant state of training and readiness including many field events performed without the use of commercial power. We setup OFF-GRID for both winter and summer field day and will be celebrating our club mascot Cliff's birthday at each summer field day. We have well planned educational segments at the start of every club meeting where a subject matter expert (SME) either from the club or as a guest speaker shares their knowledge of something related to ham radio. Our SMC will start sharing these educational segments live soon.

We have a Training director that offers frequent technician class trainings and will soon be offering training for the general class. We have qualified emergency response and first aid trainers that offer classes and trainings to the club. We have an exceptional Volunteer Examiner team that offers testing the second Tuesday of each month.

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April 2023 Newsletter

Our Elmer program helps old and new hams in passing years of knowledge to all who wants. This program includes all aspects of Ham Radio and making sure that each member of ATARA and beyond knows that they have an arm of ATARA to grow their hobby.

We have a Public Information Officer (PIO) that puts together a well thought out newsletter that is shared on multiple partner sites. We have a safety officer that presents relevant safety topics at each meeting and supports our public events.

Early this summer, after becoming aware of the grant opportunities from the ARRL Foundation, the All Things Amateur Radio Association put together an exploratory committee to review the grant opportunities available from the ARRL. We evaluated each possible segment against our current capabilities. Our committee believed that we could leverage the opportunities of the Grant funds in the STEM Learning and Outreach category to become a force multiplier and transform our outreach and benefit to the youth and adults at the events we already support and other groups that we believe our project would help us reach. We currently have fourteen planned community events on our calendar with outreach already occurring or planned for homeschool groups, scouts, after school organizations and the like for additional educational events with our project.

Please join me in congratulating ATARA on their many achievements in a relatively short time span. A strong positive amateur radio story is just what we need to promote our hobby to the fullest.

ATARA has much to be proud of. I am very pleased to share this article that was published in the ARRL Ohio Section Update.

Our outreach, growth, touching all age groups and genders. This is why we keep getting requests for our Newsletters. Everyone wants to know what we are doing to grow not only our club but also see what makes us so different.

Congratulations ATARA!!!

Keep the Momentum Going.

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Check out the message at the bottom of the Calendar. Never miss a meeting again. It ZOOM Time.

April 2023 Calendar of Events

CLIFF-HANGER W8ATR — April 2023

Sunday	Monday	Tuesday	Weds.	Thursday	Friday	Saturday
						1
2	3 8:00 OGRT Simplex Net	4	5	6 8:00 ATARA Club Net	7	8 8:00 ATARA Breakfast
9	10 8:00 OGRT Simplex Net	11 7:00 VE Test Session	12	13 8:00 ATARA Club Net	14	15
16	17 8:00 OGRT Simplex Net	18 7:00 Off-Grid Radio Team Mtg.	19	20 8:00 ATARA Club Net	21	22 Event: Earth Day 11-2
23/30	24 8:00 OGRT Simplex Net	25 7:00 ATARA Club Mtg.	26	27 8:00 ATARA Club Net	28	29 OGRT Field Training

Zoom Meeting Link will be sent out

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EXAMS SCHEDULE

Lancaster OH 43130-4048

EXAM SESSION

04/11/2023
Sponsor: ATARA
Date: April 11th, 2023
Time: 7:00 PM (No Walk-ins / Register or Call ahead)
Contact: Jarrod K. Combs
Email: ke8mbL@outlook.com
VEC: ARRL/VEC
Location: Grace Comm Church and Fellowship
904 E Main St
Lancaster OH 43130-4048

Lancaster OH 43130-4048

EXAM SESSION

05/09/2023
Sponsor: ATARA
Date: May 9th, 2023
Time: 7:00 PM (No Walk-ins / Register or Call ahead)
Contact: Jarrod K. Combs
Email: ke8mbL@outlook.com
VEC: ARRL/VEC
Location: Grace Comm Church and Fellowship
904 E Main St
Lancaster OH 43130-4048

