MAY 2015

Volume 4 Issue 5

VE3ERC-LUB

President: Rich VE3DCC
Vice-President: Johan, VA3JBO

Secretary: Tom VE3DXQ

Treasurer: Reg, VE3RVH

Trustee: Al, VA3TET

Newsletter Editor Bob VE3IXX

QSL Manager: Tom, VE3DXQ

Firehall Liaison: John, VE3JXX

Repeater manager and maintenance: Carl, VE3FEF

Website Admin: Johan, VA3JBO

Maple Syrup Joyce, VA3WXU
Display: Judd, VE3WXU

IN THIS ISSUE

2013– FIELD DAY PAST

THE PREZ SEZ!

This club is Radio-ACTIVE

President's Update for May 2015

Greetings:
I was pleased to accompany Al and Paul to Simcoe to address the Norfolk Amateur Radio club. I, briefly, outlined our ad hoc emergency plan and I thanked them for being part of our October SET. The main act was a detailed presentation by Al and Paul regarding the Poynting Antenna. After an initial bout of skeptical questioning, the crowd quickly warmed to the idea and the challenge. As a result of the questions and bantering, the session went over-time! It was an excellent night- and a late one, too.

As always happens when Hams drive together, the conversation turned to strange, off the edge discussion of electronics and radio theory. Paul subsequently sent me a copy of an item written by a former space lab worker who described how images from a Mars rover appeared to arrive 11 minutes prior to when the "official" transmitted signals were actually copied. The suggestion was that NASA may have implemented quantum entanglement to create immediate transmission of data bits.

Hmmmmmmm? This sounds like Science Fiction, eh, so Lets go back a piece in time to get a bearing on what this could mean for us, if it is true.

In 1935, Albert Einstein, Boris Podolsk and Nathan Rosen wrote an academic paper that was intended to debunk quantum theory. It is called the EPR paper, named after the Authors. It imagines a particle, a quark, splitting in two, with the particles separating in different directions. Quantum theory holds that momentum and position are "linked" so that changes in one part, creates an IMMEDIATE and identical action in the other part. This worried Einstein—he called it "spooky" behaviour. In essence, the linkage means that observing a value in one particle instantly influences the other. The paper concluded that "No reasonable definition of reality could be expected to permit this." . Einstein believed in "locality"—the notion that "one thing cannot influence another at a distance without something passing between them!". [1]

A few years ago, a speaker at the Waterloo Perimeter Institute described how a random set of bits were generated using exactly this "spooky" technique and then used to encrypt a transfer of money from one bank to another over several miles in Austria. The stream of bits generated , seemingly by "magic", at the destination , in syc with the particle at the source, were used to decrypt the transmission. Now realize that, just as not knowing how

gravity works does not preclude it working , even for those who may not believe in gravity (imagine non-believers floating off the face of the earth shouting "I believe, I believer!!!") similarly our lack of accurate understanding of radio propagation does not preclude our using it. We use it every time we transmit. So too with this spooky linkage!!!

Einstein was proven wrong by virtue of experimentation and the undeniable demonstration that this "works" despite the fact that we do not understand HOW!

Let me return to the original story. Imagine that a split particle is "spookily" linked to a "twin" elsewhere on a device, say on Mars. A digital camera could take a picture, then word by word, bit by bit, use the data bits to modify the twin, on earth, which would (and I know that this is tough to imagine!) instantly change its' states as the original does it's.
This is like a synchronized swimming performance with the swimmers separated by thousands of miles.

If , in fact, such an innovaton does or could exist, the implications for radio transmission are enormous. By using voice, digitized, to manipulate the particle, the "voice" would appear instantly anywhere the "twin" or ,perhaps, particles that look like the twin might be. But there could be more!

