



**JANUARY 2016**

**Volume 5 Issue 1**

# VE3ERC-LUB

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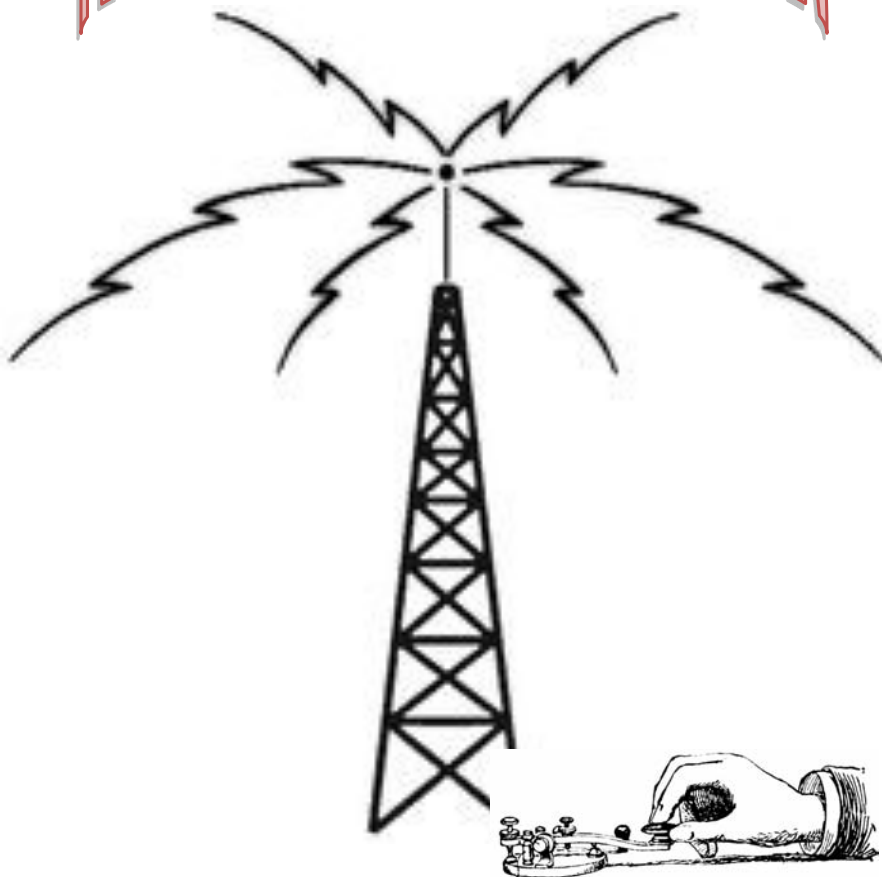
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**President: Rich VE3DCC**  
**Vice-President: John VE3JXX**  
**Secretary: Tom VE3DXQ**  
**Treasurer: Reg VE3RVH**  
**Trustee: Al VA3TET**  
**QSL Manager: Joyce VA3WXU**  
**Repeater Manager & Maintenance: Carl VE3FEF**  
**Website Admin: Ted VE3TRQ**  
**Lighthouse: Bruce VE3QB**  
**Maple Syrup Display: Joyce VA3WXU**  
**Judd VE3WXU**  
**Newsletter: Bob VE3IXX**

## **ERC REPEATERS**

**UHF 444.700 TONE: 131.8**  
**VHF 147.390 + TONE: 131.8**  
**EMERGENCY SIMPLEX: 147.51**

# HAPPY NEW YEAR



# THE PREZ SEZ!

This club is Radio-ACTIVE

This club is Radio-ACTIVE

## President's Update for January 2016



**W**OW! I hope you all had a terrific start to the new year. Our club enters 2016 with renewed energy and focus as we continue to learn from our hobby. For a hobby that folks keep writing off, it certainly has "legs" and new frontiers. Let me describe a personal, recent example—one with lingering questions.

First, I had the pleasure of attending the KWARC January meeting where Gunther, ve3MAD presented new insights on the Internet of Things. He demonstrated how he could use an iPad app to control a robotic device. He invited us to imagine a world where refrigerators, among other devices, would have a mind of their own and, perhaps, could notify you to buy milk or bread on the way home because you are running low... or it just might generate the order itself, and a drone could drop it off at your doorstep. Of course, your driverless car could just be instructed to do that small detour so you as passenger can pick-up the milk, and a lottery ticket for that big draw, too.

