RAC TCA
The Canadian Amateur

CANADA 150

Canada's Amateur Radio Magazine

La Revue des Radioamateurs Canadiens

MAY / JUNE 2017 – MAI / JUIN 2017

70th Anniversary of Amateur Radio at Eureka

TM100VIMY: Making History at Vimy Ridge

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"On April 7, 1947, a ski-wheel equipped C-47, followed by a C-54, landed on the ice of Slidre Fiord, Ellesmere Island, to establish the first joint Canada-US Weather station at Eureka, Nunavut. Amateur Radio played a unique role in the history of these furthest north stations starting with the first Amateur station, VE8MA at Eureka." – see page 14

"Sunday, the big day, dawned bright, sunny and warm. French security had installed very controlled access to the ceremonies. The operators took advantage of shuttle bus service from near our hotel to a car park in Vimy itself. There, a lineup at least a half a kilometre long led to security checkpoints and another bus to the Vimy Memorial site itself." – see page 31

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ARTICLES WANTED: SDR AND MORE...

The Canadian Amateur magazine is always looking for articles – both technical and non-technical. In particular, we are looking for articles on software defined radio. SDR is rapidly gaining interest within the Radio Amateur community as it offers remarkable capabilities and performance when compared to traditional analog radio. Possible topics for articles could include:

- An introduction to SDR
- A performance comparison of SDR with analog radio
- A review of current SDR software
- A review of the SDR market: What is available? How do the products compare?
- Other applications of SDR hardware: panadapters, spectrum analyzers, beacon receivers, noise power measurements,and so on

Please send all articles to the TCA Editor at tcamag@yahoo.ca. The deadlines for the next issues of TCA are May 15 and June 15.

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VE100VIMY ACTIVATIONS ACROSS CANADA

Hugh McCully, VE3AYR

More than 38,000 QSOs with all six continents in 13 weeks of operating; 138 countries, all 50 states, 13 Canadian call areas and more than 2,500 Black Line Awards. Behind those numbers are the more than 175 operators that made it happen. Here in their words are their stories and comments.

Boyd Snow, VO1DI: "The New Year saw the start of the VE100VIMY portable operations, at 0000 UTC January 1, with Nova Scotia and Prince Edward Island leading the charge. From a personal perspective, this is one of the greatest events that I have had the pleasure of taking part in since becoming an Amateur. A big congratulations goes out to the Vimy Commemorative Station Society for putting this all together." (see page 61)

Bill, VE5FN: "It was great fun for me as a contester, veteran of 61 years of ham radio and 90 years of life. I got so involved in activating the VIMY call that I missed one of our favorite contests, the CQ WPX RTTY, that was on for the last weekend of our time."

Joe, VE5JM: "It was fun and I enjoyed the time on air helping to raise awareness of Canada's part in WWI and the special part our soldiers played in the Vimy operation. It has been a lot of fun chasing the rest of the sections as they come on line."

Rick, VE3BK: "One comment I heard was that it certainly was a mouthful of a call, but this just made if more fun talking to our fellow Canadians as well as many others from the US and abroad."

John, VE3FDK: It was an honour and a privilege to be part of the team from the Hamilton Amateur Radio Club to be a participant in this memorable occasion in history."

Gabor, VE7JH: "Opening day for /VE7 the first QSOs were made on 40m SSB from the VE7NA club station in Nanaimo. The start of the activity (4 pm local) coincided with the end of the club's licensing course, so the prospective new hams could listen in and learn about the expedition to Vimy. It went very well."

Rebecca, VA7BEC: "The ARRL DX CW was in progress during Koji's (VA7KO) CW shift, so he participated as VE100VIMY/VE7. Stations who picked him up seemed to think he was a VE1, then caught the 'stroke VE7', so there was perhaps a 'which way should I turn the antenna?' moment. And then, Koji had to rattle off the entire call sign again. Even for the experienced CW operators in ARRL DX CW, all those dits and dahs must have sounded like a round of ammunition. No pun intended."

Doug, VA7DP: "Our operators all had a great time and the only way things could improve was if the conditions were better. We did what we could with what Mother Nature gave us. It was fun."

Fred, VE7IO: "For me it was a very busy time leading up to our week of operation as I volunteered to do the BC schedule for VE100VIMY/VE7. During the week of operations I really enjoyed having my station on the air with experienced operators. We had a few 'gotchas' but we had many laughs and great experiences that will be long remembered."

– see pages 31-33

THE RAC QSL BUREAU SYSTEM

The **RAC Outgoing QSL Bureau** service is available to RAC members, RAC affiliated clubs (club call only) and QSL Managers who are members of RAC. Your RAC membership number must accompany each shipment of QSL cards.

RAC Outgoing QSL Bureau
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Telephone: 613-670-3230
Email: ve3exy@rac.ca

There are limits and restrictions for use of the Outgoing QSL Bureau. For more information, surcharges, card sorting details and some handy tips, please visit http://wp.rac.ca/ or http://www.magma.ca/~ve3exy/bureau.html.

Member societies of the International Radio Union (IARU) operate a worldwide system of QSL Bureaus. Radio Amateurs of Canada, as the Canadian member-society, operates a **National Incoming QSL Bureau**, and sponsors the Incoming Bureaus for the 12 Canadian call areas. Cards received by the National Incoming Bureau from IARU member societies are sorted and forwarded to the Incoming Bureau in each call area.

All domestic cards (VA-VE-VY) to Canadian Amateurs are to be sent directly to the RAC National Incoming Bureau and not to the Outgoing Bureau.

Domestic cards sent to the Outgoing Bureau will experience a delay. Only cards for destinations outside Canada are to be sent to the Outgoing QSL Bureau.

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Len Morgan, VE9MY, Manager
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Winnipeg, MB R2G 2Z3

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Todd Bendtsen, VE5MX
616 Moffet Drive
Weyburn, SK S4H 2M7

Silent Keys – In Memoriam

With regret, we record the passing of these Amateur Radio operators.
Nous avons le regret de vous annoncer le décès des radioamateurs suivants.

VA3MOE – Moe Cluff, of Ottawa, ON, at age 74, on August 14, 2016.
VE1AMC – Don Bower, of Ohio, NS, at age 74, on January 29, 2017.
VE1NLN – Norris Nathanson, of Sydney, NS, at age 84, on December 10, 2016.
VE1NW – Nick Whidden, of Truro, NS, at age 77, on February 20, 2017.
VE1RHP – Robert Petitpas, of Hubley, NS, at age 75, on February 11, 2017.
VE1SI – Tom Wilson, of Saint John, NB, on December 30, 2016.
VE1WG – Bill Gillis, of Moncton, NB, at age 87, on December 26, 2016.
VE1WMC – Bill McKnight, of Milton, NS, at age 73, on January 20, 2017.
VE1XL – Richard Steeves, of Weldon, NB, at age 75, on January 28, 2017.
VE2LR – Paul Reed, of Gatineau, QC, at age 72, on January 16, 2017.
VE2MH – Marty Mornstein, of Beaconsfield, QC, at age 86, on February 12, 2017.
VE3DGC – Doug Campbell, of Renfrew, ON, at age 67, on December 22, 2016.
VE3FGB – George Clow, of Burlington, ON, at age 71, on August 28, 2016.
VE3FKA – Kenneth Agnew, of Windsor, ON, at age 71, on December 29, 2016.
VE3JGR – Doug Gandier, of Sarnia, ON, at age 74, on December 31, 2016.
VE3MP – Jerry Dillon, of Ottawa, ON, at age 91, on February 25, 2017.
VE4CP – Bud Wishart, of Portage La Prairie, MB, at age 86, on February 21, 2017.
VE4GR – Bruce Massey, of Winnipeg, MB, at age 83, on February 27, 2017.
VE4ID – Jim McAuley, of Brandon, MB, at age 88, on April 19, 2016.
VE4JI – Jim Prentice, of Brandon, MB, at age 73, on February 28, 2016.
VE4RJH – Bob Hall, of Winnipeg, MB, at age 81, on February 12, 2017.
VE4SD – Brad Thorarinson, of Riverton, MB, at age 60, on February 15, 2017.
VE4UW – Clive Unrau, of Austin, MB, at age 84, on March 9, 2016.
VE5FZ – Harold Eley, of Regina, SK, at age 90, on January 27, 2017.
VE6AAZ – Soren Jorgensen, of Brooks, AB, at age 92, on January 1, 2017.
VE6AVD – George Reed, of Calgary, AB, at age 78, on December 26, 2016.
VE6EEI – Evan Idler, of Edmonton, AB, at age 51, on January 21, 2017.
VE6GEB – Gord Barker, of Edmonton, AB, at age 63, on October 18, 2016.
VE6HY – Brian Smith, of Calgary, AB, at age 85, on January 27, 2017.
VE6QT – Patrick Fitzgerald, of Red Deer, AB, at age 69, on January 18, 2017.
VE6QU – Bob Knechtel, of Edmonton, AB, at age 92, on January 2, 2017.
VE6RBL – Rick Lyon, of Edmonton, AB, at age 64, on February 11, 2017.
VE6RQ – Bill Hallett, of Calgary, AB, at age 102, on February 5, 2017.
VE6VF – Stella Broughton, of Edmonton, AB, at age 96, on February 24, 2017.
VE6WB – Bob Field, of Grand Prairie, AB, at age 88, on May 23, 2008.
VE7DGY – Bill Howarth, of Victoria, BC, at age 93, on December 4, 2016.
VE7KB – Gene Krehbiel, of Kelowna, BC, at age 83, on January 5, 2017.
VE7WAJ – Jim Whiteside, of Osoyoos, BC, at age 83, on December 28, 2016.
VE9BES – Brian Shanks, of Quispamsis, NB, on February 12, 2017.
VY2TY – Bonnie MacEachern, of Charlottetown, PE, at age 84, on January 4, 2017.

Note: *In the above list an * indicates that a call sign has been reissued. The list of Silent Keys is prepared by volunteers at RAC Headquarters. Please send obituary notices by email directly to rachq@rac.ca.*

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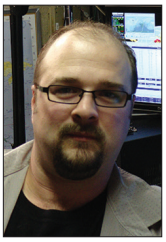

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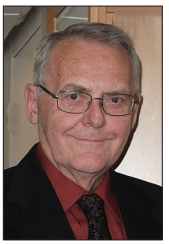

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For complete Section Reports please see the Section News on pages 57-61.

A MESSAGE FROM THE PRESIDENT / UN MESSAGE DU PRÉSIDENT

Glenn MacDonell, VE3XRA
ve3xra@rac.ca

We're finally through another winter and are able to do all the antenna work we've been planning (or needing to do!). Canada's Sesquicentennial is well underway and there are more and more activities happening across Canada. There have been several developments in RAC's plans to celebrate Canada's 150th birthday and I'll get to them a little later in this Message.

We have decided on the date and location for our next Annual General Meeting. It will be held on Saturday, September 9 in conjunction with the Ottawa Amateur Radio Club's Hamfest in Carp, Ontario just outside of Ottawa. If you are planning to take in some of the Canada 150 activities in the Nation's Capital, this will be an excellent time to visit. As well, if you are travelling with others who may not share your enthusiasm for amateur radio equipment, new and used, the Hamfest takes place on the same grounds as a craft market (see page 11).

First, a brief report on some of my travels. I represent Radio Amateurs of Canada on the Radio Advisory Board of Canada (RABC), an organization that "provides broadly based, unbiased and technically expert advice to the Government of Canada and to the industry on all matters regarding the management and use of the radio frequency spectrum in Canada". Radio amateurs have participated in the organization since it began during the Second World War. The Canadian section of the American Radio Relay League (ARRL) was one of eight sponsoring organizations that formed the organization, initially called the Canadian Radio Technical Planning Board.

I am a member of the RABC Executive and the Chair of the Electromagnetic Compatibility (EMC) Committee. EMC is concerned with the unintentional generation, propagation and reception of electromagnetic energy that causes unwanted results such as interference or even physical damage to equipment. It is not an accident that radio amateurs have frequently chaired this committee as we are often the "canaries in the coal mine" – those who first detect interference problems as we attempt to make reliable communications over long distances using quite limited power.

At the last Quarterly meeting of the RABC held in Vancouver in early March, I provided an update on developments in the "Noise Floor Study" being undertaken by the Technological Advisory Council (TAC) of the Federal Communications Commission's (FCC) Office of Engineering and Technology. This body has a similar objective as the RABC although (as is so often the case when comparing Canadian and American organizations and their regulations) it operates in a very different political and organizational environment. The Committee conducting the Noise Floor Study is co-chaired by representatives of the ARRL and the National Association of Broadcasters.

The current FCC TAC study is an example of several national efforts, some being conducted by radio amateurs and others in conjunction with other interested users of radio spectrum. At its general council meeting in 2008 the International Amateur Radio Union (IARU) accepted a recommendation encouraging the "setting up of a scientifically valid long term-term assessment of the noise floor on Amateur Bands below 30 MHz with the intent to raise complaint over general loss of spectrum effectiveness for the Amateur service".

CANADA 150

Nous sortons finalement d'un autre hiver et nous pouvons maintenant travailler à nos nouvelles antennes (ou réparer les anciennes!). Le cent cinquantième anniversaire du Canada est déjà bien entamé et de plus en plus d'activités s'animent partout au Canada. Il y a eu beaucoup d'évolution dans les projets de RAC pour célébrer ce 150e anniversaire, j'en parlerai dans quelques paragraphes.

Nous avons arrêté la date et le lieu de la prochaine Réunion générale annuelle. Ce sera le samedi 9 septembre lors du Hamfest du club de radioamateur d'Ottawa qui se tiendra à Carp, Ontario, tout près d'Ottawa. Si vous planifiez de participer aux activités du 150e dans la capitale du Canada, ce moment serait excellent pour venir nous visiter. De plus, si vous voyagez avec des gens qui ne s'intéressent pas tellement aux appareils de radiocommunication, neufs ou usagés, sachez que le hamfest se passe au même endroit qu'un marché d'artisanat (voir les pages 9 et 11).

D'abord, voici un briefing de quelques-uns de mes déplacements. Je représente RAC sur le Conseil consultatif canadien de la radio (CCCR), un organisme qui « fournit des conseils généraux, neutres et d'expert technique au gouvernement du Canada et à l'industrie sur toutes les questions touchant la gestion et l'utilisation du spectre de fréquences radio du Canada ». Les radioamateurs font partie de cet organisme depuis sa création durant la deuxième guerre mondiale. À l'époque, la section canadienne de l'ARRL (American Radio Relay League) fut l'une des huit organisations fondatrices de cet organisme qui s'appelait alors Conseil canadien de la planification technique de la radio.

Je fais partie du conseil exécutif de cet organisme et je suis le président du Comité sur la compatibilité électromagnétique. Ce comité s'intéresse particulièrement à l'émission, la propagation et la réception accidentelles d'énergie électromagnétique qui produisent des effets indésirables comme de l'interférence ou même des dommages physiques aux équipements. Ce n'est pas par hasard que les radioamateurs ont souvent présidé ce comité puisqu'ils sont considérés comme « les canaris des mines de charbon », c'est-à-dire ceux qui peuvent détecter les premiers les problèmes d'interférence puisqu'ils tentent d'établir des communications fiables à grandes distances tout en utilisant des niveaux de puissance assez restreints.

Lors de la plus récente réunion trimestrielle du CCCR tenue à Vancouver au début du mois de mars, j'ai présenté un compte-rendu des progrès de « L'étude sur le seuil du bruit de fond » entreprise par le Conseil technologique consultatif (Technological Advisory Council (TAC)) du Bureau de l'ingénierie et de la technologie (Office of Engineering and Technology) de la Commission fédérale des communications (appelée FCC aux É.-U.) . Ce Conseil a les mêmes objectifs que le CCCR, mais fonctionne, comme cela arrive souvent lorsqu'on compare les organismes canadiens et américains, dans des structures organisationnelles et politiques très différentes. Le Conseil qui supervise cette étude est coprésidé par des délégués de l'ARRL et de l'Association nationale des radiodiffuseurs des É.-U. (National Association of Broadcasters).

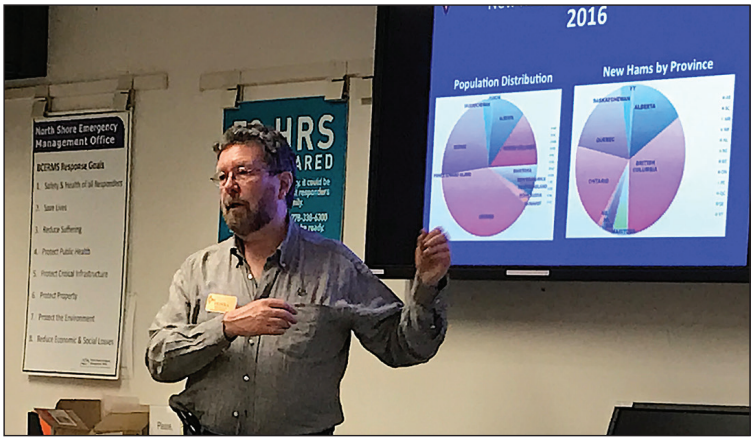
L'étude actuelle par le TAC de la FCC n'est qu'un exemple des nombreuses initiatives parrainées par les radioamateurs et d'autres intervenants en collaborations avec d'autres usagers du spectre électromagnétique. Lors de la réunion générale de l'Union international des radioamateurs (UIRA) en 2008, une recommandation fut acceptée à l'effet de « mettre sur pied une

Those who follow developments in other national amateur radio organizations will know that the Radio Society of Great Britain has also identified the importance of understanding what is happening to the RF noise floor in 2012, and has agreed to fund research on this issue in the UK.

My trip to Vancouver also allowed me to meet a number of BC radio amateurs. I was able to speak to two RAC affiliated clubs: VECTOR (Vancouver Emergency Community Telecommunications Organization), the amateur radio program for the city of Vancouver; and the North Shore Amateur Radio Club in North Vancouver. Executive members from several other affiliated clubs in the region attended these meetings. Such meetings are an excellent opportunity for me to build a greater understanding of what is happening in amateur radio across the country. I am happy to have been able to speak with clubs in Newfoundland, Quebec, Ontario, Saskatchewan and British Columbia in the last year and a half and I look forward to more such meetings in the future.

The VECTOR meeting had a notably higher proportion of younger members and women than many meetings I had attended earlier. At the suggestion of the President, Michael Watkins, VE7WV, each person in the meeting briefly described how long they had been an amateur and what had led them into our activity. The members included college students and retirees, longtime amateurs and new ones, all enthusiastic about the prospects for amateur radio. It was an exciting and fulfilling event.

At the NSARC meeting the club honoured Bill Gipps, VE7XS – who finished his third term as RAC Director for the BC and Yukon Region at the end of December 2016 – and welcomed Al Munnik, VA7MP, as the new Director. Recent developments related to distracted driving (see page 9) were discussed and members of several other amateur radio club executives participated in the meeting. Both organizations hold regular meetings in municipal Emergency Operations Centres.



My presentation to these meetings focused on the state of amateur radio in Canada and of Radio Amateurs of Canada. Fortunately, a few days before leaving for Vancouver I received the statistics for amateur radio examinations in 2016. I was particularly interested in what it would show about growth, both nationally and provincially. I had been surprised a year ago to see that almost a third of new amateurs – those passing at the Basic or Basic with Honours levels – were in British Colombia, a province with 1/8 of Canada's population. The data for 2016 showed that this trend continued. Furthermore, there were significant increases in the number of exams passed in 2016 at all levels: 24% more certifications at Basic or Basic with Honours; and 33% more Advanced in 2016 than 2015. Overall, the Amateur Radio Service in Canada has grown consistently by more than 2% per year from 2013 to 2016 while the Canadian overall population has grown by 1% per year.

évaluation scientifique sérieuse et à long terme du seuil du bruit de fond électromagnétique dans les bandes des amateurs sous 30 MHz, dans le but de documenter une éventuelle plainte concernant la perte d'efficacité généralisée du spectre du service de radioamateur ».

Ceux qui suivent ce qui se passe dans d'autres organisations nationales de radioamateurisme savent que la Radio Society of Great Britain (RSGB) a aussi reconnu en 2012 l'importance de comprendre ce qui arrive avec le seuil du bruit de fond radio magnétique, et a convenu d'en financer la recherche au Royaume-Uni.

Mon voyage à Vancouver m'a aussi permis de rencontrer un certain nombre de radioamateurs de la Colombie Britannique. J'ai pu m'adresser à deux clubs affiliés à RAC : VECTOR (Vancouver Emergency Community Telecommunications Organization), pour le programme de la ville de Vancouver, et le club North Shore Amateur Radio à North Vancouver. Par ailleurs, beaucoup de membres des Conseils exécutifs de plusieurs autres clubs affiliés de la région ont participé à ces rencontres. De telles réunions me donnent la chance de mieux comprendre ce qui se passe en radioamateurisme au Canada. J'ai aussi été très heureux de rencontrer plusieurs clubs à Terre-Neuve, au Québec, en Ontario, en Saskatchewan et en Colombie Britannique au cours des 18 derniers mois, et je souhaite pouvoir continuer de le faire dans l'avenir.

La réunion avec le club VECTOR comportait considérablement plus de jeunes et de femmes que dans toutes mes rencontres précédentes. À la suggestion du président du club, Michael Watkins, VE7WV, chaque participant a pu dire depuis combien de temps il s'intéressait au radioamateurisme et ce qui l'avait amené à cette activité. L'audience était composée d'étudiants et de retraités, des anciens amateurs comme des nouveaux, tous enthousiastes envers l'avenir du radioamateurisme. Ce fut une rencontre passionnante et enrichissante.

Lors de la réunion avec le club North Shore, Bill Gipps, VE7XS – qui vient de terminer son troisième mandat en tant que Directeur RAC pour la CB et le Yukon à la fin de décembre 2016 – a reçu les honneurs et passé le flambeau au nouveau Directeur, Al Munnik, VA7MP. Beaucoup de membres des Conseils exécutifs de plusieurs autres clubs ont participé à cette rencontre où les nouvelles sur le dossier des distractions au volant furent discutées (voir page 50). Les deux clubs tiennent leurs réunions habituelles dans les centres municipaux des communications d'urgence.

Mon exposé lors de ces réunions portait principalement sur l'état de santé du radioamateurisme au Canada, et conséquemment de RAC en général. Par chance, quelques jours avant de partir pour Vancouver, j'ai reçu les statistiques des résultats des examens de certification pour 2016. J'étais particulièrement intéressé de voir les données d'accroissement, tant au niveau du pays que de chaque province car j'avais été surpris, l'année d'avant, de constater que presque le tiers des nouveaux amateurs – ceux qui passent le Certificat de Base (y compris avec distinction) – provenaient de CB, une province qui ne détient que le huitième

RAC's plans for the Canada 150 Celebrations continue to evolve and the most current information will be posted on the RAC website as it can be easily updated unlike TCA magazine which requires time to print and distribute.

The Canadian government has granted us permission to use the special Canada 150 logo and it will be featured on our notices and awards including the certificates for the upcoming RAC Canada Day Contest (#RACCD) on July 1 (see page 42).

RAC will provide special version of the Canadaward with a unique certificate for working all 13 provinces/territories during the RAC Canada Day and/or RAC Canada Winter Contests in 2017. We will need the support of amateurs who are in or able to operate from the relatively rare call sign areas: VY2, VY1, VY0 and VY8. The more activity we can get from these areas, the more certificate winners there will be. The awards will be processed by RAC's Award Manager John Scott, VE1JS, using an honour system based on submitted logs in the same way as our existing awards for the RAC contests each year. Additional information will be provided on the RAC website.

We are also investigating the possibility of a special Canada 150 Worked All RAC award in the second half of 2017 starting on July 1 and ending with the RAC Winter Contest on December 30. This would require operating RAC stations on a similar basis to the VE100VIMY portable operations – separate activity weeks for each province and an immediate submission of electronic logs – and will depend on our ability to find enough volunteers, particularly in the relatively rare call sign areas.

We were seriously considering organizing a special Canada Parks on the Air Event for the Sesquicentennial, but several circumstances have frustrated us. Unfortunately RAC does not have an automated awards system. We rely heavily on our contests and awards volunteers to do everything that is required such as receiving and processing logs to generate the awards. We would require additional volunteers to conduct this program. As well, we were unable to set up the necessary infrastructure quickly enough to give potential activators time to make plans to operate this year. While we are not able to make this event a part of our Canada 150 activities we hope to be able to proceed with a similar event in the future. Volunteers will be key so if you are interested in helping out please let me know.

Finally, Field Day is fast approaching and will be held on the weekend of June 23-24. Last year we encouraged clubs to report on their activities via Twitter with the hashtag #RACFD. It made it easy for anyone interested in amateur radio to get a quick overview of what was happening across the country. We're doing the same this year for both Field Day and the two RAC Contests (#RACCD and #RACWC) and look forward to seeing what is happening. Have fun and good luck!

Glenn MacDonell, VE3XRA
RAC President and Chair

de la population du pays. Les résultats pour 2016 montrent que cette tendance se maintient. De plus, il y a eu une croissance significative du nombre d'examens passés en 2016 par rapport à 2015 dans toutes les catégories : 24 % de plus pour les certificats de Base et Base avec distinction, et 33 % de plus pour le certificat Avancé. Dans l'ensemble, le Service radioamateur a connu une croissance régulière de plus de 2 % par année de 2013 à 2016 tandis que l'accroissement de la population du pays n'était que de 1 % par année pour la même période.

Les activités que RAC prévoit à l'occasion du 150e anniversaire du Canada sont en incubation. Les plus récentes nouvelles seront affichées sur le site Web de RAC où les mises à jour sont plus faciles à effectuer en comparaison avec le magazine TCA qui prend du temps à imprimer et distribuer.

Le gouvernement canadien nous a donné la permission d'utiliser le logo Canada 150 dans nos communications et il sera mis en vedette dans nos avis et nos certificats d'accomplissement pour le concours de la Fête du Canada (#RACCD) le 1e juillet prochain (voir page 42).

RAC produira une version spéciale du certificat Canadaward en 2017 pour ceux qui auront contacté les 13 provinces et territoires pour le concours de la Fête du Canada et aussi pour le concours d'hiver. Nous allons avoir besoin de l'aide d'amateurs qui résident ou qui sont capables d'aller opérer dans les zones relativement plus rares : VY2, VY1, VY0 et VY8. Plus nous aurons de stations actives dans ces zones, plus nous pourrons accorder de prix. Les certificats seront préparés par notre Directeur des récompenses, John Scott, VE1JS, sur réception des registres des contacts effectués pendant l'événement, comme c'est le cas pour nos autres concours annuels. Des renseignements supplémentaires seront affichés sur le site Web de RAC.

Nous considérons aussi la possibilité d'un certificat Canada 150 – toutes stations RAC pour la demi-année commençant le 1e juillet et se terminant avec le concours RAC d'hiver le 30 décembre 2017. Le principe est de contacter des stations RAC comme ce fut le cas pour les opérations « en portable » de la station VE100VIMY. Chaque province aurait sa semaine d'activité avec soumission immédiate des registres d'opération. La réalisation de ce concours dépend du nombre de stations bénévoles que nous pourrons trouver, particulièrement pour les indicatifs les plus rares.

Nous considérions sérieusement d'organiser un concours spécial Parcs Canada en ondes pour le 150e anniversaire, mais nous avons rencontré plusieurs circonstances contrariantes. Malheureusement, RAC n'a pas de système automatisé de gestion des prix. Nous comptons seulement sur le travail des responsables bénévoles des concours et des prix pour réaliser le travail considérable de la comptabilisation des registres d'opérations et l'émission des certificats d'accomplissement. Nous aurions besoin de bénévoles supplémentaires pour concrétiser ce programme. D'autre part, nous n'avons pas pu mettre en place l'infrastructure nécessaire assez rapidement pour donner le temps à des stations bénévoles de se préparer pour cette année. Bien que nous ne puissions pas réaliser ce projet dans le cadre de nos activités du Canada 150, nous souhaitons pouvoir réaliser quelque chose de semblable éventuellement. La clef du succès de ce projet passe par nos bénévoles. Alors, bénévoles intéressés, contactez-moi!

Finalement, le Field Day approche rapidement. Ce sera pendant la fin de semaine du 23 au 24 juin. L'an dernier nous avons encouragé les clubs à nous faire part de leurs résultats via Twitter à l'adresse #RACFD afin de donner un aperçu aux intéressés de la progression des résultats dans tout le pays. Nous renouvelons cette année, tant pour le Field Day que pour les deux autres concours de RAC (#RACCD et #RACWC) et nous avons hâte de voir ce que cela va donner. Bien du plaisir et bonne chance!

Glenn MacDonell, VE3XRA
RAC President and Chair

– Traduction par René Lévesque, VE2CNJ. Merci René!

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W: www.qsl.net/ve3dss

SIX METRES AND DOWN

SPRING 2017 AND A NEW SOLAR CYCLE #26...

It's too soon to tell how our spring and summer propagation will be this year. Hopefully, we will have some warm sunny weather with pleasant conditions to bring some good DX after a cold dark winter, hihi.

Its almost tower time so it's great to have some warm weather to fix the antennas, and repoint them if they were blown around in the winter. It's also nice to just get up there and scare the darn birds.

This is also a good time to track down that nasty noise source and get it fixed by your local utility – and of course to add more antennas!

SIX METRES

The band has been pretty quiet lately, with the sun's activity levels dropping, no surprise there.

The good thing is that with digital modes and lots of meteor activity, scatter is still a great sport on 50 MHz, allowing contacts out 2,000 kilometres easily with low power.

Hopefully, by the time you read this column the Sporadic E season will have started and we will have some surprises on the DX front!

MICROWAVES

The microwave bands are one of our biggest assets, not only in terms of bandwidth but in terms of utility for DX, local repeater activity, Television, Digital networking and much more.

These bands are going to be our main avenue to Space, not only for geostationary satellites but also for manned missions to Mars. We need to start getting geared up with equipment, learning how the bands behave and how to build systems to track vehicles in space across vast distances.

A screenshot of Peter's signal on 5.7 GHz using GQRX and the HackRF

Moonbounce systems are one good way to test and develop techniques, as are our OSCAR satellites. If you are looking for that "next" challenge, then look to the bands above 900 MHz folks! Who knows, you might make the first two-way contact between Earth and Mars!

Keep in mind that the systems that are currently on and orbiting the red planet are near our 2304 MHz band – take a listen.

HackRF ALIVE

With some help from Hugh, VA3TO, we were able to restore the HackRF to life, by replacing two components: the buck regulator and microprocessor. With the repairs completed – and after flashing the latest firmware – we were able to work VA3ELE on 3456 MHz. In addition, we were able to copy Peter's signal on 5760 MHz easily using my 1296 loop Yagi. No QSO has been completed up there yet; that's going to have to wait for a better antenna on the high bands. A screenshot of Peter's signal on 5.7 GHz using GQRX and the HackRF is shown above.

2304 TRANSVERTER

The old KK7B no tune transverter seemed to be deaf when compared to the HackRF, and not too stable either, with the Local Oscillator (LO) multiplying up 12 x from 90 MHz, and no crystal oven. With a bit of tweaking of the oscillator circuit, and installing some very high quality capacitors, the drift issue has been partly resolved. Fortunately, there is a lot of "upgrade" info available on the web so we will try doing some of the mods to improve things. I'm also thinking of a phase-locked LO as the ultimate solution. More on this after the Spring Sprints.

AMATEUR TELEVISION

Grant, VE3XTV, has set up a Google site for those interested in Amateur Television (ATV). He has plans afoot for a repeater in the Toronto area, which will be great as we lost our original ATV machine when we lost 420-430 MHz back in the late 1970s. In addition the York Region Amateur Radio Club north of Toronto had a system up and running, and Grant is looking at using some of their gear. Hopefully, a crossband repeater using 915, 1250 or 2350 MHz will come to fruition.

Remember, ATV is a great way to learn about technology and propagation and it is invaluable for emergency communications. Grant has a receiver board design that looks awesome, which has been used extensively in ZL, and he is looking to pull enough people together to make an order. Let him know. You can reach him at zl1wtt1@yahoo.com.au. For more information on ATV see his article on "Digital Amateur Television" on page 24 of the November/December 2016 issue of TCA.

1296 MHZ

On March 17, Peter, VA3ELE (FN03), worked Stu, VE2XX (FN25), on airplane scatter over a 490 kilometre path with signals peaking S9 at both ends. On March 22, Peter worked KU8Y over a 586 kilometre path, and again signals peaked S9. Ken, KU8Y, is running a new Beko 800W amp on 1296 which generates a mean ERP! Check into the 1296 Net at 9 pm Wednesday nights on 1296.1 MHz.

AVIS AUX MEMBRES DE RAC : ASSEMBLÉE GÉNÉRALE ANNUELLE 2017

Radio Amateurs du Canada est heureuse de tenir son assemblée générale annuelle (AGA) à Ottawa, en Ontario. L'événement AGM sera organisé par le Club de radio amateur d'Ottawa et sera organisé conjointement avec l'Hamfest d'Ottawa 2017 qui se déroule au même endroit. Tous les membres du RAC sont encouragés à assister à l'assemblée générale annuelle.

Date : samedi le 9 septembre

Heure : 13h00 (heure normale de l'Est)

Lieu : L'assemblée générale annuelle se tiendra à l'aréna W. Erskine Johnston, 3832 Carp Road à Ottawa, Ontario

Les points à l'ordre du jour incluent :

- le rapport du président
- la présentation des états financiers de 2016
- nomination de l'auditeur pour 2017

Une période de questions et de réponses suivra les procédures de l'AGA. Voici votre chance d'écouter ce que vos représentants ont accompli durant la dernière année, poser vos questions et faire vos suggestions à propos de la gestion et de l'orientation future de RAC.

Les membres du conseil d'administration et de l'exécutif de la RAC participeront à la réunion et seront ouverts à tous les membres. De plus, il y aura un webinaire auquel les membres du RAC peuvent assister à distance. Pour plus d'informations sur l'Hamfest Ottawa de 2017, voir la page 11 ou visiter : http://www.oarc.net/fleamarket.

MICROWAVE BEACONS IN THE GTA

Peter, VA3ELE, is testing out a system to set up beacons on our microwave bands using some nifty modules from QRP systems. These include GPS interfacing, capability for JT65 beaconing and much more. Tests on 2304 MHz are promising, and its nice to have a signal to tune stuff up with. More on this in the next column.

