

RAMBLER

FEBRUARY 2024



VOL. 66 ISSUE 6

NEWSLETTER OF THE OTTAWA VALLEY MOBILE RADIO CLUB INCORPORATED (OVMRC.CA)

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CHECK-IN TIME 7:15 P.M. MEMBERS AND INVITED GUESTS WILL BE SENT AN EMAIL INVITATION SEVERAL DAYS BEFORE MEETING DATE WITH LOGIN AND PASSWORD. OTHERS NOT ON OUR MAILING LIST PLEASE CONTACT NORM AT: VE3LC@MYRAC.CA FOR INVITATION.

MEETING:

WEDNESDAY FEBRUARY 21
IBEW LOCAL 586, 1178 RAINBOW ST.,
GLOUCESTER, 7:00PM IN PERSON
AND 7:15 PM VIA ZOOM

WELCOME TO THE FOLLOWING NEW MEMBERS OF THE OVMRC SINCE JANUARY 1, 2024

- | | |
|-------------------------|--------|
| • CHRIS PATTEN** | VA3CJO |
| • SERGIO SLOBORDIAN | VE3KSM |
| • ROBERT RADBURN** | VE3YRK |
| • GEORGE-ANDRÉ CHANDRON | VE2VAB |
| • MICHAEL CARIGNAN** | VA3CMG |
| • DON MCCALLAN | VE3GFD |
| • CHARLES GUERIN** | VA3CGF |

** NEW AMATEUR THIS YEAR

OVMRC AFFILIATIONS





FEBRUARY 21, 2024 - MEETING AGENDA

- 1. Greetings, welcoming guests and new members of the Club**
- 2. Acceptance of January meeting minutes.**
- 3. MS Bike Tour 2024 - report on preparations by Nicole VE3GIQ**
- 4. Special motion to donate funds to RAC to support HQ office premises and VE3RHQ station improvement project - details published in the Rambler. Hugo VE3KTN to explain and present the motion.**
- 5. OVMRC Schedule of Activity 2024**
- 6. Feature presentation by Cal VA3ZLA on his project to integrate a RTL dongle type SDR receiver with the operation of his TS 480 transceiver.**
- 7. Plans to celebrate the 50th anniversary of the VE3JW exhibit station by an on-air event.**
- 8. Other business that may arise.**
- 9. Short show and tell of the refurbished ex VE3MPC repeater with newly installed AllStarLink controller with VOIP network access.**
- 10. Adjournment of formal meeting followed by testing your portable radio performance, Tx Power, Rx Sensitivity, Harmonic Output, Modulating Level.**

**As usual, coffee and donuts will be available at the meeting.
807s extra.**



OVMRC EXECUTIVE AND OFFICERS 2023-2024

DIRECTORS

President:

Norm Rashleigh, VE3LC
ve3lc@myrac.ca

Vice-President:

Rob Haddow, VE3RXH
vicepresident@ovmrc.ca

Treasurer &

Membership Records:

Nicole Boivin, VE3GIQ
ve3giq@myrac.ca

Corporate Secretary:

Alan Fricker, VE3KAE
alanfricker@yahoo.ca

STANDING

COMMITTEES

Club Projects & Bulk

Orders: Barry Alison,
VE3NA ve3na@myrac.ca

Radio Course &

Accredited Examiner:

Norm Rashleigh, VE3LC
ve3lc@myrac.ca

Meeting Reception: John

McGowan, VA3JYK
john.mcgowan1314@
gmail.com

Nets & Radio

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VE3KTN
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Rambler Newsletter

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OVMRC.CA & Social

Media: Adam Bird,
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OVMRC Repeater

Keeper: Norm Rashleigh,
VE3LC ve3lc@myrac.ca

Special Events: Roger

Egan, VA3EGY
va3egy@gmail.com,
John McGowan, VA3JYK
john.mcgowan1314@gmail
.com

OVMRC Groups.io

Ongoing discussion

Group at:

<https://ovmrc.groups.io/g/main>; All radio
amateur members and
non-members are
welcome

Ottawa Valley Mobile

Radio Club Inc.,

**PO Box 41145 Ottawa, ON
K1G 5K9**

OVMRC Life Members:

Ralph Cameron, VE3BBM
Doug Carswell, VE3ATY
Bill Hall, VA3WMH
Ernie Jury, VE3EJJ
Doreen Morgan, VE3CGO
Bryan Rawlings, VE3QN
Maurice-André Vigneault,
VE3VIG

OVMRC Repeaters:

- **VE3RAM** Limited coverage to Orleans and East Ottawa 443.700 MHz (+) DMR CC1 & D-Star Network connected to Brandmeister
- **VE3TWO** Limited coverage to East and South Ottawa 147.300 MHz. +, PL 100.0 Hz. Analogue FM and C4FM

Special Event & Field

Day Call Sign VE3JW



LOCAL WEEKLY NETS (ALL CHECK-INS WELCOME)

- **Rubber Boot Net**, VE3OCE 146.880 MHz (-)136.5 Hz tone weekday mornings at 7:30 AM conducted by Roger, VE3NPO
- **Pot Hole SSB Net**, 3760 kHz, every Sunday morning at 10:00 AM conducted by Ernie, VE3EJJ, or Glenn, VE3XRA.
- **Pot Lid Net**, Sunday night, 7:30 PM, 50.090 MHz., horizontal polarization. Join controllers Hugo (VE3KTN), Norm (VE3LC), Mike VE3FFK and Ante VA2BBW for accomplished and budding CW operators alike.
- **QCWA Chapter 70 Net**, VE3OCE 146.880 MHz (-) 136.5 Hz tone, Monday evenings at 7:30 PM conducted by John, VE3ZOV
- **Capital City FM Net**, VE2CRA 146.940 MHz -, (100 Hz tone), Monday evenings at 8:00 PM.
- **Champlain STP Net**, VE3STP 147.060 MHz -, (114.8 Hz tone), held Monday through Saturday at 7:00 PM.
- **Phoenix Net**, VE3OCE 146.880 MHz (-) 136.5 Hz tone, Tuesday evenings at 7:30 PM conducted by Pete, VE3XEM
- **Upper Frequency Net**, Simplex 144.250 MHz using USB, Tuesday evenings at 9:00 PM conducted by Glenn, VE3XRA. Following check in on 2 m you can check your radios on 6 m at 50.150 MHz and 70 cm on 432.150 MHz as well using USB. All check ins are welcome.
- **Almonte ARC's D-Star Net** Tuesday evenings at 8:40 p.m. carried on XLX197 and everything connected to it. Dale VE3XZT presides.
- **OVMRC 2-Metre Net**, Thursday Evenings, 8:00 PM, Club Net on FM will be held through VE3OCE 146.880 MHz (-)136.5 Hz tone conducted by Hugo, VE3KTN.
- **Weekend Allstar Nets**, on an ad hoc basis the EMV_E repeater will be linked temporarily to the Allstar Canada Hub for weekend nets.
 - <https://thecanadahub.ca/>
 - http://www.emrg.ca/repeater_s.htm