Recall that last year, Frank Monteith, presented ERC with a demonstration of his 3-D printer technology. If a device can be scanned so the physical dimensions can be reduced to binary (which it is!!), then the bit pattern could be transmitted to a remote location, instantly, where the signal would be returned to a binary form and fed into a 3-D printer. Any part needed on a distant outpost to service a broken unit could be manufactured and delivered instantly. If this could be done to organic structures with a "device" that can re-assemble exact DNA structures of a living being, we have stepped into the Science Fiction realm of Star Trek, transporters and, perhaps, even a means to teleport extra-terra and beyond the tethers of Mother Earth. Unlike Frank's coils of plastic, for his 3-D printer, an organic "cloner" would have to have the organic materials needed to build a carbon-based life form.

Would duplicating the brain structures be enough to duplicate memories. In fact, would we have to answer the question " Is it real or is it Memorex?". And, what of the "original"? Would it have to be "destroyed" so the illusion of transport is maintained. This may be a while away, but ,no doubt, Hams will continue to be at the forefront, probing, asking the questions, experimenting and wondering.

Every time you transmit, you are tickling the building blocks of the universe. I trust I have tickled your imagination today.

Regards,

Rich ve3DCC

1] page 98, "30 Second Quantum Theory" edited by Brian Clegg 2014 ,Ivy Press ISBN 978-155-267-905-0

Last month we gave you the basics of this antenna.

Here now is Al's full article.

THE SHORT DROOPY 80M ANTENNA

BY AL MacDonald VA3TET

The Elmira club decided that a good opportunity for community exposure would be to set up and operate a demonstration station(s) at the Elmira Maple Syrup Festival. We decided that two stations would be operational, one on 80 meters, primarily for the Ontar's net, and a 15 meter dipole for a digital station.

The 15 meter was not a challenge as we could shorten a 20 meter dipole we already had. But!!, 80 meters was another story. Hence, the evolution of the "**Short, droopy, and under 80**".

The first order of business was to determine where we could put an antenna for 80 meters. A vertical would not work as the area was paved over and left us with no area for a ground plane. A dipole was our only hope.

A quick walk around revealed a tree and a wooden parking lot lamp post adjacent to the building we were going to operate from. After pacing off the space between the tree and post, it looked like something less than 60 feet was all we had. Accounting for tree limbs, something less than 50 feet was in order. It was apparent that a shortening device was needed to have the dipole fit the space and radiate efficiently in the 80 meter band.

We needed an antenna that would fit the limited space available for 80 meters (3.755Mhz.) at the Maple Syrup festival.

A quick check of the ARRL antenna hand book yielded some very good information that would serve as a guide. Loading coils would have to be used to make the antenna look longer.

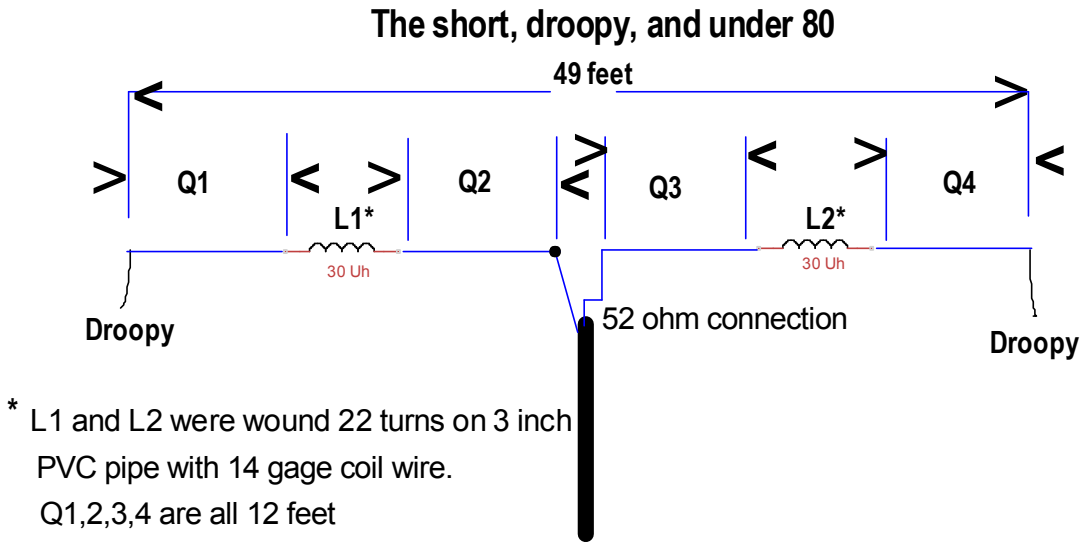
The junk box yielded 75 feet of # 12 lamp cord, some acrylic that could be cut for insulators, a 12 inch piece of 3 inch diameter PVC pipe, some number 14 gage coil wire, and a handful of nuts, bolts, and short pieces of aluminum. That's what was on hand, and that is what I wanted to use, since I had no time to waste running around sourcing "stuff".

