

VE3JW - 35th ANNIVERSARY

A full day of activities was on the agenda for the celebration of 35 years of Amateur Radio Exhibit station VE3JW on February 19.

At the Station

The celebrations began with an open house at the station itself, starting at 9 a.m. Mike, VE3LTN, got there early and fired up the station. Suzanne, the Museum's Volunteers and Facilities Coordinator, had brought over some colourful balloons to dress up the exhibit.



Balloons at VE3JW

Soon, amateurs filed in and they were all required to complete a radio contact in whatever mode we had available. Chris, VE3CUZ, had produced a nice confirmation of contact card for anyone logging a contact that day. Thank you Chris for your generous donation to the Club.

The Museum's Public Relations Office called upon the media to record and announce our special celebration. President Obama was in town, hence, few reporters were available. Nevertheless, CTV dispatched a camera to our VE3JW station and a short clip was on the air at 6:40 p.m. that evening.



VE3VIG and Museum's Publicity Officer

Among the visitors to the station were: Richard Hagemeyer VE3UNW, RAC General Manager; Doug Leach VE3XX; George Roach VE3BNO; and a mix of seasoned and newer amateurs. Towards the end of the day, Raed YI1RJ, holder of Iraq's first Amateur Radio license (#1 indicated on his certificate) paid us a visit. Raed is studying at Carleton U. and has volunteered to help set up a station at the University.

Anniversary Dinner

At 4:30 p.m. we headed to Perkins' Family Restaurant for an anniversary dinner. Tables were set up with red, white and blue balloons, and exceptionally nice place cards were there for each of the guests. The Club owes thanks for the cards to Darin, VE3OIJ, for his donation.

Special guests included: Doreen and Ed Morgan, initiators of the VE3JW station; Peggy and Paul Jefferson, daughter of Jim W Cotter to whom the station, using his callsign, is dedicated; the Museum's CEO representative Dr. Randall Brooks and Communications Exhibits Curator Bryan Dewalt. Altogether, the guests at the dinner totaled 22.

Special Meeting

At 7:30 p.m. we found ourselves in the large conference room of the Museum for a well-attended special gathering and monthly meeting. Club President, David VE3ZZU, introduced our guests and asked Dr Brooks to address the more than 60 people assembled.

Dr. Brooks thanked the OVMRC for a job well done and said that although the Museum is forever looking for a new, larger place, we can be assured that VE3JW will stay in their plan if they were to move. Mr. Dewalt was also invited to speak and he thanked all those volunteers who made a success of the VE3JW exhibit over the years.

Although we had not yet received a letter from the Museum's Director General, Mr Claude Faubert, he sent his greetings and congratulations to everyone, as you can see in the attached document.

Our President called upon me to introduce Ed Morgan and invite him to talk about the early days of radio station VE3JW. Ed recounted several anecdotes of found memories he had of his blind friend Jimmy Cotter, and he told us how the VE3JW station came to be.



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Ralph Cameron, VE3BBM

Doug Carswell, VE3ATY

Doreen Morgan, VE3CGO

Ed Morgan, VE3GX

Bill Wilson, VE3NR

Sponsors

The OVMRC acknowledges the following organizations for their support of our activities:

- Acceptable Storage, Ottawa, ON
- Bytown Marine, Ottawa, ON
- Elkel Ltee., Trois-Rivières, QC
- Kenwood Electronics Canada Inc., Mississauga, ON
- Ottawa Camping Trailers Ltd., Ottawa, ON
- Travel-Mor Trailer Sales, Ottawa, ON

The *Rambler* is produced using Corel's Ventura™ 8 software.

