



Ottawa Amateur Radio Club

# Groundwave

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Check out our Web Page: [www.oarc.net](http://www.oarc.net)

February 2011

As of this month the Groundwave is being mailed to members based on the membership list maintained on the new web server. The Groundwave editor no longer maintains this mailing list. If you are not receiving your Groundwave please contact the membership director who will have the list corrected.

The speaker for the February meeting is Alan Steele, VA3STL. The title of his talk will be "D-STAR Activity in the Ottawa Area". This will be a brief introduction to D-Star, the Ottawa repeater, and web tools used to monitor this (and other) repeaters. Alan will also speak a little about hotspots in the Ottawa area and how to access the repeater via DVAP and DV Dongles (i.e. plug-in devices to your computer). Finally, he will wrap it up by speaking about D-RATS (a D-Star messaging system) and simplex operation. Alan will try to demonstrate D-Star by accessing the repeater from the Col. By Room which is the location of our next meeting.

See you at the meeting.  
Ian Jeffrey, VE3IGJ  
Editor



**Next Meeting 7:30 pm, Wednesday, February 9th  
in the Colonel By Room at Ottawa City Hall**

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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 monthly meeting of the OARC.*

*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 is 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 President to confirm the date, time and place of the next meeting.

**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 SWAP Net** is a service provided and conducted by Ed Seib, VA3ES. This feature appears on the Capital City FM Net. To list items and make inquiries, got to <http://www.ncswapnet.ca>. You may reach Ed at 613-738 8924 or e-mail him at [va3es@rac.ca](mailto:va3es@rac.ca).

**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 sponsored and conducted by Ed Morgan, VE3GX, and 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 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 expressed in this bulletin are those of the author.*

Voice (VHF) 146.94/146.34 100Hz CTCSS required  
 (UHF) 443.300/448.300

VE3TVA Amateur Fast Scan Television Repeater  
 Video/audio beacon & input 439.25 MHz (audio sub. 443.75)  
 Video/Audio output 914 MHz (FM)

IRLP Node 2040 146.94/146.34 (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 Capital City Net each Monday. It is disabled from 2000 to 2145 Mondays except for May to August when the link is disabled from 2000 to 2020.

### 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.



## January Minutes

No Visitors announced themselves this week.

The yearly "Ski Marathon" call for volunteers and brief description of the event by Harold Hamilton, VA3UNK. For more info contact [radio1@admin2.ca](mailto:radio1@admin2.ca) or view the website <<http://www.admin2.ca/tiki-index.php?page=About>>

The April Meeting will be the home brew night, so bring your newest homemade triumph and compete for recognition and prizes with like minded amateurs.

Barry Crampton, VE3BSB, of LASA sent us a certificate celebrating the world record setting balloon flight. We congratulate the success and wish them the best for the future flights.

RAC winter contest slide presentation by Dave Green, VE3TLY. The club was able to use VA3RAC and it was run from the Cold War Museum in Carp Ontario <<http://www.diefenbunker.ca/>>. A very good time was had by the participants and Dave said the slide show will be on the website.

Wayne gave a status report on the club project, the "BatMon". Things are proceeding apace, and we will have more info posted on the website as details are confirmed.

Thanks to Diane, VA3DB, the OARC Website has been moved to new ISP, has been setup using a new operating system, and has been completely revamped from a programming perspective with a variety of new features being implemented. Suggestions for new and exciting features should be sent to DB@DB.net. VA3DB and VA3AE will give a short description of the changes and a request for suggestions from the club membership at the next meeting. The executive wishes to extend many heartfelt thanks to Harrie Jones, VE3HYS, for his many years of hosting and TLC of our former web presence.

VE3FFK mentioned that RAC is selling off some of the swag from RAC HQ. Details are in the current

## Dates to Remember

### 2011

- Feb. 12, 13 Canada Ski Marathon
- Apr. 13 Homebrew Night
- Jun. 8 OARC AGM and Elections
- Jun. 25, 26 Field Day
- Jul. 1 RAC Canada Day Contest
- Sep. 10 Hamfest
- Sep. 30 Membership Renewal Deadline
- Nov. 4 Joe Norton Award Subm. Due
- Dec. 17 RAC Winter Contest

TCA. RAC has also restructured the insurance on behalf of members, and have done a fine job finding excellent coverage at an affordable price.