If you are interested check out QRP-LABS.com, fire up a beacon in your neighbourhood!

LATE WINTER/SPRING STORMS

The weather across the land has played havoc with antennas and VHF/UHF are not immune. The VHF transatlantic beacon in VO1-land took a beating in 160 kilometre-hour winds, as the tower went over. Hopefully all will be back together over the summer.

The weather hasn't helped propagation much so far this year so we all hope it picks up in May and June, eh!

ARRL JUNE VHF CONTEST

Don't forget the ARRL's annual June VHF QSO Party is on June 10-12 this year. The contest starts at 2 pm EDT and ends at 1159 pm EDT on Sunday. All modes are welcome, so if you have FM put it on 146.55 and listen/call CQ for example. Check into ON4KST.org as well. For more contest information see The Sports Page column on page 54.

Well that's if for now, we will look for your reports of DX and have a report on the Spring Sprints as well.

– 73, Dana, VE3DS

DISTRACTED DRIVING IN CANADA: AN UPDATE

Distracted driving regulations continue to be an area of interest for many Canadian Radio Amateurs. These regulations are made and enforced by Provincial governments and can vary considerably from province to province and over time. Radio Amateurs of Canada has prepared a list of links to current regulations in all provinces that have established them. They can be found at: http://wp.rac.ca/distracted-driving-regulations-update/

Radio Amateurs of Canada representatives in our regions often work to clarify regulations where Amateurs may be caught up in them or when the regulations are being created or modified.

In British Columbia, Bill Gipps, VE7XS, together with two local Amateurs (Chris Scholefield, VE7QCS and Dave Miller, VE7HR), has met several times with representatives of the BC Government to discuss BC distracted driving regulations and their application to Amateur Radio. The BC Amateurs were pleased with the significant progress made through these sessions and continued to follow the process while the BC Government engaged other stakeholders and solicited their input. The process was recently completed and a new, clarifying document was published by the Government on its website at: http://www2.gov.bc.ca/assets/gov/driving-and-transportation/driving/publications/electronic-devices-while-driving.pdf. This document, while not perfect, does address the use of hand microphones that had been the major issue earlier. It should be printed and kept in your vehicle along with a copy of your Amateur Radio Operator's certificate.

In Ontario, a temporary exemption for Amateurs in Ontario is due to expire on January 1, 2018. RAC Ontario South Director Phil McBride, VA3QR and RAC North/East Director, Al Boyd, VE3AJB, have obtained some letters of support, but more are needed. They are looking for additional letters of support from organizations that support Amateur Radio communications. We need to show our Provincial governments the importance of Amateur Radio and why we require the ability to communicate from our vehicles for public service events like parades, walk-a-thons, bike rallies and, most importantly, for emergency communications and Amateur Radio Emergency Service (ARES) activities that support first responders like Police, Fire and Emergency Medical Services (EMS). We have been in touch with the Minister of Transportation's policy advisors and a meeting has been scheduled for this spring to explain our position and these letters are needed to provide additional support. We would appreciate it if you would please forward them to your Regional Director. We have received word that the Ontario Government is considering the Amateur Radio exemption issue.

RAC will continue to provide additional information about distracted driving regulations on the RAC website as it unfolds. If you have any questions or concerns or you would like to send a letter of support, please feel free to contact your Director at any time at the address shown on page 4 of The Canadian Amateur magazine and on the website at http://wp.rac.ca/board-of-directors/.

Glenn MacDonell, VE3XRA
President
Radio Amateurs of Canada

NOTICE TO RAC MEMBERS RESIDING IN THE ALBERTA/NWT/NU, QUEBEC AND ONTARIO SOUTH REGIONS

Call for Nominations of Candidates for Regional Director to serve on the Board of Directors of Radio Amateurs of Canada Inc.

The Secretary of Radio Amateurs of Canada Inc. hereby solicits nominations for the positions of Director for the Regions of Alberta/NWT/NU, Quebec and Ontario South (postal codes L and M).

If required, an election for this position will be held in August 2017. The Director will take office immediately to complete the two-year term ending December 31, 2019.

Incumbents:

- Alberta/NT/NU: Ernest C. Clintberg, VE6EC; tenure completed
- Quebec: Guy Richard, VE2XTD; tenure completed
- Ontario South: Phil McBride, VA3QR; tenure completed

1. The Candidate:
   - ✓ must be a Full Voting Member of RAC
   - ✓ must have reached the legal age of majority
   - ✓ must reside in the Region for which he or she is nominated
2. A candidate may not nominate himself/herself.
3. The nomination form will:
   - ✓ be printed or typed
   - ✓ clearly indicate the candidate's name, call sign and RAC membership number
   - ✓ clearly indicate the names, call signs, RAC membership numbers and original signatures of ten (10) or more full voting members of RAC
4. The nominators must have reached the legal age of majority and must reside in the same Region as the candidate whom they are nominating.
5. Each candidate must:
   - ✓ sign the nomination form, indicating a willingness to be nominated
   - ✓ include with the nomination a brief biographical sketch/CV limited to 500 words succinctly setting out his/her background and qualifications. A candidate choosing to submit a biographical sketch in both English and French languages will be allowed 500 words in each language. The biographical sketch will not include any campaign platform material.
6. **All original nominations and supporting documentation, including the biographical sketch, must be received** by the Secretary of RAC at the address indicated on page 11 by 12 noon on Friday, July 14, 2017.

It is suggested (but not required) that the nomination forms be sent by registered mail.

Faxed or emailed documents will not be accepted.

✓ Clearly indicate on the mailing envelope that Nomination Documents are enclosed.

AVIS AUX MEMBRES DE RAC RÉSIDANT DANS LES RÉGIONS DE : ALBERTA/TNO/NU, QUÉBEC ET ONTARIO SUD

Appel de mises en candidature pour le poste de directeur de région siégeant au conseil de direction de Radio Amateurs du Canada inc.

Le Secrétaire de Radio Amateurs du Canada inc. sollicite des candidatures pour le poste de Directeur pour les régions de Alberta/TNO/NU, Québec et la pour la région de l'Ontario Sud (codes postaux L et M).

S'il y a lieu, une élection à ce poste sera tenue en août 2017. Le directeur entrera en fonction immédiatement pour compléter le mandat de deux ans se terminant le 31 décembre 2019.

Candidats sortants :

- Alberta/TNO/NU : Ernest C. Clintberg, VE6EC; mandat terminé
- Québec : Guy Richard, VE2XTD; mandat terminé
- Québec : Phil McBride, VA3QR; mandat terminé

1. Le candidat :
   - ✓ doit être membre en règle de RAC
   - ✓ doit avoir atteint l'âge légal de la majorité
   - ✓ doit résider dans la région pour laquelle il est mis en nomination
2. Un candidat ne peut se nominer lui-même.
3. Le formulaire de mise en nomination devra :
   - ✓ être dactylographié ou imprimé
   - ✓ reproduire clairement le nom du candidat, son indicatif d'appel et son numéro de membre chez RAC
   - ✓ reproduire clairement le nom, l'indicatif d'appel, le numéro de membre RAC et les signatures originales d'au moins dix (10) membres en règle de RAC
4. Les présentateurs doivent avoir atteint l'âge légal de la majorité et demeurer dans la région du nominé.
5. Chaque candidat doit :
   - ✓ signer le formulaire de mise en nomination, indiquant son accord d'être mis en nomination
   - ✓ inclure avec la mise en nomination une courte note biographique/CV, limitée à 500 mots, décrivant succinctement ses antécédents et ses qualifications. Un candidat qui désire soumettre sa biographie en anglais et en français se verra alloué 500 mots dans chacune de ces langues. Les notes biographiques ne devront inclure aucun élément de la plate-forme électorale.
6. **Tous les documents originaux de mise en candidature et les documents reliés**, incluant la note biographique, devront être reçus par le secrétaire de RAC à l'adresse indiquée sur la page 11 avant 12h00 le vendredi 14 juillet 2017.

Il est suggéré (mais pas obligatoire) que les documents de mise en candidature soient expédiés par courrier recommandé.

Les documents expédiés par courriel ou par télécopieur ne seront pas acceptés.

✓ Indiquez clairement sur l'enveloppe qu'elle contient des formulaires de mise en candidature.

RAC WILL BE AT DAYTON!

For the seventh year in a row, Radio Amateurs of Canada will be operating a booth at the Dayton Hamvention, the world's largest Amateur Radio gathering.

This is the 66th year of the Dayton Hamvention, sponsored by the Dayton Amateur Radio Association. Each year, a specific theme – such as Amateur Radio clubs, global friendship or the advent of digital modes – spotlights one of the many facets of the Amateur Radio Service.

This year's theme is "Hamvention – Same Friends, New Home". The event will be held at their new home at the Greene County Fairgrounds and Exposition Center in Xenia, Ohio. Further information, including advance ticket sales and accommodations, can be found online at: http://www.hamvention.org.

So come visit the RAC booth 6806 in Building 6 and talk to your RAC volunteers. Better yet contact us and volunteer to work at the booth: RAC Headquarters racgm@rac.ca; or by telephone at 1-877-273-8304.

✓ The envelope will be held unopened until after the closing deadline of July 14, 2017. After this date, the Election Committee, under the supervision of the RAC Secretary, will open all submissions, review the documentation for accuracy, completeness and validity, and then announce the results of the Call for Nominations. The decision of the Election Committee is final.

✓ Should a balloted election be required, ballots will be mailed from RAC Headquarters on or before August 10, 2017.

Nominations must be sent to the following address:

Secretary, Radio Amateurs of Canada
720 Belfast Road, Suite 217
Ottawa, ON K1G 0Z5

Clearly indicate on the envelope: "Nomination Documents".

✓ L'enveloppe restera scellée, jusqu'après la fermeture des mises en candidature le 14 juillet 2017. Après cette date, le comité électoral, sous la gouverne du secrétaire, ouvrira toutes les candidatures soumises, et vérifiera la documentation quant à sa validité, son exactitude et sa complétude, et annoncera ensuite le résultat de cet appel de mises en candidature.
La décision du comité électoral sera finale.

✓ Si une élection était requise dans l'une des régions, les bulletins de vote seraient postés du quartier général de RAC le 10 août 2017 ou avant.

Les mises en candidatures doivent être envoyées à l'adresse suivante :

Le secrétaire, Radio Amateurs du Canada
720 Chemin Belfast, Suite 217
Ottawa, ON, K1G 0Z5

Indiquer clairement sur l'enveloppe :

« Documents de mise en candidature ».

TCA

NOTICE TO RAC MEMBERS: 2017 RAC ANNUAL GENERAL MEETING

The Radio Amateurs of Canada is pleased to hold its Annual General Meeting (AGM) in Ottawa, Ontario. The AGM event will be hosted by the Ottawa Amateur Radio Club and will be held in conjunction with the 2017 Ottawa Hamfest which is being held at the same location. All RAC members are encouraged to attend the Annual General Meeting.

Date: Saturday, September 9

Time: 1 pm (Eastern Standard Time)

Place: The Annual General Meeting will be held n the W. Erskine Johnston Arena, 3832 Carp Road in Ottawa.

Agenda items will include:

- Report of the President
- Review of the 2016 finances
- Appointment of auditors for 2017

A Question and Answer period will follow the AGM proceedings. This is your opportunity to hear what your representatives have been doing over the past year, to raise questions, and to make suggestions about how RAC is managed and where it is going in the future.

The meeting will be attended by members of the RAC Board of Directors and Executive and is open to all RAC members. In addition there will be a Webinar which RAC members can attend remotely.

For more information about the 2017 Ottawa Hamfest please see the article below or visit http://www.oarc.net/fleamarket.

OTTAWA (CARP) 21ST ANNUAL HAMFEST

The Ottawa Amateur Radio Club (OARC) is pleased to host the RAC Annual General Meeting as part of its 21st Annual Hamfest, and during the year-long celebration of Canada's 150th Anniversary of Confederation here in the Nation's capital and across Canada.

Date: Saturday, September 9.

Time: The Hamfest will be open to the public from 9 am to noon. Doors will open to Commercial Vendors at 7:30 am and to Private Vendors at 8 am. The RAC Annual General Meeting will be held following the Hamfest (tentative time 1 pm) and more details will be included in the next issue of TCA.

Place: The Hamfest will be held at the Carp Agricultural Fairgrounds in the W. Erskine Johnston Arena at the north end of the fairgrounds, at 3832 Carp Road in Ottawa. We are right next door to the famous Carp Farmers' Market (http://carpfarmersmarket.ca/) and just minutes from the Diefenbunker Museum (http://diefenbunker.ca/), a four-story, 100,000 square foot underground bunker, built between 1959 and 1961. Come to Ottawa and enjoy your visit as part of Canada's 150th Birthday celebrations!

Cost: $6 General Admission, $14/table (plus admission).

Talkin: VE2CRA, 146.940-, 100 Hz CTCSS

For more information please see our listing in the Coming Events on page 63 or contact Ed, VE3WGO, at fleamarket@oarc.net or visit http://www.oarc.net/fleamarket.

TCA

AMATEUR RADIO SATELLITES

Keith Baker, VA3KSF/KB1SF
Corunna, ON N0N 1G0
E: va3ksf@rac.ca

It's springtime here in the Northern Hemisphere. And while the higher HF Bands are beginning to go all but silent for the next few years, many Amateurs (being an experimental lot) are looking for some other way to get our signals out and be heard. One of those ways (that I have been writing about on these pages) is via our growing fleet of Amateur Radio satellites.

And, yes, I've heard all the laments that getting on the satellite is "too hard" or "too expensive" for you or that you live in a deed-restricted area that prohibits outside antennas. Or, perhaps while not being strictly prohibited, you simply don't have the room (or the spouse approval?) at your home to put up an antenna array that makes your humble abode look like a NASA tracking station.

Well, my friends, there *is* a way for you to get on the "birds" without breaking the bank or making your home look like something out of a Star Trek movie. That's because satellite work can *also* be done portably with the right combination of antennas and radios. In fact, for some, "going portable" may be the *only* way they are able to get on the satellites.

Portions of this column appeared previously as "Going Portable with the Amateur Satellites" in the April 2017 edition of *The Spectrum Monitor*. Thank you TSM!

Going Handheld

Probably the easiest (and cheapest) way to operate on our satellites is via a small, handheld (HT) portable antenna array along with one or more FM handheld transceivers.

And, contrary to what you might believe, you *don't* need a super powerful FM transceiver with these antennas to work the birds. In fact, I (and many other Amateur satellite operators) have sometimes met with marginal success using just a simple dual band handheld radio and an antenna with just a bit more gain than the ordinary "rubber duck."

Above: Activity on our growing fleet of Amateur Radio satellites provides fun for all ages. Here Hope, KM4IPF, uses a pair of dual band handhelds and an Arrow antenna to make a contact through one of our FM satellites. (Courtesy: AMSAT)

That is, over the years, I (and others) have had found that using an "extended rubber duck" on these transceiver(s) will allow you to make a few contacts on our FM satellites (such as SO-50 and AO-85), but usually *only on near overhead passes.* However, because the downlink output power on most of our satellites is usually pretty weak (often less than 1 watt) and because of the "capture effect" of FM signals, you'll have *far* better success if you can create some signal gain on both the downlink (from the satellite) as well as on your uplink (to the satellite).

At left: my wife, Kate Baker, VA3OGF/KB1OGF, makes a contact through one of our FM satellites from the shores of Lake Huron with a Kenwood TH-78A dual band handheld. The extended "rubber duck" (MFJ-1717 from MFJ Enterprises) antenna and about 5 watts of uplink power provides just enough gain on the uplink and downlink to briefly work these satellites on near overhead passes. (Courtesy: VA3KSF/KB1SF)

Several people have "rolled their own" Yagi satellite antennas using nothing more sophisticated than a series of trimmed coat hangers mounted on a block of wood. For many years – and for most of my own non-permanent, portable satellite contacts – I've been using a commercially-made, handheld antenna from Arrow Antenna of Cheyenne Wyoming.

The Arrow

The Arrow II Satellite Antenna Model 146/437 provides an impressive forward gain of approximately 10.3 dBd at 70cm and 4.6 dBd at 2m. Sturdily machined from aluminum arrow shafts (hence the name), this antenna actually consists of two antennas mounted at right angles to each other on the same boom: a 3-element Yagi for 2m and a 7-element Yagi for 70cm. A removable foam handgrip, plus threaded horizontal and vertical photo tripod mounting holes underneath the handgrip, make this a totally collapsible antenna that is also useful for terrestrial radio direction finding or portable emergency work.

With models starting at about US $75, the Arrow is very well constructed and can be easily taken apart – some models even have a split boom! – for extended portable use. A somewhat more expensive version also sports a 10-watt duplexer (or more correctly, a "diplexer") in the handle which, if your radio can operate in full duplex mode, requires only a single feedline.

AMSAT usually carries a supply of these antennas available via their online "store" on its website (store.amsat.org/catalog/). Several Amateur Radio dealers in both Canada and the United States also offer various versions of the Arrow satellite antenna in their catalogs or they can be ordered directly from the manufacturer at: http://www.arrowantennas.com

The Elk

Another variant of the handheld satellite antenna genre is called an "Elk". This antenna sports a log-periodic design for 2m and 70cm that allows for a single feedline and is available directly from the manufacturer at https://elkantennas.com/product/dual-band-2m440l5-log-periodic-antenna/.

Another popular, commercially-made handheld satellite antenna is the Elk. Here, Craig Wolsey, VA3ICW/AC8EJ, uses his HT and an Elk 2M/440L5 antenna to make a contact through one of the AMSAT satellites from the shores of Lake Huron in Canada. The antenna's unique log periodic design allows for dual band VHF/UHF operation using just five elements connected to a single feedline, all without the need for a diplexer. (Courtesy: VA3KSF/KB1SF)

As the boom material is manufactured from standard PVC pipe material, it is easily mounted on a photo tripod with just a few extra pieces of PVC piping from your local "big box" hardware store.

The Arrow in Action

One of the things satellite enthusiasts like to do is to make contact through the satellites with other Amateurs located in other Maidenhead "Grid Squares". However, while many Amateurs may live or work in one grid square (such as, for example, around the Greater Toronto Area), other grids may not have any Amateurs living in them, let alone active Amateur Radio satellite enthusiasts. As a result (and similar to what Amateurs do on the HF bands) some satellite Amateurs like to activate rare (that is, largely unpopulated) grids on the satellites. One such hearty Canadian Amateur, Ken Alexander, VE3HLS, did just that in 2016. He said:

"I first got into satellite operating by declaring I was going on a short grid DXpedition to grids GN-05 and GN-06 in Nova Scotia earlier in 2016. I had never made a satellite QSO before leaving on that trip, and I bought my transceiver and Arrow antenna less than a week before leaving. With a lot of help from AMSAT members through the AMSAT e-mail reflector, (www.amsat.org/?page_id=2348) I was able to configure the new radio for full duplex operation on the SO-50 FM satellite. The operation got off to a slow start, but things began to work on Day 2 and I completed about 16 QSOs before returning home."

Ken went on to note that his satellite "education" continued through the summer of 2016 and by August he began looking for another challenge. Moosonee, Ontario in EO-91 rose to the top of his list for several attractive reasons: it involved train travel on Ontario Northland's Polar Bear Express, and nobody appeared to have (recently) worked from EO-91 on the satellites.

Ken, VE3HLS, used an Arrow antenna to make a number of contacts through the Amateur Radio satellites during his Northern Ontario Satellite DXpedition in the summer of 2016. (Courtesy: VE3HLS)

Ken soon realized that a DXpedition to one these rare grids would be more attractive if it involved activity on *both* the FM *and* the linear satellites. That meant that he'd have to become proficient on the linear transponder satellites, and he also had to acquire the equipment and learn how to use it! Of those three requirements, the only thing he was able to do before leaving was to acquire his equipment. After experimenting with different combinations of transceivers, transverters and separate receivers, Ken finally arrived at an effective portable setup consisting of a pair of Yaesu FT-817 transceivers, a Heil Proset, an MFJ diplexer and an Arrow handheld satellite antenna.

"While staring at maps of the area", Ken said, "it looked like I could also activate EO-90 as well. That's because the train to Moosonee travels right through it." However, the maps showed no towns whatsoever in the area and conventional maps showed no roads in or out. But, when Ken zoomed into Google Earth's satellite views, he found a network of unpaved logging roads into both EO-90 *and* EO-80. That settled it. Ken would spend a few days in each grid (EO-80 and EO-90) and then move on to EO-91 for the weekend.

Smooth Rock Falls on the Trans-Canada Highway is in EN-99 and is the nearest town to EO-80 and EO-90, so Ken's first four days consisted of daily commutes of 290 and 240 kilometres to get to and from EO-80 and EO-90 respectively. In Moosonee, he had only to walk to the end of the driveway of the bed and breakfast he was staying at to get on the air.

In sum, Ken thought his FM satellite experience would prepare him for dealing with Doppler shift, and it did – but just a little! While he readily admits his work on the linear satellites was a challenge, Ken notes: "I soon got the hang of it and by the end of my mini-DXpedition, I felt I was proficient working through FO-29, AO-7 and the Chinese XW satellites." I would readily agree. At the end of six days of operating from the three grids, Ken logged a total of 145 QSOs to 66 happy "customers" in 46 discrete Grids.

He notes that: "My Grid adventure was a success in several ways. My operating capabilities increased many times over. I activated several rare Grids and I got to visit remote areas of the province few people ever see."

Bottom Line

The really nice part about all this is that you *can* get on the satellites without also breaking the family budget or erecting huge (permanent) antenna arrays at your home QTH. Indeed, by making just a couple of reasonably priced additions to the equipment that you may already have, you can "go portable" – even in your own backyard – and enjoy our wonderful hobby while *also* taking advantage of the great outdoors.

Needless to say, I very much look forward to "seeing you on the birds" – from my (and your) very own, handheld or portable satellite setups in the weeks and months of our Canadian Summer weather just ahead.

TCA

Eureka crew (from left): Stoen, Hatfield, Twombly, Trinko, Courtney, Tyrer and Dean. All but Twombly and Hatfield were in the first landing party on April 7, 1947.

70th Anniversary of Amateur Radio at Eureka Part I: The Original Station VE8MA

Pierre Fogal, VE3KTB, John Gilbert, VE3CXL and Alexey Tikhomirov, VE1RUS

In 2015, Alexey "Alex" Tikhomirov, VE1RUS, a research scientist at Dalhousie University in Halifax, was asked by the Halifax Amateur Radio Club (HARC) to give a presentation about his Amateur Radio operations as VY0/ at Eureka, Nunavut on Ellesmere Island. Alex became curious about the history of Amateur Radio in Eureka and found photos and memories on the web of John Gilbert's VE8OW operation at Eureka from 1956-58. Pierre Fogal, VE3KTB, (KC0IGY), has operated at Eureka as /VY0 since 2014.

The 70th anniversary of the establishment of the original Amateur station at Eureka, VE8MA, is being celebrated this year, 2017. Alex corresponded with Pierre and John and it was decided to collaborate on a two-part article to recognize the 70th anniversary of VE8MA. John, who had written about his experiences operating as VE8OW and as an operator at VE8MA and VE8MB, from 1956-58 (see "Way Up North" in the May 1979 issue of The Canadian Amateur), researched Amateur Radio at Eureka in the early years. His story, the first part presented here, starts in 1947 and covers the first two years of operation at Eureka.

Due to the nature of his work Alex visits Eureka several times a year and has operated HF regularly from there using the call sign VY0/VE1RUS. Pierre, who manages the Polar Environment Atmospheric Research Laboratory (PEARL), has been in and out of Eureka since the fall of 1994 making some five trips per year, resulting in around three months onsite per year. He has operated at Eureka as VE3KTB/VY0 since the Spring of 2014.

In recognition of the 70th anniversary, Alex and Pierre have been granted a licence for a new club station at Eureka, VY0ERC. The story of this station will be covered in Part 2 in the next TCA.

Photos, unless otherwise marked, are from a collection of photos donated by individuals who served at Eureka. The collection has been deeded to the Nunavut Archives.

On April 7, 1947, a ski-wheel equipped C-47, followed by a C-54, landed on the ice of Slidre Fiord, Ellesmere Island, to establish the first joint Canada-US Weather station at Eureka, Nunavut. In the following years four other stations were established in the Queen Elizabeth Islands:

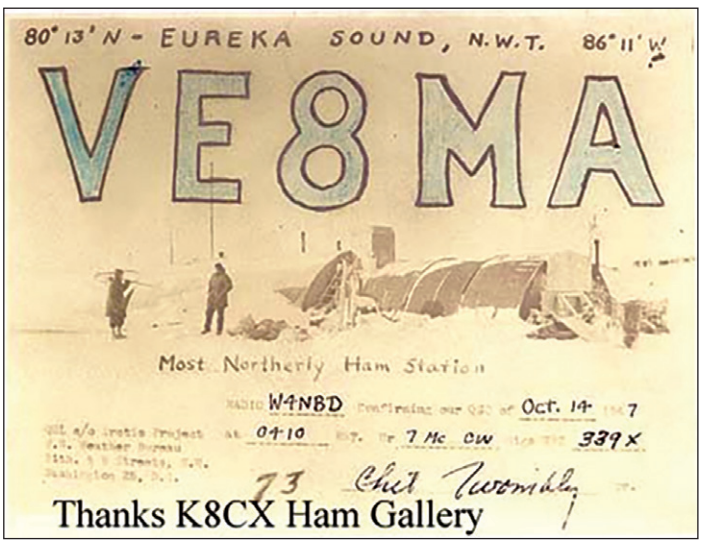
Resolute Bay VE8MB: August 31, 1947

Isachsen VE8MD: April 3, 1948

Mould Bay VE8MC: April 11, 1948

Alert VE8ML: April 20, 1950

Amateur Radio played a unique role in the history of these furthest north stations starting with the first Amateur station, VE8MA at Eureka. When the aircraft departed on April 7, six people – three Canadians and three Americans – were left to set up and operate the weather station. Of the "Eureka six", two held Amateur Radio licences: Murray Dean, VE8PW (1918-2004) and John Trinko, W9MGH (1920-2012).



The first six months, spring through early fall 1947, were spent erecting the station buildings and building the airstrip. The supply ship which arrived on August 9 brought more station supplies and materials for the construction activity that lasted to the end of the fall airlift in November. Airlifts in the spring and fall became a pattern at the stations in future years. One more Amateur – Chet Twombly, W1PLD (1918-1997) – had arrived on the USS *Edisto* in August and was part of the overwintering 1947-48 crew of eight.

Setting up the furthest north station in the Americas was a challenge. The Dark Period at Eureka runs from October 20 to February 20 and Eureka is often the coldest spot on the Canadian weather map. Even when an airstrip had been built, operation in the cold and dark was difficult. Runway lights – toilet paper soaked in fuel oil in coffee cans – took time to prepare and were unreliable.

Initial plans to provide regular mail service throughout the winter months were found to be impracticable. Para-drops partially filled the gap but they too had their logistical problems. Amateur Radio, VE8MA, filled the gap. Described by Murray Dean as "a blanket Amateur licence granted for all personnel and their private messages", Amateur Radio was encouraged by the authorities but no dedicated equipment was provided.

Figure 1: The VE8MA QSL card. Note the date and the signal report!

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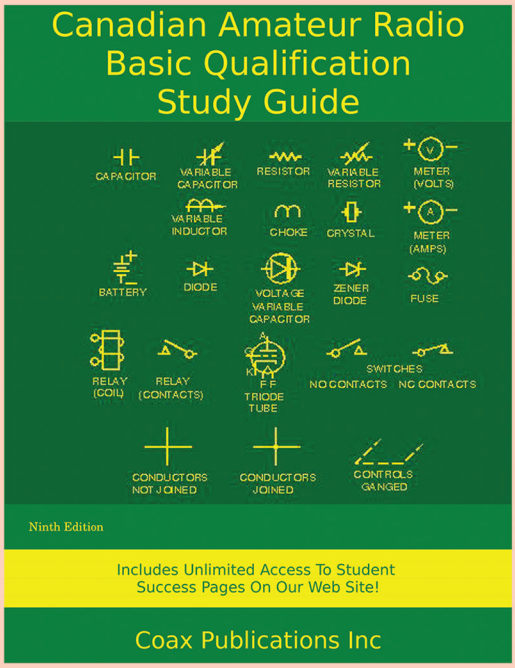

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From the beginning priority was given to radio communications in support of the weather observing mission of the station using "war surplus" equipment. This was barely adequate for operational purposes but sadly inadequate for Amateur Radio. Key clicks and frequency drift were a problem.

John Trinko attempted to use the equipment on the 75 metre Amateur band, but the only stations within range were OX3BC at Pituffik (Thule), a small joint Danish/American station established in 1946, and Arctic Bay VE8NA on Baffin Island. Ham radio communication with Mould Bay and Isachsen (VE8MD and VE8MC) was not established until late April 1948.

Note: *The main Joint Arctic Weather Station (JAWS) station was intended to be installed at Winter Harbour in July-August 1947 but severe ice conditions and a disastrous accident resulted in the plans for Winter Harbour being abandoned. The new station was established at Resolute Bay in July 1947.*

Early efforts by John Trinko to adapt one of the AN/VRC-1 sets for use on the Amateur bands were unsuccessful. Trinko described the transmitter as "Official radio equipment, an outmoded BC-191, 12-volt power". It was subject to key clicks, fading (QSB) and frequency drift. A W5 (US station) reported an S9 unreadable signal.

Chet Twombly, brought renewed enthusiasm to the efforts to establish an Amateur station, but the pressing priorities of building the station and the airstrip did not allow Chet to get on the air until October. His first effort was with the same AN/VRC-1 units used earlier by Trinko, with similar results as this QSL shows (see Figure 1 on page 14).

Note: *Chet became US Executive Officer in the spring of 1948. He remained at Eureka until April 1949.*

On the last outgoing mail in the 1947 fall airlift, Chet sent out a personal order for the purchase of a Millen exciter – a 50 watt unit popular with Radio Amateurs. It was hoped that the Millen would arrive on the first flight in the 1948 spring airlift. It did not arrive but some spare parts for the exciter did arrive. Using these spares, plus radio parts already at the station, Chet built the 5 watt transmitter shown in Figure 2 which he described as "a couple 6L6s, doubling up from 40, with about 5 watts input".

He put up a doublet antenna and then a double zepp antenna, and using a spare Hammarlund BC-779 Super-Pro receiver VE8MA was on the air! On March 9, 1948, the first contact was made with that 5 watt homebrew rig and the first five personal messages sent out from Eureka. Thereafter, regular contact was made with W1BIH and W2QHH.

The Millen exciter (shown above and in Figure 3) arrived not long after Chet had built the 5-watter. It became the station's Amateur transmitter, along with the Hammarlund, BC-779 Super-Pro receiver, for most of the year. Regular Amateur operation from VE8MA began officially on March 29, 1948.

Lawrence "Larry" Nielsen, W2SWC (later W2ZS; 1922-2009), arrived in August 1948, replacing John Trinko. Larry brought a Hallicrafters HT-17 transmitter (25 watt, CW covering 80-10 metres; tube line-up 6V6, 5Y3 and 807). A Meissner Signal Shifter VFO was used with the Hallicrafters. At this point VE8MA had a choice of two transmitters, both low-powered.

Figure 2: The 5 watt transmitter built by Chet Twombly from spare parts.

Figure 3: Chet Twombly, 1948. Note the Millen Exciter on the top right.

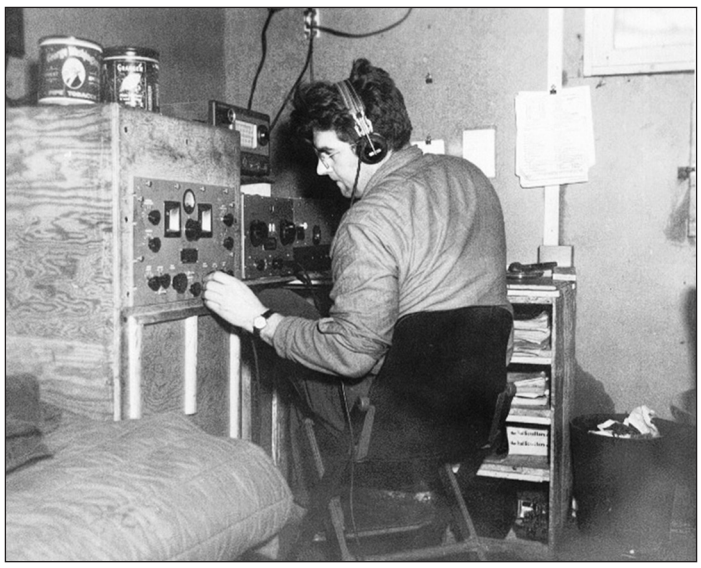


Figure 4: Chet Twombly, November 21, 1948. "You can just see the new transmitter in the corner…" (Murray Dean)

The Hamstudy Basic 2017/2018 Study Guide is now available. Please see the ad on the Inside Back Cover for more information.

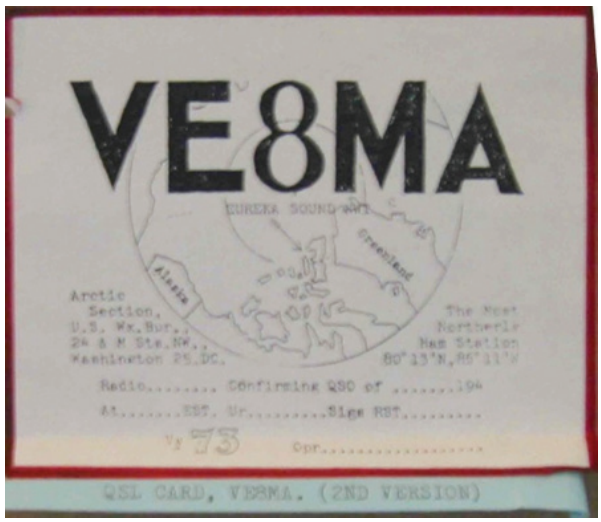
Figure 5: Eureka crew mid-1948. Standing: Larry Nielsen, Don Hatfield, Ray Roszek and Murray Dean. Seated: Jim Morton, Eric Walker, Chet Twombly and Gabe LeBlanc.