Lancaster OH 43130-4048

EXAM SESSION

06/13/2023
Sponsor: ATARA
Date: June 13th, 2023
Time: 7:00 PM (No Walk-ins / Register or Call ahead)
Contact: Jarrod K. Combs
Email: ke8mbL@outlook.com
VEC: ARRL/VEC
Location: Grace Comm Church and Fellowship
904 E Main St
Lancaster OH 43130-4048

Lancaster OH 43130-4048

EXAM SESSION

07/11/2023
Sponsor: ATARA
Date: July11th, 2023
Time: 7:00 PM (No Walk-ins / Register or Call ahead)
Contact: Jarrod K. Combs
Email: ke8mbL@outlook.com
VEC: ARRL/VEC
Location: Grace Comm Church and Fellowship
904 E Main St
Lancaster OH 43130-4048

Lancaster OH 43130-4048

EXAM SESSION

08/15/2023
Sponsor: ATARA
Date: August 15th, 2023
Time: 7:00 PM (No Walk-ins / Register or Call ahead)
Contact: Jarrod K. Combs
Email: ke8mbL@outlook.com
VEC: ARRL/VEC
Location: Grace Comm Church and Fellowship
904 E Main St
Lancaster OH 43130-4048

Lancaster OH 43130-4048

EXAM SESSION

09/12/2023
Sponsor: ATARA
Date: September 12th, 2023
Time: 7:00 PM (No Walk-ins / Register or Call ahead)
Contact: Jarrod K. Combs
Email: ke8mbL@outlook.com
VEC: ARRL/VEC
Location: Grace Comm Church and Fellowship
904 E Main St
Lancaster OH 43130-4048

CLIFF-HANGER

April 2023 Newsletter

DIY Magnetic Loop Antenna

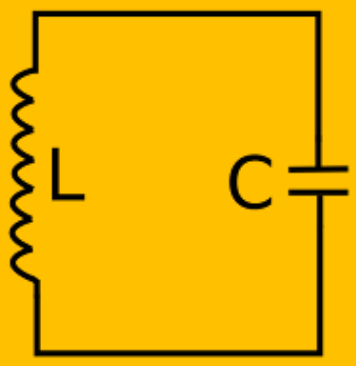
by Owen KF5CZO

Do you live in a neighborhood with a restrictive antenna policy and despair of having a useful HF antenna?

Can you solder or know someone who can?

A magnetic loop antenna may be the answer and they are not as difficult to build as you might think. Like getting on the air for the first time or taking your license exam there is a certain amount of uncertainty when you first approach magnetic loop antennas, there are a few new ideas to grasp. However, thanks to other hams like Steve AA5TB there are tried and tested designs, calculators & building methods that are known to work and that you can follow.

At the heart of every radio and MLA (Magnetic Loop Antenna) is the resonant circuit. The combination of an inductor (a wire has inductance, but a coil of wire has more) and a capacitor (two conductors separated by an insulator) in a circuit will resonate or 'ring' at a certain frequency. Sound vibrations at a certain frequency can cause a piano string to vibrate in sympathy and a vibration of the correct radio frequency will cause a resonant circuit to electrically vibrate in sympathy.



Since there is no such thing as a free lunch, the sacrifice you make with a MLA is that it needs to be re-tuned whenever you change frequency on your transceiver. The frequency range over which it is resonant is very small, typically only a few hundred kilohertz at the most.

CLIFF-HANGER

April 2023 Newsletter

DIY Magnetic Loop Antenna

The materials you can get your hands on is going to decide the capabilities of your MLA. Ideally you'll have a loop made from a conductor with very low resistance (usually copper) and a capacitor that can handle high voltages. A variable capacitor is required if you want to use your antenna on multiple frequencies but you can use or make a fixed capacitor if you operate on one frequency, for Eg PSK31.