Ed Seib, VA3ES, has a number of catalogs and manuals which he is looking to pass along to a good home.

Doug VE3XK is looking for a standard definition satellite receiver for his personal use.

Bob Kavanagh, VE3OSZ, had a interesting QSO; during the RAC winter contest he contacted VA3RAC using a 1 tube crystal controlled home-built 4 watt transmitter.

Glenn, VE3XRA, mentioned the next ARRL VHF/UHF Contest is January 22-23, 2011.

George, VE3BNO, remarked that the Straight Key contact night brought back the days of chirp and drift that would make any Amateur very proud.

The keynote speaker was Dave Conn, VE3KL His topic, "An Overview of Transmission Line History: Some Theory : Cable Measurements" was another in a series of excellent, thoughtful and informative talks from Dr. Conn. The current and upcoming TCA column that David writes discuss the transmission lines topic in detail.

Dave Scobie, VA3AE



## mk's Words

### CONTESTING IS LIKE FISHING THE 2010 RAC WINTER CONTEST

It has been said that hamming is like fishing. You call CQ, as fish chasers cast their line in the water. You can't see where it goes, or what is on the other end, but there is always the anticipation of something big out there.

Contesting is like that, only more so. We didn't get the boat launched in time. The contest was going before we were ready to make waves. The motor didn't start. A trivial, but game stopping problem was discovered in the power supply system. It took about a half hour to diagnose.

We had trouble with the fishing rods and lures. The rig didn't tune up as we thought. The keyers didn't key the rig. The processor didn't process like we thought it did. The tangle of lines and adaptors got bigger and bigger as we tried to get all the parts to work together. This all cut into the number of fish we landed until, one by one, we sorted out the difficulties and landed those "fish" into the electronic logbook.

For a while we were fishing in a very poorly stocked lake. The dead band. It later filled up with signals to fish for. Sometimes we fished out everything in the lake, and had to move to another one.

Sometimes we were shooting fish in a barrel. We landed them at a rate of over one a minute for over an hour. Good times.

Sometimes we hauled in a rotted, stinking fish - "You Canadians can't get anything right. It isn't even Winter yet - W4xxx" (I bet he doesn't have a foot of snow on his lawn yet.- Merry Christmas to you too)

On many occasions we had to deal with a lot of pollution in our waters. QRN and QRM says it all here.

There was also pretty heavy competition for the big catch at times.

There was another contest going on at the same time, making it difficult at times to sort out the VE chasers from the 9A chasers. It was like having different derbies going simultaneously.

Unlike fishing, we were on both sides of the line, handing out 599 ON, and the special RAC multiplier to hundreds of happy testers. Also unlike the fishing there are winners on both sides of the line. But that RAC suffix makes great bait.

Finally there is the one that got away. We tried for about 20 minutes to hook VE8RAC, without success. That leaves one for the next time (although I hear someone else in the group snagged them on 20 SSB).

Special thanks to VE3Ytz and VA3PAX for inviting us to fish from their shack on Friday night to get a head start on our usual effort. Thanks also to the Diefenbunker, Canada's Cold War Museum and in particular VE3UU and VE3OWV for so much assistance at the bunker. Without you it wouldn't happen at all.

We ended up with 473 QSOs and 145,400 points, our best tally ever, even though we weren't on the air for the full 24 hours. Pictures of the whole thing are at oarc.ca. The Diefenbunker web site is diefenbunker.ca. Take a peek.

