

Ottawa Amateur Radio Club

Groundwave

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January 2107

Happy New Year. Hope everyone had an enjoyable holiday season with lots of contacts!

The first speaker of the New Year is Wayne Getchell, VE3CZO, whose topic is "A Bit About Batteries".

See you at the meeting.

Ian Jeffrey, VE3IGJ
Editor



Check out our Web Page: www.oarc.net

**Next Meeting 7:30 pm, Wednesday, January 11th
in the Colonel By Room at Ottawa City Hall**

In This Issue....

Club Information	2	World's Smallest Radio Receiver	5
Minutes	3	RAC Bulletin	6
Dates to Remember	3	New Membership Form	8
mk's Words	4		

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Ottawa Amateur Radio Club

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Articles may be submitted for use in this publication provided that they portray events or activities that promote Amateur Radio. Letters and comments are also welcome. Submissions may be made by mail addressed to the Editor care of the OARC, or by e-mail to "ve3igj@rac.ca". Deadline for submissions occurs three days after the regular

Please support your local radio organisations. They support you!

Club Information

The Ottawa Amateur Radio Club Inc. is an association of Radio Amateurs devoted to the promotion of interest in Amateur Radio communications in the National Capital Area and to the advancement and achievement of club members.

Regular Meetings of the OARC Inc. are held on the second Wednesday of each month (except July and August) in the Honeywell Room which is on the second floor of Ottawa City Hall, formerly Regional Municipality of Ottawa Carleton Headquarters, on Lisgar Street. Meetings commence at approximately 19:30 hours. Further details about each meeting are noted elsewhere in this publication.

Executive Meetings of the OARC Inc. are normally held on the first Wednesday of each month at 19:30 hours. Contact the

The CAPITAL CITY FM Net meets every Monday (except some holidays) at 20:00 hours on the club repeater **VE2CRA 146.940(-)** to pass traffic and to make announcements of interest to Amateurs in the National Capital Region.

The Rubber Boot Net runs week days at 07:30 on VE3MPC, 147.150 + hosted by Mike, VA3TJP. The Rubber Boot net has been running since the early 1980's and is popular for the early risers and the go to work crowd.

The POT-HOLE Net is a SSB/HF net sponsored by the Ottawa Valley Mobile Radio Club and is conducted every Sunday at 10:00 hours on **3.760 MHz**. All amateurs are welcome to check in.

The POT-LID CW Net is an informal slow-speed **CW** net that meets every Sunday, except during July and August, at 11:00 hours on **3.620 MHz**, to promote interest in CW and CW procedures.

The QCWA CHAPTER 70 Net meets every Monday evening at 19:30 hours on repeater **VE3MPC 147.150(+)**. You do not have to be a QCWA member to participate.

The Ottawa Valley VHF/UHF SSB Net is sponsored by the West Carleton ARC. Look for it every Tuesday night (except the first Tuesday of the month) around 21:00 on **144.250**, (roll calls after net on 50.150, 432.150, 222.150, and 1296.100.) Horizontal polarization is preferred.

The Phoenix Net meets Tuesday evenings at 20:00 on VE3MPC (147.150+, no tones).

The Ottawa Amateur Radio Club bulletin "Groundwave" is published and distributed to club members. Publication dates may vary but it is hoped that the bulletin arrives at its destination before the events listed in it have expired. The bulletin is not published for July and August when meetings do not occur. Every effort is made to provide accurate information in the bulletin, however we are all human and mistakes can be made. The OARC accepts no responsibility for any damages that may result from this. The opinions

Voice (VHF) 146.940/146.340 100Hz CTCSS required
(UHF) 443.300/448.300 100Hz CTCSS required

VE3TVA Amateur Fast Scan Television Repeater
Currently off the air and looking for a new home.

IRLP Node 2040 146.940/146.340 (VE2CRA/VE3RC)
(Code 411 for info) (Code 204 for activity)
(Code 88 for time)

For further information please contact the Repeater Chair.

