

**MARCH 2015**

**Volume 5 Issue 3**

# **VE3ERC-LUB**

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- President: Al, VE3TET
- Vice-President: Johan, VA3JBO
- Secretary: Bob, VE3IXX
- Treasurer: Reg, VE3RVH
- Trustee: open

QSL Manager and Lighthouse: Bill, VE3WBJ

Repeater manager and maintenance person:  
Carl, VE3FEF

Website Admin: Johan, VA3JBO

**ERC REPEATER 444.700**  
**EMERGENCY SIMPLEX 147.51**

This coffee mug emblazoned with the Elmira Radio club logo was designed by the creative efforts of Judson (VE3WXU) and Joyce Hodge (VA3WXU).

# THE PREZ SEZ!

This club is Radio-ACTIVE

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## 2015 President's Update:

**G**reetings:



HOW SWEET IT IS! Maple Syrup, that is!

This year, ve3ERC will be participating in the Elmira Maple Syrup Festival for the first time, as part of our emergency plan.

We will have a display table in the hobby/Toy area at the Lion's Hall in Elmira. Teams will be operating on both Friday evening, 7:00 pm – 9:30 pm, and Saturday, 8:00 am- 4:00 pm. ERC will be running a "talk-in" station on ve3ERC, as well as, on ONTARS on Saturday as long as the bands permit. We will use 80 metres as long as we can, then switch to another band.

PLEASE TELL YOUR CONTACTS AND ENCOURAGE THEM TO CHECK-IN.

Al and his team have put together a hand-out and they have created a special QSL card. We are excited with this new venture.

Our goals are two-fold:

First, we want to raise the profile of the Elmira Club within the community by promoting the festival, perhaps worldwide, via QSL cards and contact with both local residents and tourists. We are returning the support shown to us by Woolwich.

Second, in our ongoing plan to be disaster-ready, we are setting this station up, on the fly, in a location that might conceivably be an evacuation centre. We have visited the site and determined that we can squeeze a modified 80 m. dipole running roughly N-S in a fenced smoking area on the East side of the building. We are trying to use existing anchors, however, at one point we entertained running a wire to the nearby home of one of our

members!!!! The Guelph club were also willing to allow us the use of their trailer and mobile tower (and this cooperation is greatly appreciated!!). We will use regular power inside; however, a generator could be accommodated in the fenced area. We will have to see what kind of interference the nearby high-voltage wires may cause. This is hands-on learning--Fun!!!!

The most exciting part of this process is the real-time problem-solving that is happening "on the air" and "on the fly". For example, Al Macdonald VA3TET researched and fabricated a modified 80 m antenna to suit the constraints of the space while the rest of the team Judson Hodge VE3WXU, Joyce Hodge VA3WXU, Dennis K Upton VE3UTN and Ted Rypma VE3TRQ tackled the QSL card, info handouts, equipment and display board issues. The internet was busy as digital data was exchanged. While operating schedules will be worked out at the meeting, I am hopeful that we can involve as many as possible in meeting the public over these two days. Even if you cannot be at the site, do check in via UHF and "talk" for the sake of the audience.

In closing, may I remind all members that in the event of an emergency, any time, we will need hams to tune into our local repeater so members who are able to report to evac centres can pass traffic to base stations "away" from the affected areas. Our bottom line is safety. That means that we need operators both at the safe evacuation sites and in their safe home base stations, providing radio service to people in distress.

73, Rich, ve3DCC

#### P.S. RENEWAL.OF MEMBERSHIPS

It will be vital this year, for members to renew asap. As we move forward to incorporation, we will need an accurate list of current paid-up members as well as a list of RAC affiliated members, in order to complete our application for RAC insurance. Renewals occur in April.

## **ALERT**

**The following Alert was sent out from Don McKay who is the  
Controller for VE3RBM which is connected to the IRLP**

Just thought I would let you know there is somebody using VE3KSR and VE3RCK with no call. I made contact with him first on KSR and he did not ID. Then at 1:20 am today on RCK I suggested he might desist because most radios today have GPS. He went quiet.

Wonder if this is the station bringing up the VE3RBM IRLP in the wee hours of the morning. This has been going on for a few months. If I am up, I shut it down.

Just thought I would let YOU know.