TU 73 DE VA3RAC TEST

mk VE3FFK



## RAC Winter Contest Summary

Start Date : 2010-12-18  
 CallSign Used : VA3RAC  
 Operator(s) : VE3YTZ VE3XRA VE3IGJ VA3DGN  
 VE3KL VE3FFK VE3TLY  
 Operator Category : MULTI-TWO  
 Band : ALL  
 Power : HIGH  
 Mode : MIXED  
 Default Exchange : ON  
 Gridsquare : FN25  
 ARRL Section : ON  
 Club/Team : Ottawa Amateur Radio Club  
 Software : N1MM Logger V10.12.0

Band	Mode	QSOs	Pts	Sec
3.5	CW	44	304	8
3.5	LSB	105	904	7
7	CW	65	318	6
7	LSB	74	510	9
14	CW	109	480	8
14	USB	61	288	8
21	USB	14	94	3
144	FM	1	10	1
Total Both		473	2908	50
Score : 145,400				

This is the best the OARC has done in recent years. Here's a summary of the team scores over the past 4 years.

- 2007: 6144 points, 67 QSOs
- 2008: 144,808 points, 613 QSOs
- 2009: 51,832 points, 353 QSOs
- 2010: 145,400 points, 473 QSOs

We learned some lessons regarding multi-user logging, interfacing CW keyers, tuning older rigs with tube finals and we defined a clear need to improve the management of headphones in future contests. Next year we will do even better! Thanks to all of you for your enthusiasm and assistance during the contest. We did well, and above all, we had a lot of fun. In the end, that's

what really counts.

73, Dave VE3TLY

## Capital City FM Net

Hello Boys & Girls;

The Capital City FM Net is looking a few (more) good net controllers. I'm putting the next net control schedule that will run through to mid summer. It requires about a half an hour of your time on two Monday evenings in a row every few months. It's not hard to do (I've even done it) and the preamble is provided.

If you would like to join the list, I need to hear from you by Feb 2nd.

73, Bryan  
 ve3zrk@rogers.com

## Canadian Ski Marathon

I would appreciate it if you would help me by spreading the word throughout your local ham radio communities. We are looking for radio operators. Once again the Canadian Ski Marathon (CSM) is spooling up. This year is the 45th anniversary for the CSM. Radio is a few years behind that. The CSM depends on ham radio volunteers to provide important and timely safety and logistical communication for the benefit of the skiers. The amateur radio CSM web page (<http://www.radio-1.ca>) is up and running with 2011 information. The event runs between Lachute and Buckingham in western Quebec - snow or shine.

If you would like to volunteer this year, please email Harold VA3UNK ([radio1@admin2.ca](mailto:radio1@admin2.ca)). Although I can't promise anything, assignment requests are generally first-come, first-served.

Please join me the second weekend in February (12th-13th) and help make 38th our best year yet!

Harold, VA3UNK



## Public Service and the New Ham

If you are a new ham I recommend getting involved in the public service part of amateur radio. I recommend it not because it is something I like doing (although I do), or as a "payment" for the privilege of using all that spectrum (although that is also a pretty good reason when you think of what your amateur radio ticket gets you).

Here are a couple of selfish reasons for getting into the game. It connects you to a lot of the "doers" in the ham radio community. Grab the list of hams participating in any public service event and cross check with other things going on, and you will find most of them have their fingers in multiple pies. These are the people you will want to talk to when you get stuck on some part of your own operation. After doing an event with them, they will know you, and vice versa. Breaking the ice this way makes it much easier to ask those questions you */almost/* don't want to ask.

It is a good way to get into hamming even if you have minimal, or no equipment. It is always easier for event organizers to find equipment than operators. Don't let a lack of equipment stop you. Similarly, don't let a lack of transportation (ie "spouse needs the car for the weekend") stop you. I have never owned a car and manage to get to nearly a dozen events a year. When I started I had a crystal bound rig that ran one watt on 146.52 only. There is much more gear around now. In all the years between "back then" and now, hams have been buying shiny new toys and pushing the old ones to the back of the back shelf, waiting for "someday" (as in this might come in handy some day). Most don't mind lending gear out to hams that want to actually do something useful with it.

Doing public service radio is a good way to get a look at several different radios, and different types of radios in a short period. Usually these events use VHF only, but there is a wide range in how easy to use, and to program a radio will be. Different people have different favourites, and reasons for liking them. A first hand look beats a blind recommendation any time.