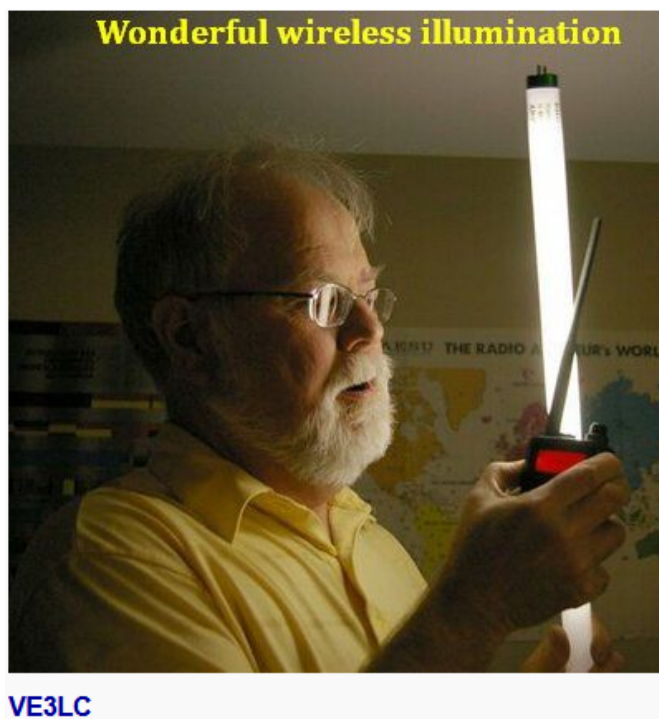
INFORMAL AMATEUR RADIO RESTAURANT GATHERINGS

- | | | | |
|--|---|--|---|
| • QCWA Chapter 70
Breakfast gathering every Tuesday morning at 7:30 to 10:00 AM, Summerhays Grill, 1972 Baseline Rd., Nepean - Restarted | • Orleans Coffee gathering every Friday morning at 9:00 AM, McDonald's 1890 Innes Rd., Ottawa, K1B 3K5 | • QRP Group Dinner meeting, (on hold) , Second Wednesday every month, 5:00 PM, Newport Restaurant, 322 Churchill Ave N., Ottawa | • Phoenix Net monthly Breakfast gathering (on hold) , usually the second Saturday every month at 9:00 AM, Check with Pete ve3xem@myrac.ca |
|--|---|--|---|



President's Ramblings

We are well into the new-year and the day light is noticeably longer and things are looking up for another banner year for the OVMRC. That said, some attention of the club executive committee will be taken up this year reviewing and amending as required the governing documents of the OVMRC Incorporated in keeping with Ontario's Not-for-Profit Corporations Act (ONCA) which took effect on October 19th, 2021. The Club has until October 19th of this year to submit changes and additions to aspects of our bylaws and perhaps to the articles of incorporation for compliance with ONCA.



Also according to the ONCA rules, changes to the corporation's bylaws must receive sign-off by a majority vote of Club's directors which by our current bylaws are those holding the positions: President, Vice President, Treasurer and Secretary before it is ratified by a membership vote. In the exercise, perhaps a 5th director position be added to our "board" to have an odd number for voting on matters before the directors in case of a tied vote. Last I'll say at this time, but not least, we must add a new bylaw in keeping with ONCA rules for dissolution of the OVMRC if and when that situation should be deemed necessary.

All in all, to this end, a working group has been formed led by Alan Hotte VA3IAH and including myself Norm Rashleigh VE3LC, Nicole Boivin VE3GIQ, Alan Fricker VE3KAE and Hugo Kneve VE3KTN to carry out the review to amend our bylaws and perhaps the articles of incorporation (letters patent) to meet the mandatory requirements of ONCA. Before these revised bylaws are submitted to the Ontario government, they will be signed off by your current directors and will be posted in the Rambler for the requisite period of time prior to a membership vote of acceptance.

Ideally, we are hopeful this vote will be carried out at our AGM in June, but the vote may be deferred to a special meeting in the summer, if necessary. Also, if there are any legal professionals in the club willing to provide review and counsel in regards to this topic on a pro bono basis, we would love to hear from you.



Moving on to the February meeting, besides the usual greetings, we will be welcoming several new members to the Club. Further the meeting will have a presentation from Cal McLelland VA3ZLA on the topic of integrating an RTL type SDR dongle receiver to display the received spectrum while using his Kenwood TS 480 transceiver.

I also plan to display and demonstrate the old VE3MPC RF repeater gear outfitted and working with an AllStarLink node controller. And most important, there will be a call for a membership vote on a motion by Hugo VE3KTN to amend this year's budget to provide funding to Radio Amateurs of Canada for their headquarters renovation project. Please read the article on this topic and related motion in this issue of the Rambler.

Also on the agenda for the February meeting, Nicole will report on the Club's developing plans to again provide communications for the MS Bike Tour event scheduled for August.

After the formal meeting is adjourned, we plan to conduct a VHF/UHF portable clinic with appropriate instrumentation to test your radio's RF power output, receiver sensitivity, modulation, and transmitter harmonic output. So bring your portable radio(s) to ensure they are performing properly. Cables will be on hand to mate with the male or female SMA or BNC connectors on your radio.

Hope to see you at the meeting. As usual, the meeting will be carried on Zoom as well.

73 Norm VE3LC



OVMRC General Meeting Minutes

Date / Time: Wednesday, January 17, 2024 at 7: 15 PM

Location: IBEW, 1178 Rainbow Street, Ottawa, ON, and via ZOOM on-line meeting.

1. Call to Order

OVMRC President Norm Rashleigh VE3LC called the meeting to order at 7:22 PM. There were 21 official attendees present at the meeting and 31 present via Zoom on-line.

2. Agenda and Meeting Content

Norm VE3LC outlined the agenda for tonight's meeting that includes:

- Approval of minutes of the November 2023 meeting as published in the December 2023 OVMRC Rambler Newsletter.
- Bringing the OVMRC governing documents in line with Ontario's Not-for-Profit Corporations Act - Alan VA3IAH.
- RAC office improvement initiative - Craig Delmage VE3OP, RAC Director for the Ontario North/East Region.
- Presentation and discussion about popular Digital Voice Radio systems and Internet connectivity of repeaters and hotspots - Norm VE3LC.
- Presentation by Adam VA3IRD on his initiative to establish an AllStarLink Hub for the OVMRC.
- Executive and Chairperson reports.
- Meeting adjournment followed by socializing in the meeting hall. Coffee and donuts available.

3. Welcome and Guest Greetings

Norm VE3LC opened the meeting by extending a welcome to guests, visitors, and new hams who were present for the meeting. He also welcomed the group to the new year. Guests tonight included recent new ham Robert Radburn VE3YRJ who passed his exam last week. His station includes an ICOM IC-7300 transceiver and G5RV antenna. Robert says he has been a SWL for many years and likes to restore old radios and has an assortment of receive antennas. Robert checked in to the Pothole Net recently on 75 meters.

Norm also welcomed Chris Patten VA3CJO who passed his exam (Basic with Honours) on Dec 8, 2023. Chris made his first HF contact on the past weekend using a balcony antenna. He says he is having a lot of fun and enjoying the supportive radio community.



4. Approval of Minutes from the Previous Meeting

MOTION: Moved by Fred VE3LAF and seconded by Frank VE3YY that the minutes of the OVMRC meeting held Wednesday, November 15, 2023, be approved.

VOTE: No Objections.

CARRIED.

5. Updating OVMRC Governing Documents - Ontario's Not-for-Profit Corporations Act - Alan VA3IAH

Alan VA3IAH was not available this evening, so Norm VE3LC briefly discussed the requirements that have to be completed by October this year. Changes in the Ontario Not-for-Profit Corporations Act (ONCA) requires us to review our existing bylaws and Letters Patent to ensure compliance with the Act. Norm mentioned that Alan VA3IAH has taken the lead on the initiative as he has experience with another radio club already. The club membership will be updated regularly as this initiative proceeds. The membership will be also be asked to vote on this package once a draft version is completed and the final version may be expected before or at the 2024 OVMRC Annual General Meeting.

6. RAC Office Improvement Initiative - Craig Delmage VE3OP, RAC Director for the Ontario North/East Region

Norm VE3LC introduced Craig Delmage VE3OP who is presenting this evening online via Zoom. Craig introduced himself and briefly spoke about the RAC project to refurbish the HQ facility. This includes expanding the current office space by merging it with another adjacent office space and outfitting it to accommodate a visitor and meeting centre and a new RAC HQ amateur radio station VE3RHQ with multi-operating positions.

