

MTARA NEWS



The President's Message

Hello, MTARA members ~~

Well, there's a first time for everything, and this month's storms have given many of us the first-ever experience of being snowed in for weeks at a time. It's an urgent reminder of the importance of being prepared for the unexpected. I have a hunch that most MTARA members, because of our association with emergency situations, were better prepared than many in our communities to be self-sufficient during this overwhelming weather event.

The storms affected several repeaters, presenting a major challenge to radio communications. Hopefully, those issues will be resolved soon.

Erratum: In the previous newsletter, I stated that Stan Howe is a **former** member of MTARA. Wrong! Stan – KI6YLG -- has been an active member of the club since 2016, in addition to his "active duty" with CERT and several other mountain organizations. I apologize to Stan for my error and wish him well for the Association of Mountain Volunteer Organizations' recruiting event that he is organizing. MTARA will be participating in the [fair](#), scheduled for Saturday, March 25, at the San Moritz Lodge.

Please stay safe. I look forward to the next time we can meet in person.

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. The meeting begins at 7:00 p.m. and lasts 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.

All upcoming meetings, beginning with July 5, 2022, will be held at the Lake Arrowhead Community Presbyterian Church, 351 South State Highway 173, Lake Arrowhead, CA 92352

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.



TREASURER'S REPORT

Our ending February Balance was

\$15,244

Income:

\$860

Expenses:

\$0

73, Nancy K6CUB

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
Wednesday	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 Of Events

- March 25—26 QSO Virtual Ham Expo
- April 1—2 Baker to Vegas Challenge Cup Relay Race
- April 16—Rookie Round Up—Phone
- Year-Long Activity “Volunteers On The Air” VOTA vota.arrl.org
- May 19—21 Dayton Hamvention Xenia, Ohio

Maritime Contact by WB6LVC

A few weeks ago, as I was finishing my Thursday night net with the Ladies of The Net group, I heard someone sending out a call to me. I acknowledged the individual and asked for her call in response. “This is VE0JS-Victory, Echo, Zero, Juliet, Sierra. I replied that I had copied her and asked her name. She replied that it was Jeanne and that she was Maritime Mobile. I was very excited as this was my first Maritime Mobile contact!!

At that point, Gary rushed into my shack and announced that she was a very famous woman-Jeanne Socrates. I pulled up her info on QRZ and was amazed! You see, VE0JS is the oldest woman as well as the **First** woman to circumnavigate the Earth, Solo, Non-stop, unassisted. She set this record on July 8, 2013, on her third attempt. Since then, she has made two more attempts. Jeanne is currently 77 years old.

We had a lovely QSO that lasted approximately 30 minutes. Jeanne gave me her current location which, at that time, was Latitude 22 degrees, 7N and Longitude 108 degrees, 5W. She was sailing along the coast of Baja, headed South. Along with a blog of her adventures, Jeanne shared that she had a UTube channel she was trying to promote. I told her that I would gladly share the information with not only my fellow ham friends, but also other friend, too. You can find her on YouTube at “Jeanne Socrates Sailing the World Solo.” Also check out her QRZ page. It has many interviews, maps, frequencies for contact and much more. There are numerous articles about her life and accomplishments that can be found on the Internet. Just do a quick search and you will find them with no trouble at all.



Catching Up by WB6LVC

Our last newsletter came out in January. Since then, there have been many events to report about. The first major activity was Quartzfest held from January 21-28, 2023. Many of our club members attended: those who were at the February meeting shared their experiences. But some members were not able to attend that meeting, so let me add a bit more information. First of all, let's congratulate Tracy/WM6T for his outstanding job of doing ALL of the schedules for this event. It was an ongoing job which changed not just from day-to-day, but sometimes hour-by-hour. As in past years, there were excellent seminars relating to Ham Radio, gatherings around the campfire, testing for ham licenses and a potluck. Below are a few photos of some of these events. People had to be very flexible this year, as Mother Nature decided to share colder weather and windy conditions upon all who had gathered in Quartzsite. Some activities were cancelled or shortened. But for those seeking a license or upgrade, nothing stood in their way. Testing was done by GLAAR, W5YI and ARRL. There was even paperless testing on tablets! By the end of the week, over 50+ individuals had tested and received new licenses or upgrades.