Note: The IRLP link is not connected to ECHOLINK. Please do not try to connect using the alpha keys on your keypad. It just confuses the operator.

Note: The IRLP link is disabled during the Monday night Capital City FM Net from 20:00 to about 21:45 .

VE3TEN

Tuning in the beacon so that it makes sense requires you tune to **28.175** on **CW** and read the tone that is there . The spaces between the elements are the higher tone. If that doesn't work, tune to **28.175.28** on **lower sideband** for better results.



Dates to Remember

December Minutes

Monthly General Meeting held in the Colonel By Room at Ottawa City Hall

December 14, 2016

19:39 Meeting started by Glenn ,)

Guests

Steve, VA3MPS

Claude (No call; encouraging his son to pursue electronics)

Membership

Greg VE3Ytz is taking renewals. Any renewals received today will get on the badge order. Badges will be available at the January meeting.

Reports

Field Trip (Harrie VE3HYS)

Described the field trip to CFRA's transmitter site. Solid-state AM transmitter. 20Kw. Directional. About thirty participants.

RAC Winter Contest (Dave VE3TLY)

Being held this coming Saturday, December 17 from 07:00 to 19:00 at the Diefenbunker. Running phone & CW (two stations). Antennas have been configured to try to reduce interference between CW and phone stations as much as possible.

Local QSO's (simplex):

2m: 146.55 (fm), 144.25 (usb), 144.18 (cw)

6m: 50.150 (usb), 50.09 (cw), 52.525 (fm)

Will be heard as VE3CWM (Diefenbunker callsign)

Club Project (Dave VE3KL)

Probably start 4 or 5 February.

Design & build baluns, antennas.

Most parts have arrived and kits are well in hand.

Some parts from Hong Kong and Hungary are somewhere enroute. Looking for wire stripper tools capable of stripping 24awg wire.

New RIC documents published by ISED (Glenn VE3XRA)

2017

Feb. 11, 12 Canada Ski Marathon

Apr. 12 Homebrew Night

Jun. 14 OARC AGM and Elections

Jun. 24, 25 Field Day

Jul. 1 RAC Canada Day Contest

Sep. 9 Hamfest

Sep. 30 Membership Renewals Due

Nov. 1 Joe Norton Award Subm. Due

Dec. ?? RAC Winter Contest

RIC-3 was previously published in 2005. A new version was published last Friday, December 9, 2016. Major changes include foreign operating privileges.

Interesting Contacts

10m contest last Saturday:

Mike VE3FFK managed about 60 contacts on 10m (Mike's comment: "For a dead band, it wasn't bad!"). But Greg VE3Ytz commented that he only managed 8 phone contacts.

Christmas Party later this evening (Janice)

Lots of donated food plus coffee, juice and water, and lots of music. Five door prizes: 3 Radioworld worth \$50 each. 2 Prepaid Visa cards, each worth \$25.

Hams in Canada (Glenn VE3XRA)

Number of amateur radio operators in Canada has increased by about 2% last several years. Interestingly, many of the new hams appear to be at typical retirement ages. Norm VE3LC: the latest OVMRC class had participants across the age spectrum including several father-son couples. Many are/were in the IT specialties and are particularly interested in Software Defined Radio (SDR). Glenn: about 67,000 unique names in the database which probably includes some deceased hams.

(Continued on page 6)



mk's Word

2017 already.

Back in 2001 it seemed we were in the future, so by now we should have all the toys. Never mind the jet packs and flying cars, I want my teleporter and time machine (I really miss that old time machine). Time to wake up, I guess.

The December get together was a good time, with much good cheer, music, and treats. Sometimes I think there should be more meetings like that. Then I think of the weight I gain this time of year and think "What is the optimum tonnage to funnage ratio?".