Murray Dean, VE8PW

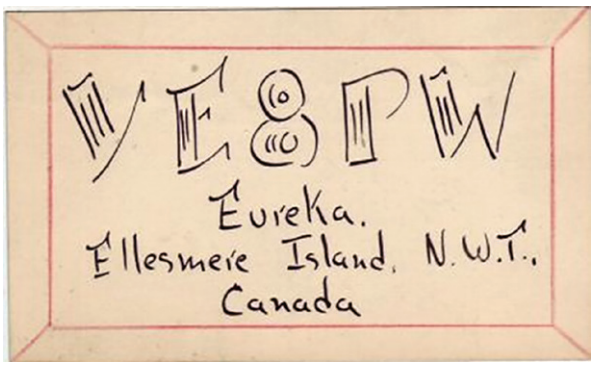
Late in November 1948, Chet Twombly built a homebrew transmitter with a pair of 807s, push-pull, using parts from around the station supplemented by parts sent up from the south by John Trinko.

During 1948 the main operators at VE8MA were Murray Dean, Chet Twombly, Eric Walker, John Trinko and Larry Nielsen. Murray also operated under his own call sign, VE8PW.

Note: *Eric Walker had replaced Robert Tyrer late in December 1947. It is not known if either Walker or Tyrer were Amateurs. As commercial operators they would have been accorded all Amateur Radio privileges. Walker remained at Eureka until October 1949. John Trinko left on the spring airlift but kept in touch with the station from Chicago.*



Above: VE8MA QSL; Below: VE8PW QSL 1948



Murray Dean became Officer-in-Charge when Jud Courtney left in the spring of 1948 and remained at Eureka until April 1949. Chet Twombly also left in April, 1949 while Eric Walker remained until October 1949.

Going into the winter of 1948-49 (the dark period) Amateur Radio was well established, but a tragic fire on Christmas Day 1948 destroyed crucial station buildings, equipment, batteries and generators.

The story of this tragic event is beyond the scope of this article but there was an Amateur Radio connection. On December 28, 1948, three days after the fire, the station Journal recorded: “The small 300 watt AC generator is sufficient to drive Nielsen’s small Amateur transmitter and we are able to keep our schedule tonight”.

Then, on January 12, 1949, there was a report of another disastrous fire and from January 23-24 there was a radio blackout. J. Glen Dyer, later head of US Arctic Operations, had been the radio operator with Admiral Richard E. Byrd’s Antarctic expedition. He is thought to have taught Byrd Morse code when the latter embarked on his “Alone” trip.

Dyer, an excellent “c.w.” operator, kept in touch with the station. He easily read a high speed Morse exchange between John at Eureka and Jim Jung, VE8PB, at Mould Bay in 1956. Through him they were able to confirm that their mail had been received and got first hand news of the airlift.

A Postscript

By fall 1949, Amateur Radio had become the established means of handling personal communications from the station.

Figure 6: The Amateur configuration at VE8MA in May 1956.

Figure 7: The Amateur configuration at VE8MA in 1958.

Norm Simon, VE8OE (later VE3DWQ) became the third Officer-in-Charge in October 1949. He used a Collins ART-13 on 20 metres. By then personal traffic was mainly handled through VE1FQ, W9NZZ and W2QHH.

The two professional radio operators at the station with Norm were Denny Prendergast and Bob Pearson, W4TAM. Bob had previously operated from OX3GE in Greenland.

John Melvin, who replaced Norm in October 1951, brought along his own transmitter and receiver. The transmitter was a single 813 with a pair of 807 modulators. The receiver was a National 57B. When John departed in the fall of 1952 he left his gear at the station.

John Melvin remembered this from his Amateur Radio days at Eureka: “We used to drive the tubes pretty hard and we were always on the verge of going off the air in the 1951-52 period. We had a wonderful ham, W2LXP, in Albany, New York, who supplied us with tubes when needed. He used to take the tubes to Westover AFB, they would fly them to Thule, and they dropped them at Eureka.”

Around 1953 all of the JAWS stations were equipped with top-flight Collins gear – a 75A4 Transmitter and a 51J3 Receiver – although it was not until 1957 that a multiband beam antenna was provided.

When John Gilbert, VE3CXL, arrived at Eureka in May 1956, the Amateur configuration at VE8MA was set up as shown in Figure 6 above. The station layout was a copy of the station built at Isachsen in the winter of 1955-56 by Mitch Powell, VE3OT.

John’s project over the winter of 1957-58 was to build a Heathkit DX-100 (see Figure 7). It became the backup for the station. It was far too heavy to carry south and was left on the station where it temporarily replaced the Collins transmitter, which was out for repairs in the summer of 1958.

Amateur Radio continued for many years with Amateur antennas being a feature of the Eureka skyline. Gradually communications service to the Arctic improved and activity reverted to regular Amateur use. Antennas no longer graced the skyline – until 2014 when Pierre and Alex revitalized Amateur Radio at Eureka.

Stay tuned for more in Part 2 in the next TCA.

Pierre was first licensed in 2000, rather later in life than many Amateurs, while living in Colorado. He still holds the Extra class licence KC0IGY. He returned to Canada in late 2004 but it would be 10 years before there was time to pass the Canadian exam to become VE3KTB. His interests include chasing DX, contesting and just about anything else. Science and Amateur Radio have always gone hand-in-hand for him, allowing him to activate NA-008, NA-043 and operate from KC4AAA.

John Gilbert, VE3CXL, was licensed in 1954 as VE3BOH. He operated as VE8OW from 1956-58. He held the call FP0GNS (St. Pierre and Miquelon) and has operated from Amateur stations of the International Telecommunication Union in Geneva, Switzerland and Kyoto, Japan. He is a member of Chapter 70 of the Quarter Century Wireless Association (QCWA).

Alexey Tikhomirov got his passion in Amateur Radio at RW9HWR and RW9HZZ (currently UI9I) club stations in 1993. He was licensed in 1997 as RA9HAI. Since 2012 he has been certified in Canada as VE1RUS. He is a trustee of the Eureka Amateur Radio Club’s call sign VY0ERC and holds a Station Manager’s position in the Halifax Amateur Radio Club.

TCA

QUA – A TOPICAL DIGEST

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As an Amateur, I often think how fortunate we are to have Amateur Radio as an avocation. Throughout the 53 years I have had my "Certificate of Proficiency in Radio", it has provided me with good companionship, technical knowledge and pleasure at meeting other Amateurs in person and on the air.

By its very nature, Amateur Radio encourages us to take an interest in other people and other cultures around the world. We end our QSOs with 73, our best wishes, and often follow up with QSL cards to convey our thanks for another enjoyable chance meeting with another person.

I think of many wonderful QSOs I've had where I've learned something new about the other operator's country, QTH or his or her interests and ideas. Even the short DX and contest-style contacts encourage me to look up locations in an atlas or, these days, on the Internet.

On the overall scale of human activity these interactions may be small, but I like to think they are important and that they counter some of the divisiveness and isolationism that seem to be gaining ground at this time. I am very glad that with our courteous radio interactions we can do something to make the world a better place.

Valves Revisited

I recently received two radio books that I've enjoyed reading very much. The first is the Radio Society of Great Britain's book *Valves Revisited* by Bengt Grahn, SM0YZI. My interest in radio started when most equipment used tubes and transistorized equipment was a rarity. At that time, in the mid-1960s, an 807 transmitting tube could be purchased for 50 cents whereas a 2N107 germanium transistor was $2 – a lot of money in those days! – and parts suitable for tube construction, from old TVs, for example, were easy to come by.

As I read through *Valves Revisited* many memories of my early experiences with tubes came back and I was impressed again by the ingenuity and creativity displayed by their designers and users. One thing that especially interested me was how often tube circuits are replicated with transistors. Of course there are differences in these circuits, due to the different characteristics of tubes and transistors, but the problems faced by designers today are often similar to those faced by designers in the past, so the functionalities of the circuits, and the principles utilized, have much in common. Obvious examples are the grounded cathode, grounded grid and grounded anode tube amplifiers compared to the common emitter, common base and common collector bipolar junction transistor amplifiers, but on reading *Valves Revisited* many other less obvious examples are evident, and it is clear that our present electronic world owes much to the designers of the past.

If you are interested in building tube equipment, *Valves Revisited* has a great deal of very worthwhile information regarding the choice of tubes, the principles and equations that govern their operation and example circuits. If you like working through equations as they appear in a text you will find a few errors. I always find such errors disconcerting because I'm left wondering if it is my error or the book's, but in this book there aren't many and those that do occur are easy to spot and correct. I don't plan on building anything with tubes (but who knows!), nevertheless I highly recommend this book to anyone with an interest in tube equipment construction, operation or the history of electronics (as in circuitry, not who did what). You can order this book from the RSGB and there is a discount for RAC members (see the ad on page 25).

Radio Propagation Explained

The second of the books I've enjoyed reading is *Radio Propagation Explained* by Steve Nichols, G0KYA. As you might expect from the author's call sign, this is also an RSGB book and so, also available to RAC members at a discount. This book is right up to date, with a publication date of 2016. Much of the material is similar to what can be found in propagation chapters of books like *The ARRL Handbook,* but I like different perspectives too and Steve presents his material clearly and very well with good diagrams throughout the book. My main activity has been in HF so I found much of interest in sections that dealt with propagation in other parts of the electromagnetic spectrum than those I'm used to in the HF region. With a newly published book like this, chapters on "HF propagation prediction software", "Space Communications" and "Other web-based sources of information" look like they will be useful for some time.

Solar Eclipse 2017

In the "QUA" column in the January/February 2016 TCA, I wrote about the monitoring of Amateur Radio communications conducted in the United Kingdom during the solar eclipse of March 2015. Through the monitoring of these communications and accurate measurements of signal strength made possible by the use of software defined receivers, WSPR and the Reverse Beacon Network, many of the effects of the eclipse were characterized. For example, the decrease in solar radiation during the eclipse resulted in a decrease in D, E and F ionospheric layer ionization and, as would be expected, a decrease in critical frequency. Also observed was a decreased strength of short-range medium wave and lower HF frequency signals and an increased long-distance strength for these frequencies.

When I wrote the column I was very excited by the results from the UK, especially because there is another total solar eclipse coming up soon. Since this one passes through the central United States it will offer North American Amateurs a similar opportunity to provide valuable scientific information. I was very pleased therefore, to read two articles in *QST* pertinent to this objective. The first of these articles, "The Reverse Beacon Network", was in the October 2016 issue. Its authors Pete Smith, N4ZR and Ward Silver, N0AX, describe some of the history of the Reverse Beacon Network (RBN) and then explain how to use it to evaluate antennas and stations. If you want to set up an RBN "node-op" the article explains how to do this too. It concludes with examples of the way in which the RBN has been used to collect valuable scientific data during a solar flare and then describes how it could be modified with calibrated signal-to-noise ratios and precise time and frequency measurements so as to provide even greater value to these data.

A sidebar to the article states: "the RBN will play a key role in collecting data during the eclipse. Amateur and professional observations of the eclipse are likely to generate the largest set of point-to-point propagation data ever recorded for a single event and Amateurs will play a key role." With regard to the RBN history I was interested to see the very important part two Canadian Amateurs – Alex Shovkoplyas, VE3NEA and Gene Sawkins, VE7CC, had in its establishment.

If you are interested in participating in the generation or collection of data during this upcoming eclipse you will also be interested to know of the second *QST* article, "The Solar Eclipse QSO Party", by Ward Silver, N0AX. This article has a lot of interesting information about the Monday, August 21, 2017 eclipse and the effects it is likely to have on maximum usable frequency and propagation, but it also outlines the reasons for a Solar Eclipse QSO Party and the rules for this event. Basically, the idea is to get as many people active on the air during the eclipse as possible so that there will be a great many data from which analysis of the effects of the eclipse can be made. Ward's article includes references to three websites that provide much more information. For the eclipse path and times visit http://www.eclipse2017.org/ and https://eclipse.gsfc.nasa.gov/eclipse.html; and for the Solar Eclipse QSO Party rules and objectives visit http://www.hamsci.org/solar-eclipse-qso-party.

Note: The article "The Development of the Scanning RF-Seismograph" by Alex Schwarz, VE7DXW, on page 38 of the March-April 2017 TCA also has additional information regarding this solar eclipse.

Inverter Generators

A few days prior to writing this column, almost all the Yukon experienced a three-hour electric power outage. Fortunately, this outage was during daylight hours and it seems that generally it caused inconvenience but not overly serious problems. Of course, longer outages could mean that inconveniences become serious problems for heat, light and communications, for example.

Like many others I think about the problems associated with power outages and how to mitigate their effects so I was pleased to have the opportunity to test the output of an inverter generator for, in particular, its usability to provide power for emergency communications. Instead of producing 60 Hz AC directly from an alternator driven by an engine turning at 3600 RPM, the engine of an inverter generator turns an alternator whose output is rectified to DC and then converted back to AC at 120 V, 60 Hz by an inverter. The principle advantage of this type of generator over the non-inverter type is that since the frequency is set by the circuitry of the inverter, for the inverter generator the engine speed can vary while the output frequency remains constant. As a result, inverter generators can be quieter and more fuel efficient. Because they are more complex, however, they cost more and, whereas non inverter generators are available in very large sizes, the largest inverter generators produce only about 3 kW. Modern electronics have made inverter generators very reliable and lowered the cost, and compact, relatively lightweight inverter generators are available from several manufacturers. A good review of some of them by Bob Allison, WB1GCM, can be found in the June 2012 issue of *QST*.

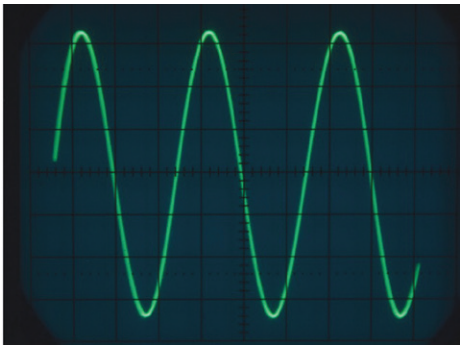

Figure 1: Oscilloscope trace of output from a Honda EU2000i inverter generator. Vertical scale: 5 V/division; horizontal scale: 5 ms/division; 10x probes.

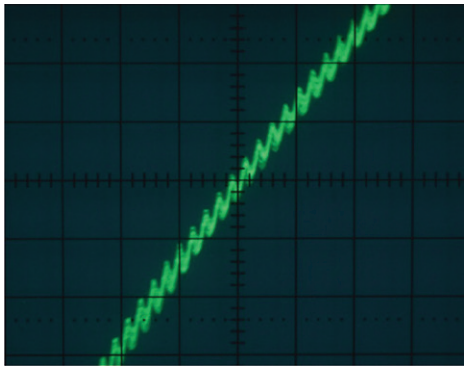

Figure 2: Generator output waveform with vertical scale 1 V/division, horizontal scale 200 µs, 10x probes.

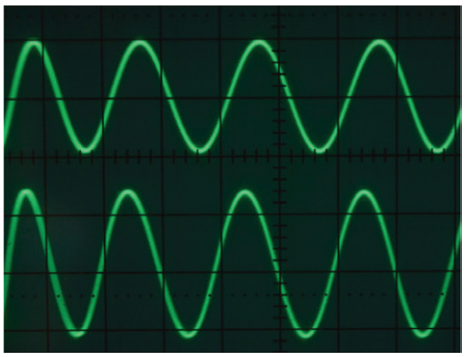

Figure 3: Input (bottom trace) and output to a 50 ohm coax transmission line. Transmission line termination 25 ohms.

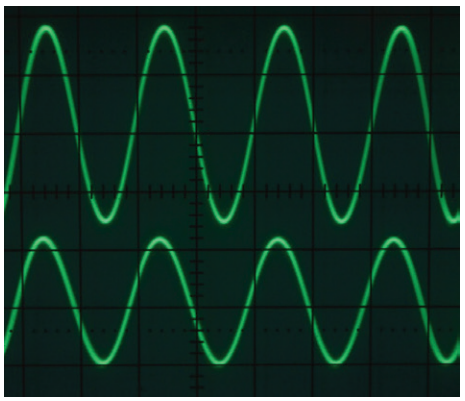

Figure 4: Input (bottom trace) and output to a 50 ohm transmission line. Transmission line termination 100 ohms.

The inverter generator model I tested, a Honda EU2000i, was also one of the subjects of the *QST* review. Even though that review was very complete, there were a few things missing that I wanted to test for myself. For example, I was interested to see what the waveform would look like on an oscilloscope. You can see the results of my measurements in Figures 1 and 2. Please note the difference in vertical and horizontal scales between the two photos.

As you can see, in Figure 1 the inverter generator output looks like a very nice 60 Hz sine wave, but in the faster trace of Figure 2 the variations in the sine wave become evident. From Figure 2, I estimate the frequency of these variations as about 20 kHz and their magnitude about 3 to 4 volts.

I measured the voltage at the output terminals of the generator. With no load it was 125.5 V, dropping to 122.7 V when I plugged in a 1000 W clothes iron. The EU2000i generator has an "eco" setting where the engine speed varies with load. I didn't expect that this would be a good setting to use with the rapid changes in load associated with CW transmission, but with the generator on eco setting powering only my transceiver transmitting CW at 100 W there seemed to be no problem, and there was no problem either when both the iron and transceiver were connected. Impulse noise from the generator was audible on the 160m, 80m and 40m bands, but not on frequencies above these. The noise blanker in my venerable Yaesu FT-ONE was easily able to eliminate this noise.

The EU2000i has a 12 V, 8 A output too, but since this voltage is not well regulated it is intended only for charging batteries, not powering transceivers, even those whose maximum current is less than 8 A. However, in the August 2015 RSGB publication, *RadCom,* Mike Hall, G3USC, wrote an article entitled "A DC regulator for Honda generators" in which he describes a circuit he constructed which allows the 12 V output to be used in conjunction with a 12 V battery, to provide power to a transceiver. He also constructed a line filter with which to eliminate the generator's impulse noise. If you are interested in Mike's articles you can contact him at mikehall2@btinternet.com.

Overall, I was impressed with this generator for an emergency electric power source. It is compact, fairly lightweight (about 21 kg), and very quiet. According to the *QST* review it is fuel efficient too and should run for hours on its 3.6 litre fuel tank.

Standing Wave Ratio

To finish this column I would like to return to the topic of transmission line reflections I began in my last column. This time instead of using my 5 metre length of coax as a quarter-wave stub at 9.9 MHz, I terminated the end with either a 100 ohm resistance or a 25 ohm resistance so that both conditions would result in a 2:1 VSWR. I connected the input to a coax T attached to a signal generator and one channel of my oscilloscope. The second channel probe was connected across the terminating resistance. I set the signal generator to 5.0 MHz and then took the photos shown in Figures 3 (with a 25 ohm termination) and Figure 4 (with 100 ohms).

As you can see from comparing these results, there is a big change in the voltage at the output. Because it has a lower resistance, the voltage across the 25 ohm resistance is smaller than that across the 100 ohm resistance, yet the power dissipated in both resistance should be about the same since the current goes up in the 25 ohm resistance and down in the 100 ohm one. I find this helps me remember how the voltage reflection occurs at an unmatched termination. If the resistance is lower than the cable impedance the reflected wave cancels the incident wave to some degree depending on the resistance, whereas if the resistance is higher the reflected wave adds to the incident wave.

As always I welcome your comments regarding the contents of QUA. You can reach me at vy1kx@rac.ca.

TCA

International Lighthouse Lightship Weekend

The International Lighthouse Lightship Weekend (ILLW) has been held on the third full weekend each August since 1998. This year the event will be held on August 19-20.

The ILLW website (https://illw.net/) describes the event as follows:

"The ILLW attracts over 500 lighthouse entries located in over 40 countries. It is one of the most popular international Amateur Radio events in existence probably because there are very few rules and it is not the usual contest type event. It is also free and there are no prizes for contacting large numbers of other stations. There is little doubt that the month of August has become 'Lighthouse Month' due largely to the popularity and growth of the ILLW.

This year's event takes place on the 3rd full weekend in August so if you haven't done so already, find a lighthouse nearby and get a group together or do it solo and fire up a lighthouse station. In most cases if you don't intend operating from within the lighthouse itself or one of its cottages, you really don't need to get any approval. Most first time entrants are so enthused with the event that they return year after year."

Plans are underway for a number of lighthouse activation's on Prince Edward Island by George Dewar, VY2GF, using the call sign VY2PLH. One special activation will be for the International Lighthouse Lightship Weekend (ILLW) at East Point which has been designated the Confederation Lighthouse (http://www.cbc.ca/news/canada/prince-edward-island/pei-confederation-lighthouse-1.3765495).

George extends an invitation to any Amateur who would like to operate and he will also facilitate individual activations at other locations. The PEI Lighthouse Society (http://www.peilighthousesociety.ca/) lists in excess of 50 sites. You can hear an interview with George on Amateur Radio Newsline (https://www.arnewsline.org/) Report 2058 for April 7 at the 8:55 point on the audio portion. He can be reached at vy2gf@rac.ca or dewarg@bellaliant.net.

For more information on the ILLW event please visit: https://illw.net/

TCA

The Defence of Amateur Radio Fund

The Defence of Amateur Radio Fund (DARF) is a Trust Fund that was established in the early 1990s by the Canadian Radio Relay League to provide financial support for research, and to defray travel expenses of a delegate to World Radio Conferences (WRC) to defend the Amateur Radio bands.

It costs a lot to attend a WRC meeting such as the recent WRC-15 meeting last November. Travel and meeting expenses for a three- to four-week conference can top $10,000 or more in an international city like Geneva, Switzerland – even for the most frugal. Without new donations, DARF funds on hand won't last indefinitely.

Donations can be sent to RAC Headquarters at the address shown below. Please make the cheque payable to "Radio Amateurs of Canada" and note in the memo field "DARF donation". Call or email RAC HQ if you wish to donate by other payment methods or have a question on how to donate. For more information please see the DARF Annual Report on page 47 of the March-April 2017 TCA and visit darf.rac.ca.

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Email: rachq@rac.ca; Tel: 1-877-273-8304 | 613-244-4367

AMATEUR RADIO DIRECTION FINDING: 80 METRES

Les Tocko, VA7OM, Keith Witney, VE7KW and Joe Young, VE7BFK

In the March-April 2017 issue of The Canadian Amateur magazine, we presented an overview of a project undertaken to increase interest in Amateur Radio Direction Finding (ARDF) by making sets of needed equipment available at modest cost to several clubs. This article describes in greater detail the equipment developed for the project.

Rationale

In Part 1 we mentioned that 80 metres is a better choice for introducing ARDF compared to using 2 metres for operational success. An additional benefit is that 80 metre, purpose-built equipment is more amenable to homemade construction.

Some 80 metre ARDF capability for training and practice became necessary anyway because the most recent couple of international ARDF competitions by the International Amateur Radio Union (IARU) have included two additional 80 metre events: the Sprint and FoxOring. A description of these events is provided below. These new events feature short-range setups, low-power transmitters and either faster-cycling or continuous transmissions.

Experience using this 80 metre gear led to the realization that the new events have most of the features that will assist beginners to succeed in learning to find hidden transmitters. In addition, such transmitters can serve as a signal source for individual practice and receiver tuneup. Sets of at least five can be used by clubs for ARDF demonstrations and quick setup practices.

Equipment Needed

The following equipment is recommended for 80 metre ARDF:

1) An inexpensive, handheld, simple, receiver specifically designed for 80 metre ARDF.

2) Sets of low-power, multi-purpose transmitters. The transmitters need to be short range with accurate timing for the Sprint and FoxOring contests, but can usefully include standard contest timing for quick setup training courses.

3) Complete construction manuals for each device. These complete manuals can be found in the reference links below.

Receiver

The receiver enclosure is fabricated from single-sided printed circuit board material. The least expensive version 2 enclosure begins with a piece of PCB stock and all pieces are cut by hand. The version 3 kits used the PCB fabrication process to pre-cut the enclosure pieces for much less assembly work, but greatly increasing the cost of the kits. Use of PC board material enables creating a custom-fitted case, provides complete shielding of the receiver from strong RF when nearby the transmitters, and fabrication of the case with hand tools.

To make the receiver small, it employs surface-mount components wherever possible. For the project kits, the two surface-mount boards were supplied assembled and tested. The layout is not too critical so it would be feasible to use a perf-board construction technique, but this would require much more work to build.

The receiver has a front-end section located within the ferrite rod electrostatic shield part of the enclosure, followed by a switched attenuator in a separate shielded enclosure. The antenna shield

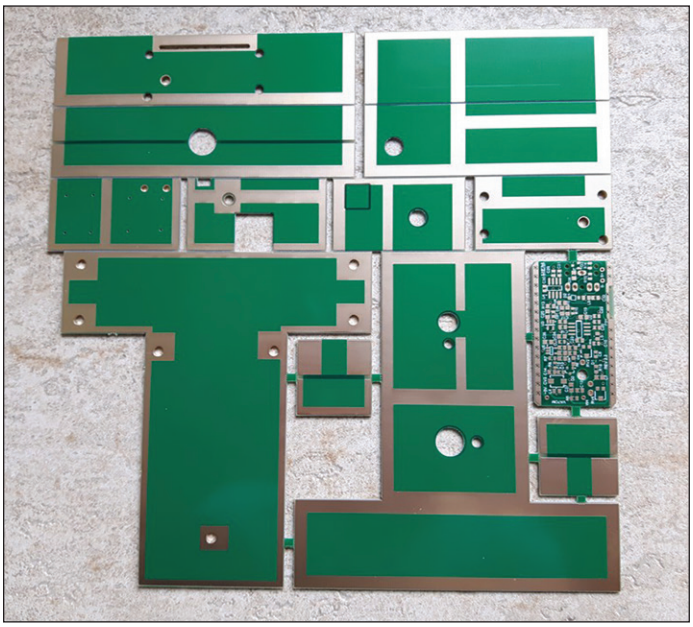


Figure 1: Receiver case pieces as part of PCB fabrication.

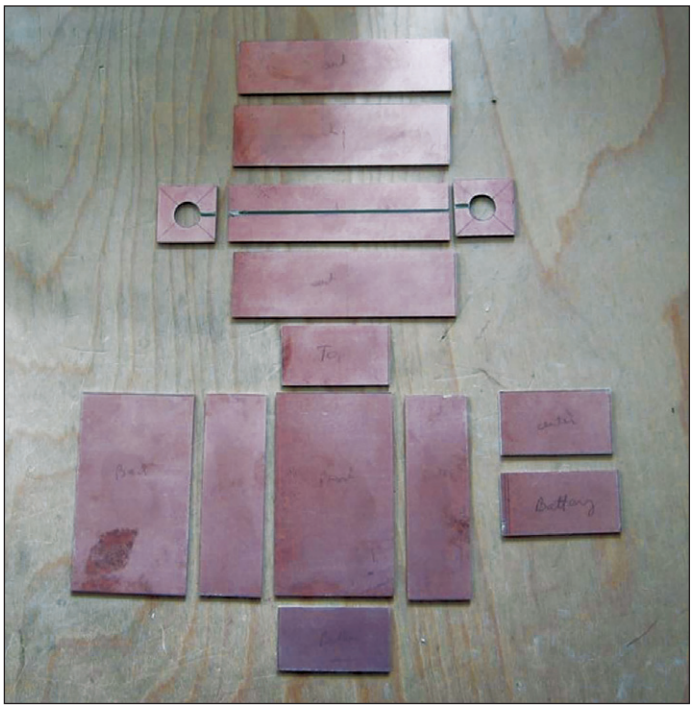
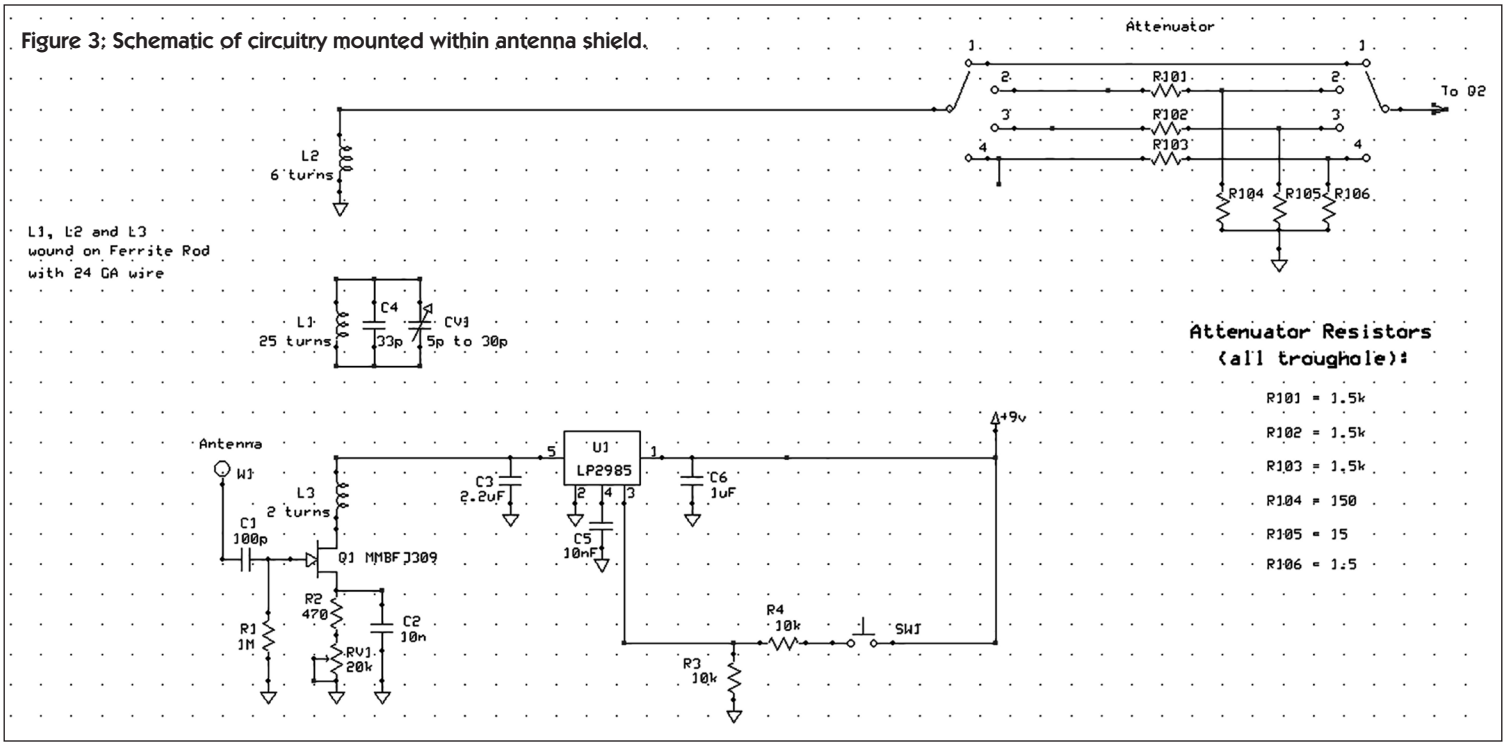


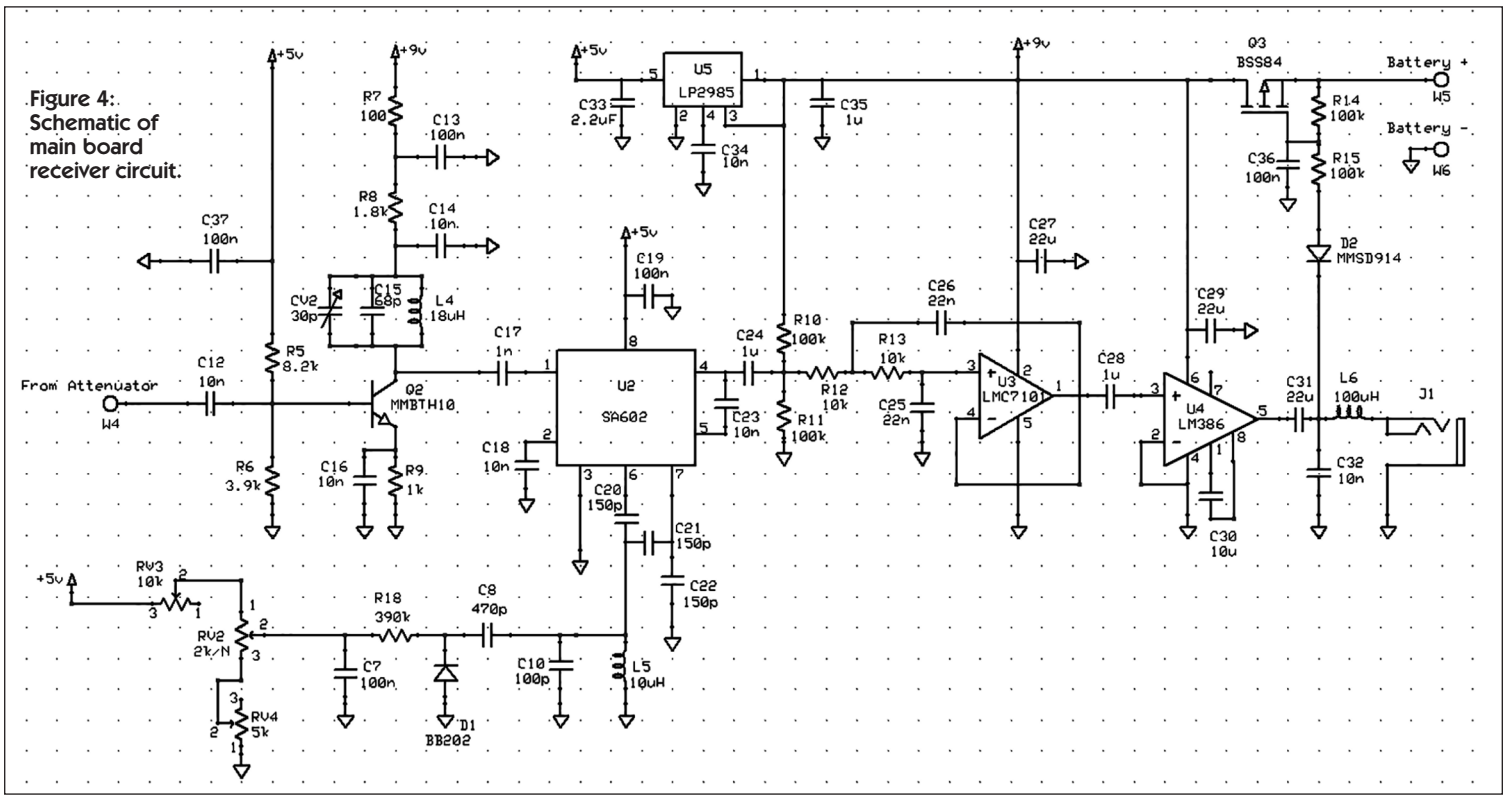
Figure 2: Receiver case pieces hand-cut from stock PCB.

formed from the printed circuit board material has a strip of the copper removed to interrupt the one-turn circuit that would otherwise be formed around the ferrite rod. The ferrite rod is shock-mounted within the shield box in the later constructions.