February came along and we had a great “In-Person” meeting in Lake Arrowhead. It was great to see everyone in person as our January meeting was held on ZOOM due to weather conditions. Kenny/KM6WVK presented Tina/W6TNA with her prize of the engraved knife. Tina had asked for the theater faces of comedy and tragedy to be included in the design. Here you can see the finished item. So beautiful!



Then came then news that a major storm was headed our way, so most of us spent the rest of the month prepping for the upcoming weather. No need to tell you all what took place as you are all still dealing with the effects of it, with more to come.



It was great to see so many MTARA members, as well as guests, on our monthly meeting (again held on ZOOM) on March 7th. And it was very emotional to hear all about the work done by our own ARES members during the storm emergency. Thanks to all who spoke and shared their heartfelt stories and excellent suggestions. As was stated at the meeting, we are not just a great club, we are a family, united by this great hobby.

PONDER THE POOL by AA6GJ

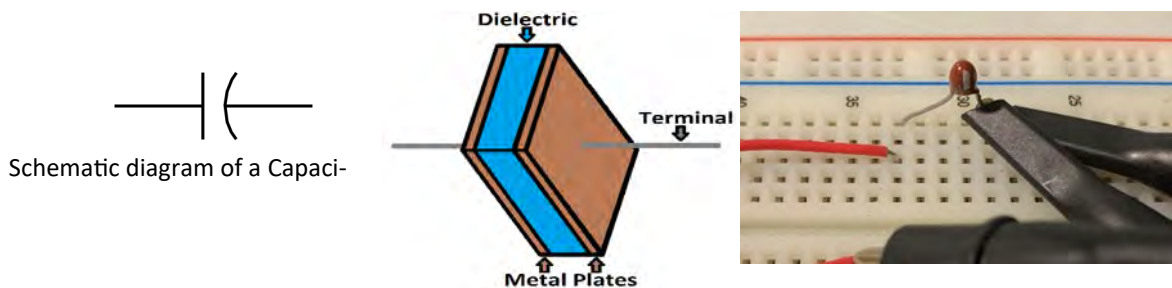
Ponder the Pool is a way for us as Amateur Radio Enthusiasts to dive into selected questions more deeply from each of the current FCC pool of questions used to create the randomly generated Examinations for the Technician, General, and Amateur Extra License. Ponder the Pool is helpful to individuals who are studying for an exam or simply to review concepts that we have already learned.

Because, as we know, if we don't use it, we lose it.

The question we will ponder today comes from the General Class pool.

Question: [G5A06 – How does a capacitor react to AC?](#)

A capacitor is a device that has two plates separated by a dielectric.



It stores electrical energy in an electric field by accumulating electric charges on two close surfaces (plates) insulated from each other. It is a passive electronic component with two terminals. In DC theory it acts like a tiny battery because it can hold this electric charge until it is discharged. It is either charged or discharged. The amount of charge is measured in capacitance, and we use the term Farad to identify its capacitance.

In AC theory, the capacitor charges, and discharges, but it sees alternating current differently than direct current. With DC it sees current as either on or off and never goes negative. AC has a frequency and regularly goes positive and negative.

How the capacitor reacts mainly depends on the frequency applied to the capacitor.

A capacitor will oppose a change in voltage that translates to an opposition to the alternating voltage in general, which is by definition always changing in instantaneous magnitude and direction.

For any given amount of AC voltage at a given frequency, a capacitor of given size will “conduct” a certain amount of AC current.