The notion certainly stretches the imagination, yet, as Gunter always seems to, his presentation sparked some serious thinking. Many years ago (1978), I did a presentation to the TRS80 club (which hosted at the high school) that involved demonstrating a Model 3 located at my home, on a Model 1 on site at the EDSS meeting. The model 1 was secretly hooked to a modem—I had written a quick little program that intercepted the video and keyboard drivers, routing them to the modem at both ends. My acronym for this was S.H.A.R.E. (simultaneous host and remote exchange)!!! The crowd wondered how I had transplanted the chips. As I recall, MAD has it figured out immediately. Others, less so! But, wait....

Years later (2002), solving a similar problem, I wrote a modest program which I used in my grade 12 computer science class as a base for student networking projects. I removed it from the course after 3 years because the implications within a board-wide network system could be dire if my students made the next logical step. I buried the software in my archives, content that I had done humanity a good deed.

Fast forward to 2016 and ve3MAD's presentation fresh in the afterglow of our November ERC MESH project/presentation. Gunther used a simple router (NOT connected to the internet) as a local INTRANet as the wireless connecting hub between iPad and robot. In resurrecting my forbidden code, I discovered that

it was possible to send UDP messages from computers within my disconnected router intranet, or within the internet-connected router, wired or wireless to other "like" units, and remotely control them. Now, the router I used was my surplus D-Link 524 with 802.11G at 2.4 GHZ. Our MESH systems use modified routers that obviously transmit on the HAM band newly-licensed frequencies, but, I suspect, the routers must assign IP addresses in the normal way. This suggests that if an internet, IP addressable device like an Arduino or the like could plug in and receive messages or commands via MESH from a wireless laptop, "somewhere", it would be possible to remotely control your shack, your home or whatever. Even better, if the computer can plug directly into a MESH router, and other stations are similarly attached to their MESH antenna, IS IT possible to send a "form" for use in an emergency down a backbone connection to a safe, remote site for message handling? I certainly do not have this completely tested yet; however, I have a stripped down 28 k prototype of the program on my website:

<http://www.kw.igs.net/~raclausi/Peer2.exe>

A short description of the process is in a document at:

<http://www.kw.igs.net/~raclausi/how2peer.docx>

I have had success running this on XP and Windows 7 machines, with the caveat that some units are missing 3 "lost" supporting files and report an error when run. A fix is described in the document—3 files need to be inserted into the program directory and windows/system32. In an extreme case, the registry needs to be adjusted. While I am NOT soliciting volunteers, I offer this as an interesting twist in our "new" adventures in communication via MESH and the internet of things.

So, I close with a challenge to each member of the club: engage in an aspect of the hobby that you have been curious of, resolve to pursue it and follow it where it leads you. Tell the club about your ideas and ignite OUR imaginations too. HAM radio is certainly not a stagnant hobby—and, perhaps, the best is yet to come!

By the way, there is clearly merit in saving (that is, hoarding) your old notes and code. You never know when old ideas/solutions resurface in a new context.

Regards,  
Rich, ve3DCC.

# The Radio Amateur's Code

*In November of last year, Bill Graham VE3ETK wrote an article about developing good repeater etiquette. In this same spirit, while browsing the ARRL website I came across this code of amateur ethics which was promulgated back in 1928, but is as applicable to today:*

## The Radio Amateur is

CONSIDERATE...He/[She] never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...He/[She] offers loyalty, encouragement and support to other amateurs, local clubs, the IARU Radio Society in his/[her] country, through which Amateur Radio in his/[her] country is represented nationally and internationally.

PROGRESSIVE...He/[She] keeps his/[her] station up to date. It is well-built and efficient. His/[Her] operating practice is above reproach.

FRIENDLY...He/[She] operates slowly and patiently when requested; offers friendly advice and counsel to beginners; kind assistance, cooperation and consideration for the interests of others. These are the marks of the amateur spirit.

BALANCED...Radio is a hobby, never interfering with duties owed to family, job, school or community.

PATRIOTIC...His/[Her] station and skills are always ready for service to country and community.