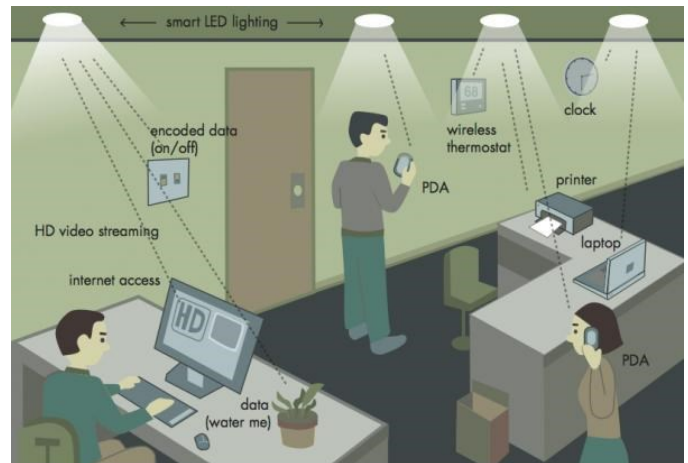
Don McKay VE3MJM

# Li-Fi

## WIRELESS DATA FROM EVERY LIGHT

By Bob Koechl VE3IXX

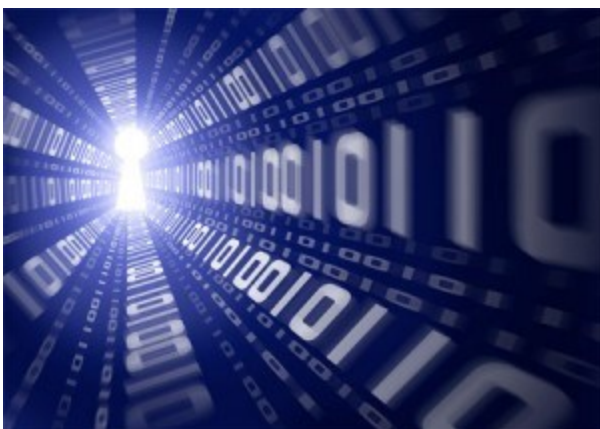
**A**t a previous meeting of the Elmira Radio Club AI, VA3TET, demonstrated a simple experiment of communication using light. At AI's suggestion I googled "using light for communication" and happened upon a Youtube "TED Talk" featuring Professor Harald Haas of Edinburgh, Scotland in 2011.



This talk was an eye-opener to say the least. Haas has been working with data communication using the light from simple LED bulbs. As a demonstration he used an ordinary desk lamp with LED bulb and used it to send high definition data to a video screen. While there was no noticeable change in the light coming from the lamp, the screen showed a nature film on screen. To prove that the data was actually transmitted through the light he placed his hand over the lamp. The video stopped. It continued when he removed his hand.

He then proceeded with his vision of sending wireless data from every light bulb. He broke down the talk into four topics.

1. **Capacity:** We are seeing an increase of usage of data on smart phones (mini computers!) on a daily basis. The RF spectrum is limited. He estimated that the increased data demands for everything from wireless video streaming to phone calls would totally deplete the spectrum space by 2020. By comparison he pointed out the light spectrum has ten thousand times more space than the RF frequency spectrum. There are 7.3 billion smart phones today and the number will only increase.
2. **Efficiency:** At present, Haas estimated that the cell network system is only about 5% efficient, given the energy and power used to build the many cell towers, power the facilities, maintain them and this is not to mention the feedline and transmission losses.
3. **Availability:** The infrastructure for light, on the other hand is already present. Lights are everywhere. The only requirement would be to replace all the incandescent and fluorescent bulbs with LED lights which are rapidly dropping in price. The system will only work with LED's because they are actually electronic devices and are the only bulbs that can turn on and off up to a million times per second, so quickly in fact that they can run thousands of data streams at the same time. Compare this to the very simple infrared TV channel changers which use only one data stream at a time. If the lights are not needed for actual light, the bulbs can be dimmed without losing data. Even during daylight, the lights can be detected. Alexander Graham Bell, most noted for his invention of the telephone, was also the inventor of the "photo-phone". This is not so well known.





Photophone receiver, one half of Bell's wireless optical communication system, ca. 1880

Bell used sunlight reflected and modulated through a mirror, and was able to pick up the signal 200 metres away.

4. Security: Unlike, RF waves, light waves do not transcend solid walls. So, as the saying goes, "data transmitted in the room stays in the room." In some places such as chemical plants where it is not safe to use RF, lights are perfectly safe. Whereas exposure to certain RF frequencies can be a health hazard, light does not have this danger.

The light spectrum has a huge capacity, it is safe, it is unregulated so it is free for all to use and it is everywhere. We will see much more data communication using light in the future!