The antenna has a 3.5 MHz resonant circuit (L1, C4, CV1) which is link-coupled to the attenuator input (L2). To complete the antenna assembly, a signal from the sense antenna amplifier (Q1) is also link-coupled (L3) to the signal received. The omnidirectional sense signal plus the figure-8 pattern from the magnetic loop pickup combine to form a cardiod receive sensitivity pattern. The ferrite rod loop antenna pattern has very

Figure 3: Schematic of circuitry mounted within antenna shield.



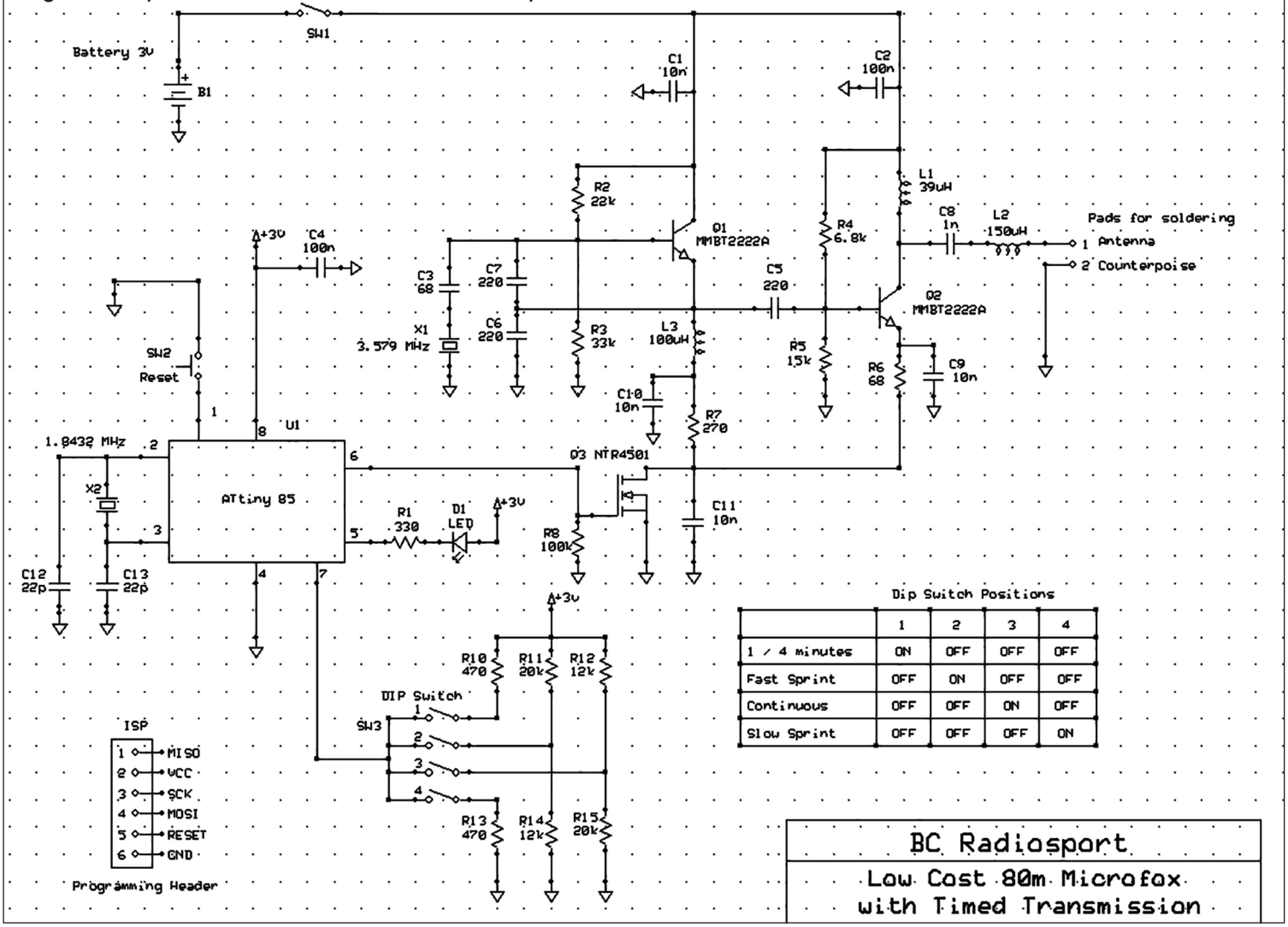


sharp nulls giving accurate bearings, but there are two nulls. The cardiod pattern has one poorly-defined null, but it is sufficient to use to determine which of the two sharp nulls is the direction to the transmitter. The cardiod pattern is turned on and off by switching the power to Q1.

The 4-step attenuator is a set of simple voltage dividers in 20 dB steps. This simple arrangement works because the signal source from the antenna link is low impedance, and the input impedance to the receiver preamplifier is about 2.5 K. Having the attenuator enclosed in its own shielded compartment helps to reduce strong signal feedthrough directly to the receiver preamp input. The receiver sensitivity at the board edge is roughly 0.1 uV for an audible output at the headphones.

The main board signal chain has a preamp (Q2), an SA602 mixer/oscillator IC (U2), an op-amp active low-pass filter (U3), and an LM386 audio output stage (U4). The main power comes from a 9V battery. The power is switched on by enhancement P-channel MOSFET Q3 when its gate is grounded via D2 and the headphones are plugged in. The mixer-oscillator circuitry power supply is regulated to 5V with low-dropout regulator U5.

Figure 5: Low power transmitter circuit with controller microprocessor.



The SA602 oscillator section uses a varactor to tune the oscillator. The tuning is adjusted for a narrow range, 3550 kHz to 3600 kHz, controlled by the front panel potentiometer. The narrow range helps ease first-acquisition of the training signals which are usually 3550, 3580, or 3600. For IARU standard frequencies, the tuning range can be adjusted for 3500 kHz to 3600 kHz with onboard trimming potentiometers. The current from the battery is typically about 10 mA.

The specializations for ARDF are the 60 dB attenuator and the switchable sense antenna. The signal level range needed can be over 100 dB for typical ARDF courses, but a direct-conversion receiver being listened to by typical human hearing already has a large dynamic range, so the attenuator has proven adequate. While developed as “beginner” equipment, the receiver sensitivity and directionality performance is nevertheless comparable to more sophisticated receivers (such as the DF1FO FJRX80).

Transmitter

We used a crystal oscillator transistor (Q1, 2N2222), followed by an output transistor (Q2, 2N2222 or BC547). The output transistor drives one of two very short antennas via matching inductors L3, L4.

The antenna connector is a 4-pin molex which is wired with the antenna to go with its matching inductor. The antenna is designed as a short vertical operating against a counterpoise. Quite a bit of experimenting went into optimizing the longer antenna for maximum range. The shorter antenna would be used for the FoxOring case where the range is not to exceed about 150 metres.

On earlier versions of the transmitter, the connector also provides power switching by grounding the battery supply. The transmitter operates from a pair of AA cells. The key-down current is about 5 to 10 mA, depending on the antenna and deployment.

There have been several versions of the transmitter made over the course of the project development. The versions differ in antenna size and deployment, power switching and method of selecting the operating modes. This description is representative.

A microcontroller (U1, ATtiny85, described in the next section) capable of generating the on/off keying of the transmitter for the Morse code identifications and controlling the timing of the four modes completes the transmitter.

Fox Controller Microprocessor

The Sprint contest employs two groups of five transmitters deployed in two physically separated groups. Each group of five transmits in a fixed sequence where transmitter 1 starts at an even minute, runs for 12 seconds and stays off for the next 48 seconds.

The second transmitter starts at 12 seconds after the even minute, runs for 12 seconds, then off for 48 seconds. Similarly for transmitters 3, 4 and 5.

The second group behaves the same way, but each transmitter identifies itself with a faster Morse code speed. There is a beacon transmitter on a different frequency marking the midpoint, and another at the finish.

The transmitter identification consists of sending a unique Morse code: transmitter 1 sends MOE, transmitter 2 sends MOI, transmitter 3 MOS, transmitter 4 MOH, and transmitter 5 MO5. That is, the pattern two dashes, three dashes, followed by one, two, ..., five dots. To determine which transmitter you are hearing, you do not need to understand Morse code. You only need to be able to count or have an accurate watch.

The foxOring contest is a combination of fox hunting and orienteering. The low-power transmitters cannot be heard until the searcher has navigated using orienteering techniques to within about 100 metres of the transmitter, then the continuously-transmitting transmitter can be located using the direction finding receiver. The searcher starts out with a map showing the approximate locations of the transmitters to be located.

The “standard” 80 metre ARDF event uses five higher-power transmitters at least 400 metres apart which can all be heard from the start, plus a finish beacon transmitter on a separate frequency. For this event, the timing of the transmitters is one minute on, 4 minutes off.

The control program for the microprocessor is written in the C programming language variant used in the Arduino Integrated Development Environment (IDE). Since version 1.5 of the Arduino IDE, it has been possible to use a variety of different microprocessors other than the original ATMega processors. One of the earliest implemented is the Atmel ATtiny85. There are advantages and disadvantages to using this IDE. The main advantages are: a fairly “friendly” programming environment where much of the low-level I/O and basic timing of activities has already been worked out; a reasonable debugging feedback; and a quick turnaround code/test cycle. The only disadvantage is that one is constrained to using the logical organization designed into the IDE, but even this constraint is not all bad.

The program developed uses the Arduino IDE timer0 along with the millis( ) and loop( ) main program structures for the Morse code generation, and installs its own timer1 interrupt service to generate a one-second timer based on the 1.8432 MHz microprocessor crystal to time the 12 second, 48 second and minute transmit sequence timing.

Mode selection makes use of the single pin 7 as an analog input to choose the mode based on the voltage level on that pin. Ground selects mode 0, Vcc selects mode 3, and voltages at 3/8 Vcc or 5/8 Vcc selects mode 1 and 2 respectively.

The program includes a number of compile time definitions that allow choosing, at compile time, the output signal logic polarity (open-drain, active low or active high), the code speed for call sign ID, the indexing/not indexing of the standard mode and so on.

The controller program uses data stored in the onboard EEPROM to hold the fox number ID code and the call sign ID. This way, the controller may be programmed without using the Arduino IDE, and the fox number and call sign can be changed without recompiling the program

ACKNOWLEDGEMENTS

In addition to the authors, several others contributed significantly to the success of this project. Printed circuit boards: Dave Miller, VE7PKE. Chief evangelist: Amel Krdzalic, VA7KBA. Participating clubs: Surrey, North Vancouver, Burnaby and FARSC Victoria.

RESOURCES AND REFERENCES

Version 2 Rx manual, construction tips, ARDF event info:
https://ardf.whyjustrun.ca/

Club presentations slides (see 80m receiver project link):
https://ardf.whyjustrun.ca/pages/71 www.ardf.ca

Receiver manual, both versions:
http://islandnet.com/~jyoung/

Transmitter manual, controller manual (see Arduino_programs):
http://islandnet.com/~jyoung/arduinopgm.htm

Official IARU Region 2 website; links to rules:
http://www.ardf-r2.org/

Les Tocko: *First licensed in 1967 as OK3ZAX, he became VE4AMW in 1981, then VE6AWA and finally VA7OM. A retired electrical engineer, Les likes designing various electronic circuits, mostly RF receivers and transmitters. He likes HF DXing and contesting. His preferred mode is CW. Between 1967 and 1975 Les was an active fox-hunter attending many international ARDF competitions.*

Keith Witney: *First licensed in 1964 as VE4EI, Keith holds VE7MID and VE7KW and has operated in a number of DX countries. Keith is a multi-mode Radiosport operator, but prefers CW. A retired electrical engineer, Keith likes designing HF antenna systems and messing with technology in general.*

G. D. (Joe) Young: *First licensed in 1960, Joe has held call VE7BFK since then. He was active on HF, mostly CW, in earlier years, but his recent activity is mostly ARDF. He is a retired electrical engineer who enjoys messing about with various electronic projects.*

TCA

All Things Digital

Amateur Radio for the 21st Century

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QRSS CW – SENDING SLOW CONTINOUS WAVE: PART 3

Note: Parts 1 and 2 appeared in the January/ February 2017 TCA and March/April 2017 TCA. High resolution, colour diagrams, pictures and program source code are available on my website at http://www.va3rom.com.

INTRODUCTION

This is a very general short list of some things you can do with and use the analog weak-signal QRSS CW modes for besides communication. The weak signal propagation reporter (WSPR) all-digital mode is included because it's a (modern) QRSS four frequency shift keying (4-FSK) variant. I'm only touching lightly on each item because the list can go on and on:

1. Testing and calibrating.
2. Mode comparisons.
3. Propagation experiments.
4. "Spooky" stuff.

SUPPORT SOFTWARE AND WEBSERVERS

Once you start transmitting weak-signal, narrow band CW beacons (analog or digital) or use two-way communication data modes, any radio hobbyist receiving them can upload their "grabs" or "spots", along with any associated telemetry, to various worldwide web servers: WSPRnet, Reverse Beacon Network (RBN), PSKReporter and QRSS Plus. Digital signal processing (DSP) "grabber" programs like Argo, Spectran, Spectrum Laboratory, et al, can save this data as analog images (grabs or frames) and these can be enhanced by using image stacking/averaging (see Part 1 in the January/February 2017 TCA).

Our eye/brain fuzzy logic processor analyzes and interprets what the images "mean" and/or what information they contain (if any). Grabs uploaded to the QRSS Plus server aren't stored for very long because of the physical sizes of cumulative images; streaming stations usually keep them separately on their hard drives to search for and save anything "interesting" and delete the rest to keep things manageable. But WSPR spots are digital (all numbers) so they are much easier to store on a central WSPRnet web server, and it has archives back to March 2008. Anyone can download and extract archives and analyze their contents, and the new website called "DXplorer" allows anyone to easily create real-time graphs and maps of transmitted WSPR spots (yours and/or others).

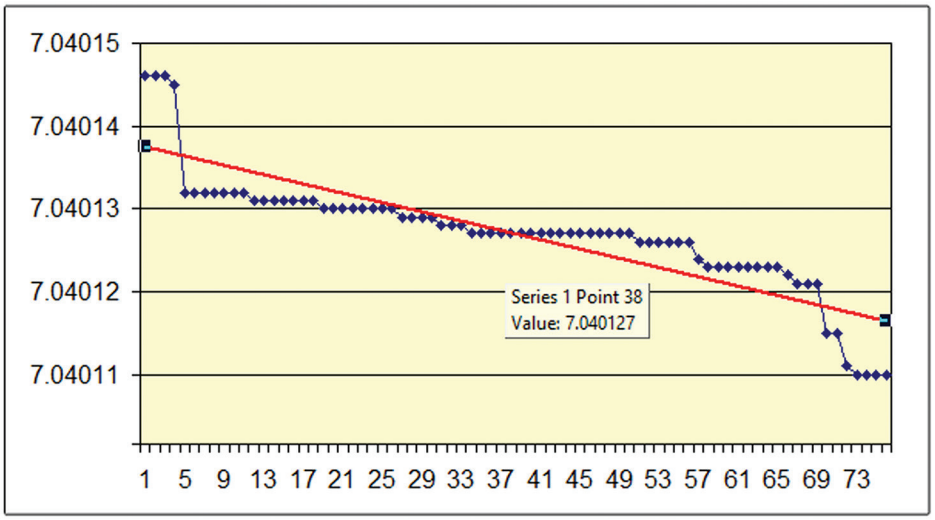

Figure 1: Frequency testing

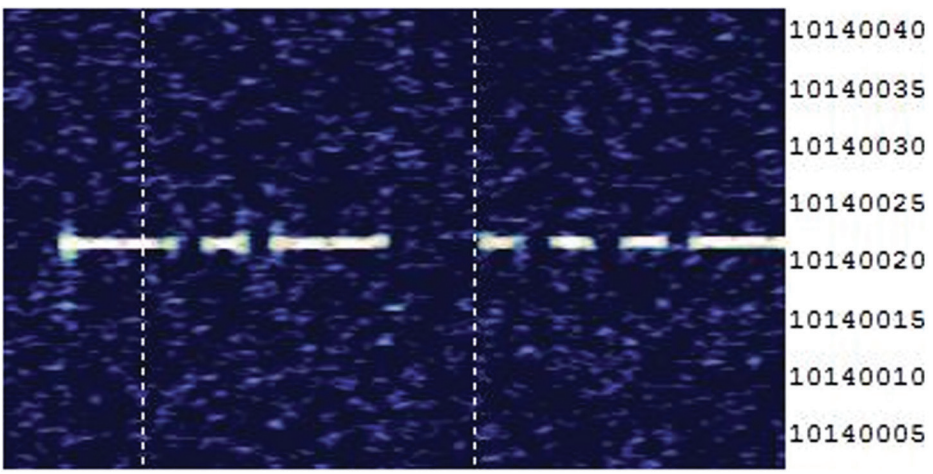

Figure 2: K3SIW 30 m QRSS reference signal

EQUIPMENT TESTING

How frequency accurate and stable is your radio for transmit and/or receive, and how can you test for this using analog and digital data modes? WSPR seems to be the one to use because you get absolute values (numbers) so it should be all you really need, right? Well, let's see how my transmitter performed based on a collection of spots of my 30 decibels-per-milliwatt (dBm) or 1 watt, 40 metre band WSPR beacon, transmitted every 10 minutes for one hour:

a) Highest frequency reported was 7040.146 kilohertz (kHz).

b) Lowest frequency reported was 7040.110 kHz.

c) Average frequency was 7040.128 kHz based on above values.

d) Average frequency drift was -0.0395 hertz (Hz) per hour. The same three stations kept reporting drift so it's not me who's drifting.

My frequency was exactly 7040.127 kHz with exactly zero frequency drift during the test period. How do I know "exactly"? Steven Frankes, K9AN, has a GPS-controlled, multiband WSPR system so his spots of any WSPR signal tell you what's what with extreme accuracy. But what if we converted the digital to the analog world? Perhaps we can see if there's some kind of hidden but recognizable and repeating pattern hidden in the digital data. A jumble of numbers can't do this for us because they only give an absolute value at a specific time, but analog can show rates of change (slow or fast), direction of change (positive or negative) and create curves or lines so we can analyze and determine if the digital data is "good" or "bad": "Lies, damned lies, and statistics."– Mark Twain.

Figure 1 is the resulting dot plot of the WSPR spots obtained over the test hour, with the graph's trend line plus its midpoint value added. Most "agreed" with K9AN (the reference station), but others were well above or below the line. So what's going on? Isn't digital supposed to be 100% accurate? No. All electronics, even the latest software defined radio (SDR), have built-in parts-per-million (ppm) or parts-per-billion (ppb) frequency errors in their master clock oscillator (MCO) which need to be corrected as the electronics "ages". Any deviation from the trend line indicates a problem with the spotting stations' receivers being off frequency and not properly "dial calibrated".

We may only be talking about a 20 to 25 Hz frequency error (usually), but in the data world that's a big error and easily exceeds some data mode bandwidths. Frequency drift isn't usually a problem unless it exceeds the signal bandwidth and the drift causes "crashes" into nearby signals. On the 30m QRSS sub-band (see Figure 2), Gary Hess, K3SIW, transmits a GPS-controlled, very low power (QRPp) QRSS 6 CW (six second dot length Morse code) signal on exactly 10140.020 kHz. The enlarged image segment shows the start of his beacon ("K3") and that the radio/soundcard combination under test is a couple of hertz high (okay, but could be better). Depending on your desire for extreme (and obsessive) frequency accuracy, you can tweak your soundcard and/or radio's ppm (or ppb) errors to get right on Gary's carrier or exactly at "zero beat".

We can also "see" what a radio signal looks like in the ether (Argo is great for beginners) to look for problems. Figure 3 (top), with minute interval markers, shows two different strength WSPR beacons with noticeable problems (to the trained eye): both are below the WSPR sub-band; the timing is off for the top signal (starts too late); the second has noticeable positive frequency drift and could interfere with nearby QRSS signals. Figure 3 (middle) is a QRSS FSK CW beacon missing its carrier signal lead-in (the lead-out was present) and it has a negative frequency drift. Figure 3 (bottom) is a QRSS CW beacon whose transmitter has very distinctive startup characteristics going positive, arcing up, dropping down then leveling out for the rest of the transmission. All these visual patterns are unique to each transmitter allowing them to be "fingerprinted", catalogued, and used for identification. This "quick and dirty" method can identify common radio technical problems right across the radio spectrum or be used to search for and identify illegal

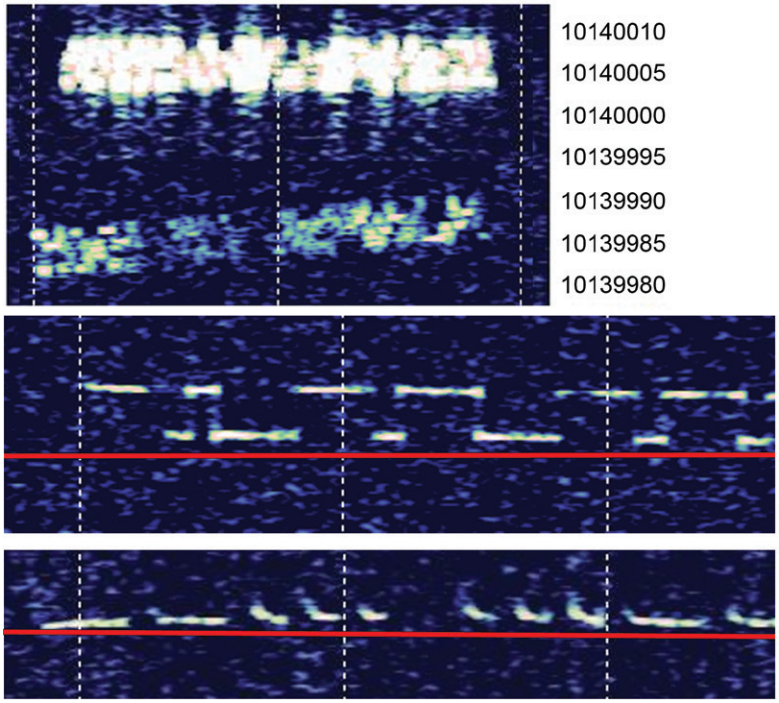

Figure 3: Signal problem detection and "fingerprinting"

transmitters. An Amateur Radio electronic fingerprint system called "Sherlock" (as in Holmes) was developed by Malcolm Mallette, WA9BVS, and it's far more sophisticated and totally dedicated to fingerprinting and identifying various transmitter characteristics.

MODE COMPARISONS

One use of QRSS beacons is to compare different types of antennas to see which perform better for short- and/or long-distance (DX) reception, or to see how one receiver stacks up to another, or to compare how well one mode stacks up against others. Because of the adoption of image stacking/averaging and 10-minute time synchronized transmissions (since mid-2010), QRSS analog transmissions sent using simple CW transmitters can outperform even WSPR – if you don't mind the extremely slow data rates involved. Look closely at Figure 4A, a single raw (unprocessed) frame grab of various QRSS beacons. All are QRPp (30 dBm or less) using QRSS 6 (six second dot length) with varying levels of analog "brightness" based on their relative distances from Peter Mulhare, ZL2IK's, 40m grabber station (the inverse square law visually). It's also important to note that no area WSPR stations were spotting any signals at the time. Can you spot either my graphical CW signal or G6NU's slow Hell beacon in the background noise?

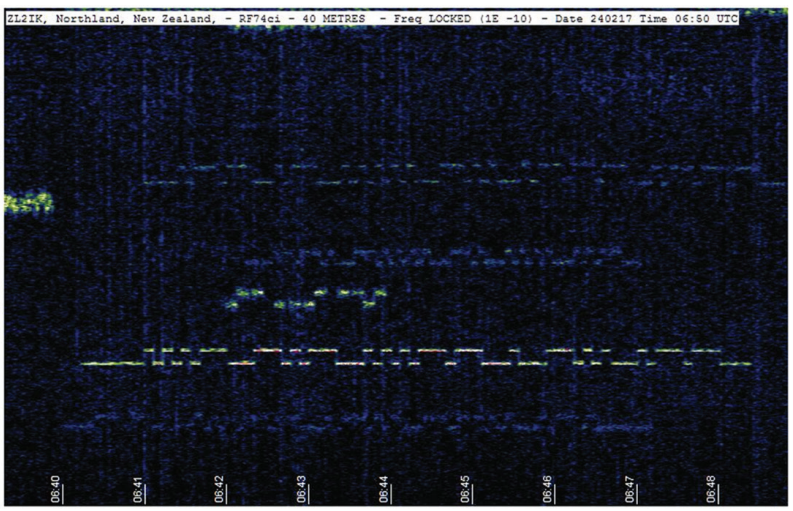

Figure 4A: QRSS 40 m band signals raw single frame

My graphical CW beacon's power to bandwidth ratio is much less (6 dB less) and occupies more bandwidth, albeit it has a much faster transmission data rate (see Part 1). Prior to year 2010, no one would have known it was there – it was just "noise". Figure 4B is a sequential 9-frame stack of the same QRSS signals received by Peter's station over 90 minutes. Can you see the text beacons now?

PROPAGATION EXPERIMENTS

Radio beacons are commonly used to provide real-time propagation information. As the solar cycle continues to drop towards a year 2020 minimum (give or take a year) they will become more important. The atmospheric layer responsible for all long-range radio signal or "sky wave" propagation is called the "ionosphere", which is actually made up

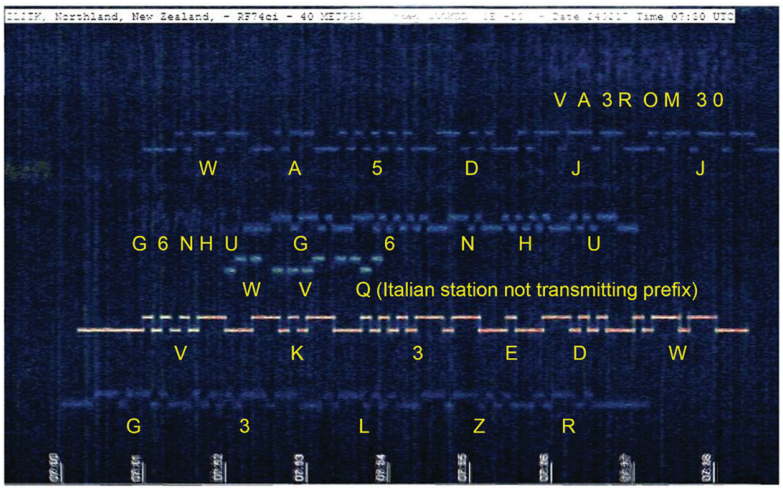

Figure 4B: QRSS 40m band signals stack of nine frames

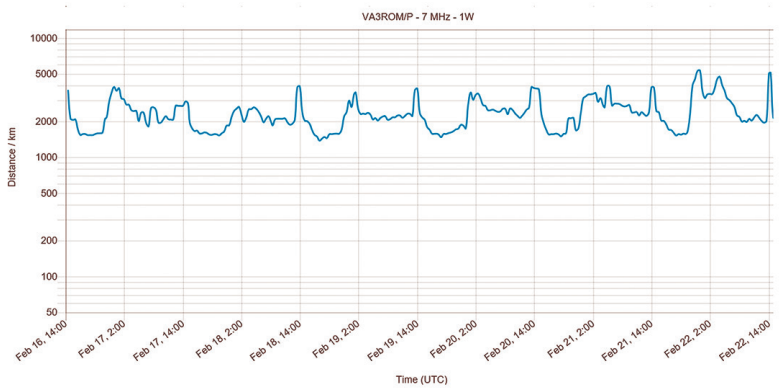

Figure 5A: DXplorer 40m band ionosphere 7-day plot

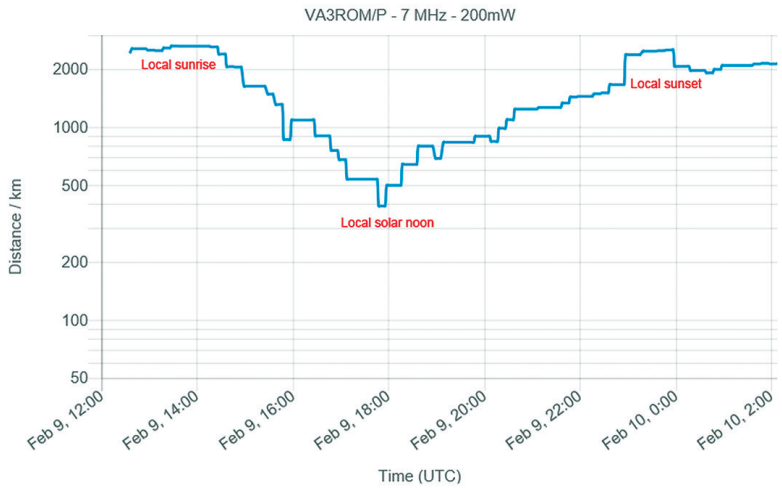

Figure 5B: DXplorer 40m band Ionosphere 1-day plot

of several other layers (D, E and F/F1/F2). It's "bombarded" constantly by solar ultraviolet (UV) ionizing radiation and is most intense on the daylight side of the earth. Photons at UV wavelengths become bullet-like particles, literally blasting negatively charged electrons free from their atoms (turning the atoms into positively charged "ions"). This creates a "plasma", which is more intense when the solar cycle (about 22 years long) is on the upswing (alternating every 11 years or so between maximum and minimum solar activity).

Free electrons form negatively charged "swarms" or "clouds" with varying thicknesses, locations, energy levels and "tilt" angles in the ionosphere. Generally, when solar activity is low, the higher frequency (higher energy) radio waves travel up and out through the ionosphere – "to infinity and beyond" – while lower frequency (lower energy) waves can only travel up and in so far before being reflected back to the earth (horizontally polarized waves reflect easier). Propagation programs calculate the highest frequency that will reflect back to the Earth or the maximum useable frequency (MUF) among other names.

Figure 5A is the DXplorer plot of one week of my 40m WSPR beacon spots showing the maximum mean DX achieved. There seems to be a daily repeating pattern related to the local sunrise, solar noon (by the sun not by the clock/time zone) and sunset times. Figure 5B is an enlargement of one of the deeper "dips" recorded earlier in the month. As the sun arcs up across the sky from east to west (its apparent motion is 15 degrees per hour), the ionosphere absorbs more and more UV radiation until about solar noon, when the sun is at its highest point in the sky and due south (in the northern hemisphere). The 40m band propagation is now reduced to a minimum because those radio waves don't have enough energy to penetrate as deeply into the ionosphere before they are reflected – the electron density is too strong so the band goes "short". But higher frequency (higher energy) radio waves (up to the MUF), which had previously shot up and out or were weakly reflected, are now strongly reflected back to the earth at a greater distance, and those bands go "long". The reverse process begins as the sun slowly sinks in the sky and the plasma starts to cool; ions can now "grab" on to and hold free electrons to reform neutral atoms. But Figure 5B suggests the process isn't symmetrical; the ionosphere seems to "heat" up faster than it "cools" down so some high band openings are still possible even as low band propagation improves or "opens". DXplorer can extract WSPR beacon data from anywhere in the world if you use the WSPRnet to find a station in the "target" area, and then plot its real-time propagation profile (distance) to see if you fall within it's DX reception pattern or not.

A neat spreadsheet tool (courtesy KP4MD) compares WSPR performance to other modes (including voice). In Figure 6, I used it to import 2-1/2 hours of my 30 dBm WSPR 40m beacon spots taken shortly before and shortly after local solar noon (no QRSS grabs or WSPR spots exceeded 1600 km). My original spotted WSPR beacon signal-to-noise ratio (SNR) is in column H (via WSPRnet/K9AN) and the columns to the right are what the SNR sensitivity thresholds would be, when scaled up

	A	H	I	J	K	L	M	N	O	P
1	Date/Time	SNR	dBm	WSPR	JT65	Olivia	PSK31	Morse	RTTY	SSB
2	03-02-2017 18:30	3	30	30	27	20	10	4	-2	-7
3	03-02-2017 18:20	1	30	28	25	18	8	2	-4	-9
4	03-02-2017 18:20	-3	30	24	21	14	4	-2	-8	-13
5	03-02-2017 18:10	-3	30	24	21	14	4	-2	-8	-13
6	03-02-2017 18:00	-3	30	24	21	14	4	-2	-8	-13
7	03-02-2017 17:44	-4	30	23	20	13	3	-3	-9	-14
8	03-02-2017 17:34	-1	30	26	23	16	6	0	-6	-11
9	03-02-2017 17:24	-2	30	25	22	15	5	-1	-7	-12
10	03-02-2017 17:14	-8	30	19	16	9	-1	-7	-13	-18
11	03-02-2017 17:04	-6	30	21	18	11	1	-5	-11	-16
12	03-02-2017 16:54	-2	30	25	22	15	5	-1	-7	-12
13	03-02-2017 16:44	3	30	30	27	20	10	4	-2	-7
14	03-02-2017 16:34	-4	30	23	20	13	3	-3	-9	-14
15	03-02-2017 16:24	1	30	28	25	18	8	2	-4	-9
16	03-02-2017 16:14	2	30	29	26	19	9	3	-3	-8
17	03-02-2017 16:04	3	30	30	27	20	10	4	-2	-7

Figure 6: WSPR performance comparison to other modes

and compared to the other modes when using 50 dBm (100 watts), a 0 dB gain antenna (referenced to a 2500 Hz bandwidth). Power and antenna gain combinations can be varied. The table is colour-coded for easy visual reference: modes in light green and yellow are good and fair chances of making 40m contacts while light red is definitely "no way in Hades".