*- adapted from the original Amateur's Code, written by Paul M. Segal, W9EEA, in 1928*

**VISIT THE ERC WEBSITE AT**

**[WWW.VE3ERC.CA](http://www.ve3erc.ca)**

# SDR Radio on a Budget

By **Terry VE3XTM**

Some time back I demonstrated the use of DVB-T dongles that can be used for the reception of radio signals in the VHF and UHF bands. These dongles were originally designed for the reception of European TV, but some enterprising amateurs discovered that they could also be used for radio reception when used in conjunction with a computer and a USB port.



*DVT-T Dongle for SDR Radio*

Several free software programs have evolved over time, so that now a pretty decent SDR radio can be had for a very low price. The dongles typically can be had for under \$20. While in no way do they challenge the S/N performance of more sophisticated and much more costly commercial rigs, they do provide a good introduction to SDR radio for those wishing to try this newer technology.

Upconverters

Since the dongles were not designed with HF reception in mind, receiving lower frequencies had to employ the use of upconverters to bring the HF amateur bands into the frequency range of the dongle, which is typically about 64MHz to 1.2GHz, but it can be somewhat lower or higher depending on the chips used in the dongles.

Several very good upconverters are now available, including the Ham It Up and one offered by SV1AFN, Makis Katsouris in Greece. These two boards are probably two of the best low priced boards available. You can find an excellent comparative review of them

at this YouTube URL: [Upconverter review](#)

## Ham It Up Converter Information

Another very good, but more expensive SDR system is the AirSpy system that offers a lower noise floor than conventional dongle-based SDR.

## Airspy Radio

## Noise Reduction

There have been some additional developments in noise reduction mainly in lowering noise generated by USB connections. Paul-VE3PVB sent this link to me that outlines some ways of reducing noise generated by USB connections which these dongle-based radios use.

## USB Noise Reduction



*Ham It Up Upconverter Board*



*SV2AFN Upconverter Board*

## Direct Sampling

Recent exciting developments have allowed the use of direct sampling with the SDR dongles. The first stages can be bypassed and

with some pretty finesse soldering techniques, they can be modified to a direct sampling which brings the dongles into the latest generation of software defined radios.

Direct sampling eliminates the need for an upconverter and the dongle can be used to receive from LF to the HF bands without additional hardware. The SDR# software, which is available as a free download on the internet at the [airspy.com](http://airspy.com) website has been modified to allow the use of direct sampling with SDR dongles. HDSDR software also offers this option to receive by direct sampling.

The real trick is to make the physical modifications to the SDR dongle. Although the modification is the only the addition of a single wire antenna connection, the size of the component that needs to be soldered too is very small and presents a real soldering challenge.

Further details on this exciting development can be found at these URLs.

### Direct Sampling using an RTL Dongle

#### Antenna mod to Dongle for HF reception

As dongle-based SDR technology improves over the coming years it will present a great opportunity to enter this new and exciting amateur radio advance in a very cost effective way. Stayed tuned for further developments! .



# Elmira Radio Club

*Minutes from Jan27, 2016*

## Present:

VA3TET Al, VA3GWM Gord, VE3WXU Jud, VA3WXU Joyce, VE3TRQ Ted, VA3DXK Brian, VE3JND Justin, VE3DCC Rich, VA3PDC Paul, VE3JMU Jim, VA3FJM Frank, VE3IXX Bob, VE3DXQ Tom, VE3PVB Paul, VE3KCY Ken, VE3JXX John, VE3QB Bruce, VE3CXU Doug, Rob VE3AHP, VE3JVG Jason, VE3KCY Ken, VE3CXU Doug, VE3FEF Carl, VE3EIX Harry, VE3JMU Jim, VA3CDF Andy, VE3FEF Carl, VA3GSM Greg, VE3RVH Reg.

Rich VE3DCC opened the meeting at 7:30 and welcomed those present, and then had the roll call.

## Reports and announcements:

Minutes from November 2015 meeting: Tom VE3DXQ asked if there were any errors or omissions from November ERC minutes. None were mentioned. Tom asked for a motion to have November 2015 minutes accepted. Motion to accept minutes 2<sup>nd</sup> by Judd VE3WXU and all were in favor to accept the minutes. The minutes were accepted. Tom VE3DXQ advised he brought a list of ERC club members and asked those present to see if their info was up to date. He also had a copy of emails that Rich VE3DCC said bounced back when he sent to them. Tom asked members of ERC present to look at this also and see if anyone might know why there was a bounce back. Al VA3TET mentioned that in the past the list of ERC members has their spouse's names on the list as well.