For the station, new antennas will be required and will be installed on the existing tower. These include a Hexbeam (20-6), an EFHW (80-10), VHF/UHF Yagis, VHF/UHF Eggbeaters, and a VHF/UHF Vertical. Also planned is the installation of a new tower on the roof with an azimuth/elevation rotor and high gain VHF/UHF Yagis once sufficient funds and/or donations have been raised.

The stations will be made remote controllable. There will also be an emergency portable station that could be loaned out to clubs. Craig says he is looking forward to have VE3RHQ on the air for various events and contests. He anticipates it will increase membership growth.



Craig emphasized that RAC provides many services to RAC affiliated clubs and the goal is to create an exceptional working environment for local amateurs and volunteers. He extended an invitation for all to come by when it's complete.

Craig then mentioned some of the volunteers who are providing assistance to the project such as Rylan VE3RVQ who is helping with accessibility issues, and Colin VA3CSG who is helping out with electrical issues. He thanked the IBEW for its help, and mentioned other corporate donors such as MFJ, Begali, MyAntennas, and K1EL who are helping out with equipment. He says the team consists of about ten volunteers/amateurs currently.

Craig indicated that they are also looking for an amateur radio operator who is a skilled woodworker who can help with construction needs including building desks and they also have a need for a metal worker. They are seeking sources for Heliac and coaxial cables at low cost, as well as rotator wire, grounding wire and straps.

Craig then asked if the group had any questions. Roger VA3EGY said that he understood that RAC had applied to the Amateur Radio Digital Communications (ARDC) foundation for a grant. Roger was wondering about the status of the application? Craig said that ARDC has turned RAC down however RAC has obtained other sources for some funding. Roger then asked about the total project cost. Craig says the max budget is \$50k. Roger mentioned that the YOTA camp had received \$30k from ARDC and related his experience with the ARDC grant process. Roger asked if they had done any surveys to see who might come out to the facility? Craig says it is not about the "locals" as much as RAC is a national organization, however ARDC had expressed concern that RAC could not obtain enough volunteers. ARDC was assured by RAC that this would not be a problem. Craig says that they have now moved on with other partners and benefactors and they have also reached out to clubs for money, contributions and partnerships.

Norm VE3LC thanked Craig VE3OP for his presentation and the resulting discussion. Norm said that as the OVMRC no longer has an exhibit radio station at the Canada Science and Technology Museum, the RAC facility would make a very nice addition. Norm mentioned that he did receive a request from Craig for a club financial contribution. Norm mentioned that the OVMRC executive has had some discussions and would be putting something forward to the club membership on this topic.



7. Presentation : Various Amateur Digital Voice Mode Radios and Supporting Amateur Infrastructure with Internet Connectivity - Norm VE3LC

Norm VE3LC gave a presentation about digital mode radios, the amateur radio infrastructure that supports those radios, and the internet connectivity options that currently are available. Norm mentioned that his presentation will be posted to the OVMRC web site.

Norm began his presentation by mentioning that many amateurs have digital mode capable radios for modes such as DMR, D-Star, and System Fusion, but these radios seem to be mostly or only used on FM. Norm briefly spoke about the various types of digital radios (2 meter and 70 cm, portable and base station) available on the market including D-Star, DMR, NXDN, P25, and Fusion,

He mentioned that D-Star was the first amateur exclusive type of amateur digital voice system, and a few years later Yaesu came with their Fusion system that is not compatible with D-Star. There is also DMR and NXDN which are technologies designed originally for the land mobile service that have been around since about 2005, and also P25 equipment originally designed as a digital voice standard for the public safety community going back to the early 1990s. He mentioned that some of the newer HF radios have D-Star or Yaesu System Fusion (YSF) built into them.

Norm emphasized the main point with all these different modes is that they do not talk to each other over the air directly.

Norm then outlined in more detail the specifications of D-Star, YSF, and DMR radios. D-Star was designed exclusively for the Amateur Radio Service and is available in ICOM and some Kenwood portable radios. It uses GMSK modulation and its bandwidth is 6.25 kHz. and uses a unique AMBE vocoder,

YSF like D-Star was also designed exclusively for use by the Amateur Radio Service. It uses an AMBE+2 vocoder and its emission bandwidth is 9.36 kHz. using C4FM modulation. Its vocoder is not compatible with D-Star. Notably both D-Star and YSF encapsulate the user call sign in the transmission.

DMR is unique as it uses a 2 slot Time Division Multiple Access (TDMA) protocol. It uses an AMBE+2 vocoder and bandwidth is 7.6 kHz. using 4 level FSK modulation. An advantage to DMR users is that the radios are widely available and relatively inexpensive, and because of the TDMA technology, the battery drain is half as much while transmitting compared to FM and other digital voice modes. The amateur radio community has been very enthusiastic about DMR radios.



Norm stated that because of the unique design of the popular digital radios used by amateurs, we essentially we have “3 islands” of isolated communications. Even if you have a digital repeater enabled for multiple digital modes, that repeater can only operate on one mode at any one time and other users with different mode radios are isolated from the conversation.

However, through a multi-protocol reflector, different digital protocols can communicate with each other. Norm then further elaborated on reflectors. What is a reflector? A reflector is a server computer that has a live connection on the internet operating specially designed communications software. The software is typically open sourced and produced by software “gurus” who do it for the amateur radio community and distribute it free to the community. There are thousands of amateur reflectors on the planet. A reflector can be installed as a virtual machine (VM) in a rental space on a server farm with an IP address. Or it can be run on a Linux computer at home or even run on a Raspberry Pi.

Norm then spoke about various reflectors, including D-Star reflectors, FCS and YSF Reflectors, and XLX Reflectors. With respect to D-Star Exclusive reflectors, there has been an evolution to these and their use. D-Star users previously had to register a radio via the US Trust System. Then came the Digital Call Server linking format. And then came the XRF reflectors having their own trust servers. XRF reflectors have DCS and REF linking protocols.

Norm then briefly outlined the YSF proprietary system. YSF “rooms” are similar to reflectors. Previously a user had to buy a Yaesu HRI-200 Internet Linking Technology “box”, but now the functionality is actually in the radios. For example the Yaesu FTM400DR and some Yaesu portable radios can now work directly with the Wires X software operating on your Windows computer.

Then came the development of FCS and YSF reflectors independent of Yaesu. These are usually put up by individual groups with a bridging role to the Wires X system. Inexpensive Hotspot technology then allowed amateurs to get into these systems.

The next addition was the XLX reflector protocol, which was initially for D-Star but now allows all of these systems to communicate, as it evolved to allow trans-coding between the popular digital modes. This allows streams of communication coming and going that supports Hotspots and repeaters set up on the various digital modes. Those technologies can now all communicate via an XLX Reflector.



So how do we access a reflector? This can be done via a repeater with appropriate gateway hardware and software, such as a Raspberry Pi running MMDVM Pi-Star software with an internet connection. It can be done via a personal Hotspot or “Node Radio” using MMDVM Pi-Star software. Access to a reflector can also be done with a “network” radio such as an ICOM IC-9700 or IC-705 operating in “terminal mode”. It can be done using devices such as DV Dongle, DVSwitch or BlueDV, and it can be done using applications such as Peanut, Dude-Star or Droid-Star.

Norm pointed out that at least 2 USB dongles containing the DVSI AMBE 3000 vocoder chips are required for an XLX reflector in order to transcode D-Star and may be obtained from North West (NW) Digital Radio. These are only required in a XLX reflector if the reflector handles transcoding of D-Star to either YSF or DMR.