According to the ARRL hand book, the best approach would be loading coils placed at the half way point of each leg of the dipole.

I split the lamp cord into two lengths of 75 feet, and then cut 4 lengths of 12 feet. Each 12 ft. section was stripped back 1/2 inch and tinned.

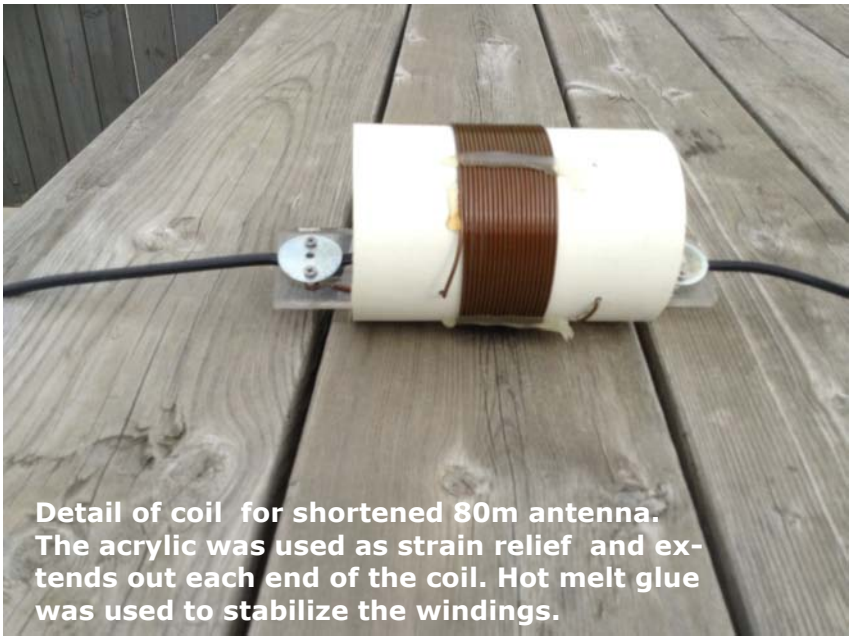
Based on some examples, I reckoned that the coils should be around 35uh. to resonate in the top part of the 80 meter band. This turned out to be about 25 turns on a 3 inch PVC coil

form. I cut the 12 inch PVC pipe into two 6 inch lengths, drilled a small hole about 1 inch in from each end and wound the coils. The holes serve as a start and finish for the windings. Hot melt was used to secure the windings. I measured the inductance and found it was around 38 uh. I forgot that the PVC was about 3.25 OD, hence the higher inductance.



I soldered some tinned connectors on the end of the lamp cord and assembled the antenna without adjusting the coils.

The antenna was hung between two trees and the resonance was measured ... 3.040 MHz. Our target frequency was 3.755 MHz. The high inductance of the coils dragged the resonance down. The coils needed to have turns removed. On a gut feel I removed 3 turns from each coil and put the antenna back up. This time we overshot the mark and the resonance was 3.890 Mhz. Adding a turn to the coils was also going to miss the mark. We needed a little more inductance to pull the resonance down to 3.755 MHz.



Detail of coil for shortened 80m antenna. The acrylic was used as strain relief and extends out each end of the coil. Hot melt glue was used to stabilize the windings.