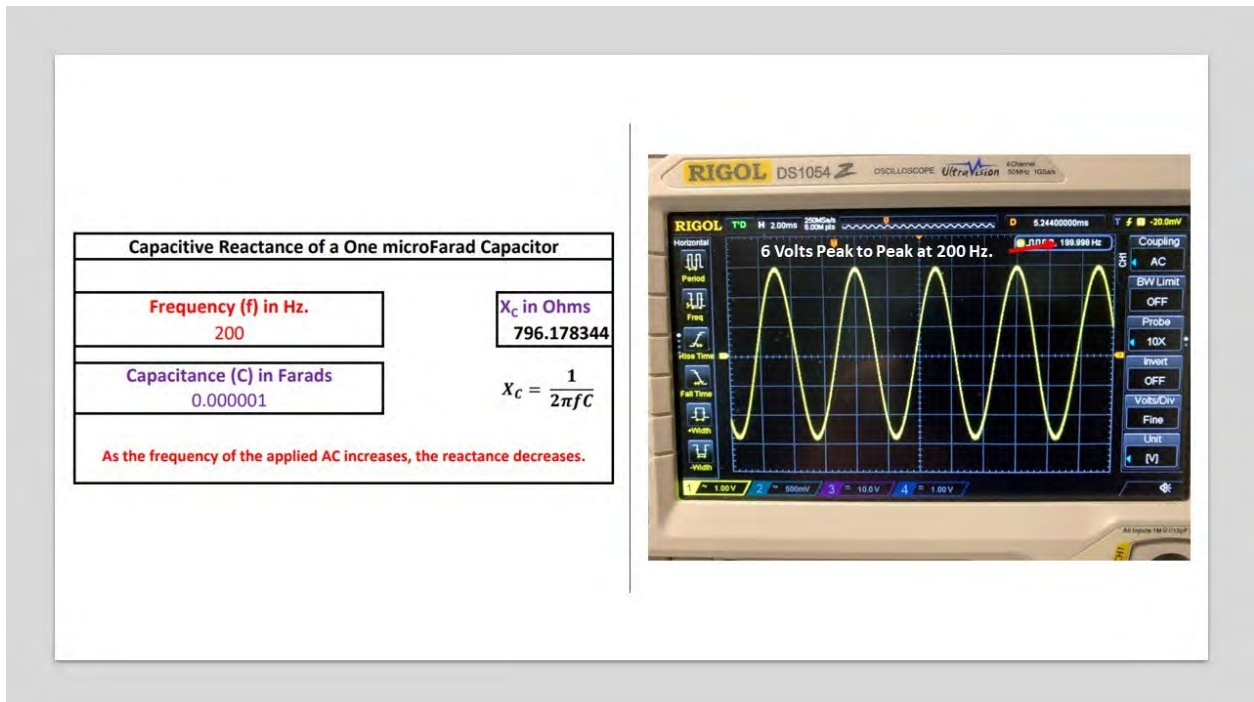
Just as the current through a resistor is a function of the voltage across the resistor and the resistance offered by the resistor, the AC current through a capacitor is a function of the AC voltage across it, and the *reactance* offered by the capacitor.

The reactance of a capacitor is expressed in ohms and symbolized by the letter X (or XC to be more specific).

Since capacitors “conduct” current in proportion to the rate of voltage change, **they will pass more current for faster-changing (higher frequency) voltages (as they charge and discharge to the same voltage peaks in less time), and less current for slower-changing (lower Frequency) voltages.**

What this means is that reactance in ohms for any capacitor is *inversely* proportional to the frequency of the alternating current.

Let’s look at some illustrations to further explain this phenomenon.



The Device Under Test (DUT) is a 1 microfarad capacitor. We are injecting a 200 Hz sine wave into it at 6 Volts Peak-to-Peak. We are looking for the reactance to this fre-

quency. Specifically capacitive reactance X_C . We will use this equation: $X_C = \frac{1}{2\pi fC}$

As you can see in the box on the right, we have 796.178344 or almost 800 Ohms. The box on the left shows us that we have 6 Volts Peak to Peak at 200 Hz.

$$\left(I = \frac{E}{X} \quad .00753769 = \frac{6}{796} \quad .00753769 \times 1000 = \mathbf{7.53769 \text{ mA}} \right)$$