Anyway, I think we maxed out on the fun at the Diefenbunker, running VE3CWM through its paces during the RAC winter contest. The upper bands were crappy but 20 through 80 made up the slack. What was best about the whole thing was the number of operators we had there. TLY has the details, but there were a lot of us. Getting there through the snow was more of an adventure than usual, but it didn't seem to keep anyone away. With so many operators, there was always someone ready to jump in with fresh ears. Some of our contacts were made on the Friday night, including a few on 2,6, and even 160m, which added to the fun. We missed a few tricks, though. We should have had every visitor with a licence who didn't operate the station contact us on 2m FM or on whatever bands and modes we could arrange. With the low number of Canadian hams heard in the contest, a few more locally generated contacts could mean a big boost for our score. Plans are already afoot for the 2017 version.

Speaking of 2017, what plans should we be making for the Canada Day contest in our sesquicentennial year? Should we do something special for Field Day? How about the National Capital Award—remember that? I doubt any of us reading this while it is still warm from the printer will be around for the bicentennial, so this is our last chance to do a birthday blowout.

Here at the hamster home, I received a certificate for my participation in the 2015 ARRL 10m contest. It recognizes VE3ZY for my "NINTH PLACE - CANADA" finish in the "Single Operator, CW only, Low Power, Ontario East Section" category. It makes me wonder if there were more than 9 entries in there. Still, like a Christmas package that arrives in February, or a QSL from a pleasant contact a year ago, it is nice to get a fun little surprise in the mail.

My January calendar is always a little thin, with more snow moving than hamming. It might be a good time for a new years resolution about cleaning up the ham shack, fixing all the little things that have been bugging me for a while... not gonna happen.

As winter settles in I'm wondering what the Ski Marathon will be like this year. Last year was pretty hectic. Maybe we will get word at the January meeting.

I hope Santa was good to you once again.
73, mk
VE3FFK

Interesting Web Sites

<http://www.allaboutcircuits.com/technical-articles/an-introduction-to-antenna-basics/>

<http://www.allaboutcircuits.com/news/three-awesome-maker-tools-that-arent-3d-printers/>

And finally the ultimate antenna hanger:

<http://www.flixy.com/the-incredible-flyboard-air.htm>



World's Smallest Radio Receiver

Researchers from the Harvard John A. Paulson School of Engineering and Applied Sciences have made the world's smallest radio receiver -- built out of an assembly of atomic-scale defects in pink diamonds.

This tiny radio -- whose building blocks are the size of two atoms -- can withstand extremely harsh environments and is biocompatible, meaning it could work anywhere from a probe on Venus to a pacemaker in a human heart.

The research was led by Marko Loncar, the Tiansai Lin Professor of Electrical Engineering at SEAS, and his graduate student Linbo Shao and published in *Physical Review Applied*.

The radio uses tiny imperfections in diamonds called nitrogen-vacancy (NV) centers. To make NV centers, researchers replace one carbon atom in a diamond crystal with a nitrogen atom and remove a neighboring atom -- creating a system that is essentially a nitrogen atom with a hole next to it. NV centers can be used to emit single photons or detect very weak magnetic fields. They have photoluminescent properties, meaning they can convert information into light, making them powerful and promising systems for quantum computing, photonics and sensing.

Radios have five basic components -- a power source, a receiver, a transducer to convert the high-frequency electromagnetic signal in the air to a low-frequency current, speaker or headphones to convert the current to sound and a tuner.

In the Harvard device, electrons in diamond NV centers are powered, or pumped, by green light emitted from a laser. These electrons are sensitive to electromagnetic fields, including the waves used in FM radio, for example. When NV center receives radio waves it converts them and emits the audio signal as red light. A common photodiode converts that light into a current, which is then

converted to sound through a simple speaker or headphone.

An electromagnet creates a strong magnetic field around the diamond, which can be used to change the radio station, tuning the receiving frequency of the NV centers.