There are a variety of antenna set ups used. Depending on whether the station is fixed, fixed-mobile or mobile, different types of antennas, mounts and supports will be needed. It is a good bet you haven't thought of half of them. The ideas you pick up at an event will help you figure out what will work for your situation (and what won't). Similarly, everyone sets up their work space a little differently. If in a car, they set it up much differently. There are always little tips to pick up on. Often these are things the other guy, from years of doing events, does without thinking.-Things which you wouldn't have thought of for years.

There is a sense of accomplishment in being able to handle two different radios at once, or being able to deal with the radio traffic at the same time as you are solving with the problem that walks up in front of you. If the idea of this kind of juggling act seems overwhelming, remember that you are typically paired with an experienced operator, rather than thrown into the deep end on your own. Just knowing that you have back up turns down the jitters a lot. Many people who think they are multi-taskers just switch rapidly between them. Try listening to one net and taking down notes while simultaneously talking on another radio.

These are the events I know of that are coming up. I don't have internet access while writing this, so you will have to do some searching on your own to firm up dates and contact info:

Canadian Ski Marathon Feb 12. 13 Contact VA3UNK (contact info probably elsewhere in this issue)

Pierce Neige Car rally Contact Ross, VE3WOD [ross.wood@sympatico.ca](mailto:ross.wood@sympatico.ca)

Black Bear Car rally Contact Ross, VE3WOD  
CN Cycle Tour May 1 Contact VA3UNK

Lanark Highlands Forest Rally May 8 Contact VE3FFK [ve3ffk@rac.ca](mailto:ve3ffk@rac.ca)

Rideau Lakes Cycle Tour Contact VA3UNK  
Watch for announcements about "Collegeville" coming in the spring.

See you "out there", mk



Ottawa Amateur Radio Club

# Groundwave

February 2011

## RAC Bulletin

### Director's Report

The monthly meeting of the Regional Directors was held on December 16 starting at 2330Z. The first thing I want to do is to wish you all a Happy New Year and hope 2011 is a good one for you.

Now that all the details have been finalised I can tell you about a new feature coming in February. At the Directors meeting in October we decided to begin an e-newsletter, called "The RAC Report". It will come out in the months between TCA. So you should see the first one in February. To ensure you receive it you may want to check your email on the membership page. Follow this link, log in with your membership number and password and verify your email:

<http://www.rac.ca/en/members/myprofile/>

While you're updating your information at RAC, you may want to verify your address with Industry Canada as well.

Since there is no Southern Ontario Director at present this report is being sent to the Southern Ontario AD's. If you want to be part of the RAC team as a Director please feel free to contact me and we can discuss what the job entails. One of the themes Stephen, VE3LWX and I will be discussing this year is charitable giving to RAC. I got interested in electronics at 16 because my uncle (VE3DPJ, SK) let me use his rig. That led me to a career in electronics and finally now I am teaching others electronics and occasionally teach radio classes here. Amateur Radio has defined who I am and determined my career path. If Amateur Radio has had an impact on your life or career why not consider giving back to the hobby you love? A donation to RAC will allow us to carry on mentoring new younger hams and protecting our valuable frequencies. Give it a thought and if you want to discuss it further let either Stephen or myself know.

If you have a business or know some one who may want to advertise on the RAC web site contact the webmaster and he will work with you to set it up. <http://www.rac.ca/en/contact/>

If you have any questions or concerns please email me at [ve3xt@rac.ca](mailto:ve3xt@rac.ca).

Bill VE3XT

North East Ontario Regional Director

The YASME Foundation supports the development and promotion of Amateur Radio around the world.

The <http://www.yasme.org/excellence.html>

YASME Excellence Awards are given to individuals who through their own service, creativity, effort and dedication have made a significant contribution to the cause of Amateur Radio. The contribution may be in recognition of technical, operating, or organizational achievement as all three are necessary for amateur radio to grow and prosper. With the 2010 Excellence Awards, YASME recognizes individuals in order to recognize them and inspire others on behalf of Amateur Radio now and in the future.



Canadian amateur Alex Shovkopyas, VE3NEA, has received a 2010 Excellence Award for developing DX Atlas, Morse Runner, HAM-CAP, CW Skimmer, Rocky and other innovative software. Alex's products are making a remarkable impact on the competitive HF operating environment. Making this software available to the amateur community at little or no cost demonstrates excellent ham spirit.