Note: Many QRSS operators use QRSS 6 (six second dot length) combined with stacking for a 15 dB (or more) advantage over WSPR.

Figure 7: Imaging the ionosphere with QRSS

Figure 7 is a composite image of five sequential frames as received by John Lutz, N9JL, of my same-day QRSS graphical CW beacon visually showing real-time ionosphere effects shortly after local solar noon on the same day (the bottom image is the five-frame stack). My beacon is imaging the ionosphere (in real-time) and the varying one-second dot intensity analog levels can also be received and analyzed as a varying analog voltage using a software chart strip program called "Radio Sky-Pipe".

"SPOOKY" STUFF

There are extraterrestrial radio sources like our sun, the planet Jupiter, pulsars, black holes or the universe in general (it's the source of "white" noise we call "hiss"). Radio waves not only reflect off the ionosphere, they can also reflect off the long and narrow ion trails created by meteors, aurora "curtains" or aluminum aircraft bodies, etc. We can use radio signals to image, catalogue and analyze reflected signals, which is an interesting QRSS offshoot. Figure 8 is a frame grab (converted to grayscale) that looks like a nighttime star field photograph, but it's actually the QRSS 30m sub-band imaged in the early morning hours when it's "dead" to most terrestrial radio signals.

My fuzzy logic processer "sees" it as either a Scottie terrier's head or a map of Australia, but your fuzzy logic processer may see it differently or not see anything at all. This is called "pareidolia" – seeing recognizable patterns, faces and shapes in random noise, clouds, shadows, burnt toast, and so on when none actually exist (it's literally all in your mind). I sent the image to W4HBK and he's never seen this at his more southerly latitude,

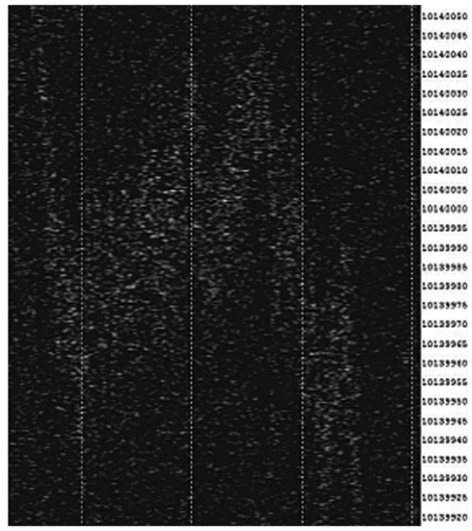

Figure 8: QRSS "spooky" ether stuff

but he said they do show up quite frequently from the more northern (and southern) latitudes (may be aurora related). The pattern isn't random because I've also found two other similar looking patterns taken a week apart. Perhaps this is one ET's way of saying "Hello!"?

Figure 9 is a 10m band frame showing the effects of a solar flare recorded by Euan McPherson, M0GBZ. Notice how the QRSS FSK CW signals are literally "ripped" apart when the ionosphere was "hit" by an extremely energized and focused beam of photonic energy called "X-rays". No life would exist on this planet (except maybe the cockroach) without the earth's upper atmosphere and magnetic field's (magnetosphere) abilities to absorb X-rays (making for really spectacular aurora).

If you retrieve the WSPRnet archive for that day (578 megabytes), you can create interesting mathematical models of the event across the radio spectrum. Is that cool or what? Scientists and other radio researchers are now using the various Amateur Radio web server data for this purpose.

MY FINAL

Radio reference and/or QRSS/WSPR propagation beacons are indispensable, inexpensive and easy to setup (radio clubs take notice). Especially needed are stations above "north of 60" (or "south of 60" for the southern hemisphere) because their data (transmitted or received) is especially invaluable. Don't turn your equipment off at night because it can be put to very good use while you sleep because every bit of data collected means a lot.

"Nobody made a greater mistake than he who did nothing because he could do only a little. – Edmund Burke".

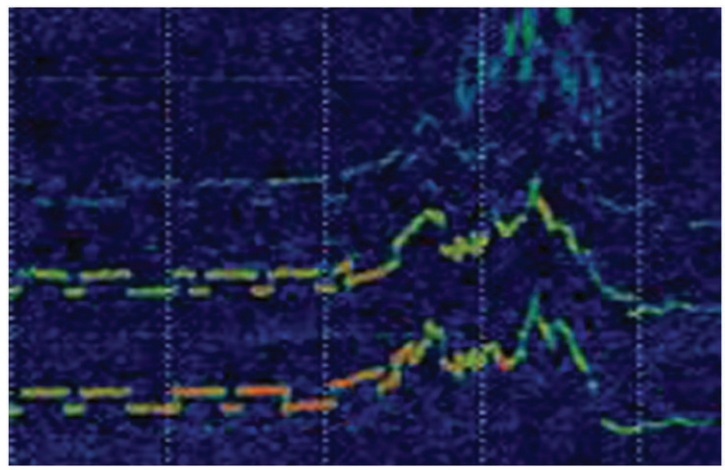

Figure 9: QRSS 10 metre solar flare detection and effects

– continued on page 30

RANDOM THOUGHTS...

Dirk Moraal, VY1NM
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It was a dark and stormy night in the Yukon...

There had been a fierce wind storm raging since the wee hours of the morning. An icy north wind was playing a game of push-the-tower-over, where the winner gets to see an expensive pile of crumpled aluminium tubing scattered on the ground. So does the loser. I had been outside to lower the retractable mast as far as mechanically possible to lessen the wind load on the structure. A few snowflakes floated by, nay, streaked by, carried along inexorably by an affair greater than themselves, to be dashed against cabin or tree, ultimately to fall as if exhausted upon the late snow pack only to be further disturbed by other flakes also jostling for a position in the landscape.

As all this drama was going on outside I was inside sitting cosily by the fire, listening to the radio. Listening. Scanning the dial. Waiting. Patiently. Everything felt right. I am sure cavemen knew the feeling. Eventually what you seek will come by and then you will have the Big Eat.

I was listening to the radio because a good friend, VA3AAG, (SK) had told me that a special event station would be on from 1200z to 1400z. I had said I would be there to make some noise for it. So I sat in the lessening gloom, for the days here start earlier and end after normal hours at this point of the late northern winter. I had been told that the special event station would be on 14.240 plus or minus QRM, so my right index finger was slowly turning the dial, first to the right, then to the left an equivalent amount, bracketing the frequency. My Special Event Station does not appear. But I too am a patient hunter. I know that everything comes with patience – and a lot of work.

I have a special connection with these events. The S.E. station is PA150BA in Holland. As I understood it, it is owned by a childhood friend of VA3AAG. It is being operated this day by a friend of both. There is a bond between these men, going back to the horrific days of WWII. I enter this fellowship indirectly. VA3AAG met and was helped by a relative of mine during evacuation as the fighting intensified after the invasion. I met VA3AAG on Amateur Radio thanks to the Pow Wow Club (which meets from October to end of April at 0500z on 3750). Letters followed. “Are you related to…?” etc. I must be, even if we are not sure who this relative was, but at that time there were only 45 people worldwide known to carry our family surname. It is an old family dating back to well before 1580.

My father had come to Canada in 1929. The best choice of country. Just the timing was a bit off. Who knew?

As the indistinct shapes in the grey dawn transmogrified into solid shapes, my Special Events Station still did not appear. Tuning into weak signals had become a painstakingly slow, painstakingly intense experience. The hunter was becoming more attentive in his determination. But time was almost up.

Then the event was over. I continued to listen however, reluctant to concede defeat. And then it happened! A familiar voice started to form words out of the ether and for once QSB was not a pejorative word. Somewhere in the world there is QSB, but if Newton was right, somewhere else the opposite must be happening. That place was the Yukon, right then. At 1407 Z the signals were strong enough to make speech intelligible. I recognized the voice of VA3AAG speaking in Dutch to PA150BA. PA150BA tried one last call. I answer. Signals were fading rapidly but he heard me. We made the exchange. We spoke the numbers, 55, 57. It is in the Log! VA3AAG also heard me and came back to tell PA150BA who I was. Then as we congratulated each other, QSB took over. Just one more detail to add. This was my very first ever Netherlands contact and now the connection has truly come full circle.

As the signals faded, the wind still shook the world around me. Looking outside, I realized I had never noticed before how beautiful grey skies were.

N.B. Gerrit, (Gerry, VA3AAG) was to collaborate on this article but the world of radio lost him a few weeks later. I would have liked to have had his input because there are details missing that only he knew. These are now lost to me in the mists of time, “somewhere out there in the ether” as we used to joke.

Wonderful how radio brings people together like that. It also makes for lasting friendships.

– Sadly 73. For now.

TCA

– Robert C. Mazur, VA3ROM, “All Things Digital”, continued from page 29

REFERENCES AND RESOURCES

Data Modes Web Servers

PSKReporter – https://pskreporter.info

QRSS Plus (with tutorials) – http://tinyurl.com/jcu6dsf

Reverse Beacon Network – http://www.reversebeacon.net

WSPRnet – http://wsprnet.org

DXplorer
http://dxplorer.net

Interpreting WSPR Data for other Communication Modes
http://tinyurl.com/ou6m6jd

Radio Sky-Pipe
http://tinyurl.com/ouyhody

Software (Grabbing/Spotting)
Argo and Spectran – http://tinyurl.com/m6m5qyk

Spectrum Laboratory – http://tinyurl.com/nfakd

WSPSR – http://tinyurl.com/6vblqh

Transmitter Fingerprinting

http://tinyurl.com/njzg9gn
http://tinyurl.com/z3prgyl

VA3ROM: All Things Digital
http://tinyurl.com/og2acxq

TCA

TM100VIMY: Making History at Vimy Ridge

Hugh McCully, VE3AYR

The Battle of Vimy Ridge is possibly the most memorable battle ever fought by Canadians. The centennial commemorative celebrations marking this event coincided with the Canada 150 Confederation celebrations. For more information on VE100VIMY visit http://ve100vimy.ca/.

Christine, VA7NLF, on the air!

Christine, VA7NLF, adjusted her headset, stomped on the footswitch and announced to 20 metres: "This is Tango Mike 100 Victor India Mike Yankee calling CQ". The Vimy Commemorative Station Society's culminating event in France was on the air! Behind was more than five years of planning, visits to the site at Vimy, communication with two governments, and mobilizing Amateurs in several countries. Enthusiasm and excitement hung in the air!

Operators arrived from three countries, having survived journeys of up to 36 hours and the usual airline adversities: food, sleep deprivation and delays. Equipment arrived from two countries. All had arrived at the site of radio operations on the grounds of the Canadian National Vimy Memorial at Vimy, France. Their purpose was to operate TM100VIMY, 24 hours a day, from April 1 until the official celebration ceremonies on Sunday, April 9, 100 years after the start of the Battle of Vimy Ridge.

TM100VIMY operators: Front row (l-r): Phil, VE7YBH, Jeanne, VA7QD, Skip, VK2ALR, Christine, VA7NLF, Didier, F6BCW, Don, VE7DS, Chris, VE3FU, and Frank, VO1HP. Back: Ralph, VE7OM, Hugh, VE3AYR, Serge, F6IPT, Keith, VE7KW, Mitch, VE6OH (hidden) and Gabor, VE7JH. Missing from photo: Dave, VA7AM and Phil, VE3QR. The rosy faces came from sitting all Sunday in the sun!

The 17 operators were: Don Studney, VE7DS (Team Leader); Keith Witney, VE7KW (Deputy Leader and Chief Engineer); Jeanne, VA7QD, Dave, VA7AM, Christine, VA7NLF, Skip, VE7SEI/VK2ALR, Gabor, VE7JH, Ralph, VE7OM, Phil, VE7YBH, Mitch, VE6OH, Hugh, VE3AYR, Phil, VE3QR, Chris, VE3FU, Frank, VO1HP, Didier, F6BCW, Serge, F6IPT and Dave, K3EL/G4HJT.

The TM100VIMY Shack.

Veterans Affairs Canada (VAC) based in Charlottetown, Prince Edward Island, had granted use of space adjacent to the Commonwealth War Graves Commission's maintenance facility south of the Vimy Monument and Visitors Centre. Here was placed a small portable building aka "the Shack " rented for the Vimy Commemorative Radio Society by Didier, F6BCW. Inside were two operating positions. Each position consisted of an Elecraft K3 transceiver with a KPA500 amplifier, KAT500 tuner and logging laptop. Nearby, supported by surrounding pines, were dipoles for 160 and 80 metres, and vertical wires for 40 and 30 metres. Two masts with 20-10 metre beams sent from Germany by Spiderbeam stood in forest clearings. The web of coax connecting the antennas to the rigs came courtesy of Radioworld. The station installation had been accomplished by Keith Witney, VE7KW, Don Studney, VE7DS, Skip Hodson, VK2ALR and Mitch Mitchell, VE7OH, on the last two days of March.

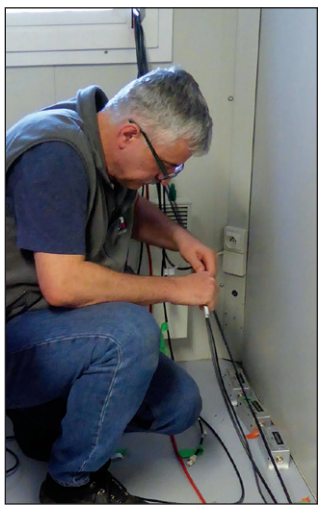
All was ready for the stations' official activation at 0000 UTC April 1.

Lillers Group: Steve, K3EL, Sylvie, F1PSH, Didier, F6BCW, Don, VE7DS, Keith, VE7KW, Anne, Mitch, VE6OH, Skip, VK2ALR, Dave, VA7AM, Phil, VE7YBH, Jeanne, VA7QD, Mary, VE3QLF, Hugh, VE3AYR and Serge, F6IPT, being recognized at the meeting with the veterans and Lycée students in Lillers, France on Monday April 3, 2017.

The operators formed four teams that rotated through three daily 8-hour shifts starting at 11:30 pm. Transportation was a challenge. The operators stayed in Arras, 13 kilometres and a half-hour by car from Vimy, so both operators and transportation had to be scheduled. Once a new team arrived at the Shack for the midnight shift they were faced with another challenge, a locked gate! This was part of the arrangement with VAC as the access to the Shack was limited only to operators. The single key was kept in the Shack and the new team was met at the gate at a prearranged time. Food was another challenge as there were no food services at the site during a shift so operators brought what they could find in Arras to meet their individual needs.

Don, VE7DS, knew early in the week that for TM100VIMY to be on the air on Saturday and Sunday he had to have security certificates for the four operators permitted on the site. Accessing an overloaded event management team became an ongoing concern.

Another part of the TM100VIMY operation was outreach to the local Amateur community. On Monday afternoon Dave, K3EL and his XYL Anne gave a presentation at Lillers, a town 50 kilometres northwest of Arras, to an audience of veterans and 150 high school students from the local Lycée. Eleven of the TM100VIMY operators dressed in their grey Vimy vests also attended. This was organized by Sylvie, F1PSH, a teacher at the local Lycée.



Gabor, VE7JH, changes antennas. On the floor are some of the bandpass filters, one for each band. Feedlines came in through the window.

Operations continued at the Shack throughout the week. Operators were organized in four teams. You knew your own team well, but you also knew the other teams as they came and you went, and at other off-duty times. All bands, 160 through 15 metres, were used plus 6 and 2 metres on CW, SSB and RTTY. On the SSB bands Jeanne's well modulated voice drew attention as did Gabor's Hungarian, Russian, Spanish and French responses to the many European operators! Don still hadn't heard from security.

Preparations for the Sunday event became more apparent and obtrusive as the week went on. More temporary tents and other facilities appeared. More security staff were in evidence, especially at night when the station operators changed shift at 11:30 pm. On Thursday, barriers appeared lining the access road from Neuville-Saint-Vaast to the Shack and on beyond to the monument, reducing the road to a single lane!

Another outreach event happened on Saturday morning in Souchez, near Vimy, when a group of 25 local Amateurs met with the TM100VIMY group. A visual presentation was made in French by Don, VE7DS, followed by time for the two groups to chat and a delicious noon-time repast. Part of the group included some of the operators of TM62VIMY also on the air from Vimy. The "62" in their call sign was the French District number for Vimy. Language somewhat limited the conversations, but not the spirit of Amateur camaraderie.

Don finally had the security clearance certificates in hand.

"Activations", continued from page 2

Brian, VE7JKZ: "I was pleasantly surprised by the number of stations in Germany who wanted to work me. I felt honoured to represent my part of Canada in this worldwide event and in my own small way contribute to a greater understanding of Canada's role in WWI."

Heinz, VA7AQ: "I had lots of fun on PSK and RTTY even had some pileups, mostly USA stations. I would gladly do it again any time."

Elizabeth, VE7YL: "I was having a great time on CW with the prospect of one more day, same mode. The radio gods decided that my rather ancient TS50SDX would have a bad hair day and my keyer ditto, both packing it in. A new battery fixed the keyer but nothing fixed the Kenwood. End of activity for me!"

Al, VE7WJ: "When running the VE100VIMY/VE7 call sign the main questions I had were 'Is this a bogus call sign?' and "Why is the call sign so long?'. This gave me an opening to explain the Battle of Vimy Ridge and the success the Canadians had in this Battle and its contribution to ending the war. I truly enjoyed running the VE100VIMY/VE7 call sign on 17 metres."

John, VA7JW: "VE100VIMY/VE7 was a terrific opportunity to work Canada and celebrate a Canadian event. It was lots of fun; sometimes a pileup, sometimes great conversation, and all in between. So many stations asked 'what was your call sign? Repeat, repeat' and then all the explanations. Special thanks to Don, VE7DS and all his 'staff' who made this possible."

Gerry, VE1RM/W1VE: "Thanks to all who worked us as VE100VIMY/VY1 (VY1AAA, the Yukon Canam Contest Club). We wish a lot more could have been in the log. Aurora does bad things to us in Whitehorse, YT! 1620 people made it into the log. A very special thanks to J, VY1JA, for the use of the station, and to the other ops Cary, VE4EA and Rich, VE3KI. We all connected to J via remote and had a lot of fun working you all. VIMY has special meaning to me as I had family fighting in WWI in France. Thanks to the VE100VIMY team for putting it all together."

The VY2 Activation had the highest rate of QSOs per operator at 755. Here are comments on their operation shared by Ron, VY2HR:

Ron, VY2HR: "I was the 4th operator working mainly SSB on any band that was 'open'. In short, the following is how a few PEI Hams made a great effort to promote this noteworthy event to the world."

Ken, VY2RU, "was the driving force to get PEI Hams out and put PEI on the map. Not only that, he also put forth a huge effort to make hundreds of contacts using both SSB and many Digital modes (CW, RTTY, PSK 31 etc). He also ensured that we stayed on the correct bands in accordance with the VE100VIMY rules and checked that our logs were correctly uploaded in a timely fashion."

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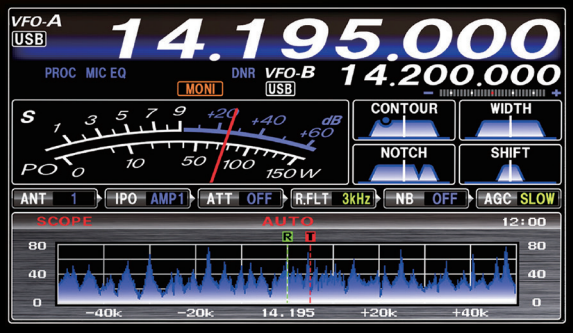
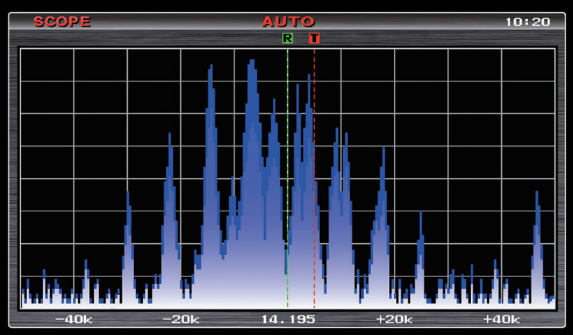


The Full Color 4.3 inch TFT display



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Don Studney, VE7DS (Team Leader) and Hugh McCully, VE3AYR (Publicity Director) of the Vimy Commemorative Station Society. The smiles say it all!

Operations on Saturday and Sunday was now certain.

Saturday afternoon access to the Shack was limited to only the four operators – Keith, VE7KW, Frank, VO1HP, Gabor, VE7JH and Didier, F6BWC – who had received the special security clearance. These four kept the station on the air for 24 hours straight from 3 pm on Saturday until late afternoon on Sunday. Frank, VO1HP, reported that contacts on Saturday night were "very slow"!

Sunday, the big day, dawned bright, sunny and warm. French security had installed very controlled access to the ceremonies. The operators took advantage of shuttle bus service from near our hotel to a car park in Vimy itself. There, a lineup at least a half a kilometre long led to security checkpoints and another bus to the Vimy Memorial site itself. Seating areas for about 25,000 had been set up above and below the Monument. Those below the Monument could see the program directly. Those above watched on a large video screen.

Late Sunday afternoon the TM100VIMY operation ended. Most of the antennas were taken down and the rigs packed for their return to Canada. The remaining Spiderbeam antennas were removed by Don, Keith and Skip on Monday morning.

Preliminary figures show that in nine days of operating TM100VIMY had 9,252 QSOs. A partial breakdown down by prefix shows: UA 1190, K 935, UR 678, DL 565, I 495, VE 454, F 430, SP 359, EA 258, OK 255, G 227, UA9 165, HA 144, YO 134, LZ 113, S5 111 and OM 104. Canadian totals were: VO1 90, VO2 7, VE1 44, VY2 16, VE9 25, VE2 32, VE3 168, VE4 6, VE5 12, VE6 13, VE7 19, VE8 2, VO1 0 and VY0 1. Contacts in Canada by band: 160m 1, 80m 42, 40m 1190, 30m 53, 20m 239 and 17m 9.

At a gathering of the operators in Arras late on Sunday evening the wide smile on Don's face and a big grin from Keith confirmed that their five year's work on VE100VIMY/TM100VIMY – with two governments, Canadian Amateurs from coast to coast to coast and a group of 15 operators – had informed thousands of the world's Amateurs of a significant moment in Canadian history and had also written an important page in Canadian Amateur Radio history.

It took support from the whole Canadian Amateur Radio community to make TM100VIMY happen. Equipment came from VE7DS, VE7KW, VA7NLF, VE7OM, VE7YBH, VO1HP, VY2ZM, F6BCW, Radioworld and Spiderbeam.

Shipping costs and other expenses were paid by donations from Ramada Inns of Vancouver, Hammond Manufacturing, Radioworld and Canadian Radio Clubs and Fraternal Organizations: Army, Navy and Air Force Veterans Steveston Unit No. 284 in BC; Delta Amateur Radio Society in BC; North Shore Amateur Radio Club (ARC) in BC; Orca Dx and Contest Club in BC; Surrey ARC in BC; Burlington ARC in ON; White Rock ARC in BC; Hamilton ARC in ON; Mississauga ARC in ON; and Club Scientifique et Radio Amateur a Artois Lys F4KIS in France.

All costs for travel, food and lodging were covered by the 17 operators themselves. The support from RAC and TCA editor Alan Griffin was invaluable.

To the next group of Canadian Amateurs the torch of marking future national events is passed.

TCA

Frank, VO1HP, operating on Saturday night.

Bill, VY2LI, was "our lonely expert CW operator. Not sure how he does it but despite very poor propagation conditions, he managed to make hundreds of CW contacts."

Douglas, VY2DS, "in more ways than one, he worked the night shifts. Once off work he came home and chased contacts on the lower bands on SSB (40, 80 and 160m). Propagation was extremely poor during night time."

Don, VE9XX: "I was honoured to be part of the Activation. On the air, the pileups were big and busy. Despite less than ideal conditions and a call sign that was a mouthful on voice and a wrist full on CW, I sure had fun. It was particularly fun to be nearer to the end of the event as a VE9."

Dave, VE9CB: "Eight New Brunswick Amateurs took turns operating as VE100VIMY/VE9: Don, VE9XX in Bathurst; JP, VE9BK and Marcel, VE9ML of Moncton; Jim, VE9WH, Len, VE9MY and Paul, VE9NC near Saint John; and Dave, VE9CB in the Fredericton area. The interest in our operation was outstanding! Pileups developed quickly, and we made QSOs at a good rate. We all feel honoured to have played a small role in remembering this coming-of-age moment for Canada."

Mike, VY0CF: "I was honoured to be a part of Canada's 100th Celebration of the Battle of Vimy Ridge for a couple of reasons. My grandfather was in WWI and my father WWII. Also, I am often asked to help out with various events to make sure VY0 is on the air. Thanks to everyone I put in the log. Wish it could have been more! Congratulations to everyone who participated in this truly 'special' and well organized event."

Chris, VE3CBK: "On this day in history March 25, my Great Grandfather's Brother (my Great Great Uncle) Corporal Reginal "Reggie" Frank Bromage was killed by an enemy sniper at Vimy Ridge. He was two weeks short of his 20th birthday. He is buried 11 km from Vimy Ridge in the Villers Station Cemetery. This VE100VIMY event has a lot of meaning for me and I am enjoying the challenge."

Paul, VE9NC: "Making contacts during a major flare and poor working conditions was hard but extremely gratifying given that it was such an important historical event in the formation of a united and independent Canada."

How fine that for three months from sea to sea to sea a group of Canadian Amateurs would show their operating skill and national pride to their country and to the world. Well done!

For more information about TM100VIMY and the VE100VIMY activations see the article on page 34 of the March-April 2017 TCA and visit http://ve100vimy.ca/ and http://ve100vimy.ca/tm100vimy/.

Getting Started on 630 metres: Part 2

Steve McDonald, VE7SL

"That's a beautiful looking job you've done", said Jack, as Edgar proudly placed his new homebrewed 630 metre transmitter on Jack's workbench. "Well it's a good start! It seems to produce about 70 watts into the dummy load, but not having an antenna for the new band has been making me antsy. Any good ideas Jack?"

"You bet. I know you have a small backyard and that you already have a dipole for 40 and an inverted L for 80, right? Well, believe it or not, both of these antennas can be made to work on 630 and give you lots of contacts once the activity picks up. Your inverted L is probably the easiest one to get going. I do recall you telling me about the bunch of radials that you buried just under the lawn last spring – about a dozen or so if I remember. Those will be good enough for now but you may want to add some more later. You can never have too many ground radials!", advised Jack.

"Now, your 80 metre inverted L is around 35-feet high and then goes out about 40 feet – perfect for 80 metres but really pretty short for 630 metres.

A good inverted L on 630 metres would need to be around 500 feet and we know that's not gonna fit in your yard!

What you need to do is load the antenna with inductance, with a big loading coil at the bottom to make it behave as if it were longer. This will resonate your antenna to 630 metres and allow it to radiate a lot more efficiently.

You'll also want to be able to tune your antenna carefully and for this you'll want to build a simple variometer.

It will allow you to finely adjust the overall added inductance and zero right in on your operating frequency. And lastly, you will need to impedance match the antenna so that you have a low SWR."

"Let me show you a diagram", said Jack, reaching for his notebook (see Figure 1).

"I see what you're getting at", said Edgar. "I've got a nice plastic bucket that I could use for the coil and variometer. I even have some 6-inch white PVC tubing that would work. Oh, and I saw a few nice chunks of what looked like big green PVC pipe scraps where they're building down at the corner. That would be ideal!"

"Sure, that or even some fat ABS pipe will do the job. Depending on the actual length of your antenna, you'll probably want to be able to adjust the overall number of turns in your main loading coil by adding a few taps at the top or bottom."

"Theoretically your 80 metre inverted L would need an inductance of about 860 microhenries to resonate it on 475 kHz but this is just a starting point. It might need

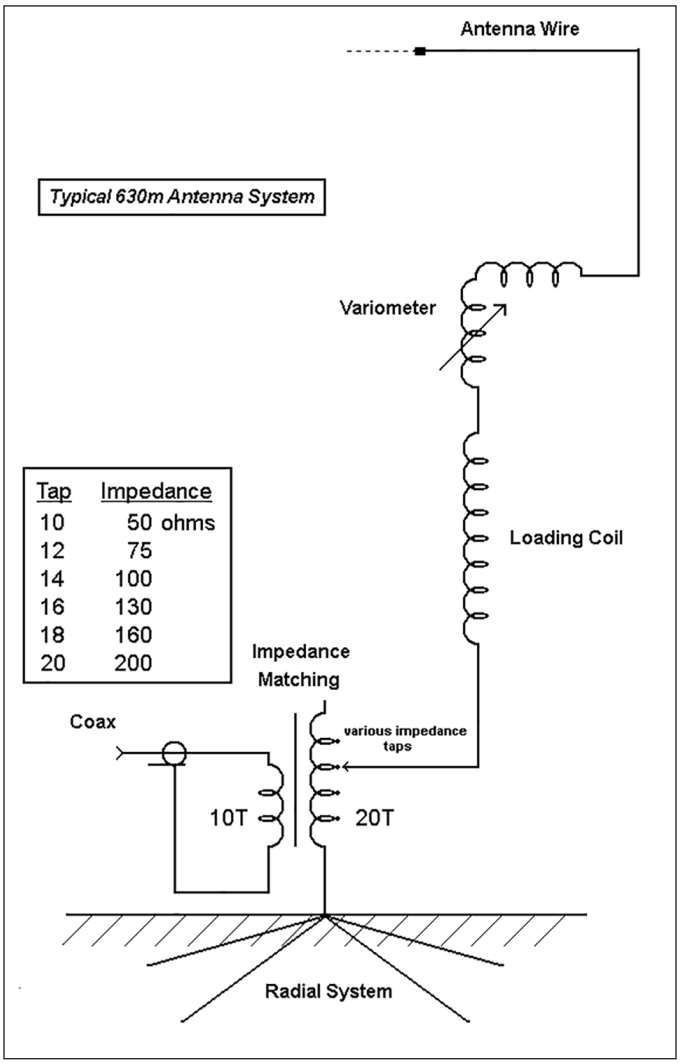


Figure 1: A typical 630m antenna tuning system with impedance matching transformer.

In the early morning hours of September 15, 2016, the first 630 metre contact between North America and Australia was completed when Roger, VK4YB and Steve, VE7SL, completed a two-way contact on 475.300 kHz at 1319Z. The contact was made on the JT-9 digital mode, the WSPR QSO mode designed for two-way work on LF/MF and the HF bands. At the time this article was submitted, this 11,800 kilometre path is the furthest two-way work on 630 metres worldwide and indicates the potential for long-distance Amateur Radio work in this part of the spectrum, particularly over the next few years of solar minimum. This article is a continuation of a series of articles about 630 metres.

Here is some terminology used in this article:

Non-Directional Beacons (NDBs) are omnidirectional radiobeacons found in the MF range from ~ 200 – 530 kHz. Most NDBs are associated with airport approach or enroute navigation procedures and transmit a continuous CW identifier every few seconds. Ranging in power from 25 watts to 1000 watts or more, even the low-powered signals can often be heard over several thousands of miles and make excellent propagation indicators for those interested in 630m work. An up-to-date searchable list of all NDBs logged in North America can be found at: http://classaxe.com/dx/ndb/rna/signal_list

Effective Radiated Power (ERP) is the power supplied to an antenna multiplied by the gain of that antenna compared to some "standard" antenna. Unless stated otherwise, it is usually taken to refer to the gain over a half-wave dipole.

Effective Isotropic Radiated Power (EIRP) is effective radiated power referred to a theoretical "isotropic" point-source radiator, which radiates equally in all directions.

Effective radiated power is usually taken to mean power radiated in the direction of maximum radiation for the antenna under consideration.

A dipole antenna which is electrically one half-wave long, in free space, exhibits a gain in its direction of maximum radiation of 2.15 dB over a theoretical isotropic radiator.

All 630 metre backyard antennas will have a negative gain!

EIRP = ERP + 2.15db / 5W EIRP = ~ 3W ERP

If you know your antenna gain from modelling and total power output, your EIRP can be calculated online at: http://sss-mag.com/calcdb.html

Figure 2: The K0LR antenna meter used to find antenna resonant frequency.

more or it might need less. Everybody's system is unique it seems and will require a bit of experimenting to get things properly tuned. This is where the fun starts Edgar. 630 metres is all new territory and offers some nice learning opportunities for those up to the challenge."

"If you had a 160 metre inverted L, say 70 feet up and 70 feet horizontal, you could get by with a much lower inductance, something around 460 microhenries. If you choose to use your 40 metre dipole, you would tie the coax ends together and feed it as a top-loaded vertical 'T' antenna, similar to the antennas used by many of the NDB stations (see the Sidebar on page 35). This would require an inductance of around 500 microhenries for starters, assuming the overall length of your coaxial feedline is about 60 feet."

"Of course it's probably best to wind a coil a little bigger than you think you might need as it's always easier to remove unwanted turns than to add new ones. And no matter which antenna you end up using, you'll want to have as many ground radials as you can manage. Ground system efficiency is the biggest challenge for us small-yard 630 metre antenna builders", added Jack. "Then again, you could take down your dipole and build a simple 'T' antenna, making the top horizontal wire as high and as long as possible. You would also need to base-load this one, just like the others. If you made the 'T' with a 100-foot flattop and the vertical wire was about 50 feet, you'd need about 440 microhenries for your coil."

"Here's something that will help you get started with your coil", said Jack, going to the computer. "It's an 'inductance calculator' (see Note 1) and will give you an idea of how many turns you'll need once you know the size of your coil form. I like to use PVC-covered solid wire, something around #14 or #16. Remember to make it a bit bigger than you might need as well as adding several taps at one end, every couple of turns."

Figure 3: Salvaged TV flyback ferrite core for making an impedance matching transformer.

