

Nacogdoches Amateur Radio Club

2017 CLUB OFFICERS

Pres: John Cechin - W5FWR

Vice Pres: RM Blake - K5AGE

Sec/Treas: Army Curtis - AE5P

Visit our web site at

<http://w5nac.com/>

MISSION STATEMENT

The Mission of the Nacogdoches Amateur Radio Club is to support and promote Amateur Radio by public service, offering training to unlicensed interested parties and licensed Amateurs, mutual support of other Amateurs, engaging events that promote Amateur radio to the general public and other Amateur radio operators, and continuing fellowship by regularly scheduled organized meetings and events and having fun.



AUGUST MINUTES

The August meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on August 2nd. **President John W5FWR** opened the meeting at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. Twelve members were present. Each person present introduced them self. Minutes of the previous meeting were approved as published. The Treasurer's report was not available.

The Shreveport Hamfest is scheduled for Saturday August 12 at the Louisiana State Fairgrounds. At

least seven club members were in attendance.

A solar eclipse will occur on Monday, August 21. While not a total eclipse in our area, it will begin at about 11:00 a.m., peak at about 1:00 p.m., and be completely finished by 4:00 p.m. Members were warned to be extremely careful in viewing the eclipse, with a simple pin-hole camera being one of the better ways to view it safely.

Meeting closed at 7:26 p.m.

Show and Tell:

Army AE5P showed the latest version of SmartSDR running his Flex 6700 radio. The radio was located in his shack at home while Army had full control of it over the internet via his cell phone.

A more comprehensive demonstration was promised for a later date.

Program:

Tim KE5PQJ presented a program on using the very inexpensive RTL-SDR dongle to receive and decode P25 transmissions from local law enforcement using free software. Full details on the software used are available on the club website at <http://w5nac.com>.

**MY 2 CENTS
FOX WILLY ROGER**

SEPTEMBER 2017

Now that the dust has settled we can find another windmill to challenge.

This month is full of events, the VHF roving and the TXQSOP, and the VHF roving fun run, to point out.

The search for next year's club officers is on so help the committee, step up and say sure. You don't

have to be from Tennessee to volunteer.

DCI has given the chair people an information packet designed for the people in need of dialysis, in the packet was a go bag suggested list, this list is close to many other go bag lists, all that's different is the instructions dealing with the dialysis.

Question:

What about tagless t-shirts, why doesn't the ink show on the other side, and why does some printing fade and others stay good as new?

Why is it that when you receive a "pre-approved" offer, how come they want an application filled out?

Why is it called Hair Ball when its fur?

Why doesn't someone invent a toilet paper that companies can use for their junk mail, that way someone can get yet another use for the unasked for mail.

The word tree is slow but sure, as long as you don't push her.

REMEMBER:

Remember the 1977 Houston flood?

Penny candy, candy bars for a nickel?

10 cent cigarettes?

THE CRAZY CAT GUY:

I have decided to catalog the cats, first class is tails. Two types have appeared the shaggy and the smooth. Next is design, solids, strips, and spotted, and last of all is color, four white, three black, two grey, four spotted, the rest is a brownish, if ever all slowed down I could get a better inventory. One day RP was napping when she jumped up and watched a spot on the carpet, it was a stick bug; she watched that bug the rest of the night, just watching it. Another time a stick bug was on the front door jam, an outside cat saw it and was afraid to pass past to get outside

again. That seems to be the way it is with all the cats. The outside cats seem to eat anything, peas, corn, green beans, carrots, baked beans; one thing no one touches is the greens. I get a TV dinner has a cornbread muffin they fight over, as well as bread of all types, pan cakes. So far the greens are the only thing on the no list. I almost don't need the garbage disposal any more.

One day Fluffy found a garden snake in the back yard and brought it around front to show me, he played with it until it stopped moving, at that point (RAGS) Rag-A-Muffin spotted the snake and proceeded to finish the snack off, I believe that cat has hollow legs.

"THOUSANDS OF YEARS AGO CATS WERE WORSHIPED AS GODS THEY HAVE NEVER FORGOTTEN"

Spaces for rent, contact W5FWR for information.

LIVE WELL, LAUGH OFTEN, LOVE MUCH!!!

Let me know what you think, only if it's positive.