<http://www.dxatlas.com/>



## Reward Offered

### Updated Web Site

Dave Conn, VE3KL, has updated his Web site with a new format that might be of interest to OARC members. It includes sections on his presentations, calculators and support information for his TCA articles. The Presentation Section includes presentations that he has made to the OARC and other clubs over the last several years. Some of these which were given at the QCWA Chapter 70 meetings, QCWA conferences and the West Carleton Amateur Radio Club have not been given at the OARC. All of the presentations are in Power Point format, so you will need at least a free Power Point reader to see them. His latest (OARC Jan 2011) presentation on transmission lines is also included.

Dave's Web site is located at <http://ve3kl.com/> and he invites you to have a look at the site and use it to assist you in reading his TCA column on Transmission Lines and Antennas.

### Hackers

At the trivia night meeting, Dave Conn, VE3KL, asked me about "hackers" targeting websites. These were not "hackers" but criminals, not even "crackers". The term hackers has a long history that goes back to the MIT model train club. People assembling model trains and track were hackers.

In much the same way, I'd argue that amateur radio operators who build kits, antennas or their own gear are also hackers. Unfortunately, many in the news media get this wrong. Some of you might remember when newspapers would call CB operators "hams", much to our chagrin. A "cracker" is someone who breaks into computers for "fun". Someone who attempts denial of service attacks (a criminal activity) is often referred to as a "script kiddy". Someone who likes to build and work on things, code or hardware is a hacker. I'm proud to be called a hacker.

Diane Bruce, VA3DB

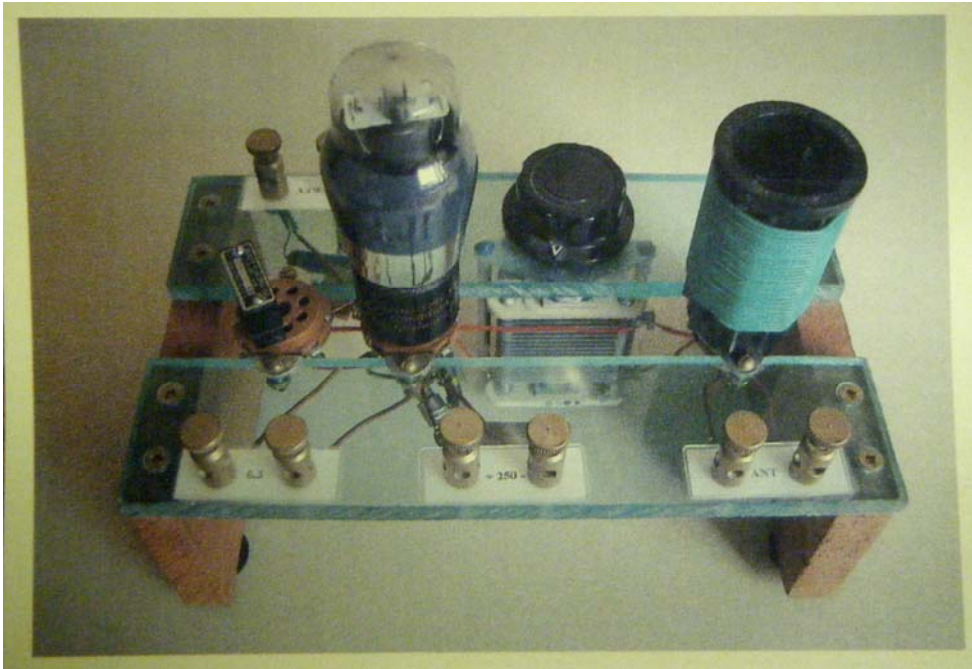
A REWARD OF 500 MICROFARADS IS OFFERED FOR INFORMATION LEADING TO THE ARREST OF HOP-A-LONG CAPACITY. THIS UNRECTIFIED CRIMINAL ESCAPED FROM A WESTERN PRIMARY CELL WHERE HE HAD BEEN CLAMPED IN IONS AWAITING THE GAUSS CHAMBER.