The club's web site is hosted by Magma Communications Ltd.
www.ovmrc.on.ca

OVMRC Repeaters

147.300 MHz(+)
444.200 MHz(+)

Amateur Radio Exhibit VE3JW

Web site:

<http://ve3jw.tripod.com>

Canada Science & Technology Museum

The *Rambler* is the official newsletter of the Ottawa Valley Mobile Radio Club Inc. And is published 11 times a year (monthly, except for July). Opinions expressed in the *Rambler* are those of the authors and not necessarily those of the OVMRC Inc., it's officers or it's members. Permission is granted to republish the contents in whole or in part, providing the source is acknowledged. Commercial use of the contents is expressly prohibited. Submit articles to the editor or by e-mail to:

va3wmh@rac.ca.



35th anniversary cake



Peggy, Ed, Doreen, Paul

I then covered some of the marking events for our station during the past 35 years, and invited Mrs Peggy Jefferson to cut the 35th anniversary cake, while attendants could view some of the early artefacts from the VE3JW station displayed at the back of the room.

Our new Programs Chair, Michel VE2BPM, provided coffee and set up tables lavished with goodies for the celebration. The cake was delicious and everyone enjoyed the moment. All in all a very memorable day!

Maurice-André Vigneault, VE3VIG
Amateur Radio Exhibit Group VE3JW

February 12, 2009

Mr. Maurice-André Vigneault
 Ottawa Valley Mobile Radio Club Inc.
 PO Box 41145
 Ottawa, ON
 K1G 5K9

Maurice-André,

Two days ago, Suzanne Beaulne gave me an invitation to your 35th anniversary day on February 19th. It is hard to believe that OVMRC has been with the Canada Science and Technology Museum almost since its inception. Over the years we at the Museum have greatly appreciated the dedication and commitment of the members of the OVMRC not only to the Museum and what it represents but also to the promotion of amateur radio.

On behalf of all of us at the Museum, let me offer you and the members of the OVMRC our sincere thanks for many years of participation in the Museum and let me wish you a well earned Happy Birthday.

Sincerely,

Claude Faubert
 Director General
 Canada Science and Technology Museum
 613- 991-0372
cfaubert@technomuses.ca

The Electronic Variant of Enigma Machine

By Michel Barbeau, VE2BPM

What is the Enigma?

The Enigma is a machine devised for encrypting plain text into cipher text. The machine was invented in 1918 by the German engineer Arthur Scherbius who lived from 1878 to 1929. The German Navy adopted the Enigma in 1925. The machine was also used by the Nazi Germany during World War II to cipher radio messages. The cipher text was transmitted in Morse code by wireless telegraph to the destination where a second Enigma machine was used to decrypt the cipher text back into the original plain text. Both the encrypting and decrypting Enigma machines had identical settings in order for the decryption to succeed.

You can closely look at an Enigma machine at the Canadian War Museum in Ottawa in the Atlantic battle section of the World War II gallery. It is a nice 1943 M4 Enigma machine with four wheels that was used by the German navy.



The author snapped with an M4 Enigma encryption machine at the Canadian War Museum.

The Enigma consists of a keyboard, scrambling unit, lamp board and plug board. The 26-letter keyboard is used for plain text entry, during encryption, or cipher text entry during decryption. In the basic version, the scrambling unit consists of three cipher disks called rotors that permute the letters. Each rotor has 26 starting positions. Each time a letter is ciphered, the first disk does 1/26 of a revolution, the second disk does 1/(26*26) of a revolution and the third disk does 1/(26*26*26) of a revolution. Another

way to look at this is that there are 26 power three (17,576) initial settings or cipher alphabets. Rotors are removable and interchangeable. There are six different possible arrangements of three rotors, multiplying by six the number of initial settings. For operation, three rotors are chosen from five different rotors with 60 possible orders. That alone creates over a million combinations.

The 26-letter lamp board displays the cipher text, during encryption, or plain text, during decryption. The plug board adds an optional and additional level of letter permutation. It is electrically inserted between the keyboard and first rotor. Before each letter is scrambled, it can be switched around with another letter, depending on the plug board (called Stecker pair) settings. Six cables are available to the operator; six pairs of letters can be swapped. Multiplying by over 100 billion the number of possible initial settings, making the total number of initial settings in the order of 10 power 16. The initial setting, taken a from code book, indicates which pairs of letters (if any) are switched with each other. The initial setting is called the secret key.

