



Volume XXI Issue 2
Editor: Thomas Price KC2PSC

February 2020

January 9, 2020 Board Meeting Minutes

- Meeting called to order at 7:05 PM
- Members present, AA2VG, W2TMA, KC2TAF, W2GLE, KD2NJM, AB2BN
- Rich, W2TMA discussed equipment that was given to him to sell from a former LARC member. It will first be offered to new hams, members of LARC.
- Steve N2PQJ and Rich KC2TON and Pat WB2CMF discussed plans for upgrading the 145.430 repeaters. A proposal that we set aside \$1500 for the upgrade was unanimously approved. This would pay for a new repeater and controller. N2PQJ is in the process of negotiating for a new repeater that has become available.
- Pat WB2CMF also discussed the possibility of installing a new 440 machine to replace the machine that was at the Dennison site. Pat also discussed the plans to set up EchoLink on the 147.210 machine using a remote internet access.

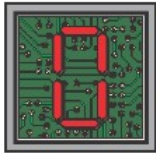
January 9, 2020 General Meeting Minutes

- The general meeting was called to order at 7:30 PM
- There were 17 members present and one non ham guest.
- President Peter AA2VG briefly discussed winter FD but there was no interest for a LARC set-up.
- Rich W2TMA gave the treasurers report. We have a about \$2,700 in the bank.
- Steve N2PQJ and Pat WB2CMF discussed the plans discussed at the board meeting to upgrade the 145.430 repeater and to set up remote EchoLink on the 147.210 repeater.
- Membership was discussed by Peter AA2VG who will have a new membership list drawn up for 2020 soon.
- Rich W2TMA discussed the successful VE sessions over the past several months.
- RACES was discussed by Steve N2PQJ. He introduced Rob W2ITT as a new RACES member.
- Howard KC2OJO discussed Night timers and noted that attendance was dropping. A discussion then took place about the possibility of setting up a LARC info-net on the 147.210 machine Tuesday evenings at 8PM.
- Thomas KC2PSC has moved to Massachussetts. This probably means that we will need another member to take over the publication of QSX.
- Steve N2PQJ introduced our guest, Peter Gaal. He is not yet licensed but is currently studying for his VE exam. We went around the room and asked each member “what have you done recently in Ham radio”. The answers were varied and interesting, ranging from Dxing to satellite TV. The meeting was adjourned at 8:45 PM

Inside the Classroom with AB2ZI

Things Every Ham Should Know: Ohm's Law

By Kevin, AB2ZI



Ohm's Law is one of the first formulas hams learn. You first encounter it in the test materials for the Technician license and in every license manual thereafter.

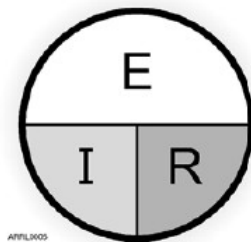
Ohm's law is our first introduction to understanding simple electrical circuits. At its simplest it is:

$$E = I \times R$$

Where *E* stands for voltage (the *E* is for electromotive force), *I* is for current, and *R* is resistance.

This equation is a fundamental building block in your foundation on which all electrical and electronic theory is built upon. If you don't learn this formula, and its transpositions for solving for current and resistance, you will never really fully grasp anything else about circuit behavior. It MUST be memorized and you need to be able to use it!

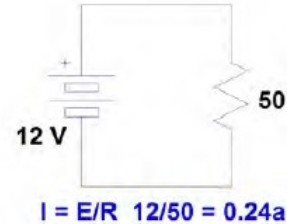
In the beginning you are given a handy diagram to put these letters in that allow you to do the mathematical transpositions simply by covering up the letter you want to find and seeing what the result is:



This is fine in the beginning. I know it's probably been a very long time for most of us to be accessing high school algebra after being away from it for so long, but it's all