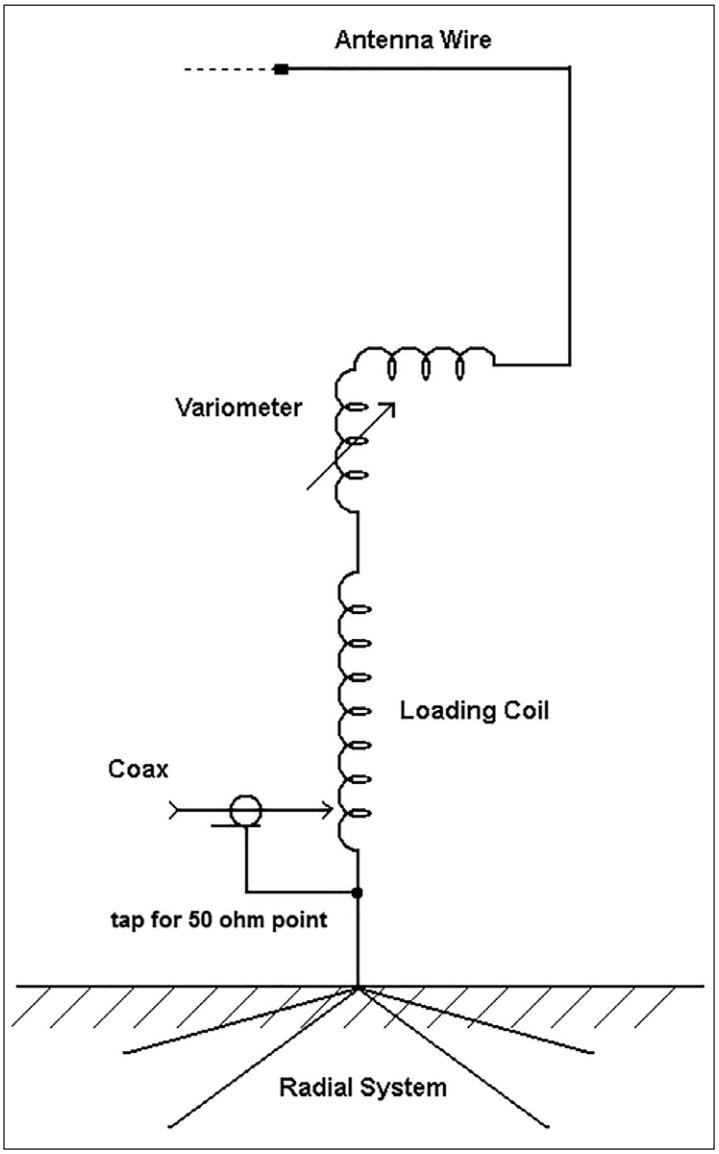


Figure 4: Impedance matching by tapping up the main loading coil.

"There are a few other pieces of gear that will help you get the antenna tuned. One of the handiest that I used, when first getting started, was this. It's a little antenna meter (see Figure 2), designed by K0LR. You just sweep the low-powered oscillator across the MF band while connected to your antenna. When the meter peaks up sharply, that's where your antenna resonates. Once you get the antenna close to resonance, then all that's left is to impedance match it. Here's the schematic info." (see Note 2)

"What about this matching coil then?", asked Edgar, pointing to Jack's original diagram. (see Figure 1)

"If you have any ferrite cores, they'll work just fine. Nothing fancy is needed. In fact, my own matching transformer is wound on an old ferrite TV flyback transformer core (see Figure 3). If I recall, you've got a couple of old video monitors in your stash. Just grab the flyback core from one and you're in business! Wind the secondary, with its taps, on one of the long sides and then wind the smaller primary right on top of it, with a few layers of electrical tape in between the two coils. Also, remove the little thin mica spacer on one side of the core if there is one as you don't need that any longer. If you don't have an old flyback core, just use a large ferrite core."

Figure 5: Homebrew variometer inside main loading coil. (courtesy VA7BBG)

"You can also impedance match by tapping up on the bottom of the loading coil a few turns to find the 50 ohm point (see Figure 4). Although this method doesn't require you to wind a transformer, it can be a bit tedious finding the proper spot. It actually sounds harder than it really is, but 630 metres RF behaves just like any RF and you've done enough antenna work before to be able to handle it. Getting it properly tuned is all part of the 630 metre challenge. And if you think you may want to run higher power in the future, don't forget to beef up your end insulators. Make them as big and as long as you can or add a few in series since the ends of your 'short' antenna will have some pretty high voltages. Keep the ends away from tree branches as well, to prevent any possible arcing to dry foliage in the summer."

"Now most fellas like to combine their variometer with the main loading coil, all on one form, while others like to keep them separate (see Figure 5). One interesting design I've seen uses a sliding tube arrangement, with one coil sliding in or out to fine-tune the inductance. Either way works the same. Both coils connect in series with one another and the variometer provides a bit of plus and minus tuning to the main coil. You'll be able to see what frequency the antenna is tuned to with your antenna meter. Depending on where it resonates, you may have to add or remove a few turns from the main coil – no plug and play appliances on this band! I'll lend you my little meter, but you might want to build one yourself as they're pretty simple. We'll also print out some variometer info for you before you head home." (see Note 3)

"Now, back to this matching business. How will I know when I'm on the right impedance tap Jack? Can I use my HF SWR bridge?"

"Yes, sort of… some fellas have good results while others find that their bridge does not give an accurate reflected reading. It'll probably tell you when you've reached the lowest reflected power at the 50 ohm point, but the actual SWR reading might not be bang on. I'd put it inline as a tuning tool anyway."

"There's a couple of other methods you can use as well, once you've got your antenna close to resonance. These will work for both the transformer matching or for the 50 ohm tap-up method. One way is to measure the DC current in your transmitter when running it into a 50 ohm dummy load, then set the tap for that exact same value when running into the antenna. If your antenna is resonant and the impedance is properly matched, the DC current in the amplifier should be identical to what you measured with the dummy load."

"If you can, try and do this with a short feedline of 50 feet or less. Better yet, right at the antenna if possible. Once everything is properly tuned, the length of your feedline can be increased."

"You can also tune and match by using your oscilloscope out at the base of the antenna, along with a low power signal from your transmitter, by following the method shown here", said Jack, pointing to computer once again. (see Note 4)

"You can tune the antenna for resonance as well as find its impedance, which can then be matched to your 50 ohm feedline through the matching transformer. You might even want to use this method to confirm your previous tuning methods are spot on."

"Most of the 630 guys have built a 'scope match' (see Figure 6) before trying to tune their antenna. They're very simple and if you have a dual-trace scope, you're all set. Personally I think it's the most valuable piece of equipment in my shack! It allows you to see the antenna's voltage and current levels visually and will tell you instantly if your antenna is resonant and how the impedance match looks. You can read all about it here", said Jack, retrieving several sheets of paper just emerging from the printer. (see Notes 5 & 6)

"I think I might be able to handle this after all Jack. You'll be there to give me hand, right?"

"That all depends on what your serving for lunch that day", grinned Jack. "Naw, you know I'd never miss the chance to play with antennas."

"Now what about power limits Jack? How much power can we run on 630 metres?"

"Thought you'd never ask. Unlike the HF bands, our power limits have been set in terms of radiated power. We're allowed 5 watts EIRP (see Sidebar 2). Since most backyard antenna systems are pretty inefficient on 630, you need to run a lot more power than just 5 watts to reach that level. A bigger and more efficient antenna would mean running less power than the average station so it all depends on your antenna – every situation is unique."

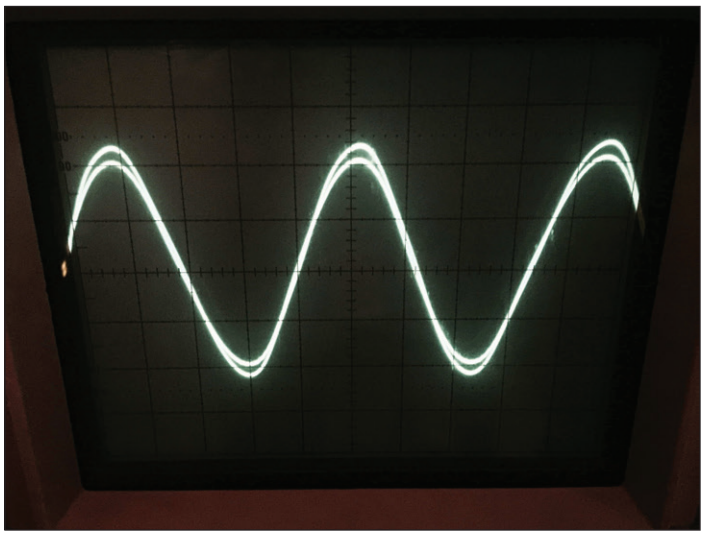


Figure 6: The scopematch screen showing resonance and impedance match condition.

"Okay, I get that. So how do I know how efficient my antenna is? Is there an easy way to figure that out?", asked Edgar.

"You can try modelling your antenna to get an approximation of its efficiency and then, using the calculated antenna gain value, figure out what power would be needed to reach the allowed limit. Most of the time, though, actual efficiencies will be even lower than the software predicts."

"Another way is to measure your antenna current once everything is tuned and matched properly then work from there. This will allow you to calculate your antenna's radiation resistance and then your overall EIRP. One of the American experimental operators has a really good step-by-step explanation of how to do this on his website so that would be a great place to start", added Jack, moving back to the computer (see Note 7). "There's also this website Edgar, which will give you a ballpark idea of your EIRP situation." (see Note 8)

"As usual Jack, you've given me a lot to think about. Let me grab those sheets you've printed for me and I'm on my way. I'll stop by the building site on the corner and see if they'll donate a scrap of that nice fat plastic pipe to a worthy cause!"

"Hey, you'll never look at construction sites the same way from now on", added Jack.

"By the way, did you hear the news? It looks like the Americans will finally be getting 630 metres so we'll soon see a lot of new activity on the band! (see Note 9). There's a few other boys in town really keen on getting on 630. Maybe we should all get together next week for coffee and talk about it. Give me a call if you need some help – and don't forget to have fun!"

TCA

Notes and Links

Note 1: Coil Inductance Calculator, 66pacific.com – http://www.66pacific.com/calculators/coil_calc.aspx

Note 2: "Using The K0LR 'Antenna Meter' on 630m" – http://ve7sl.blogspot.ca/2014/06/using-k-antenna-meter-on-630m.html

Note 3: "250 – 400 µH Variometer", G0MRF Projects Website – http://g0mrf.com/variometer.htm

Note 4: VE7CNF – "630m Antenna Matching Using Just a Resistor" – http://phasordesign.com/VE7CNFamateurRadio/AntMatch630m/VE7CNF_AntMatch630m.htm

Note 5: "Your LF Station's Best Friend. The Scopematch. Part 1" http://ve7sl.blogspot.ca/2014/08/your-lf-stations-best-friend-scopematch.html

Note 6: "Your LF Station's Best Friend. The Scopematch. Part 2" http://ve7sl.blogspot.ca/2014/08/your-lf-stations-best-friend-scopematch_5.html

Note 7: "My First 630 metre Transmitter", W0YSE's Ham Radio Site – http://w0yse.webs.com/wg2xsvpage.htm

Note 8: Rik, ON7YD/OR7T, 472kHz.org – http://www.472khz.org/pages/technical-topics/eirp.php

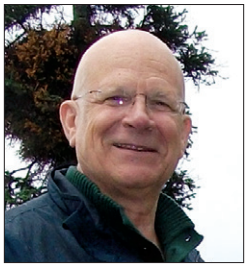
Note 9: "New Bands! FCC Issues Amateur Radio Service Rules for 630m and 2,200m" – http://www.arrl.org/news/new-bands-fcc-issues-amateur-radio-service-rules-for-630-meters-and-2-200-meters)

First licensed at age 15, Steve McDonald, VE7SL, is a retired high-school Tech-Ed teacher, now living on Mayne Island in British Columbia. His main interests are homebrewing and CW, particularly on 50 MHz, 160m and on the new 630 metres band.

Making Waves

... Taking the Measure

Bill Karle, VE1YY | Lantz, Nova Scotia | E: ve1yy@yahoo.ca



INTRODUCTION

Becoming more deeply curious about antennas and transmission lines requires moving beyond simple, albeit convenient, measurements afforded by the VSWR meter. A long-used tool in radio engineering is the impedance bridge.

THE BASIC RF IMPEDANCE BRIDGE

Figure 1 shows a simplified schematic of an impedance bridge suitable for use at radio frequencies. This type of bridge found its way into Amateur Radio and was fabricated by Amateurs as well as manufactured by such firms as MFJ with its Model 202 Noise Bridge.

Transformer winding T1c couples the broadband noise from the noise source to two other circuits. One is the detector circuit consisting of T1a, a Detector, potentiometer, R and variable capacitor, C1. The unknown circuit is made up of T1b, the Unknown impedance, Z, and a trimmer capacitor, C2.

The Noise Source is a reverse-biased diode or transistor junction. The generated noise is quite broadband. After amplification, it is coupled into the other circuits via the windings on the shared ferrite core or rod.

The Detector is a radio receiver that is tuned to the frequency at which the impedance measurement is desired.

R is used to find the resistive part of the unknown impedance by varying its setting until a reduction of noise is heard in the receiver. Finding the reactive part of the impedance relies on varying C1 until the noise is further reduced.

But, the reactive part can be inductive or capacitive. How can one know which it is solely by adjusting C1? The trick is to set C1 to mid-range and then balance out its effect by varying trimmer capacitor, C2, for lowest noise in the detector. Now, values offset from C1's centre setting will mean inductive reactance in one direction and capacitive reactance in the other!

Let us set up for a measurement. We connect to the unknown impedance. We activate the noise source. Next, we tune the receiver to the frequency of interest. After alternately adjusting R and C1 until the noise is nulled as well as possible, we read the values of the R and C1, do some math or look at a chart, and the impedance of the unknown is revealed in the series form:

Z = R ± jX

For many years, the MFJ-202 Noise Bridge solved unknown impedance problems at this station. The math part was automated using a spreadsheet. It was necessary to haul the Noise Bridge, a receiver, its power supply and notepad to wherever a measurement was needed. When a glissade off the roof narrowly was avoided, it became clear that a more portable method was mandated!

ANTENNA ANALYZER DESCRIPTION

The advance of electronics led to devices that conveniently and accurately measure Z and a host of other factors. The following description is about the RigExpert Model AA-30 Antenna Analyzer that covers the frequency range of 0.1 to 30.0 MHz. Its sister Model AA-54 is similar but covers a range of frequencies from 0.1 to 54.0 MHz. These devices basically are SWR meters and vector impedance analyzers. A microprocessor collects values from an impedance bridge and then calculates and displays the desired results. Model AA-30 is used at VE1YY. An explanation of operation is shown at: https://rigexpert.com/products/antenna-analyzers/aa-30/how-it-works/

Compared to the previous setup, the AA-30's portability is a boon. Several kinds of measurements are offered with results appearing on the LCD screen. A PC-only program, called AntScope, makes it possible to do additional tests as well as to save and print results. Mac users can download AAplot by W7AY. The analyzer can take spot frequency measurements or, scanning through a range of frequencies, yield multi-frequency results. The unit can be calibrated for 50 ohm or 75 ohm systems.

MEASURING SWR

A frequent measurement is that of antenna system's SWR across a range of frequencies. For example, a 10.1 MHz dipole needed to be adjusted for resonance in the centre of the band. (Of course, the band is so narrow that it begs the question why bother? Must be the geekiness of the op!) Setting the AA-30 to scan from 10 to 10.150 MHz rapidly revealed a somewhat higher resonant frequency. Lengthening the antenna lowered the resonance.

Connecting the AA-30 to the base of a multi-band vertical afforded identification of resonances and facilitated coil and element length adjustments. The RigExpert Model AA-54, but not the AA-30, has a feature that simultaneously displays the SWR on more than one band. This means that inter-band interactions among resonating components are clear.

MEASURING IMPEDANCE

The next often-used measurement at VE1YY is impedance. The AA-30 measures impedance in the series or parallel forms. Spot or scanned measures are available. Perusing Figure 2, the SWR is useful, but even more revealing is the impedance information: the absolute value of

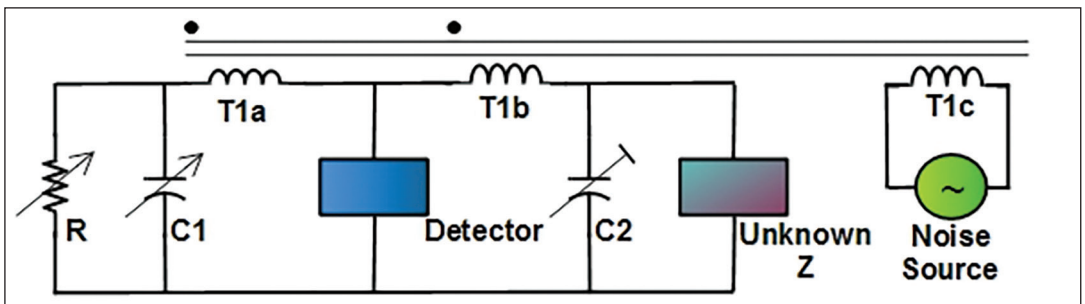


Figure 1: Simplified Noise Bridge Schematic

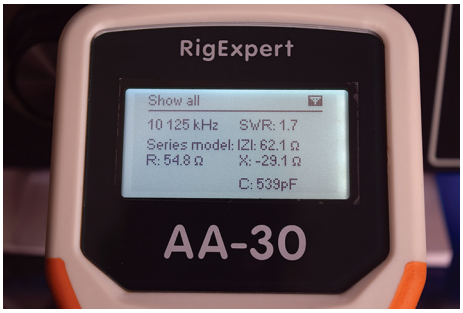


Figure 2: Spot Frequency Measurement on LCD Screen

62.1 ohms resolved into the R and X components. The effective capacitance of the antenna is also visible.

Figure 2 is a spot frequency measurement. Figure 3 is a scan of several frequencies of the same antenna. This view develops after the AntScope software massages the data and renders the results on the monitor. The two illustrations are of the 10.1 MHz band antenna *and* its attached transmission line. Recalling that there is transmission line loss and that loss masks the actual impedance and SWR *at* the antenna terminals, it would be helpful to subtract the effects of the line. When the operator selects the line from a programmed list and enters its actual length, the unit has the velocity of propagation factor (VF), then calculates the line loss and added loss due to mismatch. The true situation at the antenna terminals thus is revealed.

OK, so we know the impedance value, what can we do with it?

Let's say that the measurement shows the impedance at the terminals of an off-centre fed multiband dipole to be about 200 ohms in the most often used band. The transmission line is 50 ohms. What to do? A matching device at the terminals is called for. Today's common solution is a balun wound on a toroid core. The impedance ratio is 4 to 1. Some time in the shop, cobbling wire and a suitable toroid core, and the problem is close to solution.

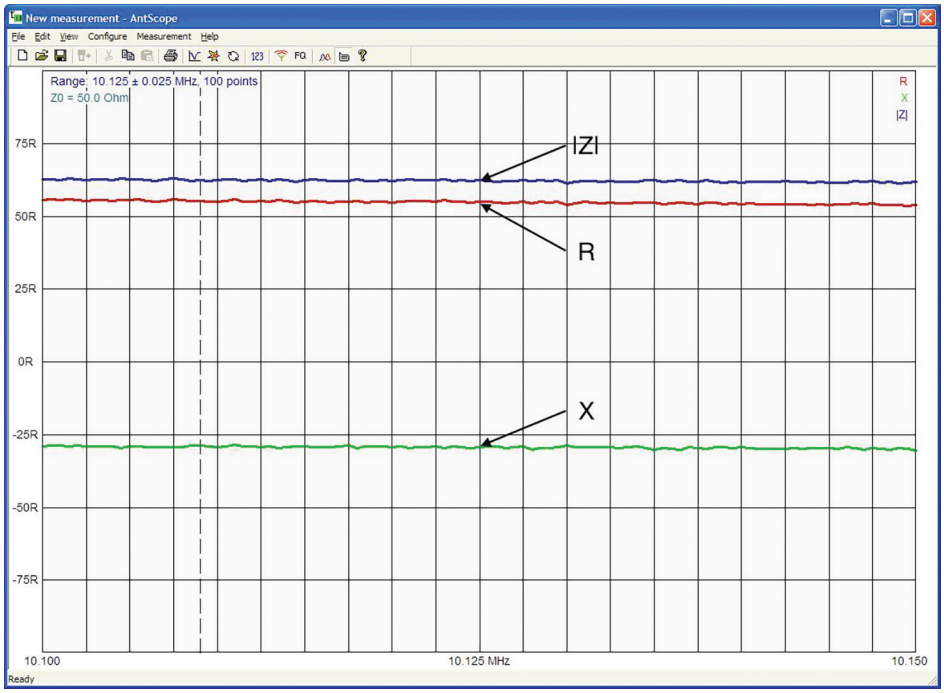


Figure 3: Scanned Frequencies Measurement on AntScope

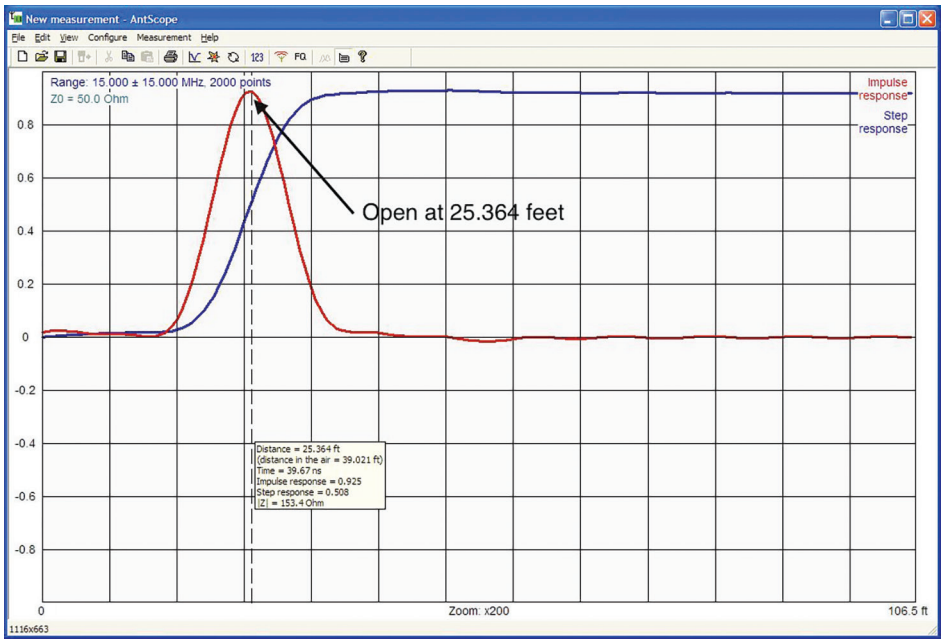


Figure 4: FDR of an Open-circuited Line

FINDING FAULTS

Sooner or later (usually the day before a contest or when a rare DX goes QRV), a fault develops in the transmission line or antenna system. Finding and fixing a soft or hard failure is imperative. A soft failure here means that the system still functions but not as expected, while a hard failure means the system is inoperative.

In the dim past, Amateurs used door entrance buzzers connected to a battery. A switch or shorting wire kept the buzzer buzzing. A lead from one side of the buzzer coil connected to the wire under test. The lead from the other side connected to any nearby convenient, but not suspect, wire or to ground. At the far end, one touched the meter or headset between the suspect wire and the known good wire or ground, looking for a meter kick or a buzz in the earphone. It was wise to not take too long with this trick, as the lash up essentially was a spark gap transmitter albeit of miniscule power! It found hard but not soft failures.

Time Domain Reflectometry (TDR) is a more elegant approach. It will remind you of radar and it, too, finds range to target, in this case a fault.

Let's parse the term. "Time domain" means that some factor is being measured with respect to time. For example, in this series we have seen time domain measurements of voltage when we looked at the rise and fall times of the CW waveform: we had voltage measured on the vertical axis of the scope against time on the horizontal axis.

"Reflectometry" is about the measurement, the metric, of reflected signals, for instance on a transmission line. A pulse is sent down the line. As you already know, when the pulse encounters anything with a different impedance than the surge impedance of the line, a reflection occurs. Knowing the difference in time between the initial pulse and the reflected pulse instants, the speed of electromagnetic waves, and the VF of the waves in the transmission medium, a physical distance to the reflection is calculated.

TDR often uses direct current (DC) pulses of energy. In fact, the Amateur Radio literature has many TDR circuits centred on an oscilloscope and a 555 timer chip. The troubles with the DC approach include at least two: DC will not propagate across some “breaks”; and DC will not reveal frequency sensitive faults – both examples of hard and soft faults, respectively.

The AA-30 and AA-54 use Frequency Domain Reflectometry (FDR) that overcomes these impediments. The hardware scans the entire range of frequencies of which it is capable, finds impedance changes and calculates the distance to fault.

Okay, so now we know what TDR and FDR are, let’s find some faults.

Figure 4 on the previous page is a TDR derived from an FDR of a 25.08-foot (7.64-metre) length of RG-58 type coaxial cable having BNC connectors on both ends. The line is open at the far end.

The length is measured from the base of the centre pin of one BNC to the same point on the other. There are two curves: one is the initial impulse and the other is the response to that. The response curve is used to measure the distance to the faults discussed below.

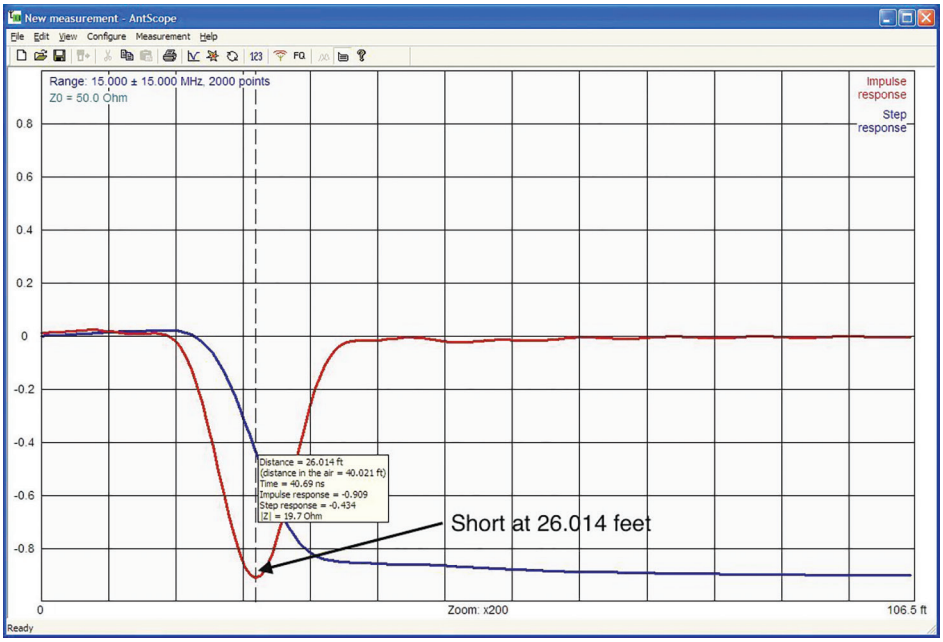
When the line offers an open circuit at the far end, the reflected impulse has the same sign is the initial impulse and travels back to the measuring point. Figure 4 shows such a return.

Those familiar with transmission line reflections know that a short circuit on the end of the line requires that a reflected voltage equal to but of exactly the opposite sign must be created; physically and mathematically that’s how a zero voltage appears at the shorted terminals. Thus, in Figure 5, we see a negative going response, indicating a short.

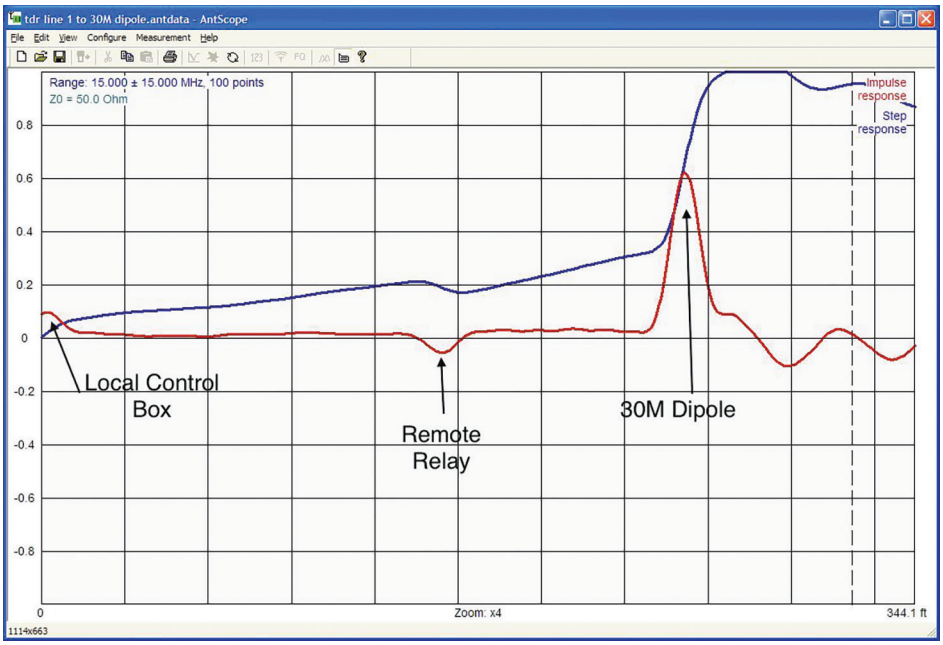
Figure 5 is the same transmission line as in Figure 4 but the shorting wires added a length resulting in an overall dimension of 25.5-feet (7.77-metre).

You wonder why the TDR length in Figure 4 is 25.364-feet rather than the tape measured length of 25.08-feet. The same can be said of Figure 5: why is the TDR length 26.014-feet when the taped distance is 25.5-feet?

A reason applying to both figures is that the coax’s actual VF only could be approximated given the drop-down menu of cable parameters. Specifications are not the same as actualities. Another reason is that, even with 2000 samples, the exact peak or valley of the curve could not be “touched” in the graph, yielding



Above: Figure 5: FDR of a Short-circuited Line; Below: Figure 6: FDR of a Transmission System



only the closest value. Nevertheless it is clear that the errors are small and, an operator scanning a cable, should be able to find a fault to within a few parts per one hundred.

Taking a look at a longer line with an attached antenna (see Figure 6) yielded these results. The first bump is the control box that provides switching voltages to a remote antenna switch. The signal passes through the control because the coaxial cable also has the switching voltages impressed on it. The next dip is the remote control box. This is not a short. A short would appear more negative going than this. What is shown is a mismatch reflection between the remote box and the antenna. The peak is the antenna.

Two nice features are that numerical information is provided with each graph, as seen in Figures 4 and 5, and that the data can be saved. Doing a TDR a year from now on the same line and antenna combination can reveal if the system has decayed over time.

WRAP

The impedance bridge has come a long way. The unit discussed also portrays Smith Charts when used with its software. These charts are valuable when developing impedance matching solutions. VE1YY is learning how to get the most out of this tool not least of which is convenience off or on the roof!

TCA

RAC CANADA DAY CONTEST 2017 / CONCOURS DE LA FÊTE CANADA RAC 2017

Each year on July 1, the anniversary of Canada's Confederation, Radio Amateurs of Canada sponsors the Canada Day Contest. Amateurs all over the world are invited to Canada's Birthday Party on the air and this year is very special as Canada is celebrating its 150th Birthday. In recognition of this milestone, the RAC Canada Day Contest certificates and the RAC Winter Contest certificates will feature the Canada 150 logo in recognition of this special moment in Canada's history.

Contest Period: 0000 UTC to 2359 UTC July 1, 2017.

Bands and Modes: 160, 80, 40, 20, 15, 10, 6 and 2 metres, CW and phone (SSB, FM, AM, etc.)

Suggested frequencies: CW – 25 kHz up from the band edge and for SSB – 1850, 3775, 7075, 7225, 14175, 21250, 28500 kHz. Check for CW activity on the half-hour.

Exchange: Stations in Canada send RS(T) and province or territory. VEØs and stations outside Canada send RS(T) and a serial number.

QSOs: Contacts with stations in Canada or VEØs are worth 10 points. Contacts with stations outside Canada are worth 2 points. Contacts with RAC official stations are worth 20 points. RAC official stations are: VA2RAC, VA3RAC, VE1RAC, VE4RAC, VE5RAC, VE6RAC, VE7RAC, VE8RAC, VE9RAC, VO1RAC, VO2RAC, VY0RAC, VY1RAC and VY2RAC. You may work any station once on each of the two modes, on each of the eight contest bands.

It is **prohibited** to make CW contacts in the conventional phone sub-bands and phone contacts in the conventional CW sub-bands. Contacts or soliciting QSOs through a repeater during the contest period is not allowed.

Multipliers: Thirteen in total, Canada's 10 provinces and three territories. Each multiplier may be counted once on each mode on each of the eight contest bands. The multipliers, with their postal abbreviations and prefixes are: Nova Scotia [NS] (VE1, VA1, CY9, CYØ); Quebec [QC] (VE2, VA2); Ontario [ON] (VE3, VA3); Manitoba [MB] (VE4, VA4); Saskatchewan [SK] (VE5, VA5); Alberta [AB] (VE6, VA6); British Columbia [BC] (VE7, VA7); Northwest Territories [NT] (VE8); New Brunswick [NB] (VE9); Newfoundland and Labrador [NL] (VO1, VO2); Nunavut [NU] (VYØ); Yukon [YT] (VY1); and Prince Edward Island [PE] (VY2). Certain special Canadian prefixes in use at the time of the contest may also apply; however there may be no more than 13 multipliers on each band/mode. Please use the multiplier abbreviations, in square brackets, noted above.

Final Score: The total QSO from all bands multiplied by the total number of multipliers from all bands.

Categories: The following 9 categories are eligible for plaque's or certificates as detailed in the Awards section of the rules.

- Single Operator All Bands High Power (>100 watts) – **Radioworld**
- Single Operator All Bands Low Power (max. 100 watts output) – **Contest Club Ontario**
- Single Operator QRP (max. 5 watt output) All Bands & Single Band ** – **QRP Canada**
- Single Operator All Bands CW only, any authorized power – **Maritime Contest Club**
- Single Operator All Bands PH only, any authorized power – **Saskatchewan Contest Club**
- Single Operator Single Band, any authorized power *** – **Radioworld**
- Multi-Operator Single Transmitter High Power (>100 watts) * – **Alfa Radio**
- Multi-Operator Single Transmitter Low Power (max. 100 watts output) * – **Tony Allsop VE3FTA Memorial by the Mississauga ARC**
- Multi-Operator Multi-Transmitter, any authorized power – **Radioworld**

For the Canada Day Contest a special trophy is awarded for the highest Single Operator (no power classification) Foreign Entrant – **Larry Kayser VA3LK Memorial by Alan Goodacre, VE3HX**.