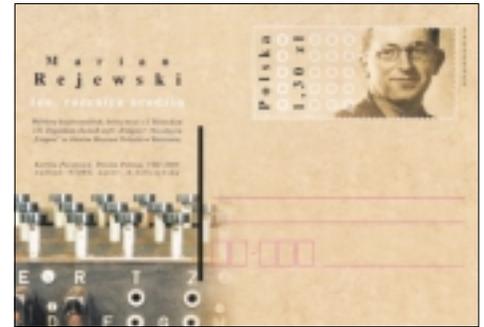
World War II was fought from 1939 to 1945 between the Allies (Great Britain, Russia, the United States, France, Poland, Canada and others) and the Germans (with the Axis). To minimize the chance of the Allies cracking their code, the Germans changed the secret key each day.

The codes used for the naval Enigmas, such as the one on display at the Canadian War Museum, had evocative names. Dolphin was the main naval cipher. Oyster was the officer's variant of Dolphin. Porpoise was used for Mediterranean surface vessels and shipping in the Black sea. Winkle was the officer's variant of Porpoise. Shark was the U-boat cipher and was 26 times more difficult to break than the others because of an additional fourth rotor yielding a gigantic total of 129,651,786,900,000,000,000,000 combinations.

Cracking the Enigma

Despite the extraordinarily large number of combinations, according to today's standards the Enigma is a weak cipher. However, at that time it was quite puzzling for the Allies. Two individuals were

instrumental in cracking the Enigma, namely, Marian Rejewski and Alan M. Turing. Marian Rejewski was a member of the Poland Cipher Bureau. He made important initial contributions by exploiting the fact that each message was sent encrypted with a message key



A Polish prepaid postcard issued to commemorate the 100th anniversary of Rejewski's birth (2005).



A stamps issued in 1983 by Poczta Polska to commemorate Polish decipherment efforts of the Enigma machine.

repeated twice at the head of each message, but encrypted with a daily secret key. To commemorate the 100th anniversary of Rejewski's birth, Poczta Polska issued a prepaid postcard 2005. This was in addition to a 1983 stamp commemorating the 50th anniversary of Polish decipherment efforts of the Enigma machine.

Alan M. Turing, a member of the Government Code and Cypher School (GC&CS) based at Bletchley Park, UK, uncovered a clever exploit and designed a computer that helped breaking the Enigma. Saint Helena, a British overseas



The Enigma stamp, from Saint Helena (2005) to commemorate the contribution of Alan M. Turing.

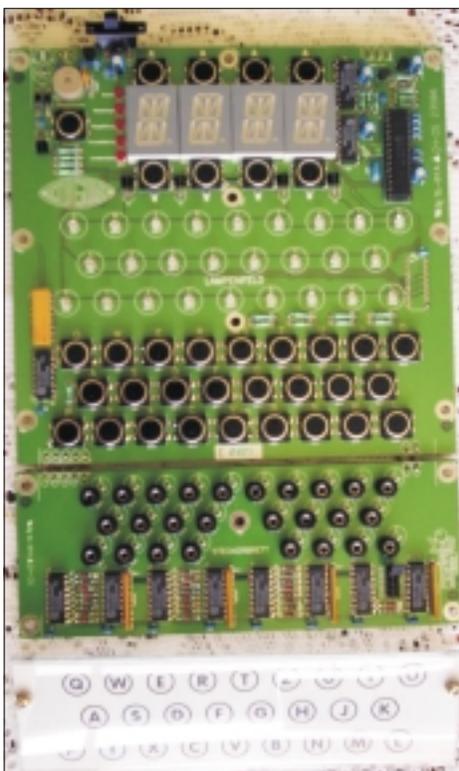
territory in the South Atlantic Ocean, issued in 2005 a stamp to commemorate the contribution of Alan M. Turing. St Helena played a role in the monitoring of German naval traffic. You can read more about the story of cracking the Enigma in a book from Simon Singh entitled *The Code Book*.