This was accomplished by adding about 8 inches of wire to the ends of the dipole. These were allowed to droop. The antenna tuned to 3.760 MHz – not bad, -- we were aiming for 3.755 MHz .

While I had the antenna up I added various lengths to the dipole ends and found that the antenna could be tuned right down to the bottom of the band. This suggests that making the coils with one less turn per coil and adding "droopies" to the end could tune anywhere in the band.

Oh yes, the SWR was better than 1.2:1. This would improve if the antenna was higher – we were only 15 ft. off the ground.

How did it work??

The over 30 contacts made (in one hour) gave signal report of S9 for most of Ontario. This looks like an excellent compromise antenna for small lots or attic installations.

Will cell towers soon become obsolete?

Submitted by Tom Mahony VE3DXQ from MSN News Site

Advances in wireless technology could see cell towers become a thing of the past, according to telecommunications experts.

"There's no reason why your cellphone isn't the cell tower of the future," Steve Papa, founder of Parallel Wireless, told CNBC on Tuesday.

Speaking on the sidelines of the Founders Forum Smart Nation Singapore conference, Papa envisions a world where cities will be free of massive cell towers. Instead, mobile phones will be become part of the transmission network, resulting in a decrease in dropped calls, less interference and a fewer "black spots" – areas with patchy signals.

"We're just on the cusp of chips coming out where a $300 chip can power an entire cell tower. When you get that far, it's not that much further to a scenario where when you're finished with your cellphone, you can hang it on the wall and it adds to the cellular network," Papa said.

Qualcomm is already experimenting with technology that allows smartphones to communicate with other mobile devices up to a range of 500 meters, bypassing cell towers altogether. Called LTE Direct, it uses licensed spectrum without draining a phone's battery life and will become commercially available in 2016, Qualcomm **(QCOM)** said.

The firm conducted a trial of the device-to-device (D2D) software in collaboration with Deutsche Telekom **(DTE-DE)** and Huawei earlier this year. In a white paper released in February, Qualcomm said LTE Direct can offer mobile operators "tremendous value for their licensed spectrum assets with minimal impact on resource consumption."

Facebook **(FB)** also expressed interest in the technology. Jay Parikh, the company's vice president of infrastructure engineering, was quoted last year as saying that LTE Direct can enable Facebook to "facilitate user experiences around serendipitous interactions with a local business or a friend nearby."

Research suggests the technology's disruptive potential is massive.

"D2D-enabled LTE devices have the potential to become competitive for fallback public safety networks that must function when cellular networks are not available or fail," said the Wireless Networking & Communications Group (WNCG) in a paper last year.

"In principle, exploiting direct communication between nearby mobile devices will improve spectrum utilization, overall throughput, and energy efficiency."

Additional spectrum is needed to make this vision of wireless technology a reality, Papa said.

Recent developments in the U.S. point to a bright future for the industry. Last Friday, the U.S. Federal Communications Commission (FCC) approved a landmark plan that allows broadband providers to use and share spectrum that was previously held by the military.

"Since they don't make spectrum anymore, and since spectrum is the pathway of the 21st century, we have to figure out how we're going to live with a fixed amount," FCC Chairman Tom Wheeler said.

Papa believes this plan – called the Citizens Broadband Radio Service– will open an enormous playground for entrepreneurs across the globe and augment cellular networks.

Moreover, increased spectrum will mean no one company will dominate device-to-device technology, Papa noted.

"Who's going to be in charge is more of a political question than a technology or industry structure question. The reality is that technology will make spectrum less scarce. When spectrum is less scarce, there's less of a need for a natural monopoly."