Small Magnetic Loop Antenna Calculator ver. 1.22a

by Steve Yates
AA5TB
aa5tb@yahoo.com
Updated April 28, 2009

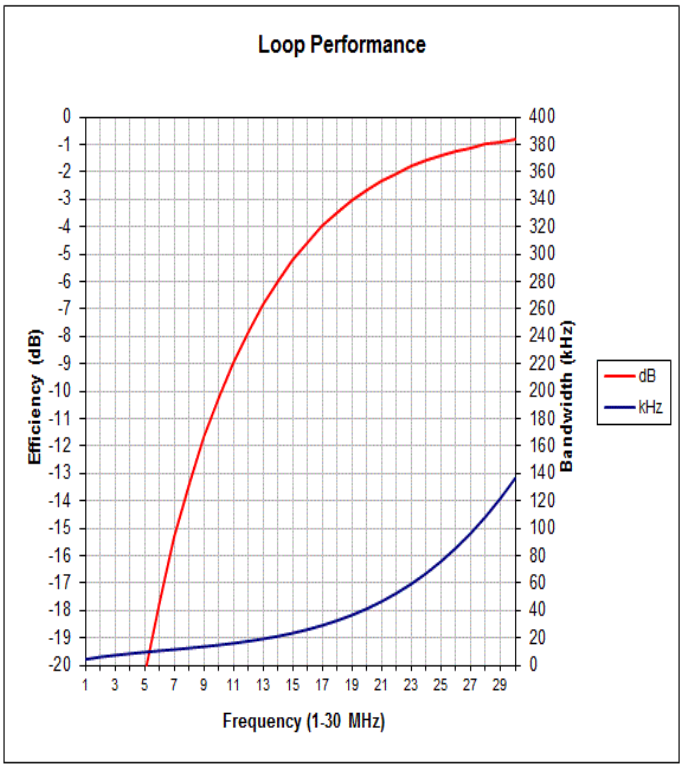
Input the following parameters:

Design Frequency =	14.000 MHz	
Loop Diameter =	2.709 feet	0.826 m
Conductor Diameter =	0.250 inches	6.350 mm
Added Loss Resistance =	0.000 milliohms	
RF Power =	100.000 Watts	

Calculated Results:

Bandwidth =	21.181 kHz (-3 dB points)	
Efficiency =	25.370 %	-5.957 dB
Loop Area =	5.763 ft²	0.535 m²
Radiation Resistance =	43.124 mΩ	
Total Loss Resistance =	126.856 mΩ	
Loop Circumference =	8.510 ft	2.594 m
Wavelength Percentage =	12.113 % λ	
Loop Inductance =	2.554 µH	
Distributed Capacitance =	6.978 pF	
Q (Quality Factor) =	660.976	
Tuning Capacitor =	50.592 pF	
Capacitor Voltage =	3853.888 V	
Minimum Plate Spacing =	51.385 mils (1/1000 in)	1.305 mm

1. To truly be considered a small loop, the **Loop Circumference** should be less then 10 % λ. Larger loops will have greater efficiency but smaller nulls.
2. To see the effects of bad joints, etc., input realistic values into the **Added Loss Resistance** box.
3. The sheets are protected to prevent the user that is unfamiliar with Excel from accidentally corrupting formulas. To unlock the sheets use the password **aa5tb**.
4. This application is free to use as you wish. If you modify it and pass it on all that I ask is that you give me credit for my part of the work. Thanks!



CLIFF-HANGER

April 2023 Newsletter

DIY Magnetic Loop Antenna

A MLA calculator like this web page from 66pacific.com will help you to decide what size components you'll need to make your antenna.

The four pieces of information required are:

1. What frequency or frequencies do you wish to transmit on?

2. How large do you want the loop to be (It should have a circumference less than 10% of the design frequency wavelength, both calculators help you figure this out)

3. The diameter of your conductor (Three quarter inch (0.75 inch) copper pipe is a good start)

How much power you want to use (The voltage across the capacitor is proportional to the input power to the MLA)

A MLA of a certain circumference will be more or less efficient based on the frequency you transmit at. It is worth changing the loop size in the calculator to get the best efficiency possible in your favorite band .

For example, my 30-10 Meter loop is 8.5 ft in circumference and 23% efficient at 10.1Mhz but 91% efficient at 28Mhz. This represents a difference of about 6dB or 1 S-Unit.