**KEEP YOUR POWER DRY AND YOUR HEAD BELOW THE HORIZON
HAPPY TRAILS**

John Cechin W5FWR
Carrots4ever2@gmail.com

FROM THE VICE PRESIDENT



Going into effect September 28th of this year, the FCC's "Personal Radio Service Reform" will change the rules on a lot of wireless devices. If you want to read the "Final Rule" document, it is of course over 200 pages long, so let me boil it down to some of the finer points with the help of ARRL giving us these notes. (I certainly didn't read all 213 pages of quite boring legal work) [HERE](#) is the link to the official document from the FCC if you are curious about the PRSR as its known. The reform includes a change in wide variety of wireless

devices used by the general public for personal communication, including hand-held Family Radio Service (FRS) transceivers, radio-controlled models, Personal Locator Beacons (PLBs), medical implant devices, and others.

In addition to the updated rule changes, the FCC enhanced the General Mobile Radio Service (GMRS) to allow new digital applications, allot additional interstitial channels, and extend license terms from 5 to 10 years. It also allotted additional channels to the FRS and increased allowable power on certain FRS channels from 0.5 W to 2 W. It also updated the Citizens Radio Service (CB) rules to allow hands-free headsets, eliminate a restriction on DX communication, and remove other outdated requirements.

"These changes and others will update PRS rules to be more in line with current public demands for the services and will make the

rules easier to read and find information, while also removing outdated requirements and removing unnecessary rules," the FCC said.

73 de RM Blake K5AGE
k5age@fastmail.com

NOTES FROM OUR EC

Hasn't July been a wet month? I haven't dug around the historical data but it seems that July '17 is wetter this year than last. It's nice to get the rain, but it drives the humidity up and means I have to harvest the weeds more often.

Continuing along the weather front, the hurricane season seems to be very active. Tropical Storm Don fizzled out due to high level winds. The NHC advises no Atlantic activity expected during the next 24 hours. Maybe the trend will continue, knock on wood.

Army posted in an email blast this week the status

of our Winlink Gateway at the Fredonia Hotel. He (and some un-named confederates I'm sure) is (are) getting the equipment tightened up and writing an installation and operations guide for Winlink. If you don't have Winlink on your computer (points finger at self) please do so. All of the orange boxes have a TNC (terminal node controller). Most of us will need a USB to RS232 DB9 adapter cable. Buy a good one, some aren't as good as others. I'm sure you can source them at all the usual places.

We have practiced passing message traffic via AndFlmsg and FLdigi. Winlink is just another tool in your tool box to send/receive record traffic.

DETARC is again asking for volunteers to help with the 2017 Edition of the Pine Woods Purgatory 7 October 2017. Please contact Megan Glass at mglass08070@gmail.com

The website is

www.pineywoodspurgatory.com

Does everybody have their solar eclipse plans made?

ARES/RACES Net, 146.840 -, 141.3 hz tone, Monday, 8 PM Local time
SKYWARN, 147.320 +, 141.3 tone, Thursday, 8 PM Local time

73 de John Chapman
KC5MIB
jlchapman2@juno.com

VE TESTING

Our next VE testing is scheduled for **Wednesday September 20 at 7:00 p.m.** in the Parish Hall of Christ Episcopal Church.

Applicants should bring a picture ID, the original and a copy of their current Amateur license, the original of any CSCE's and \$15 to cover the cost of the exam(s). Correct change is always very much appreciated. 73 de AE5P

email: ae5p@arrl.net

TWO METER CLUB NETS

Remember to join us each week for the two meter nets sponsored by NARC. Each **MONDAY** is the **NARC ARES/RACES** net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3). Second, on **THURSDAY** evenings at 8:00 p.m. is the **Deep East Texas Skywarn Emergency Weather Net** on the 147.32 repeater (PL 141.3). Please join us for one or both.

NEXT MEETING

The next meeting will be **Wednesday September 6th at 7:00 p.m.** in the Parish Hall of Christ Episcopal Church. A program and demonstration is planned on operating Winlink using club equipment. Hope to see you there.

VE TEST RESULTS

We are pleased to welcome our newest Radio Amateur Steve Bartlett KG5UVT. Steve first held an Amateur Radio license when he was a teenager in Houston many years ago but he has not been active. Now it's time to get back in the hobby again. Please help make Steve welcome if you hear him on the air or see him at any of our club events.

SPECIAL OPERATING EVENTS

Well okay, the cat is out of the bag. Our Special Operating Events are really roving in the VHF contests.

A group of four rovers participated in the July CQ VHF contest, which involves just 6 meters and 2 meters, making contacts very fast. At the suggestion of WA5GVQ, we tried a different route that resulted in much less driving and more grids.

Rather than driving up to Texarkana as we have in the past, we drove to Logansport, Louisiana where 4 grids come together. As expected, there were some surprises and challenges, but the group persevered and made lots of contacts.