LOGBOOK OF CONTACTS MADE BY DENNIS VE3UTN

AT THE ELMIRA MAPLE SYRUP FESTIVAL

1	15m	9A4FS	EU	Croatia	15	497	N	N	21070762	28	N		
2	15m	IU0DZA	EU	Italy	15	248	N	N	21070899	28	N		
3	15m	WA4EEZ	NA	United States	5	291	N	N	21071196	6	N		
4	15m	VE3TRQ	NA	Canada	5	1	N	N	21070000	2	N		
5	15m	N7WE	NA	United States	5	291	N	N	21070000	6	N		
6	15m	OE3AHB	EU	Austria	15	206	N	N	21071198	28	N		
7	15m	AK9B	NA	United States	5	291	N	N	21070000	6	N		
8	15m	DL5CJ	EU	Fed. Republic of Germany		14	230	NN	21070000	28	N		
9	15m	HK2PMR	SA	Colombia		9	116	N	N	21070000	12	N	
10	15m	AJ4OK	NA	United States	5	291	N	N	21071191	6	N		
11	15m	KD5ZKX	NA	United States	5	291	N	N	21071200	6	N		
12	15m	KW4HJ	NA	United States	5	291	N	N	21070000	6	N		
13	15m	MW0CSO	EU	Wales	14	294	N	N	21070000	27	N		
14	15m	N5NX	NA	United States	5	291	N	N	21070000	6	N		
15	15m	AB4QS	NA	United States	5	291	N	N	21070000	6	N		
16	15m	KW4HJ	NA	United States	5	291	N	N	21070000	6	N		
17	15m	WA6VPJ	NA	United States	5	291	N	N	21070000	6	N		
18	15m	F4UQD	EU	France	14	227	N	N	21070000	27	N		
19	15m	SQ2IIV	EU	Poland	15	269	N	N	21070000	28	N		
20	15m	AF5SN	NA	United States	5	291	N	N	21070000	6	N		
21	15m	EW6FW	EU	Belarus	16	27	N	N	21070000	29	N		
22	15m	G3ZOH	EU	England	14	223	N	N	21070000	27	N		
23	15m	WA5RZJ	NA	United States	5	291	N	N	21070835	6	N		
24	15m	W6UYD	NA	United States	5	291	N	N	21070000	6	N		
25	15m	RN1TV	EU	European Russia		16	54	N	N	21070000	19	N	
26	15m	KD0WQC	NA	United States	5	291	N	N	21070000	6	N		
27	15m	SN6WZ	EU	Poland	15	269	N	N	21070848	28	N		
28	15m	SQ7OWZ	EU	Poland	15	269	N	N	21070000	28	N		
29	15m	N7SCT	NA	United States	5	291	N	N	21070000	6	N		
30	15m	YL3BF	EU	Latvia	15	145	N	N	21069990	29	N		

Elmira Radio Club

Minutes from May 27, 2015

By Tom VE3DXQ

Present:

VA3TET Al, VE3RVH Reg, VA3GWM Gord, VE3WXU Jud, VA3WXU Joyce, Ken VE3KCY VE3DCC Rich, VE3DXQ Tom, VE3CXU Doug, VE3JLC Jim,VA3PDC Paul, VE3JXX John, VE3QB Bruce, VE3EIX Harry, VE3HYV Wilf, VE3XTM Terry, VE3KCY Ken, VE3XTM Terry, VE3TRQ Ted, VA3GSM Greg, VE3JMU Jim, VE3IXY Bob, VE3UTN Dennis, VA3AHP Rob, VE3PVB Paul.

The meeting was opened at 7:30 pm by our club president Rich VE3DCC.

Rich congratulated Al VE3TET and Paul VE3PVB on their presentation at Norfolk.

Rich VE3DCC asked Tom VE3DXQ if any comments arising from last month's minutes.

VE3DXQ Tom mention the question regarding the RAC insurance if it covered personal injury at the Feed mill and Terry VE3XTM advised it did not cover personal injury.

Tom moved that minutes from last meeting be accepted seconded by Dennis VE3UTN carried.

Nominations Committee: Paul VE3PVB advised we have all the positions required for incorporation.

It was stated by Rich that per our constitution we need to have elections at this meeting.

Technical Reports: Al VA3TET stated we have a table to run ONTARS at Flea Market; need help for antenna setup; WYNNSORC app has been sent for a VHF Repeater TX 147.0750/RX 147.6750; Yaesu Repeaters (2) are on order with some concerns sent via email; Flea Market tables are for members—encourage donations; Lighthouse in progress.