Status of Repeaters: repeaters are working well, although the VHF 147.390 MHZ at the fire hall does not reach south of the 401. The UHF repeater at the feed mill is still working, and plans to get the UHF working in the fire hall are in the works as well as IRLP there.

## Treasurer's Report:

Reg showed us a basic budget for running the club and advised we will have to find a way to raise funds, as now that we are incorporated we have more costs. Things such as RAC insurance, accountant costs, costs of new equipment, bank charges, field day, Maple Syrup Festival, and the like. Discussion among members present about how the price of many things, have gone up in price since the club started.

Reg made a motion the treasurer's report be accepted 2<sup>nd</sup> by Bruce VE3QB. The treasurer's report was accepted.

## Nominations committee:

Rich advised that our constitution states that we must form a nomination committee 6 months prior to holding elections. Paul VE3PVB has volunteered to chair the nominations committee. Rich advised that our constitution also states in 2.4 that an individual may not hold the same office for more than 2 consecutive terms unless approved by a two thirds majority of active club members. Rich stressed the importance of rotation of leadership and advised he will be involved in the nominations committee.

## Incorporation and constitution committee:

Rich advised that the only loose end is the yearend accounting procedure. We now have a CRA business number and we will be filing a return with them. Our Incorporation date was September 14, 2015. We are now officially covered by RAC Insurance. Also the Elmira high school library has not received their copy of RAC magazine as yet.

## Elmira Maple Syrup Day:

Joyce VA3WXU advised she now has the check for the 2 tables at the Maple Syrup Festival. She made a motion to hand in the check for the tables at the Maple Syrup 2<sup>nd</sup> by Ted VE3TRQ. This event now officially sanctioned by ERC Inc.

Safety Officer Report: Tom VE3DXQ . Nothing new to report.

Lighthouse Project: Bruce VE3QB made a motion to sanction the lighthouse project as a Club event 2<sup>nd</sup> by AL VA3TET . All were in favor motion passed.

Retro fit for the Fire Hall: Ted VE3TRQ made a motion that operation, maintenance, and installation of repeaters and mesh network be sanctioned activities at the fire hall for ERC Inc. This was 2<sup>nd</sup> by Judd VE3WXU. All were in favor. The motion passed.

Technical Reports: Al VA3TET said nothing new to report.

Ad Hoc Emergency plan update: advisors..... ERC will have the first spot on the agenda at the televised council meeting on April 5.

I am planning my presentation along the lines of a

- brief overview of our role within the plan for health messaging from evacuation centers
- brief call out on our repeater to a remote station using my handheld
- your quickie 20 m antenna assembled by you, live, as I present.....then
- Quick summary of our emergency report re: antenna shortcomings and need to be based out of fire hall... need for better antenna.... AND OUR REQUIREMENT THAT WE BE OUT OF HARMS WAY...

We need to be able to handle questions in simple, quick fashion.

Field Day Report: Al VA3TET made a motion that we officially sanction our field day as a club activity. 2<sup>nd</sup> by Brian VA3DXK. Motion carried.

Flea Market: Al made a motion that we officially make our flea market a club sanctioned activity. 2<sup>nd</sup> by Joyce VA3WXU. All were in favor. Carried.

QSL Report: Joyce VA3WXU mentioned they will make a minor change to the Maple Syrup Festival QSL Card by placing the date of the festival on it.

Christmas Party: Next Christmas party will be Dec 14, 2016. Al VA3TET motioned that we sanction all of our club meetings including the Christmas party. 2<sup>nd</sup> by Bob VE3IXX. All were in favor carried.

Speaker presentation: Greg VA3GSM gave a talk on Digital Mode Radios. Models include Motorola, Harris, Kenwood and High Terra. DMR has dual channels. Therefore you can have 2 conversations per radio. Greg gave us demo by contacting someone in Montreal through Kitchen repeater VE3NXS.

Mesh Networks: No report.

Other Business: Paul VE3PVB mentioned a new SDR dongle that has a very accurate Crystal. It is the NooElec NESDR Mini 2+

Link to product: <http://www.nooelec.com/store/sdr/sdr-receivers/nesdr-mini-2-plus.html>

Meeting closed at 9:00 PM

Meeting Dates for 2016.