Norm then showed a comprehensive diagram of the XLX197 reflector system that is located in Calgary and operated by VE6EN and VE3EFF. This reflector utilizes a couple of the DVSI vocoder USB sticks plugged in to handle D-Star. The reflector is also bridged over to an AllStarLink node via the Almonte Amateur Radio Club and is EchoLink accessible. The reflector currently has 15 modules which are separate channels of communications. Module B currently has 31 users identified. Note that you can use the YSF DG-ID 11 on module B.

Norm then discussed the list of repeaters (many local) that are served by Reflector XLX197. It feeds D-Star repeaters in the Perth/Big Rideau Lake area. It feeds VE3RAM as well outputting on DMR TG6 on Time Slot 2. Norm says you come in on any one of these repeaters and you are automatically linked to the rest of them.

Norm briefly discussed the building of a Hotspot. The basic board is available from Amazon and many other suppliers. Also required is a Pi Zero and a microSD card to load up the software. He indicated that it is a lot of fun with some frustration to set up, but well worth it. And, there are more expensive Hotspots available from Bridgecomm and Zum for example. There is also the OpenSpot 4 by RF Shark and it costs about \$500.00, but it does all the transcoding for you because of its on-board AMBE vocoder chip. It will work with any reflector and it does not matter which type of digital radio you use. Norm then spoke about the Pi-Star software and its use on a Raspberry Pi.

Norm spoke about the status of digital repeaters in the area. Rick Bandla VE3CVG SK initiated the VA3ODG D-Star repeater system in 2007 that was based on a complete ICOM stack of 4 repeater modules and networking equipment that provided multi-band coverage. Unfortunately VA3ODG is no longer in service. The Ottawa Amateur Radio Club operates a DMR



repeater at Camp Fortune via VE2CRA. It provides good city wide coverage but does not have an active internet connection. It can repeat local traffic only at the present time. Norm then spoke about the status of other area repeaters including VA3AAR, VA3RRD, VE3STP, VE3HOZ, and VE3TST and digital activities by the VE3ORF group.

Norm then discussed the setup of VE3RAM which is at the QTH of VE3LC. The repeater is a DMR repeater on 443.700 MHz. + 5, DMR CC 1. He pointed out that if in use with DMR activity, is then tied up and not accessible for D-Star or FM users. He then spoke about the Brandmeister DMR network and outlined some of its operational statistics. It is available on VE3RAM and most other area DMR repeaters. At the time of his snapshot there were 17,732 Hotspots and 6268 repeaters connected on the Brandmeister system. Norm then showed a snapshot of the VE3RAM dashboard.

He mentioned that VE3TWO is currently manually connected to Wires X for the weekly Wednesday night Cross Canada C4FM net by Marc VE3BOE who hosts and manages this repeater at his home QTH in Metcalfe.. This will be replaced by a Raspberry Pi running Pi-Star, which will provide access to the XLX197 reflector. He mentioned that there is also a lot of activity going on in Gatineau and area, primarily on DMR. Norm then asked if there were any questions?

Roger VA3EGY said that this was very interesting but also a bit overwhelming and would be interested in organizing a series of activities for members about setting up an MMDVM. This would give members a hands-on experience with guidance and perhaps result in more ongoing use and activity and get new people involved. Norm agreed with the idea and suggests conducting sessions on Saturdays as it involves downloading a software “image” file and installing it on a micro SD card, and then completing the individual set up on the Raspberry Pi. Norm and Roger agreed to continue further discussions about initiating this project.

Chris VA3CJO then continued with a question. He asked about what protocol, frequency and compatible radio would be most useful for digital communications with a Hotspot. Norm said this is a good question however most hotspot technology can accommodate all popular digital voice modes to accommodate the user’s digital radio. As to frequency assignment, Norm said the clubs may have to coordinate it on a city wide basis. Norm thinks that ideally the UHF band should be used. The Hotspots do not transmit much power, but your personalradio does have more transmit power, and therefore can cause interference on the co-use of any particular frequency channel. Norm emphasized to not run more power than needed. Using outside antennas can cause even more problems. It is important to stay clear of repeater frequencies as well as the satellite band plan.



There was one final question from Dave VE3LHO who mentioned that he had heard that the AMBE vocoder patents had run out. He asked if there was a software solution for this? Norm says there is an issue with developing a software solution as the detailed specifications for the technology have not been published and therefore it is difficult write a software version of it. Norm then mentioned that the AMBE 2 vocoder has a successful software implementation.

8. Presentation - Establishing an OVMRC AllStarLink Hub - Adam VA3IRD

Norm VE3LC then introduced Adam VA3IRD who provided an overview and update on the OVMRC AllStarLink Hub project. Adam supplemented his presentation with a series of slides.

Adam says there is one more thing that the club can add to its basket of technologies. It is AllStarLink which is based on an open source Asterisk PBX platform. It is a network technology that works with analog FM radios and provides the linking of repeaters, remote base stations, and Hotspots accessible to each other using VOIP (Voice Over Internet Protocol). Adam then compared AllStarLink to other current technologies such as Echolink and IRLP both of which can be integrated with AllStarLink. Users can build a node from kits or even "roll their own". Communication is via a node to node connection using Hotspots, repeaters, and "radioless" nodes and hubs. Adam then talked about the types of hardware interface options including Shari nodes, DINAH, DVSwitch Mobile which is an android app, EchoLink and even Hamshack Hotline access to the "ASL" system. Most nodes are implemented on various versions of Raspberry Pi computer boards.

He then provided an update on the OVMRC AllStar Hub development that is currently active and live on the internet. The OVMRC AllStar Node is 60110 and is open for any radio amateur with access to the AllStar Link network. It also has EchoLink backward access via node number 197954 or call sign VE3JW-L. A future enhancement will be the addition of Hamshack Hotline calling capability at Hotline number 94089.

Adam then talked about accessibility to the network. He mentioned the system works with traditional 2 meter or 70 cm. radio equipment. The system is scaleable, open source based and provides a great way to use old amateur radio hardware. This is now set up at the club and is an ongoing project to tie another OVMRC repeater into the network. It will hopefully create more traffic and provide access options for those amateurs who do not have RF access. Adam mentioned the OVMRC hub makes one nice meeting spot and we can hook other things up to it as we want.

Norm VE3LC thanked Adam VA3IRD for his presentation and update. Norm has brought a SHARI node in for demonstration that was obtained from Ali



Express. Norm VE3LC thanked Adam VA3IRD for his presentation and update. Norm has brought a SHARI node in for demonstration that was obtained from Ali Express. Norm also mentioned he is re-configuring the old VE3MPC repeater equipment using a module sold by a company called the Repeater-Builders.com which works with a Raspberry Pi. This provides the whole repeater controller and access to the AllStar network. All selective access to the AllStar network is by dialing a touch-tone commands. Norm then mentioned the availability of various phone apps such as the Repeater Phone that is available for IOS. He further commented that there are very good nets accessible on AllStar, for example, a Vancouver group manages the Canada Hub that sponsors a Trans-Canada Net. Rylan VE3RVQ mentioned another net that is a favourite of his is the Procom Net operated out of Toronto.

Norm VE3LC says these nets provide many areas to explore and then asked if there were any questions. Barry VE3NA wanted confirmation about calling in on Hamshack Hotline for testing, but Norm mentioned it has not been activated yet by Adam VA3IRD. Norm says we can link various repeaters into the hub, and SHARI nodes and HotSpots as well, if we want to.

Barry VE3NA then congratulated Colin VA3CSG on a fine job on managing the meeting Zoom setup.