John VE3JXX also spoke about the progress of getting an antenna up at the fire hall. There is the issue of where to put the cans purchased at Dayton and also how to get power up there on the hose tower. John was also up at the feed mill tower and advised he did some grounding repair. However wind is an issue as drum antennas causing vibrations as they are very close to our antennas. John also advised connection on antenna cable may need replacement.

Paul VE3PVB told us of a new antenna from Japan called a Super RAD Antenna. This is a small size antenna. It consists of a coil and an aluminum tube. You can find it on Google. This antenna is magnetic as well as electrical.

Al advised he would need help setting up the Antenna for the flea market on Saturday June 6, 2015. This will be in the afternoon. Volunteers please show up at 2:30 pm to help Al. Flea Market is Sunday June 7, 2015.

Ted VE3TRQ gave us a short talk on Mesh networks. One is called the AREDN "Amateur Radio Emergency Network" Another one is called "Quick mesh project" It is commercial. This involves having a router hooked up to a radio link to make a local network. See https://www.ubnt.com/

Rich brought up the topic of a club QSL Card. There was some discussion regarding were the picture should be taken. No decision was made at this time.

Treasurer Report: Ken VE3KCY purchased some "Cans "at Dayton on behalf of the club for $372.15 including tax and exchange. The Club's balance is presently $3,896.98.

Elections: Paul VE3PVB Nomination committee ran the elections. The following were willing to stand for re-election. Rich VE3DCC President, Tom VE3DXQ Tom Secretary, Reginald VE3RVH Treasurer. AL VAETET -Trustee. There were no other nominations for these positions.

The Vice-president VA3JBO Johan was not present.

Discussion followed on the position of newsletter person and it was decided that this position is not a club office, but an appointment. However it is nevertheless very important. VE3IXX Bob will continue in this role as there were no other nominations for the appointment.

Nominations were opened for the position of Vice President. Paul VE3PVB nominated Jud VE3WXU, and Joyce VA3WXU, both declined with thanks. Ken VE3KCY and Ted VE3TRQ were also nominated, but declined due to other commitments.

Paul VE3PVB nominated John VE3JXX 2nd by Jud VE3WXU. No further nominations.

John VE3JXX is the new Vice-President elect. Terms of office for officers start in September.

The following officers are will start their term in September. Rich VE3DCC President, John VE3JXX Vice President, VE3DXQ Tom Secretary, VE3RVH Reginald Treasurer, VA3TET Al Trustee.

Club Incorporation: Terry VE3XTM stated our progress in becoming incorporated.

Terry has all the forms in order and will need more signatures from officers this evening.

Once we are incorporated (step 1) we can then apply for the RAC affiliation (step 2). The date of your incorporation will be the same date as your application. This is important in filing your taxes. (step3) is applying for RAC insurance. The treasurer needs a list of all paid up members and a list of all members in RAC. The corporation will be under the name "ERC The Elmira Amateur Radio Club Inc."

The Club needs an AGM (Annual General Meeting) once per year under incorporation.

Elmira Maple Syrup Day: Joyce VA3WXU. Joyce read her thank you letter to the Elmira Maple Syrup Festival. This was very well done. We will attach the Maple syrup festival QSL card, and a brochure, pictures from the day, and contacts made. The Banner for the festival is in the works.

The Lighthouse weekend: Bruce VE3QB showed us the QSL Card he made for this event. This event will be at the same time as the lighthouse opening.

Safety Officer: Tom VE3DXQ nothing to report, as no events since Maple Syrup festival.

Ad Hoc Emergency plan: nothing new to report.

Field day: Reported by Al VA3TET already.

