



CONNECTED

APRIL 2022



Multnomah County Amateur Radio Emergency Services Newsletter

APRIL



NEWS FROM AROUND THE COUNTY

By Deb KK7DEB

The April monthly meeting will be online via Zoom. We are planning for the May meeting to be in person at Portland Fire station 2 training center. After 2 long years it will be great to meet in person again! Stay tuned as these plans are somewhat fluid as we monitor the covid situation.

The safety of our members is always our highest priority. As you know we have added new speakers to some of our meetings and we will be back on Zoom for the June meeting. We have scheduled David W7DAO, who is located in Seattle, to talk about propagation and the ionosphere. This is great subject matter prior to Field Day the following weekend.

Spring and Summer MCARES activities are taking shape with the MS WALK on May 21st and the new Mt. Hood ultra-marathon on July 8th and 9th. (Check your email for the sign up) We have also scheduled our annual GPS Food Drive for June 11th. Unfortunately the spring statewide ARES SET (simulated emergency test) has been canceled.

Several of our members have been asking for MCARES apparel such as t-shirts, polos, sweatshirts and callsign name badges. We are working with our suppliers on updating prices and will be offering an online order form very soon.

MEETINGS

Multnomah County ARES

Every 4th Thursday, 7:00pm

Check your email for details

<http://www.multnomahares.org>

Portland Amateur Radio Club

Every 2nd Monday, 7:30pm

Check website for location

<http://www.w7lt.org>

Hoodview Amateur Radio Club

Every 3rd Thursday

Check website for location

<http://www.wb7qiw.org>

NETS

Multnomah County ARES Net

Wednesdays, 7:00pm

146.84 (no tone)

=====

District 1 ARES Net

Daily, 7:30pm

147.320 (PL tone 100.0)

=====

Digital Modes Training Net

Every 1st Tuesday, 8:00pm

440.400 (PL tone 123.0)

UPCOMING EVENTS

4/28/2022

GENERAL MEETING ONLINE

WATCH FOR

UPDATES VIA EMAIL

MEMBERSHIP NEWS

VOLUNTEER HOURS
MARCH 2022
248.5

ACTIVE MEMBERSHIP

91

NET CONTROL DUTY

APRIL – ECHO
MAY – CHARLIE
JUNE – BRAVO



Latest Info for Winlink Training/Practice

with

Jeff WX7OR -- jeffmckinnis@yahoo.com

Purpose:

- Have fun
- Practice Winlink communication with Vara and Packet
- Keep Winlink, Vara, and computer up-to-date and functional
- Learn how to move messages around Multnomah County with Peer-to-Peer
- Develop new skills
- Certification practice/demonstration

Date and Time:

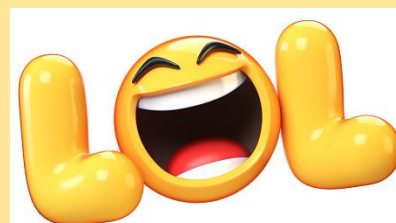
- 2nd Friday at 2:30pm
- 4th Friday at 2:30pm
- 3rd Tuesday at 8:00pm

Agenda:

- 10 minutes on a special topic or demonstration
- 40 minute round robin
- 10 minute Q&A session

Location:

- Frequency:
 - Primary: MC4 (146.48 MHz)
 - Back-up: MC5 (147.46 MHz)
- Google Meet as necessary if:
 - Requested by a member
 - Cover topics requiring visual training
 - Difficulty with communication over the West Hills



Thanks, Louise K7MOJ!

UPCOMING ARES EVENTS

Thursday, April 28th - TWO TRAININGS!!!!

Monthly Meeting/Training- online via Zoom

"FLDigi" (fast light digital) presented by Adam KF7LJH

"Net Control training" presented by Rachel KI7NMB

Saturday, May 21st - Walk MS

Saturday June 11th - 3rd annual GPS Food Drive

(Save the Date!!)

July 8th and 9th Mt. Hood ultra-marathon



*"If I can't say anything good about a person,
Vivan, I switch over to CW. "*

ADDITIONAL NETS

**Portland Neighborhood Emergency Team
Every Sunday, 8:10pm**

147.040 (PL tone 100.0)

=====

**Northwest Oregon Traffic & Training
Daily, 6:05pm**

**145.27, 145.43, 145.47,
146.84, 443.150, 442.275
(all with PL tone 107.2)**

Will advances in artificial intelligence (AI) benefit ham radio????