9. Projects, Haves, Wants and Announcements: Haves: Kathleen VA3WEX mentioned she has a DC to DC converter, an Astron Model N2412-12 that converts 24 volts DC to 12 volts DC, and an internal battery (ZYS-SBR-32MH) for a Yaesu FT-818 that is surplus to requirements and for sale at \$90.00 each. **Wants: none.**

10. Chair Reports: Nicole VE3GIQ OVMRC Treasurer provided a brief update. She informed that the club's current bank balance is \$8940.00. She also reminded members about the recent GIC investment of \$15,000.00. This GIC should provide approximately \$645.00 in interest at maturity. Membership is now at 127 members.

11. Adjournment: As there was no further business, Norm VE3LC then asked for a call to adjourn the meeting. **MOTION:** Moved by Rick VE3RVV to adjourn the business meeting at 9:33 PM.

Next Meeting: The next monthly meeting of the OVMRC will be held on February 21, 2024, at the IBEW facility, 1178 Rainbow Street, Ottawa, ON. The meeting will also be available on-line via Zoom. meeting, on December 20, 2023.

Minutes recorded and prepared by Secretary, Alan Fricker VE3KAE.



A Call To OVMRC For RAC Support

Members of the Ottawa Valley Mobile Radio Club will be aware that Radio Amateurs of Canada (RAC), our National ham radio organisation, is in the process of remodelling its Ottawa Headquarters and establishing VE3RHQ, the RAC amateur radio station. Securing of radios, antennas and supporting equipment is being funded out of RAC resources and donations from third parties. The remodelling of the RAC offices is, however, being funded separately out of RAC resources and the ham radio community at large. RAC has issued an appeal for donations from Ottawa ham radio clubs and the OVMRC has been approached for a donation in the order of C\$3000.00.

The OVMRC Executive has considered this request and believes that certain support to the RAC HQ renovation is in order. Since RAC-HQ will be established in Ottawa, RAC has suggested, and OVMRC Exec believes, that access to HQ and its facilities would be beneficial to the Clubs of the National Capital, individual hams, and aspiring hams who need access to study guides, training and preparation to write their exam. At the same time, the OVMRC has already established its budget for Fiscal Year 2023-24 as ratified by the Membership vote of November 2023, so any funding over and above the approved budget would have to be approved once more as an extraordinary expenditure of OVMRC funds. Therefore, OVMRC Executive is proposing to the Membership a special fund raising effort to be effected as:

The OVMRC would re-allocate all the budgeted donations from RAC-Defense of Amateur Radio Fund and RAC Foundation, the amount being C\$400.00, to the RAC-HQ renovation initiative.

Additionally, OVMRC would draw \$100.00 from its cash reserves adding to the above-mentioned reallocation, totalling a baseline donation to the RAC HQ renovation of C\$500.00.

OVMRC Executive requests that each club member make a voluntary donation of C\$10.00 toward the RAC-HQ renovation, in trust to the OVMRC Treasurer. This is a nominal amount, members may donate whatever amount they feel suitable. The OVMRC would then match each Membership dollar received with a dollar drawn from its cash reserves up to a maximum of C\$1000.00. The Membership donations period would run from February 21, 2024 (date of the Club's February meeting) and March 20, 2024 (date of the Club's March meeting). Donor names will not be published to preserve individuals' privacy, kept in Executive records solely for the purposes of accounting. Donations do not qualify as a Charitable Donation under Canadian tax law, so receipts will not be issued.



Examples:

Club's baseline donation: C\$500.00
Donations from Membership: C\$1200.00
Club matching donation: C\$1000,00
Total donated to RAC for HQ renovation: C\$2700.00

Club's baseline donation: C\$500.00
Donations from Membership: C\$500.00
Club matching donation: C\$500,00
Total donated to RAC for HQ renovation: C\$1500.00

The preference for receiving Member donations is by e-transfer the same way that annual Club dues are paid with a note specifying that the amount is being made toward the RAC-HQ Reno. Cash or cheque donations may be made in person to the Treasurer at the Club meetings scheduled for February 21 and March 20, 2024.

Executive will call to the Members attending the February 2024 Club meeting, both in-person and by Zoom teleconference, for a motion and vote by show of hands to accept this proposal and for Executive to proceed in implementing it:

"Be it moved that the OVMRC Membership authorises its Executive to proceed with support of the Radio Amateurs of Canada Headquarters renovation as described in the February 2024 edition of Rambler."

The OVMRC Executive thanks the Membership for their consideration toward this initiative and anticipated support of our National organisation.

73,

Your OVMRC Executive Committee.



OVMRC Schedule of Activity 2024

The OVMRC Executive are developing a busy schedule of events for the upcoming period. Many of these have been well attended in the past and we are excited to bring them back into the programme. Here are the highlights:

1. **50th anniversary of VE3JW (March 16-17)** 48 hour weekend activation by members using the VE3JW callsign. Full details to follow.
2. **POTA activation and Fox Hunt(April 20)** On foot Fox hunt. Likely at Vincent Massey Park VE-6204. POTA SYP event is all weekend.
3. **Vehicle based Fox Hunt with mobile and portable radio clinic** (May 25) Fox Hunt by vehicle followed by display/discussion of mobile and portable installations.
4. **60th Anniversary of the Pot Hole Net (May)** Special certificate to be awarded. Date tbc.
5. **ARRL June VHF contest (June 8-9)** FM class activation available for those with only FM capability. Club certificate for the highest points.
6. **Field Day (June 22-23)** Planning for a Club activation.
7. **RAC Canada Day Contest (July 1)** Details to be published at:
<https://www.rac.ca/contesting/>
8. **Club picnic, fox hunt and POTA activation (July 20)** OVMRC Picnic. On foot foxhunt. POTA SYP event is all weekend.

If you have any suggestions for activities or would like to volunteer to organise an activity, please let us know.



Product Review - Leo Bodnar

Mini Precision GPS Reference Clock

One of the things lacking in my shack for the longest time has been a dependable and traceable frequency reference for checking my radios' frequency alignment and any other application requiring an accurate frequency reference. The Leo Bodnar Electronics Mini Precision GPS Reference Clock has been available for a few years and I finally took the plunge to order one in late January.



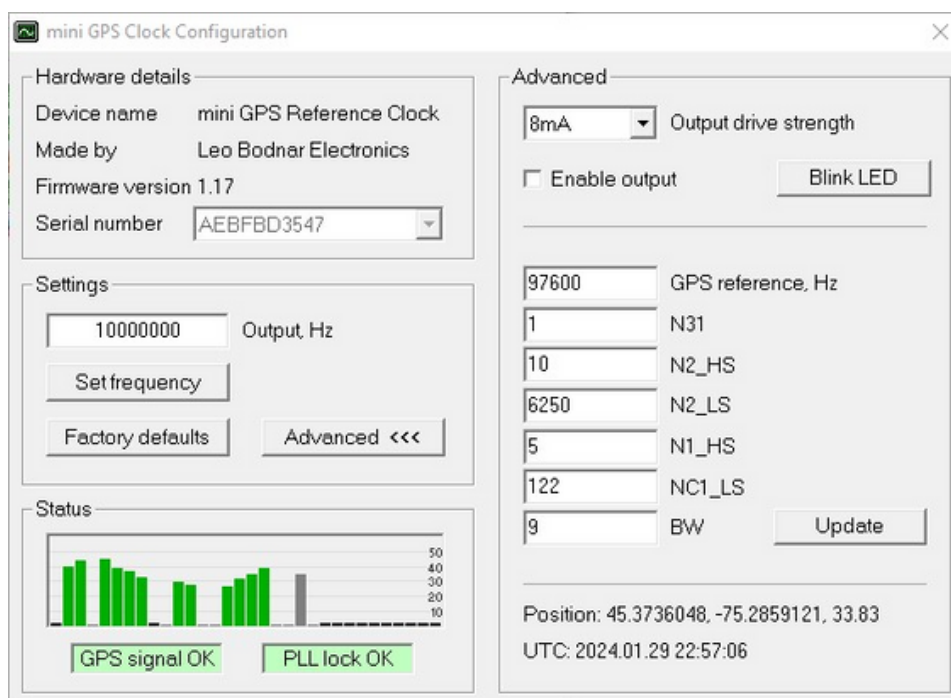
After dropping roughly C\$230.00 (inclusive of taxes, duties and FedEx shipping), the unit arrived in my mail box one week later. In the box is the unit itself, an active GPS patch antenna with a 5 metre cable and a 1 metre USB-A to USB-mini cable for connection to a computer. There are no instructions with the unit, presumably that whoever orders one of these knows what it's for and has a good idea of how to use it. The unit draws 250 mA. from the USB connection for power; configuration is done with a custom freeware tool that runs on Windows® and is available from the Leo Bodnar web site. The link for the software isn't particularly easy to find but it is there. A MacOS version is available from the Apple Store; there is no Linux version that I'm aware although a trip to GitHub might turn up something.