The diameter of the conductor determines its resistance and this becomes important due to the large current flowing through the loop. Large diameter copper pipe is better since the radio frequency current flows primarily on the outside of the conductor rather than the core. Typical 3/4 inch plumbing pipe is a good balance between low resistance and weight, Heliax coax is good for portable antennas where the loop has to be rolled up into a compact space.

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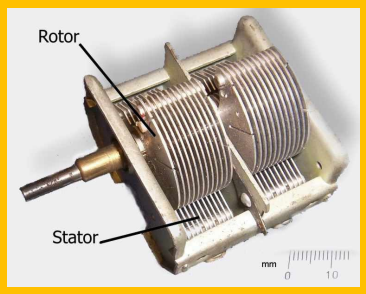
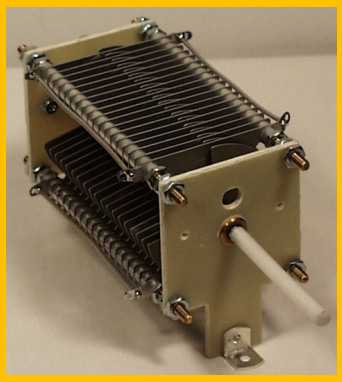
April 2023 Newsletter

DIY Magnetic Loop Antenna

Probably the most problematic part of the MLA is the tuning capacitor. While everything else can be found in your junk box or on a shelf at the local hardware store the capacitor takes a little more digging. Ideally it should be variable from a minimum to a fairly high capacitance (0-300 pF would be good) it should also be able to withstand high voltages. If you are planning to run 100W then you could expect at least 4000 volts across the capacitor. This is not as bad as it sounds as it takes 3300 volts to jump just 1mm or .04 of an inch.



Ideally you could purchase a vacuum variable capacitor, the Rolls Royce of high voltage variable capacitors. You would expect to pay anywhere from $100 up when buying a 10 – 500 pF unit on Ebay and a LOT more if you buy new. If that is the way you want to go then great, you're all set. If not then read on …



There are several alternatives to the vacuum variable capacitor that will work almost as well. The primary concern now becomes resistance and plate separation. For QRP power levels you can use the tuning capacitors from old vacuum tube radios, the type that have a set of fixed metal plates and a set of moving plates that mesh into them.

For higher power there are two other types of capacitor that are suitable.

One is the split-stator capacitor, so called because each terminal of the capacitor is connected to a stator that is electrically isolated from the other and the frame. The rotors and shaft form the rest of the circuit so there is very low resistive loss and no sliding contacts.

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April 2023 Newsletter

DIY Magnetic Loop Antenna

The other type is called a butterfly capacitor due to the shape of the rotor plates. In this type the stator plates are placed opposite each other with the butterfly rotor in between. When each of the butterfly "wings" are fully meshed between the stator plates the capacitor is providing maximum capacitance, when rotated 90 degrees the wings are completely un-meshed and the capacitor is providing minimum capacitance. Because of the construction of butterfly capacitor there is a higher minimum capacitance that should be noted when planning the frequencies your loop will cover.

If all else fails then you can construct your own variable capacitor. The idea is to have two conductors separated by an insulator, the larger the area of the conductors and the better the insulator the higher the capacitance. Sliding metal plates, trombones of copper tube and even Coke cans have been used as variable capacitors.

A fixed capacitor can be created out of coaxial cable if you intend to operate on one frequency and a table of approximate capacitances for different types of coax is included here, click to enlarge the table below.

Cable type	RG-6	RG-59 B/U	RG-11	RG-11 A/U	RG-12 A/U	RG-58 C/U	RG-213U	RG-62 A/U
Capacitance per feet	18.6	20.5	16.9	20.6	20.6 pF	28.3 pF	30.8	13.5 pF

You can cut a length of coax a bit longer than the length suggested by the table above and trim it to frequency once it is attached to the loop. Make sure there are no stray pieces of braid between the shield and the center conductor as the voltage rating is determined by the spacing of the two closest conductors.

Part two of this post will continue with calculating the antenna dimensions and performance.