With AI applied to challenges such as noise reduction and decoding CW, this might very well be in our near future. The BBC News channel program, *Click*, featured a segment about nVida's work with artificial intelligence being applied to noise reduction. The segment begins at 6:07 in the video linked below.

www.youtube.com/watch?v=C0_O8l-jKEc

World Amateur Radio Day is April 18

World Amateur Radio Day (WARD) is April 18 and is celebrated worldwide by radio amateurs and their national associations, which are organized as member-societies of the International Amateur Radio Union (IARU). Read more at <http://www.arrrl.org/world-amateur-radio-day>



**When you feel
THE SHAKE
GET ON (147.) 28!**



Save some money at any **NW Battery Supply**
when you ask for the

"Multnomah ARES Discount!"

3750 SE Belmont Street
Portland OR 97214, (503) 232-9002



We have room for **Classified Ads!**

Send comments, questions, photos, & ideas to:

newsletter@multnomahares.org

subject: **CONNECTED**

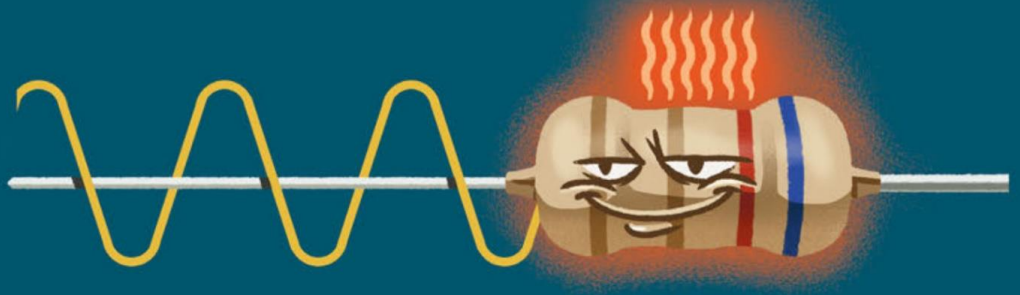
THE BIG PICTURE

Impedance — The Loyal Opposition

You'll hear a lot of talk in amateur radio circles about *impedance*. Defining impedance gets a bit complicated, because it's a combination of what a psychologist might call three "oppositional behaviors." Some of these behaviors can be quite stubborn and uncooperative, but in the end they all work together to create impedance.

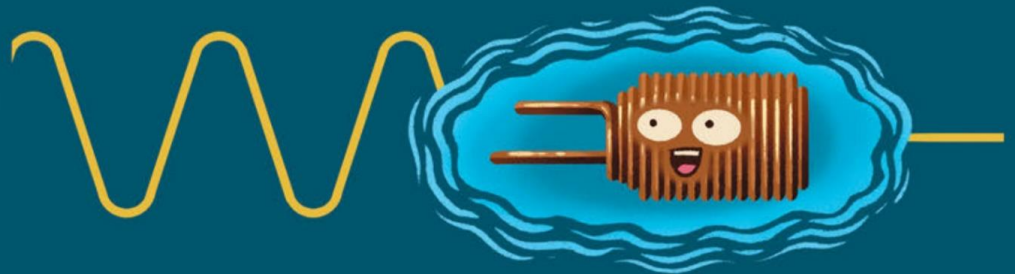
Resistance

Resistance is the tough guy of the electronics world. It won't allow a signal to move without turning at least some of it into heat. Resistance is everywhere, but it is concentrated in familiar devices known as *resistors*.



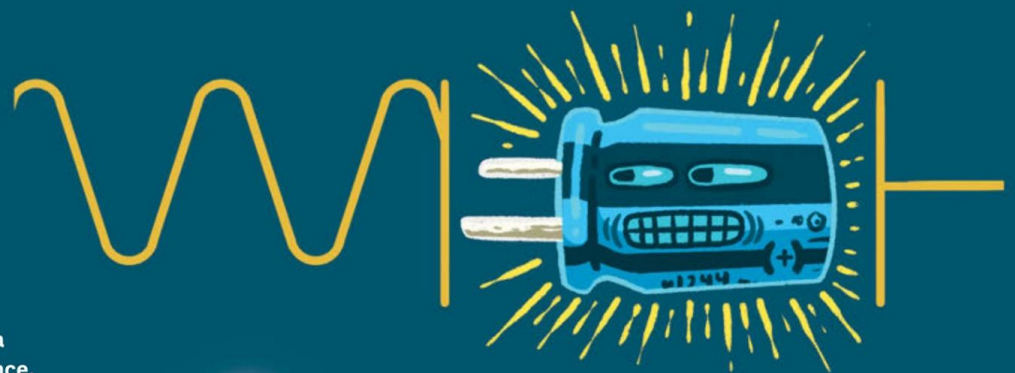
Inductive Reactance

When a signal encounters a circuit component known as an *inductor* — which often takes the form of a coil of wire — the inductor reacts by creating a magnetic field. As that field expands and collapses along with the signal, it generates a voltage in the coil that effectively opposes the flow of the signal.

