Ottawa Amateur Radio Club

Groundwave

P.O. Box 8873, Ottawa, Ontario, Canada, K1G 3J2

Check out our Web Page: ***www.oarc.net***

May 2009

Don't forget to volunteer for some of these upcoming events:

CN Tour for CHEO
Lanark Highlands Rally
Rideau Lakes Cycle Tour
Smiths Falls Hamfest
OARC Elections
RAC Canada Day Contest

The May presentation will be on the subject of Software Defined Radio and the speaker is Marcus Leech.

See you at the meeting, again in the **Colonel By Room**.

Ian Jeffrey, VE3IGJ
Editor

MAY MEETING 7:30 pm, Wednesday, May 13th
in the Colonel By Room at Ottawa City Hall

In This Issue....

Ottawa Amateur Radio Club
Groundwave

May 2009

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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.

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 VE3TEL **147.030(-).** 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.

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.

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.

Ottawa Amateur Radio Club
Groundwave

May 2009

April Minutes

Call to order at 7:30 By Diane VA3DB

Visitors:
A hearty welcome to John and Basha, who recently moved from NYC to Ottawa.

Club Projects:
The current project is coming along nicely, with two more Saturdays at Algonquin scheduled. Tyler, VA3DGN, suggested a simple antenna building project, perhaps J-poles, but suggestions are welcome.

General Announcements:
He Repeater Council 2009 Spring General Meeting will be held in Brockville at the Fire Station, 360 Laurier Boulevard on Saturday April 25 at 1:00 pm. A light lunch will be served at 12:30. <http://www.slvrc.org/>

Field Day is planned at the usual place, St Paul's University on the fourth full weekend in June (June 27-28 in 2009). Stay tuned for more info.

CN Tour For CHEO (known formerly as "Tour Nortel") will be run this year on May 3rd. Contact Harold, VA3UNK, for more information.

The Rideau lakes Cycle Tour requires some radio operators for the Ottawa checkpoints, contact Gord VE3FRB@RAC.CA

Homebrew Night:
Five contestants brought forward their ingenious designs for careful scrutiny by our illustrious judge, Clare Fowler, VE3NPC.

Dave Conn, VE3KL showed us his 500 KHz antenna balun assembly; Mike Kelly, VE3FFK showed us his custom docking station charger assembly for his Yaesu handheld; Bryan Campbell, VE3ZRK showed his skilfully made adapters and and 144MHz/1296MHz relay; Wayne Getchell, VE3CZO a very tidy AF amplifier with many desirable feature for the ham in his shack; and Jason Scobie (son of VA3AE) had a proxy demonstration of his 100-300MHz 50mW FM transmitter in an Altoids tin.

The winner of the Clare Fowler Award was Wayne Getchell; the People's Choice Award went to Jason Scobie.

$23 was won in the 50/50 Draw by Alan, VE3BYT.

Dates to Remember

2009

Feb. 7, 8	Canada Ski Marathon
Apr. 8	Homebrew Night
Jun. 10	OARC AGM and Elections
Jun. 27, 28	Field Day
Jul. 1	RAC Canada Day Contest
Sep. 12	Hamfest
Sep. 30	Membership Renewal Deadline
Nov. 4	Joe Norton Award Subm. Due
Dec. 19	RAC Winter Contest

Electile Functions

Just a reminder that the June meeting will also include the annual election of the OARC board members. At the moment, all the current board members plan to run again and retain their current roles. Let's have a round of applause for their continued commitment.

While there are no board vacancies yet, we will accept nominations of/by other members. If no additional nominations come forward, this election may pass by acclamation and there will be no need to cast an official ballot.

Oh, don't forget to bring something to write with for the June meeting, just in case. Also, if you have not already firmed up your 2008-2009 membership renewal with Al, please remember to do so at the May meeting.

73 de Tyler VA3DGN

mk's Words

Examiners are required to keep the old exams around for at least 3 years. Since I'm lazy, some stick around for a while longer. I was shredding a bunch of old exams the other day and started to notice that there are a lot of them that I don't remember. Most of the candidates passed, got call signs .. and then what? Many are into the mainstream of hamming, on club executives, doing things, building things and learning about radio. Some are on HF but don't admit to owning a two metre rig. Some are hams so they can do other things, like car rallys. What about the others? Any idea where they went? - or why?

On a happier note, it seems that homebrew isn't dead yet. There was a good crop at the April meeting. It was a tough choice to decide the "best" with such variety around the table. Congrats to all, and I'm looking forward to seeing more interesting things coming out of the OARC project sessions. There seems to be a move afoot to do some more traditional hardware projects over the summer. If you have some thoughts on the topic, make some noise. Stay tuned.