Shao and Loncar used billions of NV centers in order to boost the signal, but the radio works with a single NV center, emitting one photon at a time, rather than a stream of light.

The radio is extremely resilient, thanks to the inherent strength of diamond. The team successfully played music at 350 degrees Celsius -- about 660 Fahrenheit.

"Diamonds have these unique properties," said Loncar. "This radio would be able to operate in space, in harsh environments and even the human body, as diamonds are biocompatible."

This research was coauthored by Mian Zhang, Matthew Markham and Andrew M. Edmonds. It was supported in part by the STC Center for Integrated Quantum Materials.

Video: <https://www.youtube.com/watch?v=aytf0Jk8YJ4>

Story Source:

Materials provided by Harvard School of Engineering and Applied Sciences. Original written by Leah Burrows. Note: Content may be edited for style and length.

Journal Reference:

Linbo Shao, Mian Zhang, Matthew Markham, Andrew M. Edmonds, and Marko Loncar. Diamond Radio Receiver: Nitrogen-Vacancy Centers as Fluorescent Transducers of Microwave Signals. *Phys. Rev. Applied*, 2016 DOI: 10.1103/PhysRevApplied.6.064008



(Continued from page 3)

Dave VA3AE: Recently chatted with CHU staff who are interested in possibly adding SDR information to their time broadcasts.

Special event (Glenn VE3XRA)
For Canada's 150th anniversary: CF, CG, Ch and CI prefixes will be available for use by amateur radio operators.

Formal meeting ended at about 20:30. Christmas social starts.

Door prizes were awarded as follows: \$25 prepaid VISA cards to Mike, VE3FFK; Arthur, VA3BIT; and Rick, VE3IHI; and \$50 RadioWorld gift certificates to: Gil, VE3JRY; Jeffrey, VA3PEW; and Mike, VE3FFK.

Merry Christmas and best wishes for a wonderful New Year full of amateur radio activities!

Minutes taken by VA3BIT.

ISED revises RIC-3 Version 4 and CEPT Permits

Innovation, Science and Economic Development Canada (ISED), formerly Industry Canada, has issued a revised version of *RIC-3, Information on the Amateur Radio Service*. It replaces RIC-3 Version 3 that was released in July 2005. Radio Amateurs of Canada welcomes the change as it addresses several long-standing issues pointed out by RAC in the past where the document required updating to address changes in technologies and practices, notably the decision by many administrations to re-



move the requirement for Morse code qualification for new Radio Amateurs. The new version of RIC-3 can be found online at: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01008.html>

The new document contains several editorial changes (such as the change in the name of the Department) and clarifications regarding the operating privileges granted to holders of the Basic qualifications. Over recent years there have been questions about which qualification is required by Canadian Radio Amateurs to modify a commercial transceiver to operate on Amateur bands. Those with Advanced certification could certainly make any sort of modification as they are allowed to design and build transmitters. The new RIC-3 makes it clear that the privileges of those holding Basic certifications includes:

"re-programming of radio equipment to operate in the Amateur Bands if this can be done by a computer program. Note: No physical modifications to the circuitry of the radio are permitted."

RAC had urged that the limitation of the restriction of remote control of Amateur Radio stations to those with Advanced qualification be relaxed as changes in transceiver design have made remote control over the Internet much simpler than in the past and so the higher technical qualification of Advanced was not essential. We believe that those with Basic should have this privilege but ISED has not yet agreed. Dealing with regulations and their interpretation is an ongoing activity where several rounds of discussion are often required to achieve results.

The document also drops the outdated requirement for visiting American Radio Amateurs to have demonstrated CW proficiency to be able to operate HF phone in Canada. The [World Radiocommunication Conference of](#)



2003 agreed that CW need not be required for Amateur Radio licensing and the USA dropped the CW requirement for Amateur Radio licences in 2007 after the previous RIC-3 was published.