It's important to realise that the USB interface to the unit is USB-mini; not -micro as is usual on smart phone and other consumer device USB cables. USB-mini cables aren't too common in my experience, the only other device I've found using it is higher-end DSLR cameras. The USB-mini is more mechanically robust than -micro and I suppose that's why it's implemented on this unit. In any case, be aware of this and safeguard the cable if you don't have others.



The clock unit itself is small, measuring 40 x 70 x 15 mm., being only slightly larger than the accompanying GPS active antenna.

Setting up the unit for operation is simple: connect the GPS antenna, connect a 50 Ω termination on the unit's output, connect the USB cable to your Windows® computer and wait for the plug&play setup operation to complete. Launch the mini-GPS configuration software and it should come up with a window showing the unit serial number and firmware revision along with the operating controls and diagnostics. Having the unit serial number show in the Hardware Details indicates the configuration software is connected to the unit. It takes about 30 seconds for the GPS to lock up; there are indicators on the configuration window showing GPS acquisition (red or green) along with the number of satellites being received, and the oscillator PLL lock status (red or green). Once both GPS and PLL are green the unit is ready to deliver the GPS-disciplined clock output.



The unit does run a bit warm which is an indicator that the TCXO temperature stabilisation is working. There is a red LED beside the unit's clock output jack which is lit when the output is active. The LED will blink if the oscillator is free-running without GPS lock. Once configured, the unit will run without a computer, needing only a USB power source. The unit will retain its state when powered off. Unfortunately there is no hardware switch on the unit to control the RF output on-off state. I'd suggest terminating the output in either an SMA load or the target device before restoring power; the Leo Bodnar web site says nothing about clock output tolerance to an open circuit.



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As for signal stability and purity specs, you can look them up on the Leo Bodnar web site:

https://www.leobodnar.com/shop/index.php?main_page=product_info&cPath=107&products_id=301

The Allan Deviation chart shows a short term frequency uncertainty of 5×10^{-11} which, at 500 MHz., would present a frequency uncertainty of 0.025 Hz. Good enough for most ham applications I'd say.

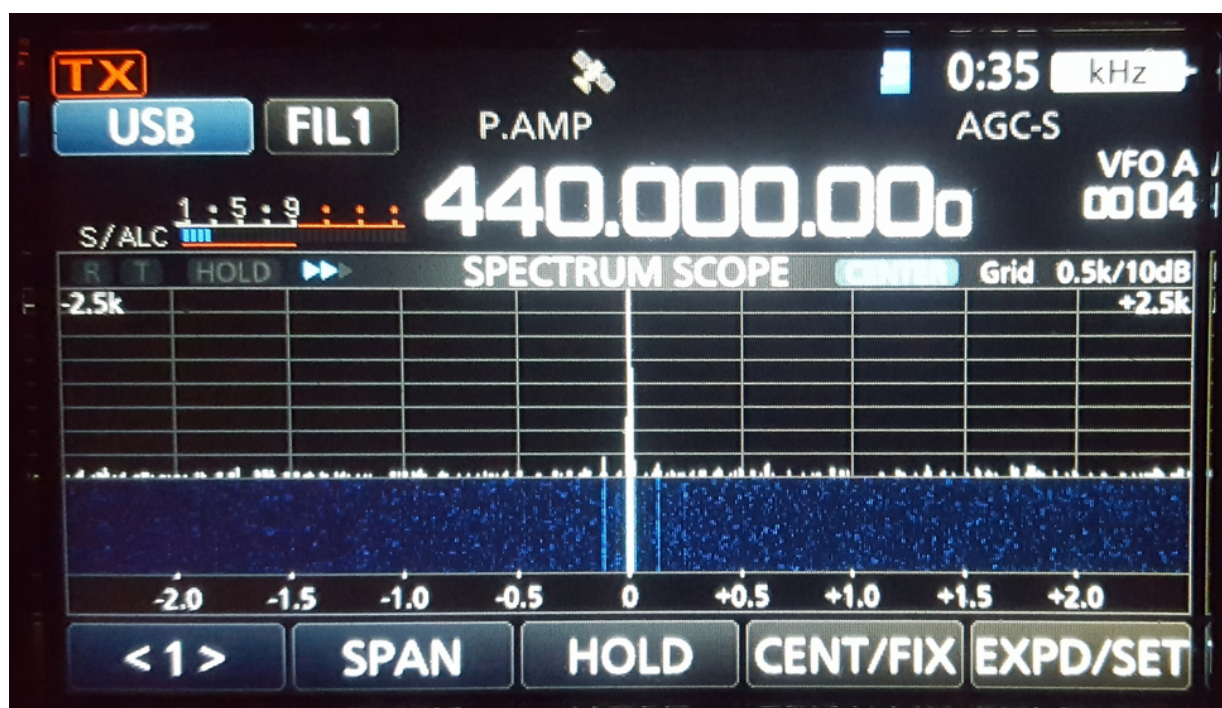
So, enough with the specs on the unit - now to put it to use. About a year ago, a new IC-705 came to my door and one of the first things I did was to check its frequency accuracy against WWVH-25 MHz. (Rambler - March 2023) finding that an adjustment from the as-delivered value of 47% to 52% was necessary to bring the radio closer to the mark. Going through this exercise again one year later, with the GPSDO providing a signal at 440.000000 MHz., another IC-705 adjustment from 52% to 57% was in order. Great - so now the IC-705 is as close as I can get it short of having it run from an external reference (which isn't possible with the 705). The same exercise was done with my Yaesu FT-991A, finding a slight tweak to its reference would bring it into line. Finally, a check on my faithful 25 year old Kenwood TS-850SAT showed it to be about 90 Hz. high at 29.000000 MHz. Not worth the effort of disconnecting all the cables, lifting the covers and risking a twist of the frequency reference trimmer

More inquiring readers might ask what parameters I used to precisely trim the radio oscillators from simply receiving the GPSDO signal. Well, it depends on the operating features of the radio.