With any luck the bike will be on the road soon, and I'll be playing outside a bit more. I wonder if a 20 m compact loop will work on the bike (no ground plane to worry about).

Maybe it's the long winter, but I am already looking forward to Field Day. Even with three public service type events and a couple of stints at Collegeville between now and then, there is still something about the last rainy weekend in June that can't be beat.

Speaking of public service events, which are you doing? I think that every ham should do something for the world outside of hamming. Whether just as a fun thing, for practice, or as payback for that "free" licence, I still feel a debt for the privilege of being a ham. If every ham did one event a year we would have to start making them up to meet the demand.

That's about here for this time. I'm already a week late with this, and I still have to get ready for yet another meeting this weekend.

73
mk VE3FFK

Cutting of Filing Teeth

Some of the fledgling members have expressed an interest in having a few "low-tech" building sessions along the lines of the OARC PIC projects. If there is sufficient interest, the lab at Algonquin College would be a perfect place for some hands-on demonstrations such as:

- How to make your own roll-up J-pole
- How to make your own 2m or 6m copper pipe J-pole
- How to solder PL-259 connectors
- How to use an SWR meter
- How to tie your shoes with ladder line

If you're one of those people who learns better if you can actually watch it being done or want to have an Elmer to show you the right way to do it (or you're trying to build things without the right tools), then please send an email to Tyler <va3dgn@rac.ca> to indicate your interest. If you have a suggestion for a topic that was not listed above, please mention it in your email.

I would like to attempt to organize at least one session along these lines before Field Day.

73 de Tyler VA3DGN

A New Hope for Noninvasive Cancer Treatment?

In 1946, when the late John Kraus was a new faculty member at the Ohio State University, he attended a seminar on traveling wave tube (TWT) amplifiers, presented by a well-known visiting scientist. These TWTs used a wire helix of a sub-wavelength diameter as a guiding structure. After the presentation, Kraus went up to the visitor and politely inquired if the visitor thought that the helix could have applications as an antenna. As Kraus relates it in his classic antenna text, the visitor told him, "No. I have tried it and it does not work." The finality of the answer sent Kraus scurrying to the basement workshop at his home, where he proceeded to invent the popular helical antenna. This inspiring story about defying conventional wisdom came to my mind as I read the transcript of a CBS News *60 Minutes* segment, entitled "The Kanzius Machine: A Cancer Cure?" (broadcast originally on April 23, 2008). However, I am getting ahead of myself. Let me start at the beginning.

John Kanzius, a former businessman and amateur radio operator, K3TUP, (but without a college degree), was diagnosed six years ago with terminal cancer. He has since undergone numerous rounds of unpleasant chemotherapy. As a cancer patient, he wondered, "What if a tumor was injected with some kind of metal, and zapped with a focused beam of radio waves? Would the metal heat up and kill the cancer cells, but leave the area around them unharmed?" His first experiments were with hotdogs injected with a copper-sulfate solution and a simple RF applicator. (It should be noted that the idea of using hyperthermia with "thermal seeds" has been in the technical literature for a long time). Kanzius's initial success led him to a more-advanced RF prototype, and to Steven Curley, a cancer surgeon at the M. D. Anderson Cancer Center in Houston, Texas. Kanzius suggested to Curley that it would be great if Kanzius's RF machine could be combined with something hi-tech, such as nanoparticles made of metal or carbon, because the tiny nanoparticles might readily infiltrate cancer cells. (Back in 1957, Gilchrist et al. heated various tissue samples with 20-100 nm-size *magnetic* particles exposed to a 1.2 MHz magnetic field.) This is where the story gets really interesting.

One of Curley's cancer patients was the nanotechnology pioneer and Nobel laureate Rick Smalley (now deceased) of Rice University. Curley explained Kanzius's idea to Smalley, and asked Smalley for some nanoparticles. Smalley told him, "It won't work. Well, look, I'll give you some. But don't be too disappointed." In August 2005, Curley and Kanzius exposed a vial of nanoparticles to RF fields. In 15 seconds, the nanoparticle suspension was really hot, and Kanzius had a new convert to the cause: Rick Smalley.

A 2007 paper, coauthored by Kanzius, Curley, and Smalley (deceased) among others, reported the successful application of a 13.56 MHz external RF field (600-800 watts for one to two minutes) to induce efficient heating in aqueous suspensions of single-walled carbon nanotubes (SWNTs). When the SWNT solution was injected into tumors in live rabbits and the animals were exposed to RF fields, the tumor cells were successfully destroyed, with relatively little damage to surrounding tissues. The exact RF heating mechanism of such electrically small nanotubes is not yet understood.