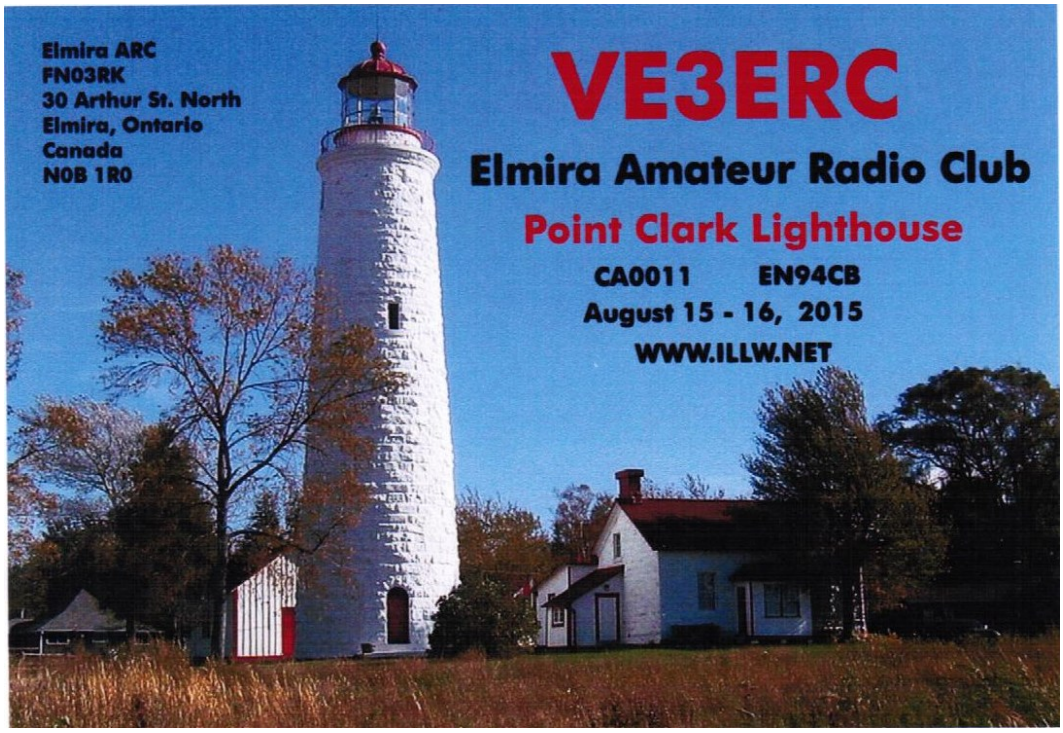
Talk on Bill Tutte and Code by Rich VE3DCC: Rich showed us books available on code breaking and gave some mathematical examples of code breaking.

Meeting ended at 9:20 pm

Terry ve3xtm reporting on incorporation..

WEDNESDAY NITE NET CONTROLLERS

JUNE 3 - HARRY VE3EIX
JUNE 10 - DOUG VE3CXU
JUNE 17 - AL VA3TET
JUNE 24 - M E E T I N G
JULY 1 - REG VE3RVH
JULY 8 - PAUL VE3PVB
JULY 15 - BOB VE3IXX
JULY 22 - HARRY VE3EIX
JULY 29 - DOUG VE3CXU
AUGUST 5 - AL VA3TET
AUGUST 12 - REG VE3RVH
AUGUST 19 - PAUL VE3PVB
AUGUST 26 - BOB VE3IXX



Designed by Bruce, VE3QB, this will be the official QSL card for the Club's station in Point Clarke celebrating the Lighthouse weekend on August 15 and 16 this summer.

Divide and Conquer

By Calvin Benoit VA3CBE

Divide and conquer, great military strategy but this article will show how a simple voltage divider circuit will protect test equipment from an invasion of electrons hell bent on overloading components.

Every problem has a solution, and this is no exception. I have a soundcard oscilloscope program? Great software but the soundcard can be damaged if too much voltage is applied to it. The circuit to be tested was 120 volts ac, 60hz, my intent was to view the output waveform and harmonics from our portable gasoline generator. The problem was that 120 volts is obviously more than the 0.4volt maximum the sound card will allow. To find a solution we can turn to ohms law for help.

Remember ohms law, and how resistors in a series circuit react? If not perhaps a refresher course would be in order. Ok here is the deal, after you read this read the ARRL chapter on "electrical laws and circuits" great reading if your having trouble sleeping HI!