Sunday the group travelled down to Nederland for more surprises and challenges, but again persevered and made lots more contacts, followed by a great lunch at Papadeaux's in Beaumont.

The final result was more contacts made from more grids with considerably less time spent driving. A lot was learned from the experience, and we will definitely try this route again.

The next VHF contest is the ARRL September VHF contest the weekend of September 8th. We operate the four lowest bands at 50, 144, 222, and 432 MHz. To keep things as simple as possible, all operation within the group is FM, which simplifies

equipment and tuning. You don't have equipment for all 4 of those bands? No problem. Use what you have. A dual band hand-held works just fine. An external mag-mount antenna for your HT will definitely help.

Because of the devastation in the Gulf Coast area due to Hurricane Harvey, we may not be able to go to Nederland in September, but will just go to Jasper on Sunday.

If you want a fun way to spend a weekend, get to know some fellow club members better, and improve your operating skills, come join us in September. Contact AE5P if you're interested.

UPCOMING**EVENTS OF NOTE**

Mark your calendars for the following events coming up in the next few months. Full information on these events and much more can be found at <http://www.hornucopia.com/contestcal/contestcal.html>

ARRL September VHF

Sept 8 - 10

<http://www.arrl.org/september-vhf>

CQ WW DX RTTY

Sept 23 - 24

<http://www.cq-amateur-radio.com/>

TEXAS QSO Party

Sept 23 - 24

<http://www.txqp.net/>

CQ WW DX SSB

Oct 28 - 29

<http://www.cqww.com/rules.htm>

ARRL Sweepstakes**CW**

Nov 4 - 6

<http://www.arrl.org/sweepstakes>

ARRL Sweepstakes**SSB**

Nov 18 - 20

<http://www.arrl.org/sweepstakes>

CQ WW DX CW

Nov 25 - 26

<http://www.cqww.com/rules.htm>

ARRL 160M Contest

Dec 1 - 3

<http://www.arrl.org/160-meter>

ARRL 10M Contest

Dec 9 - 10

<http://www.arrl.org/10-meter>

Alternating Current Circuits - Part 1

by

Thomas Atchison, W5TV

We have been discussing RC filters, RL filters, and circuits with both inductors and capacitors. In order to properly deal with these components at various frequencies we need to examine what happens when we have alternating current at various frequencies through these components. We will begin this discussion by talking about **impedance**.

Suppose we have a signal source that produces a sine wave as shown in Fig. 1.

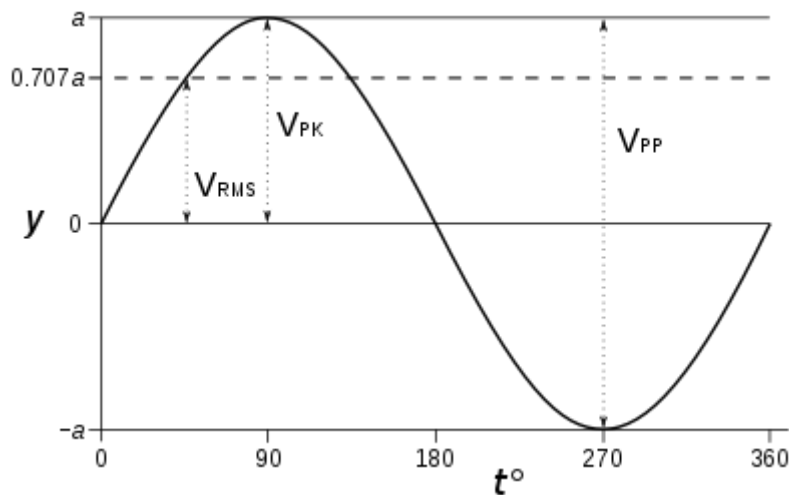


Fig. 1

If this graph represents the voltage variation of the signal then the label V_{RMS} represents the root mean square voltage or the effective value of the voltage. The label V_{PK} represents the peak voltage and the label V_{PP} represents the peak-to-peak voltage. The RMS voltage is related to the peak voltage by the following equation

$$V_{RMS} = 0.707 V_{PK} \text{ or } V_{PK} = \frac{1}{0.707} V_{RMS} = 1.414 V_{RMS}$$

The wavelength, λ , of this voltage is the distance from one peak to the next peak and the frequency of the signal is

$$f = \frac{c}{\lambda}$$

where f is the frequency, c is the speed of light, and λ is the wavelength. Notice that the horizontal axis specifies time, t , in degrees. This will be important to us later when we discuss phase.

Now let's put this signal in a circuit with a resistor as shown in Fig. 2.