The next challenge is to figure out a way so that nanoparticles injected into a patient's bloodstream (rather than directly into the tumor) will be taken up selectively by cancer cells throughout the body (thus reaching even metastasized cells), but not by normal cells. This will require a search for specific molecules that can bind with the SWNTs, and that attach to or penetrate specific cancer cells. While human trials of the new therapy are several years away (which may be too late to benefit Kanzius himself), Kanzius has helped set up a research (http://www.kanziuscancerresearch.org) to promote the exciting work.

Rajeev Bansal, University of Connecticut

IEEEAntennas and Propagation Magazine, Vol. 50, No. 4, August 2008

[John Kanzius died February 18, 2009. Ed.]

Directors Report

North East Regional Directors Report March 2009

The monthly meeting of the Regional Directors was held on March 24 starting at 2330Z. Unfortunately I was not able to attend as I had another commitment. When I receive the minutes from Corporate Secretary, Linda VE9GLF I will bring you up to date.

In March I participated in the Sleeping Giant Loppet, which consists of a 5, 10, 35 and 50 km cross country ski race. The Lakehead Amateur Club has provided communications for this event since its inception. I am also aware of the Ottawa area providing communications for the Canadian Ski Marathon. I'm sure many clubs do public service work. If you get a moment please tell me what your club is doing so I can feature it here and possibly in TCA.

What prompted this was that as I am writing this report Amateurs in Winnipeg are starting to deploy along the dikes to provide communications as the Red River is flooding and ARES is responding.

The only way to stay sharp is to practice, practice and practice some more. If you are asked please consider participating in your clubs public service events. I believe the future of Amateur Radio is in helping others.

If your local repeater is connected to the IRLP check the Ontario ARES Net on Sunday and Wednesday nights at 8PM on node 9005. For a list of the Ontario repeaters connected follow the following link: http://www.emoares.org/irlpnodes.shtml

If you have any questions or concerns please email me at ve3xt@rac.ca.

73, Bill VE3XT

North East Ontario Regional Director

ARRL Quiz

1) A parasitic element...
a. is connected to the feed line.
b. is not connected to the feed line.
c. must be parallel to the feed line.
d. is only for mechanical balance.

2) Directors are (longer) (shorter) than reflectors.

3) Directors are (longer) (shorter) than the driven element.

4) Second directors are (longer) (shorter) than the first directors.

5) A Yagi's driven element generally has a feedpoint impedance (lower) (higher) than 50 ohms.

6) Which of following is NOT a useful transmission-line impedance matching design to transform the Yagi driven-element impedance to 50 ohms for coax feed?
a. Strip-line
b. Gamma match
c. Beta match
d. Hairpin

7) "Plumber's Delight" construction means that all elements are...
a. made from threaded pipe.
b. not insulated from the boom.
c. at the same RF potential.
d. trapped.

8) A "driven cell" refers to...
a. a loop used as the driven element.
b. two or more driven elements.
c. more than one Yagi on a single mast.
d. extra-strong rotator hardware.

9) Reflectors have self-resonant frequencies (higher) (lower) than that of the driven element.

10) Adding parasitic elements is done to improve the antenna's...
a. front-to-back ratio.
b. forward gain.
c. both (a) and (b)
d. neither

11) The Yagi antenna was first described in...

(Continued on page 9)

EMRG—ARES

This month I am writing about trunked radio, a technology used every day and in emergencies. While amateurs do not use trunked radio, there are plenty of references to it on amateur web sites, and most make trunked radio sound like a non reliable, failure prone solution. In fact, there are hundreds of trunked radio systems operating across Canada, some for over 20 years, and most are very reliable. For amateurs, what is important is that the people we support are not on trunked radio, humanitarian groups have no radios, which is why they need our help.

Trunked radio, sometimes called trunking radio, is everywhere and it is here to stay. In the US, most areas have, or are building state-wide radio systems. The main reasons for creating a large trunked radio system are better use of spectrum (better sharing of radio channels), larger coverage areas (radio coverage for town A no longer ends at its border), and interoperability (it's easier if everyone is on the same radio system).