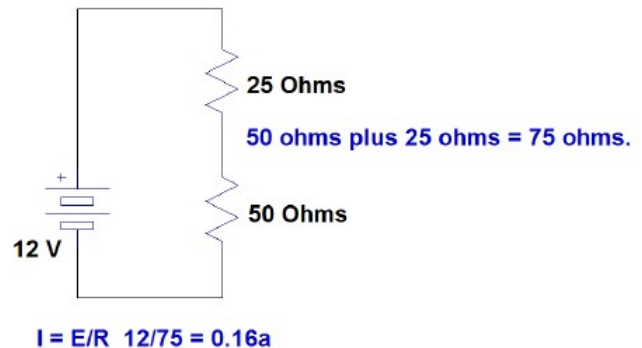
about practice and repetition. The more you use any skill, and math is a skill that you can be proficient at with practice, the better you will become at that skill.

The normal approach to learning to use Ohm's law is to start one of the simplest circuits we can make and using it to find out what's happening inside that circuit.



Looking at a circuit with just a 12 volt battery and a 50 ohm resistor we can analyze the circuit. We are given that the voltage (*E*) is 12 volts and the resistance is 50 ohms, so we can calculate the current that flows in this circuit by solving for *I*. On our transposing circle we cover the "I" and see that current is voltage (*E*) divided by the resistance (*R*). 12 divided by 50 = 0.24 amperes, or 240 milliamps.

We then explore more circuit behavior by added a second resistor in series with the first one. Below we've added a 25 ohms resistor in series with the 50 ohms resistor we started with. Since the electrons in a series circuit (or in a series



leg of a circuit) have to go through all of the components, the total resistance is the sum of the resistors. 50 + 25 = 75 ohms. Now the total circuit current is decreased to *I* = 12 volts divided by 75 ohms equals 0.16 amps, or 160 milliamps. Each resistor has the same current flowing through it but now there is a division of voltage between them. The individual voltages across the resistors will add up to the total applied voltage so this circuit is known as a voltage divider. The voltage across each resistor is calculated using Ohm's Law. Since *E* = *I* times *R* we can use the total circuit current for "I" and the individual resistor values for "R." For the 25 ohm resistor, *E* = 0.16 times 25 = 4 volts, and for the 50 ohm resistor *E* = 0.16

Continued on page 7...

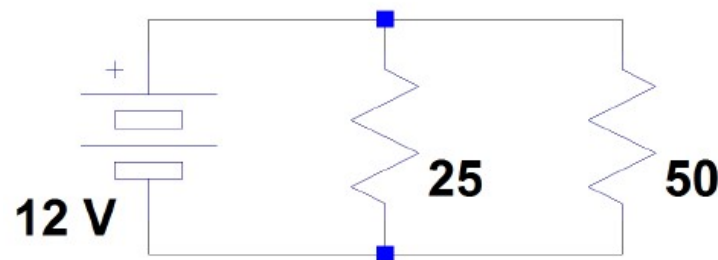
times 50 = 8 volts. You can see that 8 volts plus 4 volts is equal to our 12 volt source.

Other examples in the Technician book supply other parameters in order to demonstrate the ways to use Ohm's Law to find resistance when current and voltage are known, or voltage when current and voltage are the supplied quantities.

You can experiment with these permutations using the previous circuit in which all the quantities are known. Practice finding resistance and voltage. Do it over and over until you can do it in your sleep. This is the only way you will come to get a gut understanding of what's going on and how voltage, current and resistance are interrelated.

Parallel circuits seem to throw people for a loop. The idea that voltage is constant across the branches can confuse people. One analogy to help you get a better understanding of this is to picture a heating system with 2 branches. The boiler supplies a certain amount of pressure. That pressure is the analog to voltage. The applied pressure (voltage) pushes the water (electrons) against the total back pressure (resistance). The amount of water (electron) flow in each branch will depend on the individual restriction to flow (resistance) in that branch. So the flow (current) in each branch is dependant on the overall pressure but the individual branch resistance. If the 2 branches have equal back pressure (resistance) then the flow in each branch will be equal. If the resistance in each branch is different, the current flow will be different in the individual branches. The branch with the lower resistance will have more current flow than the one with greater resistance. This is why the total resistance the boiler sees is less than the smallest resistance. Let's look at a simple example:

Below is our 12 volt battery, this time with 2 resistors in parallel. We again have a 25 and 50 ohm resistor, but now because the current divides between the branches the overall resistance is going to be less than 25 ohms. If you were looking at a multiple choice question asking for



the total resistance to be calculated, you could right away eliminate any answers that were 25 ohms or greater.