Getting an Enigma

It is unknown how many Enigma machines were put into circulation. The records had been destroyed at the end of the war. According to the text *The Story of the ENIGMA: History, Technology and Deciphering* by Prof. Tim Perera, it can be up to 20,000 Enigmas. Several Enigmas lie on the bottom of the ocean in U-boats, unrecoverable. Others were destroyed. Prof. Perera estimates that 200 Enigmas are still in circulation. They are pricy and difficult to get. An affordable alternative, is building your own electronic version of it.

Building an Electronic Variant of the Enigma

I assembled my own electronic Enigma using the Enigma-E kit (www.xat.nl/enigma-e). The kit comes with a PCB, parts and assembly instructions. The level of difficulty is moderate (no surface mount parts) and require few hours of assembly and debugging work. A picture shows my unit assembled. The main PCB consists of 26-letter keyboard and 26-letter lamp board. The small attached PCB, attached to the main PCB, is the plug board. The electronic kit can be ordered online from the Bletchley Park museum

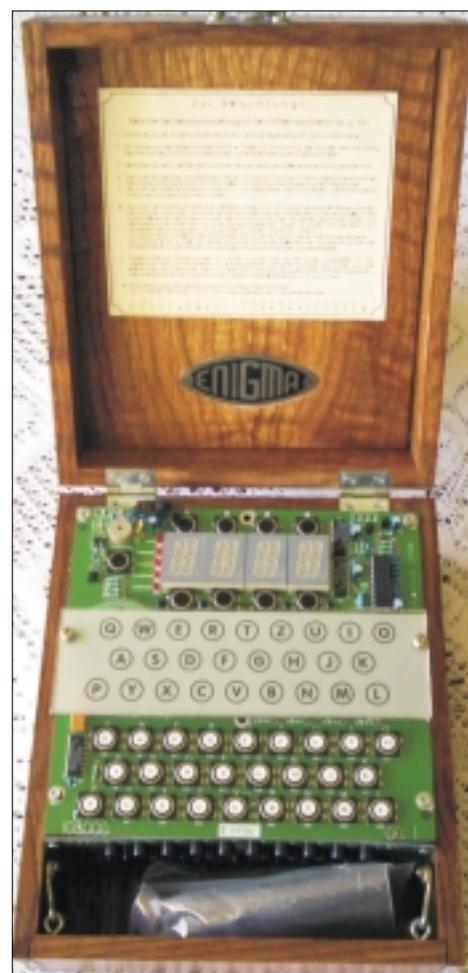


The Enigma-E PCB with parts and plexiglass lamp board.

(www.bletchleypark.org.uk).

The final assembled electronic Enigma is show in a second picture. The wooden box, plexiglass lamp board and engraved Enigma logo don't come with the kit. The instructions contain a section about designing and building your own Enigma box. I didn't have the tools nor the skills to pursue such a project. I ordered a pre-made wooden box from Mark Dement. The box is very nice. It is made from quarter sawn white oak with finger joints. The box comes assembled and finish sanded. I completed the work with two coats of varnish. I cut two pieces of plexiglass which are used to sandwich a lamp film that is shown ready to install in the first picture. I got the engraved Enigma logo from www.enigma-replica.com. The inside of the Enigma cover has a placard with instructions for the operator in German. The text can be downloaded from the Internet and printed on self-adhesive paper then put on the inside of the lid.

At the end it makes a nice replica which is truly operational. Of course, you cannot really use it over amateur radio frequencies because encrypted traffic is forbidden. 73!



The Enigma-E with its finished wooden box.