The major change to the document relates to reciprocal operating privileges, in particular those provided in a European intergovernmental agreement developed through a European telecommunications committee (referred to by its French acronym CEPT) that has grown to include several non-European countries.

Canada is a signatory to the CEPT T/R 61-01 reciprocal operating agreement, under which Canadian Amateurs who have a CEPT permit issued in Canada may operate in European countries during temporary visits. This agreement has undergone various revisions over the years notably to acknowledge the removal of CW qualification as a requirement for Amateur Radio authorization in many countries, and after negotiations between ISED and CEPT, the rules for Canadian participation have been updated to follow suit. There have been two major changes as a result:

(1) There will no longer be two classes of CEPT permit depending on the holding of a Morse code qualification. Although Morse code is no longer a requirement for the CEPT permit, any such qualifications will still be noted on the permit for use in countries that still require Morse code for access to HF;

(2) After conducting a comparison study of the syllabus for Canadian and CEPT examinations, CEPT has determined that only Canadian Amateurs who hold an Advanced qualification will be eligible for reciprocal operating privileges under CEPT T/R 61-01. Therefore, effective immediately, and as described in RIC-3, CEPT permits will only be issued to Amateurs with an Advanced qualification. Canadian Amateurs who have the requisite qualifications may submit requests for CEPT permits to RAC as described at: <http://wp.rac.ca/study->

[guides-2/regulatory-info/cept-permits/](#)

Canada is a party to another intergovernmental agreement, the "Inter-American Convention on an International Amateur Radio Permit" that provides reciprocal operating privileges to Radio Amateurs of one country that signs on to this agreement when they visit other countries that have also joined the agreement. At the meeting of national Amateur Radio organizations in Chile in October, Radio Amateurs of Canada and other similar organizations in our hemisphere agreed to encourage their governments to update this agreement. At last week's meeting of the Canadian Amateur Radio Advisory Board (CARAB), RAC was told that at a recent meeting of representatives of governments of the Americas, the Inter-American Telecommunication Commission (CITEL), delegates agreed to update the agreement. We expect this will be done in the summer of 2017.

Any questions regarding these changes may be directed to Richard Ferch, VE3IAY/VE3KI, RAC Regulatory Affairs Officer at regulatory@rac.ca.

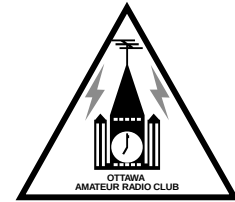
*Richard Ferch, VE3IAY/VE3KI
RAC Regulatory Affairs Officer*

OARC Membership Application/Renewal

Ottawa Amateur Radio Club Inc., Box 8873, Ottawa, ON, K1G 3J2

- Single \$25 (\$20 after February 1)
- Family \$30
- Junior \$15 (under 18 years of age)
- New Ham \$0 (licensed in current membership year)

- Emailed Newsletter \$0 Mailed Newsletter \$10



Name	<input type="text"/>	Phone	<input type="text"/>
Callsign(s)	<input type="text"/>	Year Licensed	<input type="text"/>
<input type="checkbox"/> Basic	<input type="checkbox"/> Honours	<input type="checkbox"/> Advanced	<input type="checkbox"/> Morse <input type="checkbox"/> RAC Member
Email Address	<input type="text"/>		

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Callsign(s)	<input type="text"/>	Year Licensed	<input type="text"/>
<input type="checkbox"/> Basic	<input type="checkbox"/> Honours	<input type="checkbox"/> Advanced	<input type="checkbox"/> Morse <input type="checkbox"/> RAC Member
Email Address	<input type="text"/>		

Postal Address

Membership year is September 1 through August 31, inclusive. All members who are in good standing on or before the December General Meeting will be eligible for a free one-time name badge. Members who wish a second or replacement badge may purchase one at the club price (approx. \$7.50 plus tax). Ordered badges will be available in January.

First Name on badge Callsign on badge

First Name on badge Callsign on badge

Notes