This time let's analyze the circuit by finding the individual branch currents, adding the currents together to find total current, and then using Ohm's Law we will calculate total circuit equivalent resistance.

The first branch is our 25 ohm resistor. $I = E / R$ so 12 volts divided by 25 ohms 0.48 amps (480 mA). The second branch is a 50 ohm resistor, so 12 V divided by 50 ohms is 0.24 A or 240 mA. 240 mA plus 480 mA gives us a total circuit current of 0.72 A or 720 mA. We can now use this value to find total circuit resistance. $R = E / I$ so 12 volts divided by 0.72 A gives us about 16.7 ohms for total resistance. We can confirm this using one of the parallel resistor equations, which for just 2 resistors is $R1 \text{ times } R2 \text{ divided by } R1 \text{ plus } R2$. $R1 \text{ times } R2 \text{ is } 25 \times 50 = 1250$ which we divide by 25 plus 50 which is 75. $1250 / 75$ is 16.7 ohms! See how easy that was?

The more you understand what's happening in these circuits and how Ohm's Law is used to analyze them, the better equipped you'll be in your analysis and troubleshooting of your (or your friends) equipment.

73 and see you in class. ☺

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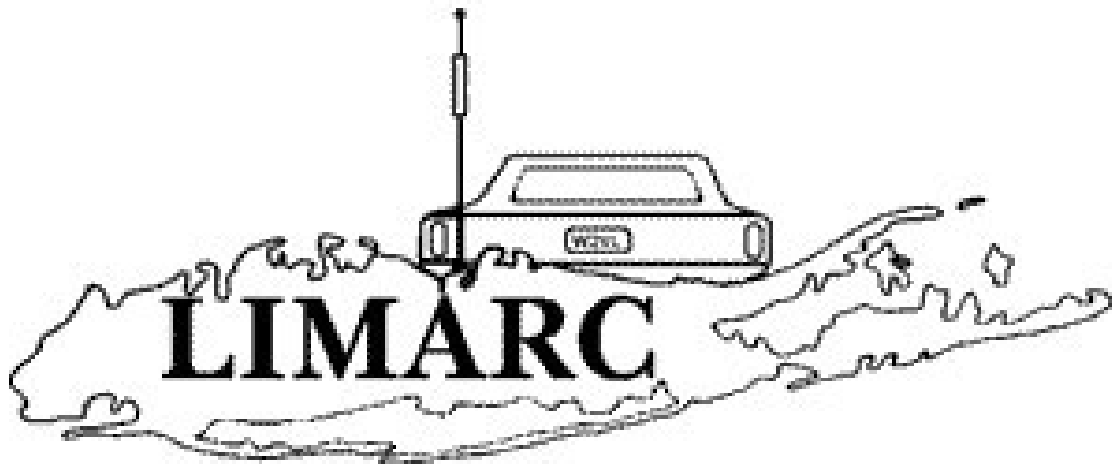
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February Club Meeting
February 13, 2020
7:30 PM
Huntington Senior Citizen Center



Long Island Mobile Amateur Radio Club

Long Island Outdoor Hamfest

Sunday February 23rd

Doors open at 9AM

General Admission \$6

201 Levittown Parkway

Levittown, NY 11801

Groups IO

Please join the Clubs Yahoo group. Not a member already send an e-mail to the following address:

larkfieldarc+subscribe@groups.io

Join our facebook group

<http://www.facebook.com/Larkfieldarc>

ARES/RACES NETS

Sunday 0900 New York State RACES 3993.5 LSB

Monday 1900 Huntington – 147.210

Monday 1930 Smithtown – 145.430

Monday 2000 Nassau County ARES RACES – 443.525

Monday 2015 Babylon – 146.685

Monday 2030 Brookhaven – 145.210

Monday 2030 Islip – 147.345

Monday 2100 Suffolk County RACES – 145.330

Huntington RACES

<http://www.huntingtonnyaresraces.org>

<p>The Larkfield Amateur Radio Club Affiliated with American Radio Relay League Officers (one year terms) President: Peter Deluca (2020) Vice President Secretary: Treasurer: Rich Florio W2TMA (2020)</p> <p>General Directors (two year terms) Donald Clarke AB2BN (2019-2020) Art Van Nostrand KD2NJM(2019-2020) Matt Lazarus N2RBP(2019-2020) Roger Rapp W2GLE(2020) Neal Harris KC2TAF(2020)</p> <p>WA2PNU Station Trustee Jonathan Schwartz KC2PBE WR2ABA Station Trustee Jonathan Schwartz KC2PBE W2LRC Station Trustee Jonathan Schwartz KC2PBE</p> <p>Members of the Larkfield Amateur Radio Club are invited to use the W2RGM Dix Hills Repeater System:</p> <p>2 meters 147.075 MHz out/147.675 MHz in 4z/136.5 Hz PL</p>	<p>70 centimeters 448.500 MHz out/ 443.500 in 2a/114.8 Hz PL</p> <p>THE LARKFIELD AMATEUR RADIO CLUB OPERATES:</p> <p>WR2ABA HUNTINGTON REPEATER 2 meters 147.210 MHz out/147.810 MHz in 4z/136.5 Hz PL</p> <p>W2LRC HAUPPAUGE REPEATER 2 meters 145.430 MHz out/144.830 MHz in 4z/136.5 Hz PL</p> <p>W2LRC HUNTINGTON APRS 2 meters 144.390 MHz In/Out</p> <p>USA EASTNET FLEXNET NETWORK 2 meters WA2PNU (0-15) Nodes 145.070 MHz WA2PNU (-4) Node 145.070 MHz (BBS)</p>
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The Larkfield Amateur Radio Club wishes to thank Bruno KC2ESI, Jack K2JX, Joe N2QPD, Bob AC2AZ, Thomas KC2PSC, and Pat WB2CMF for their dedication and efforts in maintaining the Club's repeaters and our packet and APRS stations. Their collective efforts and donations of equipment along with the overview of Bob AC2AZ and Peter AA2VG have kept us "on the air". Still to go, another 440 MHz repeater and adding IRLP or Echolink to one of our repeaters. We need volunteers for this new work.

<p>General Meetings 7:30 PM</p> <p>February 13, 2020 March 12, 2020</p>	<p>Board Meetings 7:00 PM</p> <p>February 13, 2020 March 12, 2020</p>
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GOOD AND WELFARE

Attention members: Our Good and Welfare Chairperson is Helene Lazarus (XYL of Arnie N2PLS). Please inform her (499-2837) of news about club members so she may make submissions to this publication.

It is with heavy hearts that the Larkfield Amateur Radio Club announces the passing of club member Peter Lioio, WB2UPN, on January 24th.

2014 DUES SCHEDULE

Regular Membership: \$35.00

Members Age 65 or older: \$25.00

Members Age 17 or less: \$25.00

Disabled Members: \$25.00

Living Outside Club's Operating Sphere: \$15.00

Add \$10.00 if you want QSX via U.S. Mail

Make your check payable to: LARC

And Mail to:

Larkfield Amateur Radio Club Inc.

PO Box 1450

Huntington, NY 11743

**VE SESSION SATURDAY February 8th
HUNTINGTON TOWN HALL
100 MAIN ST., ROOM 114
WALK-Ins WELCOME**

Team Liaison is Rich W2TMA. Fee is \$15. All elements will be offered and exams start at 9:00AM. You must have 2 forms of ID, one of which includes a photo. If upgrading, bring an original and a copy of your license and an original of any CSCEs.

The next Executive Board and General meetings will be on Thursday, February 13th at 7:00PM and 7:30PM, respectively.

**You can submit articles or photos for publication by e-mail at:
larkfieldqsx@gmail.com**

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