In a trunked radio system, a set of radio channels is shared by multiple user groups and the system assigns an available channel each time the user presses the PTT button, rather than having the user change channels. For example, in a normal city, police, fire, paramedics, and public works might all have a main and secondary frequency for a total of eight single repeaters. At any point in time only a few of the repeaters are in use, but each group has enough capacity to meet their peak requirements. These eight repeaters could be replaced by a single five-channel trunked radio system. There were about 16 VHF/UHF frequencies assigned to fire departments in Ottawa prior to amalgamation, while now they are one of many users on the City of Ottawa 15 channel trunked radio system.

There have been a lot of challenges implementing trunked radio systems. Typically, multiple user groups (police, fire, paramedics, neighbouring cities), who each had their own dedicated radio systems, are merging onto a single shared radio system. In most cases these original systems were low-band VHF (below 50 MHz), VHF (138-174 MHz), or UHF (412-512 MHz), which had certain characteristics such as wide area coverage, and they are being replaced by an 800 MHz system which has a limited coverage area per site, so more sites are required. Poor engineering and a desire to save money have created radio systems that fell short of user requirements, leading to complaints.

EMERGENCY MEASURES RADIO GROUP

Unlike a conventional repeater, where the repeater output is activated when there is a signal on the input, trunked systems have a computer controller and each radio must communicate with the system each time it wants to make a call. Some view this as a weak point, but actually most of these have built in redundancy with stand alone operation if links between sites are down and failover to conventional repeater mode if the controllers fail. There are benefits to the computer interface on trunked radio systems, beyond the better use of spectrum. It is possible to know exactly who is using the radio system, when, and for how long. It is also possible to know how many people tried to use the radio system, but there were no channels available, and how long they had to wait to get a channel assigned. In California, they have been able to make adjustments to the radio systems, so when they are used for forest fire fighting, they have the capacity to ensure that when someone pushes the PTT, they will get through.

What is important for amateurs to understand is that the groups using trunked radio are not the groups who need amateur radio communications in an emergency. The people who need our help now are the same people who needed our help before trunked radio came along, the groups providing humanitarian support who have no radios.

Peter Gamble – VE3BQP (ve3bqp at rac.ca)
www.emrg.ca

EMRG – Team Leader, Ottawa ARES – EC

Two Names – One Group – One Purpose

Ottawa Amateur Radio Club
Groundwave

May 2009

EMRG for Dummies

Well, you aren't really a dummy, but maybe you don't know how helpful you could be during a disaster in Ottawa. This document is meant as simplified guide to the basics you will need to know.

First off, do not ever self-deploy, that is make sure you are actually needed before showing up anywhere. If you are already on the EMRG contact list, you will be contacted, and told where to go to help. But if the phones are out, obviously you should check into one of the local EMRG repeaters (list follows at the end of this article), and tell the net control station (NCS) that you are available.

You must always communicate directly with the NCS, you must never contact any other station directly on the net without going through the NCS. When checking into the EMRG net the first time simply use your call sign to identify.

Once you are deployed, you will be given a tactical location to designate your position, at public service Events. These are typically "checkpoint" names; e.g. "This is checkpoint 15 reporting in". Note that you still have to identify with your legal call sign every 30 minutes; e.g. "This is checkpoint 15 VA3DB". During an actual disaster your tactical name might be "This is Red Cross 1".

The local EMRG have pre-determined locations marked for evacuation purposes, If you are told to immediately deploy to one of these locations, chances are good they already have amateur radio gear and antenna set up for use in emergencies. In the case you find all you have is your HT, you can request a "radio kit" from the NCS; This is a radio, power supply antenna kit that can be sent as needed.

Note that unless you are already trained with the EMRG, you will be asked to help assist someone who is. Don't see it as a demotion, see it as an opportunity to help your community.
- 73 Diane VA3DB

EMRG VHF & UHF REPEATERS

Callsign	Location	Frequency	TX Encode CTCSS	RX Decode CTCSS
VE3OCE	Alta Vista	146.880 --	None	136.5
VA3OFS	Barrhaven	146.670 --	136.5	136.5
VA3EMV/E	Orleans	146.985 --	100.0	100.0
VA3EMV/W	Stittsville	146.985 --	123.0	123.0
VA3EMV/P	Portable	145.110 --	136.5	136.5
VE3OCE	Alta Vista	145.030	Packet Digi	
VE3OCE	Alta Vista	443.800 +	136.5	136.5
VA3OFS	Barrhaven	444.950 +	136.5	136.5

VA3OFS UHF Under Construction - completion late fall 2008

RAC Bulletins

New RAC representative on the ARRL Contest Advisory Committee.

April 14, 2009

After more than ten years as RAC's representative on the ARRL Contest Advisory Committee, David Shipman, VE7CFD, has asked to be replaced.