Special thanks to our sponsors for their support of the RAC contests.

Category notes: please see the new information in items #6 and #7

1) The contents of a log that is submitted for a specific category must reflect that category. In the event of a conflict between the actual content of the log and the stated category in the Cabrillo header or contained in other elements of the entry material, the actual contents of

Le premier juillet de chaque année, l'anniversaire de la Confédération canadienne, Radio Amateurs du Canada, sponsorise le Concours de la fête du Canada. Les amateurs du monde entier sont invités à la fête d'anniversaire du Canada en l'air et cette année est très spéciale car le Canada célèbre son 150e anniversaire. En reconnaissance de cette étape, les certificats du Concours de la Journée du Canada de RAC et les certificats du Concours d'hiver du RAC mettront en vedette le logo du Canada 150 en reconnaissance de ce moment spécial de l'histoire du Canada.

Durée du concours : 0000 UTC à 2359 UTC le 1er juillet 2017.

Bandes et modes d'émission : 160, 80, 40, 20, 15, 10, 6 et 2 mètres, en CW et/ou en phonie (BLU, FM, AM, etc.).

Fréquences suggérées : CW – 25 kHz au dessus de la limite inférieure de la bande. BLU – 1850, 3775, 7075, 7225, 14175, 21250 et 28500 kHz. Vérifiez aux demi-heures pour l'activité en CW.

Échange : Les stations au Canada envoient un rapport RS(T) ainsi que leur province ou territoire. Les stations VEØ et les stations à l'extérieur du Canada envoient un rapport RS(T) ainsi qu'un numéro séquentiel.

Les QSO : Les contacts avec des stations au Canada ou des stations VEØ valent 10 points. Les contacts avec des stations à l'extérieur du Canada valent 2 points. Les contacts avec des stations officielles de RAC valent 20 points. Les stations officielles de RAC sont : VA2RAC, VA3RAC, VE1RAC, VE4RAC, VE5RAC, VE6RAC, VE7RAC, VE8RAC, VE9RAC, VO1RAC, VO2RAC, VY0RAC, VY1RAC et VY2RAC. Vous pouvez contacter une station une fois dans chacun des modes, sur chacune des huit bandes du concours.

Il est **défendu** de faire des contacts en CW sur les parties des bandes normalement réservées à la phonie, et vice versa. Il est aussi défendu de faire ou de solliciter des contacts via un répéteur pendant le concours.

Multiplicateurs : Treize au total, les 10 provinces canadiennes et les trois territoires. Chaque multiplicateur peut-être compté une fois pour chaque mode sur chacune des huit bandes du concours. Les multiplicateurs, avec leur abbréviation postale et leur(s) préfixe(s), sont : Nouvelle-Écosse [NS] (VE1, VA1, CY9, CYØ); Québec [QC] (VE2, VA2); Ontario [ON] (VE3, VA3); Manitoba [MB] (VE4, VA4); Saskatchewan [SK] (VE5, VA5); Alberta [AB] (VE6, VA6); Colombie-Britannique [BC] (VE7, VA7); Territoires du Nord-Ouest [NT] (VE8); Nouveau-Brunswick [NB] (VE9); Terre-Neuve et Labrador [NL] (VO1, VO2); Nunavut [NU] (VYØ); Yukon [YT] (VY1); Ile-du-Prince-Edouard [PE] (VY2). Certains préfixes canadiens spéciaux en usage pendant le concours peuvent aussi s'appliquer; cependant, il ne peut y avoir plus de 13 multiplicateurs pour chaque bande/mode. Veuillez s'il-vous-plaît utiliser l'abbréviation du multiplicateur, entre crochets, telle que notée ci-haut.

Pointage final : Le total des des QSO obtenus sur toutes les bandes, multiplié par le nombre total de multiplicateurs obtenus sur toutes les bandes.

Catégories : Les neuf catégories suivantes sont éligibles pour des plaques ou des certificats, tel que détaillé dans la section Prix des règlements du concours.

- Opérateur unique, toutes bandes, haute puissance (>100 watts) – **Radioworld**
- Opérateur unique, toutes bandes, basse puissance (max. 100 watts à la sortie) – **Contest Club Ontario**
- Opérateur unique QRP (max. 5 watts à la sortie), toutes bandes et bande unique ** – **QRP Canada**
- Opérateur unique, toutes bandes, CW seulment, toute puissance autorisée – **Maritime Contest Club**
- Opérateur unique, toutes bandes, phonie seulement, toute puissance autorisée – **Saskatchewan Contest Club**
- Opérateur unique, bande unique, toute puissance autorisée *** – **Radioworld**
- Opérateurs multiples, émetteur unique, haute puissance (>100 watts) * – **Alfa Radio**
- Opérateurs multiples, émetteur unique, basse puissance (max. 100 watts à la sortie) – **Trophée mémorial Tony Allsop VE3FTA par le CRA Mississauga**

the log will be used to determine the category of entry where possible. In the event this cannot be determined or in the event where a log does not identify the entry category, the entry will be classified into the Multi-Operator, Multi-Transmitter, any authorized power category.

Any entrant who wants to enter a specific category (i.e. Single band entry) but who also worked additional contacts outside that category **may** submit those additional contacts in a **separate** check log file. Do not include them in the main entered category log file.

2) Where the categories have a power class and the submitted log does not clearly identify the power class entered, then the log will be treated as if the highest power class for that category was entered.

3) Single operators who receive assistance from a DX spotting system, including Skimmer and similar technologies or any type of Packet Cluster network during the contest must classify themselves as Multi-Single ops.

4) * In the Multi-Single category only one transmitter and one band are permitted during the same time period (defined as 10 minutes). Exception: One, and only one, other band may be used during any 10-minute period, if and only if the station worked is a new multiplier. In other words the Multi-Single Transmitter class allows a second station to "hunt" and work multipliers only on a single separate band during any 10-minute period.

5) Multi-Multi category stations may operate on several bands simultaneously.

6) For all multi transmitter categories, all transceivers, transmitters and receivers operated by the multi station participants/entrants must be within a single 500-metre diameter circle and the antennas must be physically connected by RF transmission lines to the transceivers, transmitters and/or receivers.

7) Operators in either the Multi-Multi or Multi-Single categories should note that a distributed contest station is permitted in the RAC contests, however such operations are not eligible for awards. A distributed station is defined as a station which does not have all transceivers, transmitters and/or receivers operated by station operators/participants/entrants located within a single 500-metre diameter circle of each other. Distributed Multi-Multi operations must identify such operations as part of their Cabrillo form log submission or summary sheet document.

8) ** Although there is only one QRP category, which qualifies for a plaque or certificate, it is intended that the published results would show All Bands or the Single Band of operation. To facilitate this break out of the listings, your entry should indicate the band(s) or mode(s) operated.

9) *** Although there is only one Single Operator Single Band category that qualifies for a certificate or award, it is intended that the published results would show High Power or Low Power. To facilitate this break out of the listings, your entry should indicate the power class you used.

10) Operators who have participated in any multi-operator category entries may not contact the station they have participated in if they were to operate as part of another entry in the same contest. In addition, guest operators at any station regardless of entry category may not claim contacts with the station host owner or host station mobile call for points or multipliers.

Awards: Plaques will be awarded to the top-scoring entrants in each category, as noted above in the category list. Special thanks to our sponsors for their ongoing support! Certificates will be awarded to the top-scoring entrant in the categories described below and they will feature the special Canada 150 logo in recognition of the 150th anniversary of Confederation.

- Canadian provinces or territories
- Continental US call districts, W0 through W9 as well as Alaska and Hawaii. US Commonwealths, Territories and Possessions such as Puerto Rico, US Virgin Islands, etc will be treated as equivalent to a DXCC country
- DXCC country, excluding Canada and the US.

To facilitate the proper allocation of certificates, all US stations should indicate their actual US call district based on their actual address, as provided in the Cabrillo header, if different than indicated by their call prefix. DX stations should indicate the actual country of operation if different than indicated by their call prefix by indicating the country as part of the portable call sign designator.

RAC stations will compete and be considered the same as any other entrant for eligibility to plaques and certificates.

- Opérateurs multiples, émetteurs multiples, toute puissance autorisée – **Radioworld**

Pour le concours d'hiver du Canada, un trophée spécial est décerné au participant étranger (opérateur unique, sans classe de puissance) ayant obtenu le plus haut score – **le trophée mémorial Larry Kayser VA3LK par Alan Goodacre, VE3HX**.

Nous tenons à remercier nos commanditaires pour leur appui aux concours de RAC.

Notes sur les catégories : veuillez consulter les nouvelles informations des items # 6 et # 7

1) Le contenu d'un journal de bord soumis dans une catégorie spécifique doit refléter cette catégorie. Dans le cas d'un conflit entre le contenu réel d'un journal de bord et la catégorie inscrite dans l'entête Cabrillo ou contenue dans d'autres éléments de la soumission, le contenu réel du journal sera utilisé pour déterminer la catégorie de l'inscription. Dans le cas où celle-ci ne peut être déterminée, ou si le journal de bord n'identifie pas la catégorie de l'inscription, celle-ci sera classée dans la catégorie opérateurs multiples, émetteurs multiples, toute puissance autorisée.

Tout participant désirant s'inscrire dans une catégorie spécifique (par exemple bande unique), mais ayant aussi établi des contacts additionels hors de cette catégorie **peut** soumettre ces contacts additionnels dans un journal de bord **séparé**. Ne les incluez pas dans le journal de la catégorie principale dans laquelle vous participez.

2) Dans le cas où les catégories ont des classes de puissance et que le journal soumis ne l'identifie pas clairement, celui-ci sera traité comme si la classe de puissance la plus élevée pour cette catégorie a été inscrite.

3) Des opérateurs uniques qui reçoivent de l'aide d'un système de repérage DX, comme Skimmer et des technologies similaires, ou n'importe quel type de réseau « Packet Cluster » pendant la période du concours, devront s'inscrire dans la catégorie opérateurs multiples, émetteur unique.

4) * Dans la catégorie opérateurs multiples, émetteur unique, un seul émetteur et une seule bande sont permis durant la même période de temps (définie comme étant 10 minutes). Une exception est cependant tolérée : une seule autre bande peut-être utilisée pendant cette période de 10 minutes, seulement si la station contactée est un nouveau multiplicateur. En d'autres mots, la classe opérateurs multiples, émetteur unique permet à une seconde station de « chasser » et contacter des multiplicateurs sur une seule autre bande dans une période de 10 minutes.

5) Les stations participant dans la catégorie opérateurs multiples, émetteurs multiples peuvent opérer sur plusieurs bandes en même temps.

6) Pour les transmetteurs toutes catégories, tous les transcepteurs, émetteurs et recepteurs opérés par des participants/débutants de stations multiples doivent être situés à l'intérieur d'un cercle de 500 mètres de diamètre et les antennes doivent être physiquement connectées aux transcepteurs, transmetteurs et/ou récepteurs par des lignes de transmissions RF.

7) Les opérateurs dans les catégories multi-multi ou multi-unique doivent prendre note qu'une station à concours partagés est autorisée dans les concours de RAC, mais que ses opérations ne peuvent donner lieu à des prix ou récompenses. Une station considérées « à concours partagés » est une station qui ne détient pas tous les transcepteurs, émetteurs et/ou récepteurs opérés dans une seule station par les participants/débutants localisée dans un cercle de 500 mètres de diamètre. Les opérations multi-multi partagés doivent être identifier dans le « Journal de bord Cabrillo » ou dans un page sommaire du document.

8) ** Même s'il n'y a qu'une seule catégorie QRP qui soit éligible pour une plaque ou un certificat, il est prévu que que les résultats publiés afficheront soit toutes bandes, soit la bande unique d'opération. Afin de faciliter la publication des résultats, votre entrée devrait indiquer le (les) bande(s) ou mode(s) opérés.

9) *** Même s'il n'y a qu'une seule catégorie opérateur unique, bande unique, qui soit éligible pour une plaque ou un certificat, il est prévu que les résultats publiés afficheront soit haute puissance, soit basse puissance. Afin de faciliter la publication des résultats, votre entrée devrait indiquer la classe de puissance utilisée.

10) Des opérateurs ayant participé à quelconque entrée dans la catégorie opérateurs multiples ne peuvent pas contacter la station à laquelle ils ont participé s'ils devaient opérer en tant que membre d'une autre entrée lors du même concours. De plus, des opérateurs invités d'une station, peu importe la catégorie, ne peuvent pas revendiquer de contacts avec le propriétaire de la station hôte ou avec l'indicatif d'appel mobile de la station hôte pour des points ou des multiplicateurs.

Results: Will be published in *The Canadian Amateur* magazine published by the Radio Amateurs of Canada. The results will also be published on the RAC website at: **http://wp.rac.ca/contesting-results/**

Entries: All entries (electronic or paper logs) must be postmarked or electronically submitted by **July 31, 2017**. Electronic entries will be confirmed by return email. Send email entries to: **canadaday@rac.ca**

Send paper entries to:

Radio Amateurs of Canada
720 Belfast Road, Suite 217
Ottawa, Ontario, Canada K1G 0Z5

We will be publishing a list of logs received and the categories entered on the RAC website during and/or after the submission period after the cut off date to assist in correcting any entry categorizations.

Paper mail entries must contain a summary sheet showing score calculation, a dupe sheet listing calls worked on each mode on each band, a multiplier check sheet and log sheets. Logsheets must show time, band, mode, call of station worked, exchanges sent and received and claimed for each QSO. New multipliers must be clearly marked in the log.

Contest entry forms are also available on the RAC website at: http://wp.rac.ca/contesting-results/

Any entry with 100 or more contacts should be submitted in digital format. The preferred electronic format is the RAC Cabrillo format. The files must be submitted in plain ASCII/Text format.

While the contest committee prefers Cabrillo formatted submissions, we will continue to accept electronic logs from older versions of contest software, but your file must be in ASCII/Text format and have all the required information. However ".adi" files are not acceptable.

Given there are several free programs that support the RAC contests and generate an acceptable Cabrillo entry, we encourage you to seek out one of these programs.

The RAC Cabrillo format is described and its detailed layout is shown on the RAC website at:

http://wp.rac.ca/contesting-results/

Electronic logs that do not have a complete Cabrillo header should provide a summary sheet with the same information as shown for the paper log entries. The standard summary sheet provided by the typical logging program is generally acceptable, but you should confirm that it contains the same information as shown for paper log entries.

A properly filled out Cabrillo header section will be a sufficient substitute for a summary sheet for logs submitted in that format. Please ensure that you review the header for accuracy and that it is completely fill out. Name your file with your Call Sign and the file extension.LOG (e.g., yourcall.LOG). If you email your log, please send the file(s) as **attachments**.

Do not paste the log file into the text of your message as there may be issues with the formatting making it difficult to properly extract the log. Large files may be zipped if necessary.

If you need help with preparing or emailing your log or have any other questions, please contact Bart Ritchie, VE5CPU, ve5cpu@rac.ca.

For the previous year's contest results, visit the RAC website at **http://wp.rac.ca/contesting-results/** in the Contest section.

Prix : Des plaques seront remises aux participants ayant obtenu le plus haut score dans chaque catégorie, telle que notée ci-haut dans la liste des catégories. Nous tenons à remercier nos commanditaires pur leur support continu! Des certificats seront attribués au participant ayant obtenu le meilleur score dans les catégories décrites ci-dessous et ils présenteront le logo spécial du Canada 150 en reconnaissance du 150e anniversaire de la Confédération.

- Provinces et territoires canadiens
- Districts d'appels des États-Unis continentaux, W0 à W9, et aussi pour l'Alaska et Hawaii. Les Commonwealths américains, territoires et possessions tels que Porto Rico, les iles Vierges américaines, etc, seront considérés comme étant équivalent à un pays DXCC; et
- Pays DXCC, excluant le Canada et les État-Unis.

Afin de faciliter l'attribution des certificats, toutes les stations américaines participantes devraient indiquer leur réel district d'appel américain basé sur leur addresse réelle, telle que fournie dans l'entête Cabrillo, s'il diffère de celui indiqué par le préfixe de leur indicatif. Les stations DX devraient indiquer leur réel pays d'opération s'il diffère de celui indiqué par le préfixe de leur indicatif.

Les stations officielles RAC compétitionneront et seront considérées comme étant pareilles à tout autre participant en ce qui concerne l'éligibilité aux plaques et certificats.

Résultats : Ils seront publiés dans la revue *The Canadian Amateur*, publiée par Radio Amateurs du Canada. Il seront aussi publiés sur le site web de RAC au : **http ://wp.rac.ca/contesting-results/**

Soummission des inscriptions : Toute inscription (électronique ou papier) doit porter un cachet de la poste, ou être soummise par courriel, pour le **31 juillet 2017**. Les soummissions électroniques seront confirmées par courriel. Envoyez vos inscriptions par courriel à : **canadaday@rac.ca**

Envoyez vos inscriptions papier à :

Radio Amateurs du Canada
720 ch. Belfast, suite 217
Ottawa, Ontario, Canada K1G 0Z5

Nous publierons une liste de journaux de bord reçus avec leur catégorie sur le site web de RAC pendant et/ou après la période de soummission et après la date limite afin d'aider à corriger toute erreur de catégorisation des inscriptions.

Les inscriptions papier envoyées par courrier doivent contenir une feuille sommaire démontrant le calcul des points, une feuille indiquant les indicatifs contactés dans chaque mode sur chacune des bandes (dupe sheet), une feuille indiquant les multiplicateurs utilisés et le journal de bord. Le journal doit montrer l'heure, la bande, le mode, l'indicatif de la station contactée, les rapports échangés et les revendiqués pour chaque QSO. Les nouveaux multiplicateurs doivent être clairement indiqués dans le journal.

Des formulaires d'inscription sonts aussi disponibles sur le site web de RAC au : http://wp.rac.ca/contesting-results/

Toute inscription contenant plus de 100 contacts devrait être soummise sous forme numérique. Le format électronique préféré est le format Cabrillo RAC. Les fichiers doivent êtres soummis en format text/ASCII.

Bien que le commité du concours préfère les soummissions en format Cabrillo, nous continuerons à accepter vos journaux de bord électroniques générés par des versions antérieurs de logiciels de concours, mais votre fichier doit être en format text/ASCII et contenir toutes les informations requises. Par contre, les fichiers ".adi" ne sont pas acceptables. Comme il existe plusieurs logiciels gratuits supportant le concours RAC et pouvant générer un fichier Cabrillo acceptable, nous vous encourageons à en utiliser un.

Le format Cabrillo RAC est décrit et sa disposition est illustrée en détail sur le site web de RAC au : **http://wp.rac.ca/contesting-results/**

Les journaux de bord soummis sous forme numérique mais ne possédant pas d'entête Cabrillo complète devraient fournir une feuille sommaire avec les mêmes informations que pour les soummissions papier. La feuille sommaire standard fournie par les logiciels courants est généralement acceptable, mais vous devriez confirmer qu'elle contienne les mêmes informations que pour le les soummissions papier.

Une entête Cabrillo correctement remplie se substitueras à une feuille sommaire pour les journaux soummis dans ce format. Veuillez s'il-vous-plaît vous assurer que vous vérifiiez l'exactitude de l'entête et qu'elle soit complètement remplie.Nommez votre fichier avec votre indicatif et l'extension de fichier .LOG (par exemple votreindicatif.LOG). Si vous envoyez votre journal de bord par courriel, veuillez inclure le(s) fichier(s) **en pièce(s) jointe(s)**. Ne copiez pas le fichier dans le texte de votre message, étant donné qu'il pourrait y avoir des problèmes avec la mise en page, rendant la tâche d'extraire votre journal plus difficile. Les gros fichiers peuvent être compressés en format .ZIP si nécessaire.

Si vous avez besoin d'aide avec la préparation ou l'envoi de votre journal par courriel ou avez d'autres questions, veuillez contacter Bart Ritchie, VE5CPU, ve5cpu@rac.ca.

Pour les résultats des éditions précédentes du concours, visitez le site web de RAC (**http://wp.rac.ca/contesting-results/**), dans la section concours.

FRESH ON THE AIR

– ADVENTURES FOR THE NEW AND BEGINNING HAM

73, 88 and a Rubber Duck: Our Vocabulary for the New Amateur

Phillip Boucher, VE3BOC
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Like any other industry or hobby we, in the Amateur Radio Service, have always had our own way of communicating and use words and phrases that outsiders do not understand. Amateur slang has evolved from the very first days of CW communications into our own distinct vocabulary. For new Amateurs it can seem very much like a foreign language.

The origins of many of these expressions are either established in pure fact or are so ambiguous that many legends exist about them. As such, I won't discuss their origins but will attempt to explain their meanings. Of course, if you really want to know where they came from, please feel free to surf the Internet and believe the explanations as you so choose.

73 – Best regards, sincerely, or yours truly. "73, John. Talk to you tomorrow."

88 – Love and kisses. Aw, so sweet. Used between two or more Amateurs who may be romantically involved, such as a boyfriend and girlfriend, husband and wife, or other similar partners. "88 Babe!" It's absolutely critical that you never get 73 and 88 mixed up! Ever!

Alligator – When you do the very bad thing and time out the repeater because you talk way too long. Commonly referred to as the alligator biting you.

Antenna Farm – A large piece of land with lots, and I mean lots, of Amateur Radio antennas on it. You can spot these from miles away. We Amateurs love to grow antennas.

Antenna Party – A get-together by a bunch of Amateurs to erect antennas or towers at an Amateur's residence.

Barefoot – Transmitting without using an amplifier. The output power is from the radio itself. For instance, HTs normally run "barefoot" producing 4-8 watts of transmit power.

Boat Anchor – Old or antique Amateur Radio equipment that, due to design, is very heavy and awkward.

Candy Store – An Amateur Radio dealer, so named as Amateur equipment is like candy to us – sweet, desirable, yummy and addictive.

Eyeball – Having an in-person meeting or contact with someone. "I'm going to eyeball John at the candy store on Saturday."

Fist – No, not what you think! This refers to an Amateur operating CW who hits the keys very very hard. A particular type of CW operating style.

Hi Hi –Means you are laughing or giggling. "Hi hi, Bob, that's a good one."

Homebrew – Non-commercial equipment that you build yourself, even if from a kit.

Kerchunk – Keying up a repeater without modulating it or identifying. This is done by some Amateurs just to see if they can hit the repeater. Actually doing this is illegal as you are transmitting without identifying. Why not just key up, identify and say that you are testing. I mean, really?

Key Up – To transmit on your radio, for instance, to key it up.

Landline – The regular ordinary everyday telephone line in your house or business that eventually leads back to some cables or wires.

LID – Refers to an Amateur with exceedingly poor operating practices, manners or attitude.

Linear – An amplifier that increases the signal output of your radio, going in between the radio and the antenna.

Machine – Usually refers to a repeater. "Hey, heard you on the Tattonville machine this morning."

Magmount – The magnetic mount antenna mount usually used to mount a mobile antenna to a vehicle roof or trunk.

Net – A group of Amateurs who meet on a specific day of the week on a specified frequency or repeater at a certain time of the day. A net control station is one Amateur who calls the net to order, acknowledges stations entering and leaving the net, and gives permission for the stations to transmit. Nets can be as general or specific as need be such as an ARES net or a homebrewers net.

OM – Old Man. Buddy, friend, pal.

Patch – Short for Autopatch, where the landline network is connected up to a repeater and stations can use the DTMF keypad on their radios to make telephone calls over the air.

Pileup – Refers to multiple stations calling one particular station. For example, many Amateurs trying to talk with a celebrity Amateur at the same time, or trying to talk with a station needed in a contest or on a remote DXpedition.

Pull the Plug – Means to shut down or turn off the station or get off the radio.

Radio Check – An Amateur who desires a report on his own station's signal strength and audio quality will call for a "radio check" over the air.

Ragchew – Informal chat over a simplex or repeater frequency between two or more Amateurs. Shooting the breeze.

Reading the mail – Listening without transmitting. Having the radio on and just listing to the various QSOs that happen.

Rig – Means your radio. "Just got me a new dual band rig today."

Rubber Duck – Not related to the singer C. W. McCall, but refers to the rubberized whip antenna that comes with handheld radios (HTs).

Shack – Where an Amateur Radio station is located. It could be a room, garage or even a real shack in the backyard!

Silent Key (SK) – Name given to an Amateur who has departed this earthly realm and has passed on.

Ticket – Your Amateur Radio licence, operating certificate, or other authorization of Amateur legitimacy.

Traffic – Refers to a message or several messages sent by radio between Amateurs.

Wallpaper – Back in the day many Amateurs collected so many QSL cards that when they were mounted on the wall it was entirely covered.

YL – Refers to a young lady or Amateur's girlfriend.

XYL – Ex young lady, or more affectionately known as "The Wife!" Always used with some type of fear in the voice.

You won't hear some of these words and phrases very often, but when you do you will know exactly what is being meant and know how to use the word or phrase yourself. So it's time to pull the plug on this column and go back to the XYL who is waiting patiently for me, hi hi.

– 73 from the shack and catch you all next time.

TCA

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Rob Steenweg, VE1CHW
Al Stephens, VE3NXP
Jeff Stewart, VA3WXM
Don Suarez, VA4DON
Jack Summers, VA3XR
Hiroshi Takahashi, VA7LET
Jason Timmis, VE7AG
Yori Tsuji, VE4ACX
W L Underwood, VE1WLU
Bill Unger, VE3XT
Richard Upfield, VA3RMU
Ronald Vadeboncoeur, VE3REV
A Vaillancourt, VE3DPZ
Alex Vandermey, VE3LEX
Robert Vanderminnen, VA3RMV
Graham Walker, VE6GW
Aaron Warner, VE3FZZ
Andrew Webb, VE6EN
James Webb, VE3WA
Joel Weder, VE6EI
Andrew Wells, VE3WEL
Ralph Welsh, VE3RWO
Garth Wetherall, VE3YC
Brice Wightman , VE3EDR
James Wilkins, VE7UVL
Kenneth Williams, VE9KW
Stan Williams, VA7NF
Bruce Winter, VE7HBW
Chad Wiseman, VO2CEW
John Wiseman, VE7BVS
K Scott Wood, VE1QD
Allen Wootton, VY1KX
Vladimir Ziabrov, VA2TTA

NEW RAC MEMBERS
NOUVEAUX MEMBRES RAC

Aaron Abbott, VO1FOX
Lloyd Addis, VE3KWD
Andrew Allison, VE3EXM
Scott Anderson, VE7OF
Luis Araiza Chavez, VA7WCR
Simon Auld, VE7OEA
Joanne Aulis, VA3JQR
Richard Banack, VE4AQU
Carl Bandura, VE7AVN
William Bode, VE3VLK
Terrance Bondy, VA3TYB
Kevin Borthwick, VE7KSB
Yanick Bouchard, VE2YKB
Jean-Philippe Boucher, VE2XBO
Michael H Boulton, VA7MBH
Horacio Bouzas, VA6DTX
Ted Bowman, VE7TTG
André Cayer, VE2TSX
Bob Ciupa, VE3QPA
Rick Coles, VA7RKC
Walter Corney, VY2DU
Timothy Cox, VE2SVW
Alessandro Danese, VE7ADA
Wayne Davies, VA3GRP
Michael deBoer, VA3OER
Timmy Diprose, VA3CWL
Nicholas Doyle, VA7NCD
John Eyre, VE7JEY
Richard Finn, VE3PNK
Nigel Forge, VE7NDF
Alan Fricker
Yves Gagné, VE2XYG
Rick Gebhardt, VE5RLG
Michael Girard, VE7WMG
Dwight Glass, VE4DUC
Jonathan Gravel, VE3APL
Leonard Gurski, VE7LJG
Scott Harper, VA3WSH
George Haslam, VE3ENU
Erik Hein, VE1EH
Rick Hull, VE1DLH
Mark Humphreys, VA5LNX
James Hunter, VA3LHX
Daniel Imre, VA7DSI
Wayne Izatt, VA7PRJ
Alan Johnson, VE1IM
Neil Johnson, VA7VIZ
Brett Kazakoff, VA7BSK
Ken Kennedy, VE4KGK
Heinz Kloppenburg, VE6AQW
Ray Lainchbury, VE6RZR
Wayne Lamothe, VE3WAN
Robert Lampman, VA3RJL
Timothy Lance, VE3WTA
Gerald Lapointe, VE2LGX
Christian Le Bel, VE2TWZ
Roger Lloyd, VA3REL
Conrad Loewen, VA7DUX
Vic Loewen, VE3JAR
Christopher Lowe, VA7ZXZ
Darcey MacInnes, VA7DKY
William Marquis, VA3HBO
Dierk Maske, VA1DHM
Scott Maybee, VA3SFM
John Michael McArdle, VE3KAH
Brian McNally, VE3YBM
Brian McNichol, VA1BPO
Doug McNicoll, VE3MCM
Scott Miner, VE4SGM
Malcolm Mitchell, VE6MPC
Max Moloney, VA7XAM
Raymond Munger, VA2RMU
Clare Neufeld, VE7FQR
Tad Nicol, VA7JTN
Ephraim Nowak, VA7EPH
Mike O'Malley, VA3XMO
Theodor Palamarek, VE6PQ
Gordon Parsons, VO2WW
Ankit Vinodkumar Patel, VA1NMQ
Mike Patterson, VE3KPP
Pat Pattison, VA7MKP
Stephen Petruska, VA3MPS
Andre Pilon, VE7APM
Jason Pion, VE5DAB
Robert Poirier, VE3TXF
Sergii Polishchuk, VE4BIT
Tim Raman, VE3NBS
Marc Robert, VE2BMK
Leonard Rodrigues, VA7KLV
Justin Schmidt-Clever, VE3QYR
Syed Karim Shah, VA7PKP
Ameer Shaikh, VA6QAS
Jim Sloane, VE4JIM
Ian Smith, VA7IAN
Nitin Sood, VA3VAH
Steve Sparling, VA7TWP
Ted Spencer, VA3YWA
William-Ryan Spink, VA2RWS
V Jonathan Steele, VE9VJS
Douglas Steeves, VE9TNT
Rick Streifel, VA7RX
Les Tocko, VA7OM
Jerry Tombari, VE3JTB
Dave Twyver, K7DAT
John van Loenen, VA3FVL
Gerald (Jerry) Volkers, VE4GCV
Terry Wagner, VE6TDW
Steve Walmsley, VE7SGW
Peter Walsh, VE7XPW
Wayne Wilkins, VE3WWN
Rodi Williams, VA7PWG
Terry Wilson, VA7TDW
Hans-Dieter Winzen, VE3OR
John Woodthorpe, VA7WOD
Jie Zhu, VA6ZHU

PUBLIC SERVICE / ARES

Cariboo / Chilcotin Amateur Radio Society Upgrading Repeater

The following article was written by Monica Lamb-Yorski and was published in the Williams Lake Tribune on February 16, 2017. It is being included here with their permission. Williams Lake is a city in the Central Interior of British Columbia. In the network discussed in the article, the straight-line distance between Timothy and Little Kappan is 280 kilometres. – Hal Giles, VE7ENT member of the Cariboo / Chilcotin Amateur Radio Society (CCARS) and Central Cariboo Search & Rescue

Monica Lamb-Yorski
Williams Lake Tribune

The Smokey Amateur Radio repeater site located 15 kilometres north of Williams Lake is receiving some much-needed upgrades, said Cariboo / Chilcotin Amateur Radio Society President, Dr. Mike Smialowski.

"As soon as you drive west out of Williams Lake and go over the hill and underneath the telephone lines you have no cell service," Smialowski said. "Last summer a person got lost south of Charlotte Lake and the only repeater that would get into the area was our Amateur Radio repeater."

Funding for the equipment came from the Cariboo Regional District (CRD) in the amount of $1,500 and the Williams Lake Log Haulers Association who donated $2,500.

CRD Area F Director Joan Sorley said the society received the grant because it is providing a service that is essential to emergency communications.

"It benefits the entire area, that's why we contributed," she said.

The new equipment on the communications rack consists of two new Yaesu Fusion DR-1X repeaters and an RLC Club Deluxe II repeater controller, Smialowski told the *Tribune* from his home in Tatlayoko Lake.

"The Fusion repeaters are state-of-the-art analog and digital capable repeaters. The link controller will enable up to six communication links as well as a telephone interconnect with voice prompts."

Smokey was chosen for the upgrade because it is the central hub of the communication network, Smailowski said, noting within the network there are 10 repeaters.

From the Smokey repeater, radio users can connect with repeaters at Potato East, Timothy, Lyme, Vedan, Puntzi, Little Kappan, Sapeye, Esler and Deer Ridge.

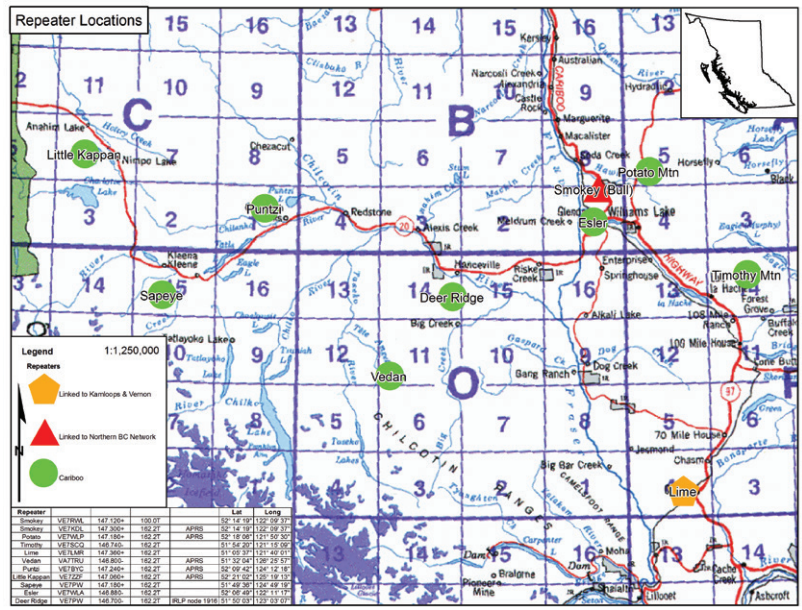
"So if someone in Charlotte Lake wants to talk to someone in Williams Lake, their radio signal will go to the repeater up on Little Kappan near Anahim Lake and that radio signal gets bounced to Puntzi, from Puntzi to Vedan, from Vedan to Smokey," Smialowski explained.