## Elmira Radio Club

*Minutes from March 25, 2015*

Present:

VA3TET Al, VE3RVH Reg, VE3UTN Dennis, VA3GWM Gord, VE3WXU Jud, VA3WXU Joyce  
VE3DCC Rich, VE3DXQ Tom, VE3CXU Doug, VE3JLC Jim, VE3JMU Jim, VA3PDC Paul, VE3PVB Paul, VE3JXX  
John, VE3TRQ Ted, VE3QB Bruce, VA3FJM Frank, VE3CDF Andy, VA3GSM Greg, VE3EIX Harry, VE3HYV Wilf.

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

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

Tom asked if there were any errors or omissions. None were mentioned and Tom asked for minutes to be accepted, seconded by Bruce VE3QB Carried.

Treasures Report: Reg VE3RVH stated our present balance is \$3, 891.78. Reg also handed out the financial statement for 2014, and also a list of members names with contact info. Reg also mentioned it is dues time again.

Nominations committee: Paul VE3PVB was not present. See last month's minutes regarding election of club officers.

Incorporation and Constitution Committee: Terry VE3XTM was not present. Rich opened up the floor for discussion. Rich advised that Reg VE3RVH needs a list of members that belong to RAC. See <https://www.rac.ca/>. Terry VE3XTM asked Reg for a list of members of ERC who are paid up. Reg advised this is premature for him as dues are collected in April.

Reg VE3RVH stated that the Guelph club charged members not members of RAC an extra \$11.00 per year on top of their regular dues so that members who belong to RAC are not carrying the whole load for insurance.

Also members who are not paid up club members cannot vote on club business.

Rich advised that under incorporation Club activities should be sanctioned by the club. He stated as a club we need to define how we sanction Club activities.

Bruce VE3QB asked Reg VE3RVH to ask Terry VE3XTM if RAC insurance covers work being

done on our tower and repeater in regards to property damage and personal injury.

Rich stated that he assumes executives of ERC will stand for re-election for the sake of continuity. These executives will be on the board of the corporation.

Al VA3TET made a motion that we proceed with incorporation. This was seconded by Bruce VE3QB. Rich took the motion to a vote and the vote was unanimous for incorporation. Al VA3TET motioned that we call the corporation ERC The Elmira Radio Club seconded by Jud VE3WXU. Rich took this to a vote and again unanimous in favor.

Discussion followed regarding current executive filling positions on the board. After discussion a motion was made by Rich VE3DCC to have the current executive submitted for the board positions in incorporation. Motion seconded by Al VA3TET. Rich took the motion to a vote and motion unanimous in favor and carried.

Elmira maple syrup Festival: Rich advised that cost to our club to set up at the Lion's club is \$13.56 including tax. We will be beside where the toys are in the back of the hall. Doug Mclean is running the toy and hobby display. We will be setting up starting a 3:30 PM to 6:45 Friday March 27. We will be on the air Friday night from 7:00 pm to 9:30 pm. Saturday from 8:30 am to 4:00 pm.

Al VA3TET advised that there was no room for a full length 80 meter antenna. So he devised a modified 80 Meter antenna 48 ft long. This antenna will be tacked up between a post and a tree. He brought it with him to show at the meeting. It had 2 coils and can be modified further by adding as he called it droopy wire. There will also be a 15 Meter dipole. Dennis VE3UTN will be operating PSK31 on the 15meter. We will also have a VHF/UHF station there.

Joyce VA3WXU, and Jud VE3WXU made a beautiful pamphlet promoting our club at the Festival which was passed around. Also Reg VE3RVH made some displays on boards that show various events our club has had in the past. Also very well done and will be displayed at the Festival.

Al VA3TET asked for volunteers for set up and looks like we will have plenty of help. He also mentioned to bring you handy talkies. Rich VE3DCC asked for operators and there were about 5 volunteers. He said purpose is 2 fold: our profile in the community and introduction to township counsel so we can eventually get an antenna on a tower at the fire hall.

Rich VE3DCC mentioned that Kwarc has had some trouble with no call trunks on their repeaters. They are pretty sure they are non licensees. They are using profanity and so on. This will be in the news letter.

Emergency plan: nothing new to report.

Rich VE3DCC had a CD with him about signals out of band, but unfortunately the laptop battery died after about ten minutes. Maybe Next time we can hear it.

Meeting was over at 9:10 Pm.

## **YEAR of the PI**

It took my 11 year old granddaughter, Alicia, who was staying with us for a few days of March Break, to inform me that March of 2015 contained the International Day of PI.

PI as you know is an irrational number because it has an unending decimal number. It is usually rounded off to 3.14 but if you carry it to the ninth decimal place, it is 3.141592654.

Thus it can be translated into the 3rd month (March), 14th day, which was a Saturday, of the year '15 (2015). Taken further, PI was actually completed at the 9th hour, 26 minutes and 54 seconds to be exact.