HE IS CHARGED WITH THE INDUCTION OF AN 18 TURN COIL NAMED MILLI HENRY WHO WAS FOUND CHOKED AND ROBBED OF VALUABLE JOULES. HE IS ARMED WITH A CARBON ROD AND IS A POTENTIAL KILLER. CAPACITY IS ALSO CHARGED WITH DRIVING DC MOTOR OVER A WHEATSTONE BRIDGE AND REFUSING TO LET THE BAND-PASS.

IF ENCOUNTERED, HE MAY OFFER SERIES OF RESISTANCE. THE ELECTROMOTIVE FORCE SPENT THE NIGHT SEARCHING FOR HIM IN A MAGNETIC FIELD, WHERE HE HAD GONE TO EARTH. THEY HAD NO SUCCESS AND BELIEVED HE HAD RETURNED OHM VIA A SHORT CIRCUIT.

HE WAS LAST SEEN RIDING A KILOCYCLE WITH HIS FRIEND EDDY CURRENT WHO WAS PLAYING A HARMONIC.

A bit of humour provided by Mr. Mark Bushnell, Director of Engineering at CCA Electronics. Original Author unknown.



<b>VE3OSZ</b>		<b>OTTAWA CANADA</b>	<b>VE3OSZ</b>	
THIS CONFIRMS THAT RADIO		<b>VA3RAC</b>	COMPLETED A TWO-WAY CONTACT WITH VE3OSZ AS FOLLOWS:	
YEAR	2010	<b>EQUIPMENT:</b>	5BDXCC	
MONTH	12	HOME BREW TRANSMITTER		
DAY	18	ONE TUBE - 6V6 - XTAL CONTROL	160 DXCC	
UTC	0340	POWER OUT: ABOUT 4 WATTS		
FREQUENCY	3.549 MHz	HEATHKIT MOHAWK RECEIVER	CW DXCC	
MODE	CW	ANTENNA: INVERTED L		
RST	599	STRAIGHT KEY		
QSL	PSE	TNX	<b>OPERATOR:</b>	LICENSED SINCE 1951
TNX MIKE		ROBERT J. KAVANAGH		
		849 MARYLAND AVE.		
		OTTAWA, CANADA K2C 0H9		73 Bob
<b>VE3OSZ</b>		<b>GRID: FN25di</b>	<b>VE3OSZ</b>	

Attached are two photos. The OARC received the QSL card from Bob Kavanagh, VE3OSZ, acknowledging a QSO he made with us (as VA3RAC) during the Canada Winter Contest. The second photo is the transmitter used by VE3OSZ for the QSO. I think they make good eye candy.

73, Mike Kelly VE3FFK

**2010-2011 Membership Application/Renewal**  
Ottawa Amateur Radio Club Inc., Box 8873, Ottawa, Ontario K1G 3J2

- Single \$25 (\$20 after Feb 1, 2011)
- Family \$30
- Junior \$15 (under 18 years of age)
- New Ham - Free (if licensed in current Membership year)
- Emailed *Groundwave*     Mailed *Groundwave* (add \$5.00)

**Please Note: Membership year is September 1, 2010 to August 31, 2011.**

Family Name: \_\_\_\_\_ First Name/Initials: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Prov: \_\_\_\_\_ Post Code: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_

E-mail address: \_\_\_\_\_ (For *Groundwave* mailing)

Callsign(s): \_\_\_\_\_

Qualifications:  Basic     Advanced     Morse Code  
Year Licensed: \_\_\_\_\_ RAC Member?    Yes

**Other Family Members**

Name: \_\_\_\_\_ Callsign(s): \_\_\_\_\_

Qualifications:  Basic     Advanced     Morse Code  
Year Licensed: \_\_\_\_\_ RAC Member?    Yes

Interests: \_\_\_\_\_

Comments/Suggestions: \_\_\_\_\_

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.

Do you want an OARC **NAME TAG**?    Yes     Second or Replacement    Yes

ORDER DETAILS - As to appear on badge:

First Name \_\_\_\_\_ Call Sign \_\_\_\_\_