Referring to figure 1 we can see two resistors in series powered by the battery on the left. The current is the same in both of the resistors but the voltage drop between the two is proportional to the resistors value measured in ohms. Using ohms law we can calculate the voltage drop across each resistor.

Now for the math part, lets say the battery is 120volts, R1=330K ohms, R2=1K ohm, total resistance in a series circuit is R1+R2 so therefore R1+R2=331K ohms.

$$I(\text{ampres}) = \frac{E(\text{volts})}{R(\text{ohms})} = \frac{120}{331} = 0.362\text{amps}$$

Now that we have established that there is 0.362 amps of current flow at 120 volts we can determine the voltage drop across each resistor

E(volts) = I(ampres) X R(ohms)

R1 volt drop 0.362amps X 330K ohms =119.46 volts

R2 volt drop 0.362amps X 1K ohm = .362 volts

The voltage at R2 is below the 0.4 volt maximum the soundcard can handle so it is safe to

connect the soundcard oscilloscope at the point in fig1 labeled "output"

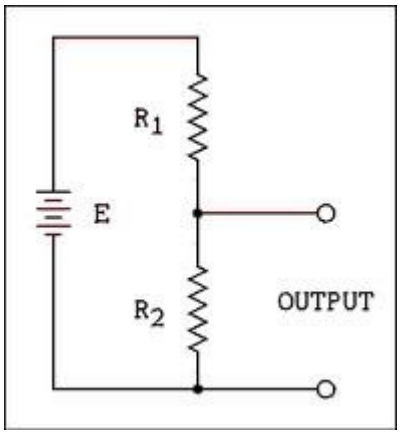


fig1

Your are probably thinking that 119.46 volts plus .362 volts does not equal the original value of 120 volts, well it does not due to the fact that the figures were only calculated to a couple of decimal spaces, being a ham is not an exact science. Close is ok.

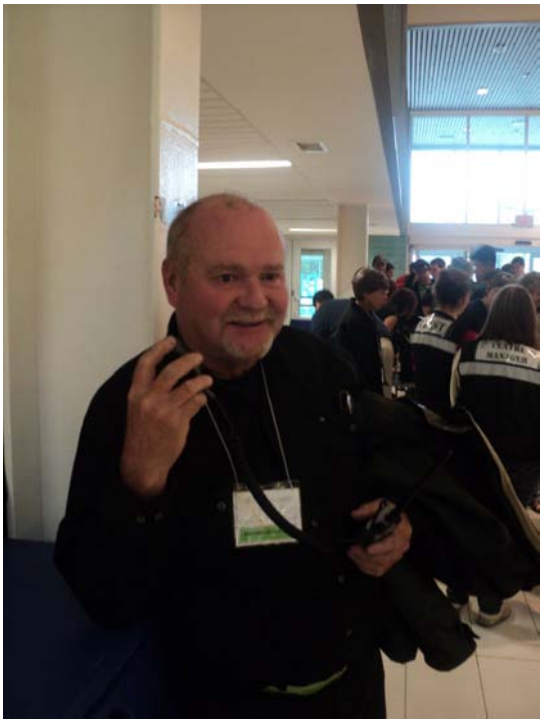
Do the resistors have to be 330k and 1k? Not at all, they were just the first two I picked out of my junk box that were a close enough match for the circuit I needed.

73 de VA3CBE

IN MEMORIAM

SYD LENNOX VE3CQO SK

1951-2015



Lennox, Sydney Graham … Passed away suddenly at his residence in Elmira in his 64th year. Loving father of Sharon and May Lennox. Cherished son of Sydney and the late Norma Lennox. Beloved brother of David (Joyce), Alan, Beth (Max) Yetman, Gary (Chrissie) and Rick (Dana). Sydney will also be sadly missed by his nieces, nephews, family and friends.

SINCEREST CONDOLENCES

TO THE FAMILY

FROM THE ELMIRA RADIO CLUB