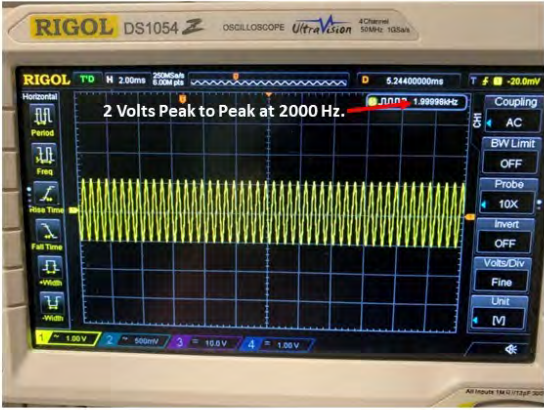
So, what we’re saying here is that at 200 Hz., this capacitor has 796 Ohms of capacitive reactance, and it is passing about 7.5 mA. of current.

Ok, that’s cool but what happens when I go higher in frequency?

Don’t look yet.

From above we know that this capacitor is reacting pretty well. It is opposing the flow of current with its 796 Ohms, and only allowing 7.53 mA of current to flow. I'm now going to change frequency and go to 2000 Hz. Let's see what happens.

Capacitive Reactance of a One microFarad Capacitor	
Frequency (f) in Hz. 2000	X_C in Ohms 79.6178344
Capacitance (C) in Farads 0.000001	$X_C = \frac{1}{2\pi fC}$
As the frequency of the applied AC increases, the reactance decreases.	



The image shows a RIGOL DS1054 oscilloscope screen displaying a green AC waveform. The screen text indicates '2 Volts Peak to Peak at 2000 Hz.' The oscilloscope interface includes various settings like 'Horizontal' (2.00ms), 'Vertical' (1.00V), and 'Coupling' (AC).

Wow! Ok that's different! Let's do the math.

$$I = \frac{E}{X} = \frac{2}{79.6} = 0.02512563 \text{ A} = 25.12563 \text{ mA}$$

Look at the waveform on the scope. It has dropped in amplitude from 6 Volts Peak-to-Peak to 2 Volts Peak-to-Peak. At 2000 Hz. or 2 kHz., the capacitor has 79.6 Ohms of capacitive reactance, and it is passing about 25.1 mA. of current.

Let's summarize this.

We have demonstrated two facts.

Capacitors will pass less current for slower-changing (lower frequency) voltages and more current for faster-changing (higher frequency) voltages (as they charge and discharge to the same voltage peaks in less time).

200 Hz. – 7.53 mA. and 2000 Hz – 25.1 mA.

As frequency increases, the reactance decreases.

200 Hz. – 796 Ohms and 2000 Hz. 79.6 Ohms

That is why the official answer to this question is:

G5A06 – As the frequency of the applied AC increases, the reactance decreases.

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

Amateur Radio Exams Now Online or In-Person!

No Paper! All Electronic! Very Cool!

with K6DDZ & AA6GJ

Now that MTARA is back in-person for meetings, amateur radio testing will be offered before each meeting. Testing will cover all three elements (Technician, General and Amateur Extra). Remote (online) testing is also available by appointment.

For MTARA in-person or remote testing, please go to **K6DDZ.com - Amateur Radio Testing Made Simple.**

ONLY ONE CLICK to:

Order Gordon West's study materials

HamStudy.org Practice Tests (all levels)

Schedule a Test (in-person or remote)

Get Your FCC Registration Number (FRN)

Pay for Your Test

...and even click to Gary's (AA6GJ) video training for more in-depth knowledge

Let's keep it simple! Any questions, email Dede Hermon at DedeK6DDZ@gmail.com

And if you are DTH (Down the Hill)

You can test all classes of license with the

West End Amateur Radio
Group



That's my team AA6GJ and the Group

If you are interested drop me an email at AA6GJ@arrl.net to set a time, either online or in-person or to just get information. We can help you with your FRN, too.

73,

Gary

<https://GaryRJohnson.org>

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 commu-

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.
- Jackets—Forest Green or Black. Sizes Small to 6X
- Contact:

Hurt Ink

2651 Coleen Lane

San Bernardino, CA 92407

(909) 815-6852

hurtink815@gmail.com

www.hurtink.com