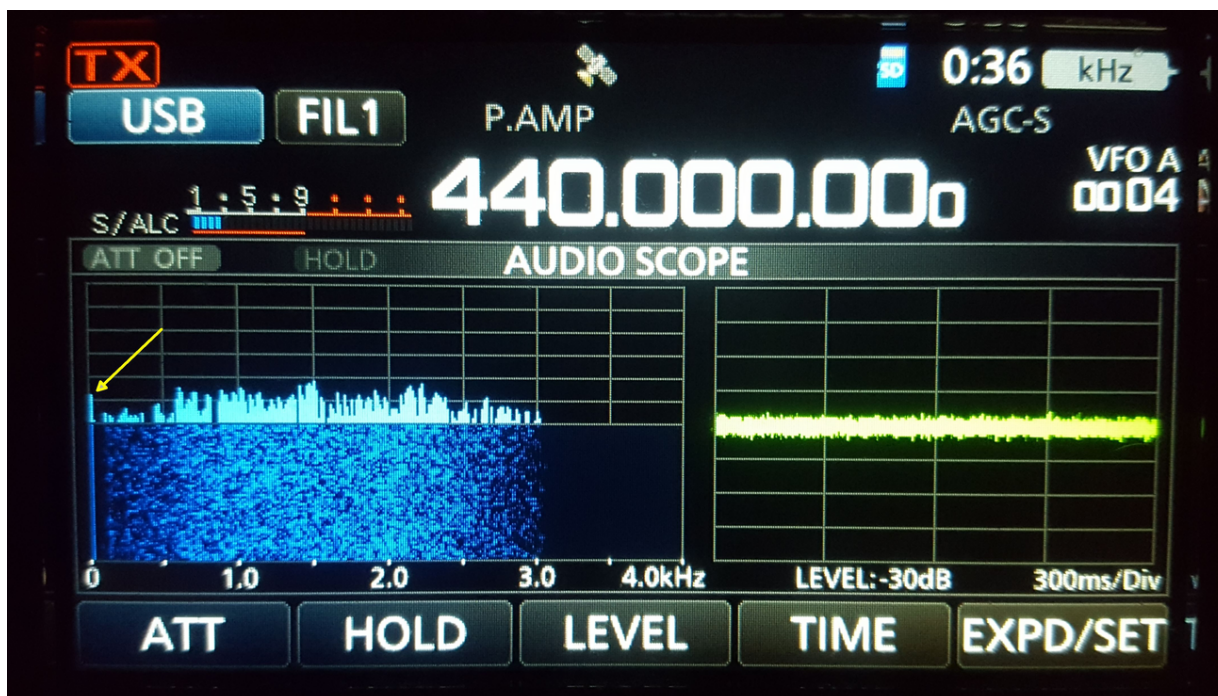


For the Yaesu FT-991A, it was rather simple. Set the receive mode to CW and engage the "ZIN" zero beat control which automatically tunes the radio's RF to achieve the user-defined CW sidetone frequency. Adjust the radio's reference until zero-beating results in a dial frequency exactly the same as the test signal. With the FT-991A, the resolution of the display is 10 Hz. so zero beating can bring the radio to within ± 5 Hz. of centre.

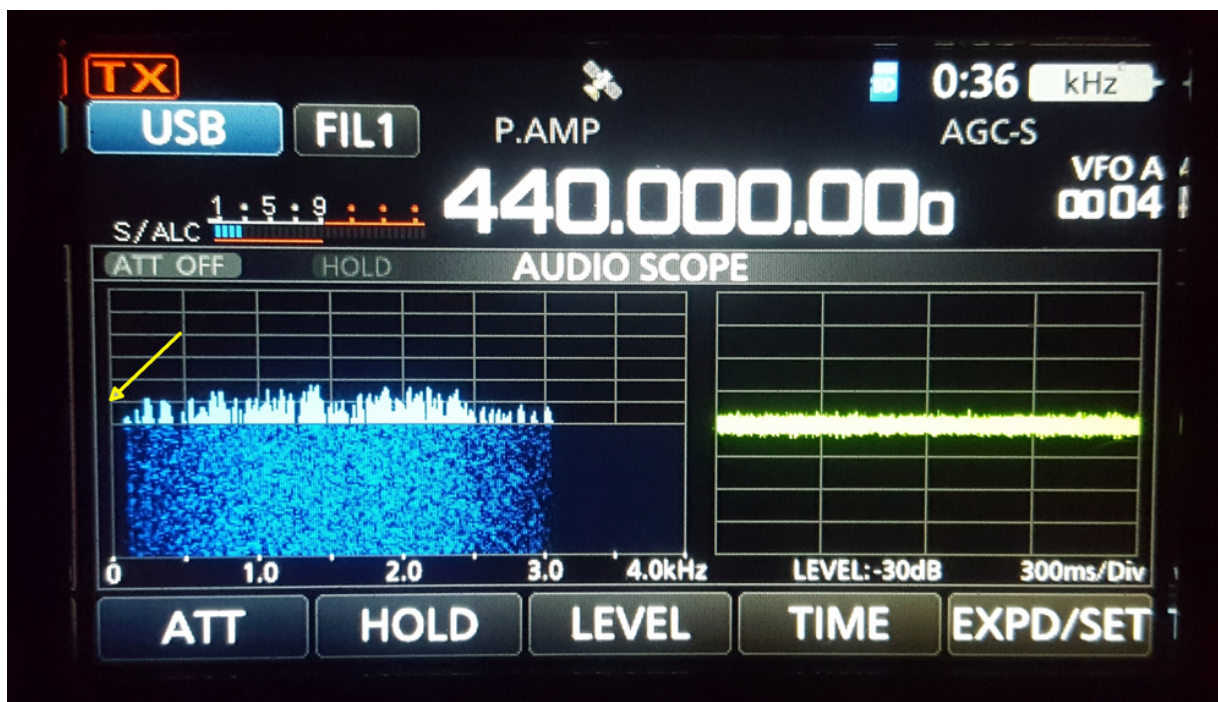
The IC-705 can be adjusted two ways: using the CW AutoTune function or by zeroing the audio tone received in USB mode. I found the Autotune/CS-RX function to be a bit finicky and had to press it a few times to be sure of a repeatable result. I then turned to the second method of setting the receive mode to USB and launching the "Audio Scope" front panel display to show the demodulated audio spectrum. A low audio frequency component indicates the RF frequency is slightly off so the ideal condition is when the low frequency audio tone JUST disappears. See the following photographs:



GPSDO signal at 440 MHz.



Residual audio tone before Ref adjustment



Residual audio tone disappears after Ref adjustment

A quick check back with the Autotune/CS-RX confirmed the radio's alignment with the GPSDO.



That brings us to the TS-850 which has neither a zero beat function nor a spectrum display. Well, with the help of a smart phone and a musical instrument tuner app, one can do the same kind of CW tone check as with the FT-991A. Adjust the radio to the test signal frequency, in this case 29.000000 MHz., and set the receive mode to CW. An audio beat tone should appear, in my case it was set to 700 Hz. and measuring the tone's audio frequency tells me how closely the radio is tuned at RF. For the 25 year old TS-850, I measured 788 Hz. instead of 700 Hz.; not bad for old faithful. I suppose another way to do this would be to set the GPSDO to 29.000440 MHz. and listen for the beat tone between the radio's audio and a Standard-A tuning fork.

I also have a Hewlett-Packard 5383A frequency counter good up to around 500 MHz. acquired as-is at a ham flea market many years ago. Checking it against the GPSDO revealed that it's internal oscillator isn't very stable at all and could have an uncertainty of ± 200 Hz. at 10 MHz. even after a 12 hour warmup. Not very good, so now I know the counter is still useable but needs an external lock to the GPSDO for accurate readings.

It should be understood that the Leo Bodnar GPSDO is a clocksource and not an RF signal generator, meaning that its output is a square wave rather than a sinusoid. Knowing that, it should be kept in mind that radiating RF signals from this unit directly to air will also radiate many harmonics of the fundamental. For tuning accuracy checks of ham radios, this isn't really a problem since only the fundamental is received by the radio, but be aware.

The mini-GPS has a specified frequency adjustment range of 400 Hz. - 810 MHz. which is certainly a wide enough range for most ham requirements. Next step is to find an audio amplifier, set the GPSDO output to 440 Hz. and start tuning pianos.