Smart girl!!

# COUNT THOSE CYCLES

By Calvin Benoit VA3CBE

**Y**ou just read the header and thought oh no, another solar cycle article with the hope, promise and prediction of endless propagation on the ten meter band. However the cycles I am talking about are of the A/C mains, which many of our shacks rely on.

This came about a while ago when the main service panel was going to be up-graded at work. On the day the switchover was to occur the electrician informed us that they would rig up a temporary portable generator to provide the bare essentials such as lights, battery charging, corded hand tools and our office computers server and internet. I had asked the electrician if the generator produced a stable voltage and frequency to be "computer friendly" and with a shrug of the shoulders with the reply of "it has a gas engine and makes electricity" I had soon realized we were headed for potential disaster, so in the "be prepared" motto I decided to bring in a "stable" generator.

On the day of the disconnect all was hooked up as promised, and our office electronics did not like the "non stable" power at all, the internet would drop out, UPS units continuously were switching and warning of power failure, with all of the warning beeps it sounded like a fast food restaurant during the lunch rush HI! Using a graphing meter I followed voltage and frequency curves and they were both up and down so much it looked like a stock market report.

Why? Well let's take a look at how the portable generator does its job. You know the type, those inexpensive off shore units that can be bought for peanuts at any hardware store, we see ads for them all the time. Have you ever heard them running? Sounds like they are really revving, in fact they are, 3600 revolutions per minute to be exact. Why? Well our mains produce 60hz. So 60 cycles per second multiplied by 60 seconds in a minute equals 3600 cycles per minute, see the connection? Now to keep the cost down the electrical part of most cheap generators do not have a regulator. They rely upon a constant rpm to maintain voltage. Now when the generator is heavily loaded, or is subjected to on/off cycling of resistive loads such as heaters, lights, and inductive loads such as drills, furnace fan motors etc. the engine speed control can not react fast enough when the load is applied or removed and because of this the engine will sag, flare and sometimes "hunt" for its ideal speed. The result of this is both frequency and voltage fluctuations, which wreck havoc on electronics. If an engine sags to 3000rpm that is frequency sag to 50hz, a flare-up to 4200rpm is an increase to 70hz both with a corresponding voltage sag or spike.

Our radio club has a portable generator for field day use, and it runs at less than 25% capacity and even at that duty cycle during the heat of battle one can hear the engine flare and the desk lamp flicker from time to time. (Personally I like to hear it loaded down with transmitters sending our club call HI)

When considering a generator keep in mind what loads it will be handling. Always provide a good ground. Keep the engine in a good state of tune and burn clean fresh fuel to help maintain a constant RPM. Many of us have portable generators just in case we need them but please note many furnaces, and even some fridges have logic boards within them.

One final tidbit, some cheap DC to AC inverters produce a noisy "modified" sine wave and not a pure sine wave, if you have one scope it for fun and see how it is.

73 de va3cbe

Calvin is the president of the Cambridge Amateur Radio Club and writes regularly for their newsletter.

**WEDNESDAY NITE NET CONTROLLERS****APRIL 1 - REG VE3RVH****APRIL 8 - PAUL VE3PVB****APRIL 15 - HARRY VE3EIX****APRIL 22 - MEETING****APRIL 29 - DOUG VE3CXU****MAY 6 - AL VA3TET****MAY 13 - REG VE3RVH****MAY 20 - PAUL VE3PVB****MAY 27 - MEETING****JUNE 3 - HARRY VE3EIX****MATH HUMOUR**

A secondary school teacher was arrested today at London's Heathrow International airport as he attempted to board an international flight while in possession of a ruler, a protractor, a pair of compasses, a slide-rule and a calculator.

At a press conference, a UK Border Control spokesman said he believes the man is a member of the notorious extremist Al-Gebra movement. He did not identify the man, who has been charged by the Police with carrying weapons of maths instruction.

'Al-Gebra is a problem for us', the Spokesman said. 'They derive solutions by means and extremes, and sometimes go off on tangents in search of absolute values.' They use secret code names like "X" and "Y" and refer to themselves as "unknowns;" but we have determined that they belong to a common denominator of the axis of medieval with coordinates in every country. As the Greek philosopher Isosceles used to say, "There are three sides to every triangle."

When asked to comment on the arrest, Opposition Leader Ed Milliband said, "If God had wanted us to have better weapons of maths instruction, He would have given us more fingers and toes." Fellow Labour colleagues told reporters they could not recall a more intelligent or profound statement by the Opposition Leader.