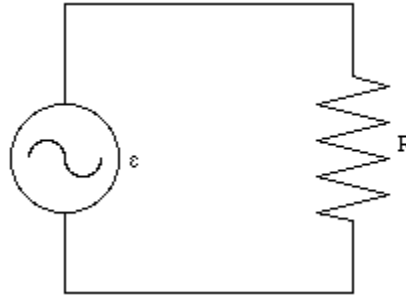


Fig. 2

Ohm's law can be used in this circuit to determine the current that relates to each of the difference measures of voltage. Recall that

$$I = \frac{V}{R},$$

where I is the current, V is the voltage and R is the resistance.

For example, suppose the effective voltage, V_{RMS} , is 12 volts and the resistance is 1000 Ω . Then $V_{PK} = 1.414V_{RMS} = 16.97 \text{ volts}$ and $V_{PP} = 2V_{PK} = 33.94 \text{ volts}$.

Therefore,

$$I_{RMS} = \frac{V_{RMS}}{R} = \frac{12}{1000} = 0.012 \text{ A} = 12 \text{ mA}$$

$$I_{PK} = \frac{V_{PK}}{R} = \frac{16.97}{1000} = 0.01697 \text{ A} = 16.97 \text{ mA}$$

and

$$I_{PP} = \frac{V_{PP}}{R} = \frac{33.94}{1000} = 0.03394 \text{ A} = 33.94 \text{ mA}$$

Suppose we put this signal in a circuit with an inductor as shown in Fig. 3.

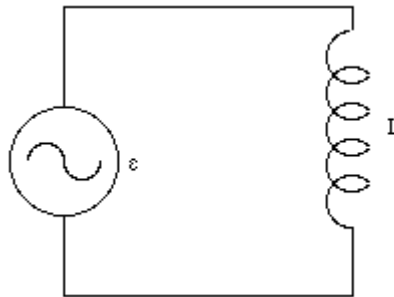


Fig. 3.

Inductors oppose alternating current. Such opposition is called inductive reactance and is usually denoted by X_L . This inductive reactance is given by the equation

$$X_L = 2\pi fL$$

where f is the signal frequency in hertz and L is the inductance in henrys.

Let's consider an example. Suppose $f = 5000$ hertz, $L = 30\text{mH} = 30 \times 10^{-3} \text{H}$, and $V_{RMS} = 2$ volts. Then

$$X_L = 2\pi fL = 2(3.14)(5000)(30 \times 10^{-3}) = 9420\Omega$$

We can use reactance instead of resistance in Ohm's law to determine current. For example

$$I_{RMS} = \frac{V_{RMS}}{X_L} = \frac{2}{9420} = 0.000212 \text{ A} = 0.212 \times 10^{-3} \text{ A} = 0.212 \text{ mA}$$

Now let's consider a different frequency, say $f = 10000$ hertz. Then

$$X_L = 2(3.14)(10000)(30 \times 10^{-3}) = 18840\Omega$$

In this case we have

$$I_{RMS} = \frac{2}{18840} = 0.000106 \text{ A} = 0.106 \text{ mA}$$

Note that as the frequency increases the inductive reactance increases and the current decreases.

Now suppose we put our signal in a circuit with a capacitor as in Fig. 4.

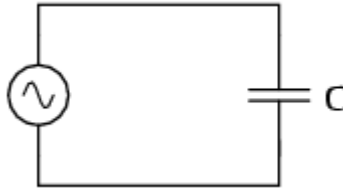


Fig. 4.

Capacitors have capacitive reactance that is given by

$$X_c = \frac{1}{2\pi f C}$$

where f is the frequency in hertz and C is the capacitance in farads.

For example, suppose $f = 5000$ hertz and $C = 0.02 \mu F = 0.02 \times 10^{-6} F$. Then

$$X_c = \frac{1}{2(3.14)(5000)(0.02 \times 10^{-6})} = 1592 \Omega$$

Again, we use Ohm's law to calculate I_{RMS} .

$$I_{RMS} = \frac{V_{RMS}}{X_c} = \frac{2}{1592} = 1.26 \times 10^{-3} A = 1.26 mA.$$

If we change the frequency to $f = 10000$ hertz, then we have

$$X_c = \frac{1}{2(3.14)(10000)(0.02 \times 10^{-6})} = 796 \Omega.$$

This means that

$$I_{RMS} = \frac{2}{796} = 2.51 mA.$$

Note that as the frequency increases the capacitive reactance decreases and the RMS current increases.

Reactance is **not** the same as resistance. We will use the term **impedance** to mean either resistance or reactance or some combination of these quantities. We will see how to combine these quantities in future articles.