RAC has then chosen Sam Ferris, VE5SF, to replace David. The ARRL has already been advised of our choice and Sam is already starting his work.

Radio Amateurs of Canada wants to thank Dave, VE7CFD, for the many years he has served the Amateurs of Canada by being on this important committee. We also wish Sam, VE5SF, all the best in his work.

73,

Daniel A. Lamoureux, VE2KA
Vice-President International Affairs,
Radio Amateurs of/du Canada

RAC Assistant Director Position

Assistant Director Required for Ottawa Area

Hello, I am Bill Unger, VE3XT and I am the Director for Radio Amateurs of Canada for the North / East Ontario Region. I live in Thunder Bay and I am not able to visit Ottawa with any regularity due to the distance and a day job as well.

I was hoping that one of you in the Ottawa area would consider becoming an Assistant Director for that area. It is one of those jobs that allows you to set your own hours at your convenience. The duties would consist of being available to man a booth at local Hamfests, telling other hams and hopefully prospective ones about Amateur Radio and the benefits of joining RAC as well. You can sell memberships if you wish. We supply all the pamphlets and hand out material. On a monthly basis I send out a brief one page newsletter just to keep you informed as to the happenings at RAC. You are not required to send in any reports, but if there is something you want me to feature in the monthly report I will gladly do so.

If you desire you could visit other clubs in the area and describe the benefits of membership in RAC. This would be a great way to expand your interests in radio. Basically the mandate is to keep RAC on the minds of your friends in local radio clubs. If you are interested or would like to know more about it please send me an email at wunger@confederationc.on.ca

Thanks for considering this.

Bill Unger, VE3XT
North East Ontario Director
Radio Amateurs of Canada

(Continued from page 6)

a. 1926-28.
b. 1936.
c. 1946.
d. 1962.

12) The "2:1 Bandwidth" of a Yagi refers to the frequency range over which the antenna maintains a...
a. 2-to-1 SWR or less.
b. front-to-back ratio of at least 3 dB.
c. forward gain of at least 3 dB.
d. efficiency of 90 percent or greater.

13) A "quagi" is...
a. an array of four Yagis.
b. a Yagi with one or more quad-loop elements.
c. a quasi-Yagi design.
d. a lightweight Yagi.

14) "Tapered elements" are...
a. spaced closer together at one end of the antenna.
b. covered with insulating tape.
c. smaller in diameter at their tips than in their centers.
d. no longer in general use.

15) Increasing the number of elements in a Yagi (increases) (decreases) the antenna pattern beamwidth.

Bonus Question: Who was Dr Yagi's co-inventor of the antenna that is now only known by Yagi's name?

Answers:
1. b
2. shorter
3. shorter
4. shorter
5. lower -- A typical Yagi's feedpoint impedance is in the neighborhood of 20 ohms.
6. a
7. b
8. b
9. lower
10. c
11. a
12. a
13. b
14. c
15. decreases

Bonus - Dr Uda was the co-inventor of the "Yagi-Uda Array," known today by the simpler name.

Celebrating 25 Years

SMITHS FALLS FLEA MARKET

of

AMATEUR RADIO EQUIPMENT

SPONSORED BY

The RIDEAU LAKES AMATEUR RADIO CLUB inc.

MAY 9th, 2009

SMITHS FALLS YOUTH ARENA

(behind the Community Centre)

Corner of Cornelia St. (highway #43) and Elmsley St.

Smiths Falls, Ontario

Doors Open at 9:00 am (7:00 am for vendors)

General Admission: $5.00 (includes a door prize ticket)

Youth 16 and under are admitted free of charge

Tables: (approx. 2 1/2 ft X 5 ft) $10.00 each (includes one admission)

Canteen Available

Consignment Table Available

For information and table reservations, contact:

Steve Mayne VE3LWX at ve3lwx@xplornet.com

phone 613-253-2215

or

The RLARC inc. Secretary at ve3rlr@yahoo.ca

or

http://www.falls.igs.net/~rlarc/

Talk-in on VE3RLR 147.21 MHz +

Door Prizes provided by

Elkel Ltee; Durham Radio, H.F. Radio

H.C. MacFarlane Electronics Ltd; Maple Leaf Communications;

Radio Amateurs of Canada

Membership Application/Renewal

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

☐Single ($25, $20 after Feb 1)
☐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 to August 31

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.

OARC NAME TAG Yes ☐ Second or Replacement Yes ☐

ORDER DETAILS - As to appear on badge:

First Name _____ Call Sign _____