About the author: Michel Barbeau is a member of the Ottawa Valley Mobile Radio Club (currently serving as the Programs and Publicity Chair), Radio Amateurs of Canada, Tucson Amateur Packet Radio and American Radio Relay League. His preferred modes of operation are digital: Packet, PSK31 and RTTY. He also has an interest in Software Defined Radios. He has a Canadian Amateur Radio Operator's Certificate (April 1987) and an Amateur Digital Radio Operator's Certificate (December 1987). He has been a Professor of Computer Science since 1991. He is currently working at Carleton University where he teaches and does research on wireless communications. He can be reached by email at: ve2bpm@arrl.net. ❖

The 5th OVMRC 2m FM Simplex Contest

Date & Time

Saturday 2nd May 2009 from 11 am to 4pm local time. Please note the longer duration this is new for 2009 to accommodate cyclists and pedestrian mobile stations.

How to participate

Using the 2m simplex frequencies (check the RAC band plan) and avoiding the 2m calling frequency of 146.520, make contact with as many stations as you can. Call "CQ OVMRC contest" or "CQ contest" or work stations making such calls.

Pre-arranging contacts by use of repeaters, telephones or otherwise is not allowed, nor in the spirit of the contest.

Once you have logged a particular station you cannot log it again, unless it is a mobile station which has moved to a different city location (see details of what is a 'location' in the next section). Mobile stations calling CQ may want to indicate their current location for example "CQ OVMRC contest Ward 16".

Note: there is a condition on a repeat logging. A repeat logging cannot be made if it results in a station being the same consecutively in the log. For example, if contact 6 is with VA3STL you cannot log that station again as contact 7, even if the station is mobile and moved to another location. Work another station first and then it is possible to make a repeat contact but only if the mobile station is in a different location to the earlier logging(s).

If you decide to call CQ, listen first to see if a frequency is in use. Remember, just because you cannot hear anything does not mean that a QSO is not going on, you may not be in range of one of the stations but you could be within the other's range. Follow good operating practice; listen, ask if the frequency is in use and listen again, then repeat the process until satisfied it is not in use.

What to exchange

When a contact is made you need to exchange the following information:

callsign, contact number, location (use the city electoral ward or district for this) and whether or not you are a OVMRC club member or if you are operating a club station.

Mobile stations give their current location. The exact location is important for the location multiplier and longest distance QSO award.

If you are mobile then please try and spend enough time in an electoral ward or district to complete a contact.

Maps of the wards or districts of Ottawa and Gatineau can be found, at the following web locations;

Ottawa

http://ottawa.ca/city_hall/mayor_council/wards/final_map.pdf

Gatineau

<http://www.ville.gatineau.qc.ca/cartes-ang.htm#0>

Stations outside Ottawa and Gatineau use the local town, e.g. Carleton Place Do not feel that this is all you should exchange, you are encouraged to talk to the other station if you want - find out how long they have been a member, for example. Record each contact on a log sheet and number it sequentially.

Example 1

VA3NEK from VA3STL, please copy number 4, Osgoode member.

Example 2

VA3STL from VE3OSE, please copy number 1, Kemptville, non-member.

Example 3

VA3GLT from VE3JW, please copy number 23, Alta-Vista, club station.

Alternatively, for the location the district number, which is given on the Ottawa ward map, can be given.

Power Limit

For this contest the maximum power you can use is 50W but there are multipliers for lower power. (see Multipliers/Awards).

Scoring

QSO points

Contact type Points

Non OVMRC member 1

OVMRC member 2

Club station 5

Club stations are VE3JW and VE3RAM.

Note VE3JW is the museum exhibit station and VE3RAM may be the emergency trailer.

Multipliers

This comes in two stages

1. Total number of different locations contacted (not your locations but the locations of stations you contacted).

2. The highest power level you used

Power Multiplier

1W or less (new for 2009!) · 3

10W or less 2

over 10W to 50W 1

over 50W 0

Final calculation

Final score =

Total QSO points x Locations x Power

Example calculation

You contacted 8 club members, 6 non club members and the club station VE3JW, who were in 5 different locations (some contacts were in the same location) and you used your handie-talkie at 5W of power.