One important thing to remember … If you don't have access to the best materials then use what you have and improvise. If you don't have copper pipe then use coax or heavy wire. If you don't have a high end variable capacitor then use what you can find and keep the power levels QRP. The only antenna that is a complete failure is the antenna you never get around to building.

Owen Morgan, KF5CZO, is a regular contributor to AmateurRadio.com and writes from Texas, USA

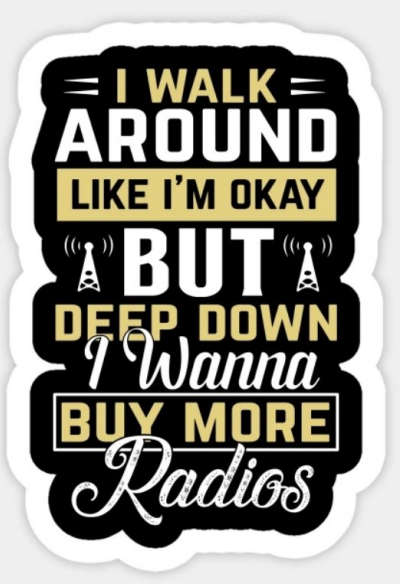
CLIFF-HANGER

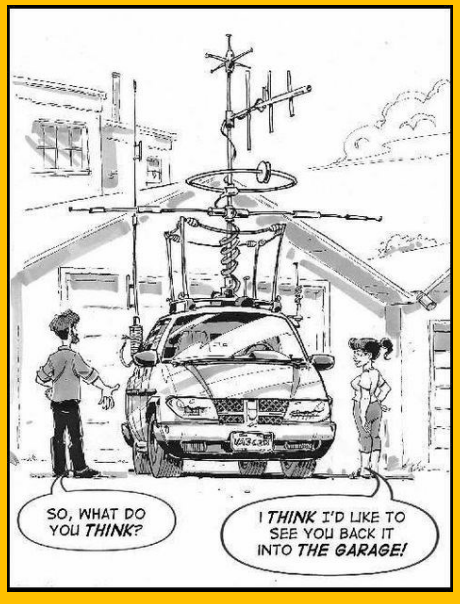
April 2023 Newsletter

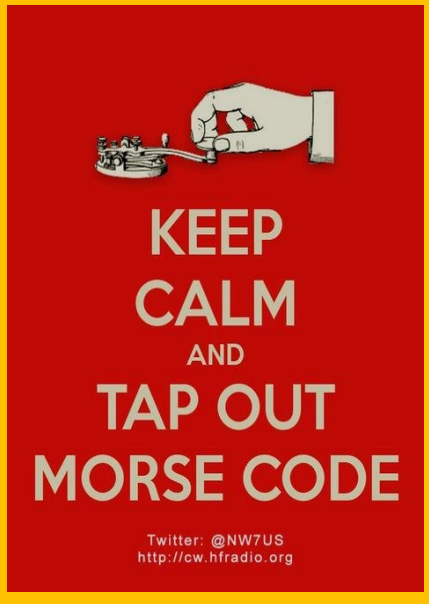
Want to know who is a Ham around you????

Click the Link. [Ham Radio Information with map]

All you need to do is insert your call sign in place of mine and have fun getting to know all those Ham Radio Operators right in your neighborhood.







CLIFF-HANGER

Looking for New Members!!!

Your Editor
KE8SWY "Jim"

Please encourage all that you

connect with on Ham Radio to join our Club.

We are looking for Women & Men …. Young & Old to be a part of

All Things Amateur Radio Association

W8ATR

ATARA-W8ATR.FUN

Share with them how much fun we have !!

Have News??? Send all your news to Jim Breibach KE8SWY at

KE8SWY-ATARA@outlook.com. Please send before the 1st of each month to have it added to the newsletter. Tell us what you are working on, new members, items that you are trying to sell or trade, and any news that is new and exciting. Or you may call me at 614-296-7987.

CLIFF-HANGER

New STEM Is Finally

Here !!

The STEM Build out is ON.....