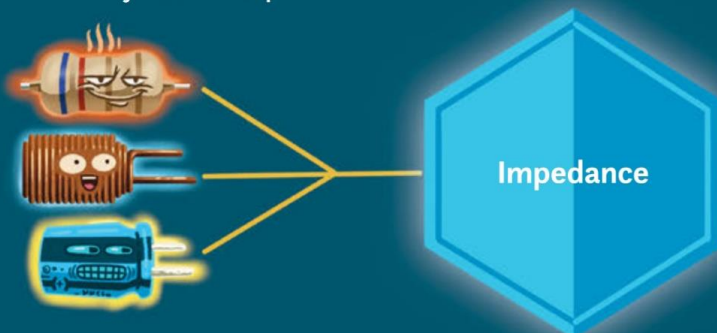


Capacitive Reactance

This is first cousin to inductive reactance. When capacitance is present, such as in a component called a *capacitor*, the signal causes an electric field to appear. The field then acts to oppose the signal.



These three oppositions combine in a mathematical way to create impedance.



Impedance can be headstrong, but it's not all that bad. As long as the impedance in one circuit matches the impedance of the circuit it is connected to, signals flow and everyone is happy. For more about impedance and the all-important match, see "Untangling SWR" and "Antenna Tuners: Making a Match," in the January/February 2021 issue of *On the Air*.

The Three Ingredients of Impedance

Impedance is really a combination of three “behaviors” we encounter in electrical circuits. Here’s more about each of them.

Resistance

The common *resistor*, a component found in many circuits, is little more than a piece of material — often carbon — with a wire stuck in each end. When electricity travels through a resistor, some of it is converted to heat. A resistor’s ability to resist is expressed in *ohms*, often with the Greek letter omega (Ω).

Resistance doesn’t only occur in resistors. For instance, wires are not perfect conductors; they also resist the flow of electricity to degrees that vary with the thickness and length of the wire.

Inductive Reactance

In its most basic form, an *inductor* is a coil of wire. If you apply direct electric current (*dc*) to an inductor, it will zip right through with very little opposition. The only thing hindering the flow will be the tiny amount of resistance in the wire.

When you apply alternating current (*ac*), the situation changes dramatically. A *dc* voltage is fixed in most cases, but *ac* voltage is forever fluctuating, rapidly rising and falling. The number of times it completes a rise-and-fall cycle within a single second is its *frequency*, which is expressed in *Hertz*. The *ac* power in your home has a frequency of 60 Hertz, which means the voltage rises and falls 60 times each second. Your radio generates *ac* too, but at much higher frequencies, which is why we refer to it as *RF*, or *radio frequency*, instead.

When *ac* is applied to an inductor, a magnetic field appears and it expands and collapses along with the *ac*. As the field moves across the inductor wires, it generates a voltage that interacts with the *ac* and effectively opposes it.

We call this type of opposition *inductive reactance*. The amount of it (expressed in ohms) will vary with the design of the coil and the frequency of the *ac* applied to it. Inductors

are used to create circuits that strongly oppose signals at certain frequencies while allowing signals at other frequencies to pass with less opposition. They are also used to block a signal from traveling to an unwanted destination in a circuit.

Inductance, and inductive reactance, aren’t confined to coils, however. Because of the way a coaxial cable is constructed, for example, it can also behave somewhat like an inductor and will have inductive reactance as well.

Capacitive Reactance

Like resistors and inductors, we find capacitors everywhere. Transceivers are full of them. If you have an antenna tuner, you’ll find capacitors there as well.

In its fundamental form, a *capacitor* is just two wires (often called *plates*) nestled closely together with an insulating material between them. In some instances, this insulating material is merely air. It can also be plastic, ceramic, etc.

While an inductor passes *dc* and opposes *ac*, a capacitor behaves in the opposite way: it passes *ac* and blocks *dc*. However, even an *ac* signal doesn’t get through a capacitor without some opposition. The *ac* signal creates an electrical field between the plates that acts to effectively oppose the ever-changing *ac* voltage. We call this opposition *capacitive reactance*, expressed in ohms.

Capacitors appear in circuits when you want to create an easy path for an *ac* signal while blocking *dc*. Because capacitive reactance changes with the frequency of the signal, the effect can be combined with inductive reactance to create filters that pass some signals while rejecting others.

Capacitance can occur wherever two conductors are close together. This means it even occurs between the center conductor and the outer shield of the coaxial cable you connect to your radio — the result is a certain amount of capacitive reactance in the cable.