Jan. 27, 2016 DMR digital voice capable radio (25 min) Gregory Smith

Feb. 24 SDR Radio Update (Terry)

Mar. 23 Digital Modes PSK (Dennis) and Maple Syrup Day preps

Apr. 27 History of Television Video ????

May 25 Elections

June 22 Financial Reports and CRA return

June Flea Market planning/ Field Day (emergency exercise)

[July 27]

[Aug. 24]

Sept. 28

Oct. 26

Nov. 23

Dec. 14, 2016 Christmas Party





Greg VA3GSM gave a riveting talk on Digital radio. Everyone was enthralled and questions abounded both during the meeting and afterwards.

If you are interested in reading more about digital radios check out the "Amateur Radio Guide to Digital Mobile Radio (DMR)" at the following website:

[http://www.trbo.org/docs/Amateur\\_Radio\\_Guide\\_to\\_DMR.pdf](http://www.trbo.org/docs/Amateur_Radio_Guide_to_DMR.pdf)



One of several less expensive DMR radios available today:

TYT Tytera MD-380 UHF  
Analog/Digital DMR Radio

## Amateur Radio Guide to Digital Mobile Radio (DMR)



By  
John S. Burningham, W2XAB  
February 2015

Paul, VE3PVB sent the following article from his friend, Conny in Sweden. It has been translated into English from the original Swedish.

Anneli Malm



## A broken antenna was the start

**INNOVATION:** The need gave rise to a new type of antenna.

Conny Winrot has developed a new type of antenna, and now he has even written a chapter in a new book along with Ted Hart and Paul Birke.

Conny Winrot has developed a new type of antenna. An antenna that does not need to be more than a meter long, yet have the same effect as the traditional longer one—the Hertz dipole. In connection with it he also made a discovery. Conny is trained in telecommunications and electronics, and has worked in the industry for his entire life including as teacher in the telecom and digital technology, and the National Defence Radio Establishment. The need for a new type of antenna came when he moved to an apartment, and his antenna blew apart.

- Then I could not put out long wire arial or a new antenna on the roof where expensive homes do not permit any, says Conny Winrot.

He made his first attempt with the Poynting vector constant, PVA, 2000 and it was successful.

- I received a reply by a Dutch amateur radio and it worked well but there was nothing that accorded with the theory in the case of antennas. It worked, but not as regular antennas.

### Developed technology

He continued to develop the technology around the new Poynting Vector antennas based on the amount of area and volume rather than length, and he has had contact with radio amateurs in Europe, the US and Canada. To help, he has Paul V Birke (PEng) from Canada who contacted Conny when he heard about his work. Conny uses different forms for their antennae like a wooden horse, flat sheets and even egg-shaped objects which are made of ceramic or glass and clad with copper.

- There are four variables that you must have to use. First you must get the right amount of surface area and the effective shape of the radiating elements and the distance between the elements also have to cooperate. Is it true there arises the capacitance which I, Paul calls the ghost-capacitance. Ghost capacitance have to do with the free outer space when the antenna is working directly with an impedance of 377 ohms.

### New discovery?

Impedance is the electrical resistance of an AC power, and is measured in SI unit ohms.

- It's quantum physics that is involved in the RF radiation process. I have researched the Internet what it is for information about the impedance of the free space and it is not much. It is basically a mathematical formula. Nobody knows anything about ghost capacitance. I have picked

up something new?

Together with Paul who is completing the new book about Poynting Vector Antennas and its functions. The book will be available this spring.

- Paul and I have been working together for three years and have contact via Skype. He hopes to disseminate its findings worldwide through the book and the hope is that there are interested universities who want to continue to develop antennas.
- What Paul and I have done is basic but there is a lot of spin-offs to elaborate on. We have not always received positive feedback when he has outlined its development of antennas.
- But who laughs last laughs best.

## **WEDNESDAY NITE NET CONTROLLERS**

**FEBRUARY 3 - REG VE3RVH**

**FEBRUARY 10 - PAUL VE3PVB**

**FEBRUARY 17 - BOB VE3IXX**

**FEBRUARY 24 - M E E T I N G**

**MARCH 2 - JUD VE3WXU**

**MARCH 9 - TED VE3TRQ**

**MARCH 16 - AL VA3TET**

**MARCH 23 - M E E T I N G**

**MARCH 30 - BILL VE3ETK**