73,

Hugo, VE3KTN.



Leo Bodnar GPSDO and Signal Injection Kit for the ICOM IC-9700

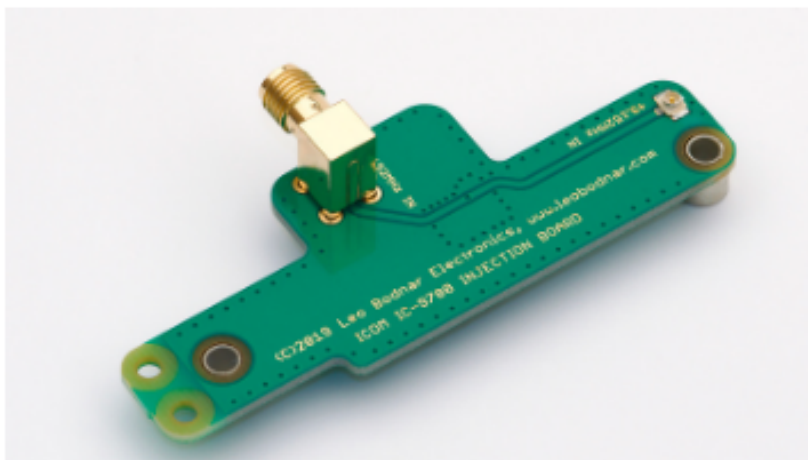
This follows Hugo VE3KTN's article in this issue of the Rambler about purchasing and using a Leo Bodnar GPS Disciplined Oscillator as ham shack frequency standard. For those members of the OVMRC that are fortunate to own an IC-9700 2m, 70cm and 23cm multi-mode and full duplex cross band transceiver, I want to bring to your attention a specially designed inductor signal injection kit complete with a mounting hardware that is available as well from Leo Bodnar designed specifically for the 9700 that works with the GSPDO described in Hugo's article. The IC-9700 uses a TCXO (temperature compensated crystal oscillator) operating at a frequency of 49.152 MHz as the master oscillator to the radio. The accuracy and stability of this oscillator affects the overall frequency accuracy and stability of the transmit and receive frequencies selected on the radio. By using this signal inductive coupling kit along with the Leo Bodnar programmable "Mini Precision GPS Reference Clock" product, the TCXO of the 9700 locks to the precision and accuracy of GPS signal that is inherently tied to the cesium atomic clocks in every GPS satellite.

This kit is designed to mount an inductor within the TCXO master oscillator compartment of the transceiver without any solder connections and therefore can be subsequently removed with no trace it was ever installed in case the IC-9700 is sent back for warranty repair.

I use the Leo Bodnar "Mini Precision GPS reference Clock" along with TXCO signal injection kit with my IC-9700 and I'd be happy to provide a high accuracy drift free signal on the 2m, 70cm or 23cm bands for anybody that wants to calibrate the frequency dial of their radio. Also, the use of this stabilization kit is necessary to anyone wanting to use the likes of the WSPR mode on the VHF and UHF bands where the stability (as to frequency drift) may not allow it otherwise. The WSPR mode will typically only allow 4 Hz drift during the transmission cycle otherwise, it may not decode.



ICOM IC-9700 Reference Injection Board



Together, the Reference Injection Board and the Mini GPS programmable output GPSDO complete with cables and mounting screws can be purchased from Leo Bodnar for \$197.79 USD less shipping and tax.

73 Norm VE3LC

Reference:

https://www.leobodnar.com/shop/index.php?main_page=product_info&products_id=379



OVMRC Net Activity, Check-ins for January, 2024

Prepared by: Hugo Kneve VE3KTN

OVMRC 2 Metre Net: VE3OCE 146.880- 136.5 Hz. tone,
Thursdays 8 p.m. local.

January 4	January 11	January 18	January 25
VE3KTN - NCS	VE3KTN - NCS	VE3KTN - NCS	VE3KTN - NCS
New & Visitors	New & Visitors	New & Visitors	New & Visitors
		Don - VA3COC ²	Bob - VA3QV
General Check-ins	General Check-ins	General Check-ins	General Check-ins
VE3RUU VE3LC VA3IAH VE3CWM ¹ VE3OKD VA3ZZI VE3NPO VE3ZZU VA3PSI VA2BBW VA2TXZ VA3CJO VE3LPH VA2OJD VE3VIG VA3CFP VA3EO	VE3RUU VE3LC VE3KAE VA3IAH VA2OJD VA3ZZI VA3EO VA3PSI VE3NA VE3ENU VE3CWM ¹ VA3LMA VE3RRB VA3CJO VE3ZZU VE3NPO VA2BBW VE3VIG	VE3RUU VE3OTW VE3LC VE3KAE VA3IAH VE3CWM ¹ VA3CJO VA3PSI VA2OJD VA2BBW VE3RRB VE2BJZ VE3OKD VA3EO VA3CSG VE3ZZU VE3VIG VA2EV VE3NA VA3LMA VA3WEX VE3LAF	VE3RUU VE3CWM ³ VE3LC VA3IAH VA3CJO VA2BBW VA3ZZI VE3NPO VA3PSI VA3LMA VA2EV VE3ZZU VE3RRB VE3NA VE3YY VA3WEX VE3VIG

Notes:

1 – Cold War Museum, Norman VE3NPP at the mic.

2 – VA3COC is the call assigned to the Ottawa-Gatineau Search & Rescue Group vehicle.
Don, VA2EV at the mic.

3 – Many new hams checking in from the Cold War Museum, hosted by Norman VE3NPP and
Thane VA3TTM: Jonathan VA3JSU, Jared VE3JYZ, David VA3UDA, Monique VA3NTB.



OVMRC Pothole Net: 3760 kHz. LSB Sunday mornings at 10 a.m. local.

January 7 SFI:159 A:3	January 14 SFI:185 A:3	January 21 SFI:166 A:6	January 28 SFI:148 A:5
VE3XRA - NCS	VE3EJJ - NCS	VE3XRA - NCS	VE3EJJ - NCS
New & Visitors	New & Visitors	New & Visitors	New & Visitors
	Robert - VE3YRJ	Lynn – VA3VQ Sergio – VE3KSM	
General Check-ins	General Check-ins	General Check-ins	General Check-ins
VE3LC VE3RXN VA3BGO VA3PSI VA3ZLA VA3IAH VA3EO VE3EJJ VE3KTN	VE3BAE VE3LC VE3RXN VA3BGO VE3YY VE3XRA VA3IAH VE3KTN	VE3LC VE3EJJ VA3IAH VA3PSI VE3KTN VE3CWM ¹ VE3BF VE3SYZ	VE3BF VA3QV VA3EO VA3BGO VE3LC VA3IAH VE3RXN VE3KTN VA3PSI

Notes:

1 - Cold War Museum, Fred VE3LAF at the mic.

The “SFI” and “A” values are the Solar Flux Index and Geomagnetic A-Index respectively as reported on the NONBH Space Weather web site: <https://www.hamqsl.com/solar.html>. Values are taken within 30 minutes prior to net start time.



General Links of Interest:

ARDF Ottawa



Go t-hunting with ARDF
(Amateur Radio Direction
Finding) Ottawa

RCJ



Volunteer radio ops help
scouts on the Rideau
Challenge Journey

New Hams Ottawa



Information for new hams with
an Ottawa focus

Editor's Note:

The Rambler is the official newsletter of the Ottawa Valley Mobile Radio Club Incorporated and is published 10 times a year (monthly, except for July and August). Opinions expressed in the Rambler are those of the authors and not necessarily those of the OVMRC, its officers or its 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 and notices to: Alan at editor@ovmrc.ca
73, Alan VA3IAH

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