Arriving at Impedance

It would be nice if we could say that impedance — which is also expressed in ohms — is the sum of resistance, inductive reactance, and capacitive reactance, but unfortunately, it isn’t a matter of simple addition. If you want to take a deep dive into the mathematics behind impedance, pick up a copy of *The ARRL Handbook*.

Interface

Across

1. Radio room
6. Analog tuning device
10. F-land without
14. Simple /MM vehicle
15. It follows that
16. SK item
17. Henry amp last name
18. "If it ___ broke ..."
19. This
20. They help you read 6-across and other 67-acrosses
22. Rig or antenna maintenance
24. Sometime AMSAT launcher
25. Related degree hams sometimes have
26. Campus org, informally
29. Not fooled by
32. Prepare, as tea
36. Chips that store
37. Dahdit dahdit

38. JA port
39. Hall-of-Famer Mel
40. Comebacks
42. Ham, to Noah
43. Weeper of myth
45. Once again
46. Go for the gold
47. Inductor shape, sometimes
48. Overhaul
49. Figure skater's jump
50. Whig's rival
52. Good thing to break on the links
54. Art's transceiver
57. Rotary, slide, and others
62. Bigger than a pico
63. Speaker part
65. Stockpile
66. Shakespeare's river

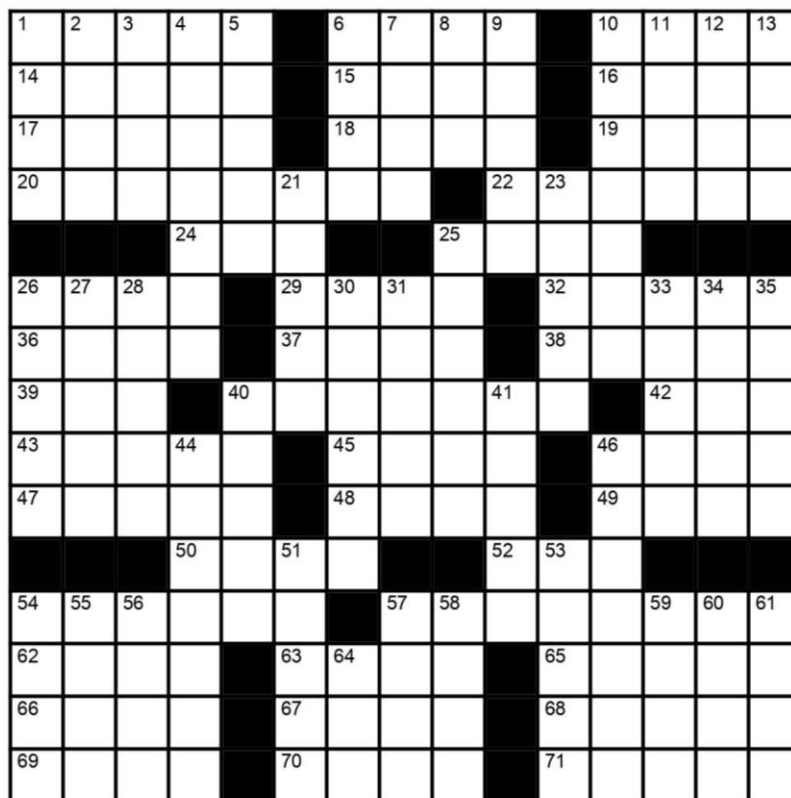
67. Interface device manipulated by digits
68. Where hams want to be
69. Livens (up)
70. Puts in stitches
71. FD, repeater, and others

Down

1. Atlantic fish
2. Innocent antenna configuration?
3. Prefix with VOX
4. Brass instruments not meant for, but useable for, sending CW
5. 19th century G poet
6. DR on CW
7. Pupil's place
8. "What?", on 7.005, say
9. Expensive sports car
10. Where plugs go

11. Old alpha alternative, in the military, say
12. ZK2 place
13. Footfall
21. Spanish prefix
23. XE units
25. Docked /MM
26. With 35-down, it's where 6, 20, 57, 67-across, 10, and 44-down are located
27. Part of SWR
28. Digital mode
30. ___ public
31. Congo prefix
33. Balearic prefix
34. Armenian prefix
35. See 26-down
40. Plant again
41. A full circle

44. Interface devices manipulated by a digit
46. Radio pioneer
51. Crystals, familiarly
53. SV/A Mount
54. Hiker's sack
55. Its length determines frequency
56. KL followers
57. VE8 forecast
58. Networks
59. One method of ant. elev. measurement
60. Lake for which a bug fist is named
61. Flex, SoftRock and others
64. QSO at start of SS





**Blast
from
the past!**