Total QSO points = 1 x 6 + 2 x 8 + 5 x 1 = 27

Multiplier for locations: 5

Multiplier for power: 2

FINAL SCORE = 27 x 5 x 2 = 270

Disqualification

Disqualification will result if stations break the rules of the contest or the rules under which they are licensed to operate.

Some example situations that would invoke

disqualification are:

- Use of a repeater to pre-arrange contacts.
- Using the 2m calling channel 146.52MHz
- Not following the band plan - do not forget the simplex frequencies are effectively 'channeled'. Do check the band plan.
- Intentional interference to other users, testers or not.

The band plan is available here:

http://www.rac.ca/service/bandplans/2mplan_e.php

Awards

Awards will be given to the highest score in the following categories:

• highest scoring base station (a portable station which does move location during the contest will be considered as base station),

- highest scoring mobile station,
- highest scoring newcomer.

(A newcomer is defined here as someone licensed in the last 18 months. This allows graduates from the last two OVMRC classes to aim for this award. Note: this award does not preclude the same station from winning any of the other awards.)

- Contact over the longest distance

(fill in your furthest QSO on your summary sheet).

- Highest score made with a homebrew antenna.

Please briefly describe your antenna when you submit your score sheet and log.

- Km per Watt award. New for 2009!

Contact covering the longest distance per watt of output power. Calculate your km/watt by multiplying the distance by your radio's output power, for example 16km with your radio set to 1/2W would be 32km/W.

Awards will be in the form of a certificate.

All scores will be published in the Rambler.

Submission

Logs should be submitted to VA3SIE before June 31st 2009. Your log should

include the complete exchange sent and received for each contact you made as well as your score calculation and claimed final score. Please indicate carefully each multiplier you are claiming.

To support a claim for an award please provide the following information as applicable: how long you have been licensed, the longest distance contact you made (including the callsign and location of yourself and the other station for the contact), and the power used to make that contact.

Soap box comments (your story!), pictures, videos etc. are gratefully received and will be included in the results and presentation materials.

Email to va3sie@rac.ca is the preferred submission entry but I will also accept paper entries at the May/June OVMRC meeting.

Teams

Not got a 2m FM transceiver?

In the spirit of having fun and meeting club members it is encouraged that club members that would otherwise operate solo (base or mobile) team up with a member who has not got 2m capabilities.

Amateurs operating as a team can submit a single entry form under both names/callsigns.

To help with log checking though please use only one callsign for QSOs.

If you wish to pair up or establish a team it is recommended to join one of the regular OVMRC nets held throughout the week:

On VE3TWO (147.300+):

- Tuesday 8pm "News and History Net"
- Wednesday 7pm "Welcome Mat Net"
- Friday 8pm "Wise Owl Net"

On HF (3760kHz LSB):

- Saturday 10am "Pot Hole Net"

Mobile Safety

Use common sense.

Safe and legal operation of your vehicle without distraction from driving must be your top priority.

Here are some safety tips.

1. If you wish to make contest QSOs on the move consider operating as a team (see Teams). The driver can focus on driving while the partner makes and logs contacts.
2. If you're out there solo operating a vehicle, please stop legally and safely before making contest QSOs then drive to the next location.

Read more here:

<http://www.caa.ca/driventodistractio/>

Tips

For all stations:

Check the weather forecast and equip yourself accordingly

A printed copy of the 2m band-plan, ward map, a clipboard and paper/pen to write QSO log information will be useful.

It may make sense to load your transceiver memories with all the 2m simplex channel frequencies ahead of time.

Simplex signals will typically be weaker than repeater outputs so a higher gain antenna might help but the noise floor may be higher due to intermodulation interference especially in the down-town core so: choose your location(s) and antenna(s) carefully.

If you plan to operate from an area where intermodulation interference could be a problem (for example parliament hill or the downtown core), you will find a band-pass filter useful.

If you do not own or wish to build a band-pass filter, you could try a lower gain antenna for example a rubber duck antenna held close to the body facing the station you are trying to work but that may make copying weak stations more difficult.

For fixed stations (/portable):

Choose a high location which has good line of sight to most of the Ottawa & Gatineau wards, and keep the antenna as high as possible (consider using a mast).

If you're in an intermod-free area or are using a band-pass filter, use a high gain antenna appropriate to your location. For example from a hill in the extreme North, South, East or West, a beam might be a good choice. From a hill in the mid-town, a co-linear vertical, J-Pole, big

wheel or similar higher gain omnidirectional antenna will work well. Even a ground plane antenna will work!

For mobile stations:

Develop a route plan. Know which wards you will be operating from where you will park in each ward (high location, good lines of sight) and in which order. Know how long you will spend in each ward, how long it will take to travel from ward to ward and stick to the plan.

Remember, except for the rule about not working the same station consecutively you can work all the stations you already worked in a new ward!

Some wards are smaller than others so you can move from ward to ward very quickly but this comes at a price. The smallest wards are in the most heavily populated areas of Ottawa and that is also where intermodulation interference will be worst.

Disclaimer

The Ottawa Valley Mobile Radio Club and contest organizers are not responsible or to be held liable in whole or in part for harm or injury caused by persons/property or caused to persons/property taking part in this contest.

Please ensure you comply with all laws and regulations. Drive carefully and with due care and attention. Do not violate trespass laws when selecting your operating locations.

Contact

For further information or questions contact:

Martin Gillen, VA3SIE
(va3sie@rac.ca).
613-244-3585 ❖

VE3JW in Italian Magazine



VE3JW Station: With Ernie , VE3EJJ and Paolo, IK2MLS

The article reads:

“This summer , while visiting Canada with my family, we visited the Science and Technology museum of Ottawa, capital of Canada, where we had a nice surprise: VE3JW a modern radio amateur station located in the museum.

You can see the set-up in the picture with VE3EJJ Ernie (on the left) that was illustrating to the public our hobby. Many thanks to Ernie for the time spent together and for trying to contact Italy in 20m although without success.

More info at:
Canada Science and Technology

Museum:

<http://www.science-tech.nmstc.ca>

VE3JW Station:

<http://ve3jw.tripod.com/> and
<http://www.ovmrc.on.ca/ve3jw.htm>

73 de Paolo IK2MLS
(on the right)” ❖

Incontro in Canada

QUESTA estate, durante le vacanze in Canada con la famiglia, abbiamo visitato il Museo della Tecnologia e della Scienza del Canada nella capitale Ottawa, dove abbiamo fatto un incontro inaspettato: VE3JW una modernissima stazione radioamatrice installata a scopo divulgativo e dedicata a Jim W. Cotter il primo radioamatore cieco del Canada.

Potete ammirarla nella foto insieme a VE3EJJ Ernie (a sinistra) che la presidiava illustrando al pubblico il nostro magnifico hobby. Un grazie ad Ernie per il tempo speso insieme e per aver provato a collegare l'Italia in 20 metri.

Per chi volesse saperne di più:
- Museo della scienza e Tecnologia del Canada: <http://www.sciencetech.technomuse.ca/>

- Stazione VE3JW: <http://ve3jw.tripod.com/> <http://www.ovmrc.on.ca/ve3jw.htm>

73 de Paolo IK2MLS (a destra)

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Radio Rivista

ORGANO UFFICIALE
DELL'ASSOCIAZIONE
RADIOAMATORI ITALIANI

2/2009

La Conferenza IARU e la Regione 1
Oscillatori di riferimento ultrastabili
Desecheo 2009