"Because the repeaters are up high they are in line of sight with the radios below them. The radio signals will travel a long way if all they have to go through is air."

Similar to a party line on telephones, a radio operator who tunes into one repeater can hear conversations from all of the other repeaters, he added.

In the past, the society acquired older equipment from various agencies that society members fixed up and installed at sites in the region.

"It all has to be hauled out to wherever the site is and usually they are not easy to get to," Smialowski said. "Then we have to build a little house or shack for it to go in. Along with bringing in cables, batteries and solar panels, it is a big job."



Older equipment tends to break down, which is one of the reasons the society wanted to buy new equipment.

"If Smokey goes down, a lot of the network will go down as well, so that's why we decided to attack it first," he said.

Smialowski moved to Tatlayoko Lake in 2005 and worked as the area's doctor up until he retired in 2014. He has been involved with the Amateur Radio society ever since he arrived.

"One of our members is a retired technician who used to work with forestry and serviced all their repeaters in the area and another one is still working and is a radio technician for highways," he said. "They are very knowledgeable about setting up and maintaining repeater systems."

The society also maintains Central Cariboo Search and Rescue and West Chilcotin Search and Rescue's radio repeaters, he said.

The Cariboo / Chilcotin Amateur Radio Society is a group of volunteer, Amateur Radio operators who have installed and maintain a network of VHF voice and digital radio repeaters in Williams Lake, BC and throughout the surrounding Cariboo & Chilcotin country. We are located in Williams Lake, BC and its surrounding area which spans between Prince George & Quesnel to the north, and 100 Mile House, Clinton & Cache Creek to the south. Our repeaters cover all of the Cariboo & Chilcotin region of Central BC. For more information visit http://www.CCARS.ca.

CANWARN: AN IMPORTANT SERVICE

Doug Mercer, VO1DTM, RAC Community Services Officer

The following letter from Bob Robichaud, VE1MBR, highlights the important service that Canadian Amateurs provide to Environment Canada weather forecasters. In the Maritimes, it's evident that Amateurs go above and beyond in passing information to the weather office.

In Newfoundland, we have an evening province-wide VHF net at 9 pm. Some Amateurs check in by VHF through our repeater network, others using their smartphone or laptop via EchoLink. When there is an impending weather system, we change the net to a CANWARN activation and ask Amateurs to provide current weather conditions for their area. When the net finishes we provide a report to Environment Canada in Gander.

Some time ago, following a call to the weather office, I received a call back from the meteorologist thanking us for our report. She stated that using radar is one thing, but real time observations are crucial.

"Thank You for CANWARN Activation"

On behalf of the Meteorological Service of Canada I would like to thank all Amateur Radio operators who contributed their reports during the Blizzard of February 13 and 14, 2017. Reports started coming in late Sunday night and a full CANWARN activation occurred at 9 am February 13. The formal net continued for 12 straight hours and reports were received from over 25 Amateurs from over 20 different communities around the Maritimes. Over 200 individual Spotter Reports were received which helped forecasters at the Atlantic Storm Prediction Centre maintain situation awareness during the storm. Spotters endured challenging conditions with heavy snow and blowing snow to go out and take snowfall measurements throughout the duration of this storm.

The snow began over western Nova Scotia late Sunday evening and progressed eastward reaching Cape Breton by mid-morning Monday. The storm intensified very rapidly and met the loose threshold of a weather bomb. Blizzard conditions lasted for an extended period of time which spotters were able to confirm through their reports. We also were able to confirm storm surge flooding along the Atlantic Coast and high water along the North Shore although no flooding occurred there. One feature we sometimes see with these types of storms is thunder snow which is basically a thunderstorm embedded in the larger snowstorm. One of the reasons we were looking for reports of thunder snow is that they can produce extreme snowfall amounts in short periods. We had a couple of spotters who thought they heard thunder but could not be certain. However, our lightning detection network did in fact pick up on some lightning just northwest of Halifax between Bridgewater and Kentville.

As with every activation we have some takeaways on how we can improve the nets. We had a couple of new net controllers to CANWARN Atlantic nets which always helps provide a new perspective. We will be looking at what we learned from this activation and see how we can incorporate this into future activations to help improve them. Once again thank you to all CANWARN Spotters and especially to the Net Controllers who ran the net.

Bob Robichaud, VE1MBR – Warning Preparedness Meteorologist Meteorological Service of Canada

Note: The Maritimes CANWARN website http://canwarnatlantic.webs.com/ and Twitter feed @canwarnatlantic is maintained by Jim Langille, VE1JBL. For more information on CANWARN visit http://www.ecoa.ca/canwarn.shtml.

THE QUAKE COTTAGE: WHAT A RIDE!

Paul Giffin, VA7MPG

On May 27 and 28, 2016, the Quake Cottage arrived in Nanaimo, British Columbia. The Quake Cottage is actually a transport trailer that has been modified to simulate what an earthquake of various magnitudes would feel like. The Cottage has furniture much like you would have at home so it is fairly realistic. Many of those who rode an earthquake in the cottage were very surprised at the severity of the event. The Cottage made two stops in Nanaimo. One was at the Vancouver Island University and the other at Woodgrove Shopping Mall. Also present at both locations were members of the Coast Emergency Communications Association. They were there to help promote earthquake preparedness and also to demonstrate how the Amateur Radio Emergency Service (ARES) works.

Left: Roger Stacey, VA7RS, Dave Marshall, VE7TWO and Burnie Smith, VE7IAD, of the Coast Emergency Communications Association

Radio stations were set up with both voice and Winlink digital systems. Visitors provided the radio operators with a short text of a message and then these messages were sent digitally either to cellphones or home computers. It was interesting to watch faces show surprise when the message arrived moments later on their cellphones. All in all this proved to be an excellent example of how we can make the public aware of the capabilities of Amateur Radio as well as get them thinking about emergency preparedness.

The Coast Emergency Communications Association is comprised of 30 members who provide emergency/auxiliary communications to the City of Nanaimo and the southern portion of the Regional District of Nanaimo. The area covers a population of over 100,000 people and includes several of the Gulf Island. If you are interested in becoming part of our group please forward an email to va7mpg@rac.ca. For additional information visit http://va7eca.ca/.

Winter Field Day

Ron McFadyen, VY1RM

All photos are by John, VY1JY

This year, the Yukon Amateur Radio Association (YARA) held its Winter Field Day at a location about five miles east of Whitehorse on a cold, blowing winter day in a parking lookout with Riverdale subdivision 800 feet below.

About a dozen members of YARA came out to play. About half that number tried HF. We also used UHF and VHF, D-STAR, simplex and repeater coverage of the Whitehorse valley.

Voice contacts also JT-65 on HF were used to see what could be done using a Buddipole and heldheld radios.

The First Annual Winter Field Day was held on January 13-14, 2007 and is an annual event that takes place on the last full weekend in January. The Winter Field Day Association (WFDA) is a "dedicated group of Amateur Radio operators – Tom, WD8MBE, Bill, VE3CLQ, Erik, WX4ET, Dave, W3DET and Ken, N8KC – who believe that emergency communications in a winter environment is just as important as the preparations and practice that is done each summer but with some additional unique operational concerns."

In his article in the May/June 2016 TCA, Fred Lesnick, VE3FAL, wrote: "Winter Field Day (WFD) is based on the same principle as the ARRL Field Day except its main purpose is 'to encourage emergency operating preparedness in the winter'. Of course, considering all of the safety concerns that go along with WFD should be priority. For us in the North it is hypothermia; for those in the South sunburn and UV is still a concern. There are bonus points and multipliers and the scoring scheme is the same as for Field Day with call sign, category and section being logged."

For more information visit https://www.winterfieldday.com/.

Distractions au volant au Canada

La règlementation à propos des distractions au volant suscite toujours de l'intérêt pour plusieurs radioamateurs canadiens. Les règlements sont sous la juridiction des gouvernements provinciaux et varient d'une province à l'autre de temps à autre. RAC a compilé une liste des sites Web de cette règlementation pour les provinces qui en ont une. Voyez cette liste : http://wp.rac.ca/qc/reglements-sur-la-conduite-inattentive/

Les représentants régionaux de RAC travaillent souvent à clarifier la règlementation où les radioamateurs pourraient se faire piéger ou lorsque les règlements sont établis ou amendés.

En Colombie-Britannique (C.-B.), Bill Gipps, VE7XS, accompagné de deux amateurs locaux, (Chris Scholefield, VE7QCS and Dave Miller, VE7HR), ont eu plusieurs rencontres avec le gouvernement pour discuter de la règlementation sur la distraction au volant et de son application au radioamateurisme. Les radioamateurs de la C.-B. ont été heureux des grands progrès accomplis au cours de ces rencontres et sont restés attentifs au processus pendant que le gouvernement de la C.-B. sollicitait l'opinion d'autres intervenants dans le dossier. Ce processus s'est complété récemment et le gouvernement de la C.-B. a produit un nouveau document de clarification accessible sur ce lien Web : http://www2.gov.bc.ca/assets/gov/driving-and-transportation/driving/publications/electronic-devices-while-driving.pdf. Ce document, bien qu'imparfait, couvre l'utilisation des microphones de main, sujet précédemment très controversé. On suggère d'avoir une copie de ce document, ainsi que votre certificat de radioamateur, dans votre véhicule.

En Ontario, une exemption temporaire pour les radioamateurs devrait prendre fin le premier janvier 2018. Phil McBride, VA3QR, directeur RAC Ontario South et Al Boyd, VE3AJB, directeur RAC North/East, ont obtenu quelques lettres de pétition, mais il en faut beaucoup plus, particulièrement d'organismes qui appuient l'importance du radioamateurisme, pour démontrer aux gouvernements provinciaux l'importance d'assurer les communications publiques lors d'événements comme les parades, les marches, les tours de cyclisme et, le plus important, pour les communications d'urgences SURA (ARES) qui contribuent au soutien des premiers répondants comme la police, les pompiers et les ambulances. Nous avons contacté les conseillers du ministère des transports pour obtenir une rencontre ce printemps-ci afin d'exposer notre point de vue. Nous avons besoin de lettres supplémentaires pour appuyer notre demande. S'il vous plaît, envoyez vos lettres aux directeurs régionaux. Nous avons entendu dire que le gouvernement de l'Ontario était en train de considérer le cas de l'exemption des radioamateurs.

RAC continuera de fournir plus de détails au sujet de la règlementation sur les distractions au volant sur le site Web de RAC au fur et à mesure des événements. Pour toutes questions ou tout commentaire, ou encore si vous voulez envoyez une lettre de soutien, contactez simplement votre directeur RAC en tout temps à l'adresse qui apparaît à la page 4 de la revue TCA et sur la page Web : http://wp.rac.ca/board-of-directors/

Glenn MacDonell, VE3XRA
Président
Radio Amateurs du Canada

– Traduction par René Lévesque, VE2CNJ. Merci René!

CANADA IN THE ARRL FIELD DAY 2016

Prepared by Bob Nash, VE3KZ

Canada uses the North American ARRL Field Day as an excellent opportunity to test emergency skills. June 2016 saw 159 logs from Canada submitted to the American Radio Relay League. Temporary portable stations accounted for approximately 70 percent of these entries.

Here are some of the statistics:

- The Mississauga ARC, VE3MIS, brought back the highest score to Ontario and the GTA, using the highest number of operating positions: 12.
- The second highest score went to neighbouring Peel ARC, VE3XR.
- Two clubs cooperated to place the third tally, signing VE2ARC: West Island ARC and Montreal ARC.
- Club Radio Amateur de Quebec, VE2CQ, had the largest number of participants: 72.
- British Columbia, of all the Sections, had the most entries at 28.
- There were 1,764 individuals participating in the 2016 Canada Field Day. Over 55,000 QSOs were recorded!

THE CATEGORIES:

Class A stations (shown below and on page 52) are clubs or non-club groups of three or more persons set up specifically for Field Day. Score listings are grouped according to the number of transmitters in simultaneous operation.

Regional High Scores for Portable or EOC Stations in the 2016 Field Day

Call	Category	QTH	Name
VO1MRC	1AB	NL	Marconi RC of Newfoundland
VE1FO	2A	NS	Halifax ARC
VE9ND	3A	NB	Not Named
VY2PEI	2E	PEI	Not Named
VE2ARC	2A	QC	West Island ARC / Montreal ARC
VE3MIS	12A	GTA	Mississauga ARC
VE3RB	4A	ONE	Peterborough ARC
VE3SOO	2F	ONN	Algoma ARC
VE3SME	7A	ONS	Norfolk ARC
VE4MEC	1F	MB	Mobile Em Comm
VE5NN	3A	SK	Regina ARA
VE6KZ	1B2	AB	Not Named
VE7SCC	3F	BC	Coquitlam, Burnaby & New Westminster ARCs
VE8YK	2AB	NWT	Yellowknife ARS

Some Class A entries whose transmitter classification is two or more transmitters also operated one additional HF station known as the Get-On-The-Air (GOTA) station, a chance for inactive Amateurs to get on the air. An additional B indicates operation by a power source other than commercial power mains or motor-driven generator, usually batteries.

Field Day 2017 (http://www.arrl.org/field-day) begins at 1800 UTC on Saturday, June 24 and ends at 2059 UTC Sunday, June 25.
Field Day 2016 rules and codes: http://www.arrl.org/files/file/Field-Day/2016/2016%20Rules.pdf

Call	Score	Category	QSOs	Pwr	GOTA	Section	Participants	Club
VE2FET	3,888	1A	780	2		QC	9	
VA1GE	2,698	1A	487	2		MAR	4	4 Ham Network
VE3SGB	2,530	1A	640	2		ONS	14	S Georgian Bay ARC
VE2UMS	2,528	1A	533	2		QC	30	Union Metropolitaine des Sans-filistes de Montreal
VE3OD	2,002	1A	295	2		GTA	7	Halton ARC
VE2CUR	1,622	1A	604	2		QC	12	Groupe Radio VE2RMP RG
VA2CKB	1,130	1A	90	2		QC	5	Club Radioamateur de Beauce
VE2CWQ	962	1A	256	2		QC	13	
VA3NRR	908	1A	279	2		ONE	17	Renfrew Cty ARC
VE3JJF	642	1A	72	2		ONN	5	LOWARS
VE7NA	610	1A	64	2		BC	20	Nanaimo ARA
VE6CJ	604	1A	404	1		AB	4	Fort Saskatchewan RC
VE7RBH	372	1A	61	2		BC	7	Bulkley Valley ARS
VE2CBS	2,285	1AB	207	5		QC	9	Club Radioamateur Sorel-Tracy
VE2CAM	2,030	1AB	133	5		QC	3	Club radio Amateur Maskoutain
VO1MRC	1,745	1AB	81	5		NL	3	Marconi RC of Newfoundland
VA3HN	780	1AB	58	5		ONE	4	
VE2CRD	496	1AC	132	2		QC	5	Club Radioamateur de Drummondville, Inc.
VE2ARC	5,896	2A	1,440	2	VE2CWI	QC	30	West Island ARC / Montreal ARC
VE1FO	5,106	2A	1,177	2	VE1QD	MAR	62	Halifax ARC
VE3ORF	4,414	2A	1,062	2	VE3FDS	ONE	25	
VE3RC	3,618	2A	696	2	VE3NCR	ONE	30	Ottawa ARC
VA7ODX	3,446	2A	759	2		BC	9	Orca DX & Contest Club
VE7PCE	3,258	2A	1,194	2		BC	25	EPCOM
VE1LD	3,046	2A	765	2	VA1YL	MAR	9	Kings Cty ARC
VE2CQ	2,706	2A	695	2	VE2CDX	QC	72	Club Radio Amateur de Quebec
VE2CRS	2,654	2A	606	2		QC	5	Club Radio Amateur Saguenay Lac St-Jean

VE7NSR	2,572	2A	687	2		BC	41	North Shore ARC
VE3JW	2,446	2A	453	2	VE3RAM	ONE	27	Ottawa Valley Mobile RC
VA1AVR	2,276	2A	503	2		MAR	34	Annapolis Valley ARC
VE3GCB	2,150	2A	258	2		ONS	23	Barrie ARC
VE7CVA	1,672	2A	353	2		BC	20	Cowichan Valley ARS
VE3AIR	1,422	2A	194	2		ONE	4	Manotick Amater Radio Group
VO1AA	1,364	2A	98	2	VO1PCW	NL	7	Soc of Newfoundland RA
VE7CW	1,266	2A	215	2		BC	3	Beaver Valley ARC / West Kootenay ARC
VE6FT	1,144	2A	327	1		AB	18	Mayerthorpe Flying Tigers
VE1ARC	1,028	2A	118	2	VE1WN	MAR	14	Greenwood ARC
VE3VSW	932	2A	194	2		ONE	14	Seaway Valley ARC
VE5MA	924	2A	213	2		SK	8	Moose Jaw ARC
VE9CRM	888	2A	166	2		MAR	18	Club Radio Amateur Du Madawaska
VE9EMM	798	2A	274	2		MAR	8	Maarc
VE7ECC	758	2A	84	2		BC	15	Abbotsford ARC
VE9BPD	680	2A	172	2		MAR	5	Bathurst AR Group
VE7CRC	642	2A	196	2		BC	15	
VA2HMC	618	2A	184	2		QC	4	Club De Radio Amateurs Saint-Michel-des-Saints
VE7CWD	606	2A	78	2		BC	5	Colwood Em Program
VE6YAC	578	2A	109	2		AB	7	Yellowhead ARC
VE7DB	554	2A	42	2		BC	7	White Rock ARC
VE3NAR	460	2A	155	2		ONS	7	Nortown ARC
VA3OVQ	3,145	2AB	196	5		ONE	11	Ottawa Valley QRP Soc
VE8YK	1,320	2AB	18	5		NWT	5	Yellowknife ARS
VY2CRS	806	2AC	128	2		MAR	4	Charlottetown ARC
VE5EEE	184	2AC	67	2		SK	6	Northern Saskatchewan ARC
VE3SAR	5,430	3A	1,160	2	VA3OIL	ONS	16	Lambton Cty RC
VE5NN	3,030	3A	603	2		SK	28	Regina ARA
VE2CRO	3,008	3A	672	2		QC	33	Club Radio Amateur de l'Outaouais
VE2CVR	2,430	3A	488	2		QC	23	Club Radioamateur de la valle du Richelieu
VE9ND	2,384	3A	332	2		MAR	20	
VA3LNZ	2,132	3A	602	2		ONE	13	Victoria-Haliburton ARA
VE3RL	2,050	3A	543	2		ONE	15	Quinte ARC/Prince Edward RC
VE3OKV	1,814	3A	199	2		GTA	16	South Halton ARES
VC2FDC	892	3A	11	2		QC	8	
VE7CMR	852	3A	151	2		BC	8	Maple Ridge ARC
VE6WP	766	3A	81	2		AB	7	Sask Alta RC
VE3KBR	748	3A	99	2		ONE	24	Kingston ARC
VE6ARC	526	3A	113	2		AB	10	Peace Country ARC
VA7UC	526	3A	29	2		BC	3	
VE3SDF	478	3AC	39	2		ONS	3	
VE3XR	6,148	4A	1,587	2	VA3IHX	GTA	32	Peel ARC
VE3RB	5,734	4A	1,554	2	VE3KRG	ONE	35	Peterborough ARC
VE3NSR	3,144	4A	612	2	VE3QG	GTA	30	North Shore ARC Ontario
VE3RSE	1,790	4AB	93	5		ONS	15	Elgin ARS
VA3BIC	678	4AC	139	2		ONS	7	Port Colborne BIC Club
VE3YRA	5,656	5A	1,543	2	VE3YRK	GTA	63	York Region ARC
VE3VM	5,024	5A	1,220	2	VA3ROW	ONS	23	Niagara Peninsula ARC
VE3OW	3,930	5A	1,149	2		ONS	15	Sun Parlor Retirees ARC / Border City RC
VE3DC	3,378	5A	821	2		ONS	8	Hamilton ARC
VE3TNC	3,210	5A	645	2		ONS	20	Toronto ARC
VE3SPC	2,716	5A	666	2		GTA	11	South Pickering ARC
VE5AA	2,568	5A	454	2		SK	34	Meewasin ARS / Saskatoon ARC
VE3IC	1,742	5A	377	2		ONS	17	Kitchener Waterloo ARC
VE3FRG	3,646	5AC	1,147	2		ONE	5	Frontenac Radio Group - Team A
VE3UDO	914	5AC	242	2		ONE	5	Frontenac Radio Group - Team B
VE3SME	5,500	7A	1,537	2	VE3RTL	ONS	23	Norfolk ARC
VE3LON	1,872	7A	270	2		ONS	40	London ARC
VE6FAR	1,274	7A	112	2		AB	12	Foothills ARS
VE7SUN	3,554	8A	520	2		BC	18	Delta ARS
VE3MIS	7,988	12A	1,778	2		GTA	45	Mississauga ARC

ARRL Field Day: June 24-25

Every June, more than 40,000 Amateurs throughout North America set up temporary transmitting stations in public places to demonstrate Amateur Radio's science, skill and service to our communities and our nation.

It combines public service, emergency preparedness, community outreach and technical skills all in a single event. Field Day has been an annual event since 1933 and remains the most popular event in Amateur Radio.

Objective: To work as many stations as possible on any and all Amateur bands (excluding the 60, 30, 17 and 12 metre bands) and to learn to operate in abnormal situations in less than optimal conditions. Field Day is open to all Amateurs in the areas covered by the ARRL/RAC Field Organizations and countries within IARU Region 2. DX stations residing in other regions may be contacted for credit, but are not eligible to submit entries.

Field Day is always the fourth full weekend of June, beginning at 1800 UTC Saturday and running through 2059 UTC Sunday. Field Day 2017 is June 24-25.

Don't forget to follow Field Day via Twitter using #ARRLFD and #RACFD and share your stories with RAC on Facebook at http://www.facebook.com/radioamateurscdn.

CLASS B STATIONS: Portables manned by one or two operators

Call	Score	Category	QSOs	Pwr	Section	Participants
VE9AA	1,150	1B1	252	2	MAR	1
VE3TAZ	722	1B1	118	2	ONS	1
VE3EEE	624	1B1	69	2	ONE	1
VA2NU	424	1B1	37	2	QC	1
VE3FME	416	1B1	54	2	ONS	1
VE3KQN	3,570	1B1B	322	5	ONE	1
VE2EZD	2,030	1B1B	168	5	QC	1
VE3UZ	1,300	1B1B	105	5	ONS	1
VE6NS	1,040	1B1B	79	5	AB	1
VE6ZC	900	1B1B	65	5	AB	1
VE3EDX	770	1B1B	52	5	ONN	1
VE7XT	670	1B1B	60	5	BC	1
VE3HG	620	1B1B	37	5	GTA	1
VE3PVI	430	1B1B	28	5	ONE	1
VE6SKY	385	1B1B	7	5	AB	1
VE3SHO	190	1B1B	8	5	GTA	1
VE2UGO	190	1B1B	8	5	QC	1
VE7GM	544	1B1C	110	2	BC	1
VE6KZ	3,966	1B2	929	2	AB	1
VE3EQP	2,200	1B2B	223	5	ONS	2

CLASS C STATIONS: Mobiles

Call	Score	Category	QSOs	Pwr	Section	Participants
K2NV/VE3	1,642	1C	398	2	GTA	1
N6AN/VE6	340	1C	36	2	AB	1
VE4SNA	330	1C	76	2	MB	2

CLASS D STATIONS: Home stations using commercial power

Call	Score	Category	QSOs	Pwr	Section	Participants
VE2JCW	2,266	1D	554	2	QC	1
VE3SWA	1,366	1D	329	2	ONS	1
VA7ST	972	1D	207	2	BC	1
VE7WJ	744	1D	261	2	BC	1
VE2NTT	605	1D	555	1	QC	1
VE3HB	602	1D	138	2	GTA	1
VA3WU	458	1D	204	2	ONS	1
VE2QV	422	1D	68	2	QC	1
VE6AO	292	1D	71	1	AB	4
VE7IO	268	1D	67	2	BC	1
VE3FJ	250	1D	100	1	GTA	1
VY2DM	250	1D	50	2	MAR	1
VE3CNA	210	1D	105	2	ONS	1
VE3NLW	196	1D	73	2	ONE	1
VA5CW	194	1D	45	2	SK	1
VE2GT	184	1D	67	2	QC	1
VE3HED	182	1D	66	2	ONE	1
VE3QVL	154	1D	52	2	GTA	1
VE1NSS	106	1D	14	2	MAR	1
VE7EOL	82	1D	16	2	BC	1
VA7XNL	80	1D	15	2	BC	1
VE6CSZ	70	1D	20	1	AB	1
VE2ICU	68	1D	9	2	QC	1
VE6JF	64	1D	33	1	AB	1
VE3FMK	58	1D	29	2	ONE	1
VE3VCF	36	1D	9	2	ONE	1
VE2RAE	2,340	2D	675	2	QC	1
VE7SAR	3,626	3D	1,051	2	BC	4

CLASS E STATIONS: Home stations using emergency power

Call	Score	Category	QSOs	Pwr	Section	Participants
VE3MGY	4,194	1E	1,318	2	ONS	1
VE3WZ	1,790	1E	164	5	GTA	1
VE3SB	1,510	1E	136	5	GTA	1
VE7NI	1,170	1E	82	5	BC	1
VE3YOM	762	1E	88	2	GTA	5
VE3CQH	710	1E	56	5	ONS	1
VE3JOG	250	1E	60	1	ONS	3
VE3TW	250	1E	100	1	ONE	1
VA7HZ	190	1E	35	2	BC	1
VA7MM	1,916	2E	365	2	BC	1
VE6FI	1,858	2E	1,608	1	AB	4
VY2PEI	1,126	2E	356	1	MAR	25

CLASS F STATIONS: Emergency Operations Centres (EOC) stations

Call	Score	Category	QSOs	Pwr	GOTA	Section	Participants	Club
VE4MEC	1,104	1F	171	2		MB	11	Mobile Em Comm
VE3SOO	1,078	2F	327	2		ONN	12	Algoma ARC
VA7LEP	1,072	2F	111	2	VE7FWN	BC	32	Langley Emergency Program CCVT
VE9LC	906	2F	261	2		MAR	12	Loyalist City ARC
VA7EOC	788	2F	165	2	VE7KTS	BC	34	
VE7SCC	3,366	3F	1,215	2		BC	20	Coquitlam, Burnaby & New Westminster ARCs

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THE SPORTS PAGE

— THE CANADIAN CONTEST SCENE

Contesting and Special Prefixes...

Canada is now celebrating its 150th birthday and, to mark the occasion, all Canadian Amateurs can use an optional special prefix. This can add an extra level of interest, as well as some confusion to contests.

First, the good part. In some contests, such as the CQ World Wide WPX Contest (https://www.cqwpx.com/), each unique prefix counts as a multiplier.

Using a special prefix can help, as more people want to work you, which is always a good thing. At the same time, WPX is a multiplier-rich contest. At the start, every QSO is a new multiplier. Even towards the end of the contest it seems that every second or third QSO is also a new multiplier!

For 2017, several folks, myself included, are making a point of using these special prefixes in contests and it is an interesting experience. As you can see from my signature at the end of this column I am using CG3CX nstead of VE3CX.

As I have found, many people look on QRZ.com to look up the call sign, either during or after the contest. This was unexpected. If you are going to use a special prefix, it only takes a minute or two to create an entry with your "new" call sign on QRZ.com. The process is quick and easy. This is a good place to explain the call and to offer information regarding QSL cards. I believe the reason they check is to make sure they copied your call correctly and finding it on QRZ.com can add an extra level of confidence. It goes without saying though: checking call signs during the contest takes time away from making QSOs and will lower your score. In some cases it may also be against the rules.

Many contesters load a Super Check Partial (SCP) file into their logging software. Chances are very high that it is already part of your logging software and you have been updating it already. The SCP file serves as a database of call signs that have been used in contests over the past two years. When using a special prefix, your "new" call will not yet be in the database. This is not a problem, as *every* call sign was "new" once.

Having your call sign appear in the SCP can give the other station that extra bit of confidence they copied it correctly. When it does not show up they may take an extra few seconds to verify that they have copied your call correctly.

After you have used your "new" call (with special prefix) in a few contests, it will be added to the master database. If you are curious as to how it all works, you can check out online at http://supercheckpartial.com/. In any event, rest assured that folks will want to work you – especially if you are using a special prefix.

Using a special prefix can also generate interest from award and QSL card collectors. Like many contesters, I use Logbook of the World (LOTW) to help with QSL chores. If you are not yet using LOTW, the process has become both easier and better over the past few years. You can find full details on the ARRL website at http://www.arrl.org/logbook-of-the-world. I have found that with the high cost of postage and my use of LOTW, the amount of paper cards I send/receive is down considerably from past years. In any event, the QSL Bureau does a wonderful job of providing a low-cost solution for receiving incoming QSL cards, and RAC provides a low-cost solution for sending outgoing cards via the Bureau.

In 2017, a number of special call signs have also been activated – XK150YUKON, VE100VIMY, XM1150CAN and VC30S – to name a few. Even though some of these call signs are longer – up to 10 characters – all the logging programs are able to handle them with ease. Using a long call sign in a contest means sending more characters, every time you send your call, and will slow you down somewhat. As noted above, it can be help generate interest in stations wanting to work you, along with more QSOs.

With all this talk of special prefixes for 2017, it seems only fitting that we use them. My hope is that everyone will make an effort to use our special prefixes, especially during the RAC Canada Day Contest on July 1 (see page 42) and the RAC Winter Contest in December. You can find full details about the special call signs on the RAC website at: http://wp.rac.ca/special-event-canada150/

So, when you hear lots of familiar voices on both phone and CW sporting unfamiliar call signs, keep in mind we are out there waving the Canadian Flag as it were – having fun making QSOs. Hope you can join us.

73, Tom, CG3CX

TCA

ALL ASIA CW CONTEST

Call	QSO	Mult	Category	Score
VE7JH	1,052	342	SOAB	402,534
VA2EW	279	140	SOAB	39,060
VE6EX	146	82	SOAB	12,054
VE7IO	134	74	SOAB	9,916
VA7ST	95	61	SOAB	5,795
VE3VN	60	45	SOAB	2,700
VE7FO	62	33	SO20	2,046
VE1DT	42	31	SOAB	1,302
VE2ZT	35	29	SO20	1,015
VA2WA	33	27	SO20	891
VE3MIS (VE3CWU)	31	28	SO20	868
VE3FJ	29	27	SO20	783
VE7BGP	27	22	SOAB	594
VE3BR	20	19	SO20	380
VE4VT (VE4EAR)	11	11	SOAB	121
VE2JR	6	6	SO20	36

2016 SPRING VHF & UP SPRINTS

Call	QSO	Grids	Category	Score
VA3ELE/R	85	49	144 MHz Rover	4,165
VA3ELE/R	40	27	222 MHz Rover	1,080
VA3ELE/R	49	38	432 MHz Rover	1,862
VE3CRU/R			Rover Class	1,967 Km

2016 CQ WPX CW

Call	QSO	Mult	Category	Score
VC2A	3,188	1,129	M1 HP	12,598,511
VY2TT (K6LA)	3,366	1,073	SOAB HP	11,572,305
VC7G	3,265	1,003	M2	9,905,628
VE9CB	2,619	915	SOABHP (T)	7,614,630
VY2ZM (K1ZM)	2,245	848	SOABLP	7,066,384
VE7GL	2,294	898	M2	6,501,520
VE3YAA	2,251	896	M2	6,344,576
VE3DZ	2,144	870	SOABHP (T)	5,729,820
VE9ML	1,792	845	M2	5,293,080
VE7SV (VE7CC)	1,756	687	SOABHP	3,734,532
VE3EJ	1,209	625	SO40HP	3,520,000
VE3MIS (VA3JK)	1,404	673	SOABHP (A)	2,846,790
VE7SZ (VA7RR)	1,351	706	SO20HP	2,287,440
VE3RZ	1,151	582	SOABHP	2,158,056
VB7A	1,347	529	M2	1,917,096
VA7ST	1,164	555	SOABHP	1,773,225
VE3VEE	933	617	SO20HP (A)	1,469,694
VE3KI	886	496	SOAB QRP (A,T)	1,354,080
VE2FK	888	478	SOABHP (A)	1,264,310
VE2BWL	789	504	SOABHP (A)	1,209,096
VE3GFN	790	476	SOABLP (A,T)	1,201,900
VO1BQ	800	456	SOABHP (T)	1,171,920
VC9T (VE9AA)	857	452	SOABLP	1,161,640
VE5MX	739	429	SOABHP (A)	981,552
VO1MP	614	398	SOABHP	952,016
VE6EX	821	372	SOABLP	829,932
VE3MGY	738	348	SOABLP (T)	827,196
VC4R (VE4GV)	793	432	SO20HP	724,032
VE2EZD	593	347	SOABHP (A)	649,931
VE1RSM	514	327	SOABLP	630,129
VY2LI	564	368	SOABHP (T)	588,064
VE3UTT	395	303	SO40LP (A)	550,551
VA2ES (VE2AXO)	516	328	SOABLP	534,968
VA3MJR	571	301	SOABLP (A)	515,914
VE1JBC	472	312	SOABHP (T)	500,760
VE3BR	493	320	SOABLP (T)	496,320
VE3IAE	514	394	SO20LP (T)	482,650
VE3ARN (VA3KAI)	472	303	SOABLP (A)	458,742
VO1QU	411	409	SO20LP	427,814
VE2ZT	465	300	SOABLP	418,200
VE5SDH	472	306	SOABLP (R)	371,790
VE1DT	351	299	SOABHP (A)	334,880
VE3VN	328	246	SOABLP	284,376
VA6XDX (VE6LB)	373	245	SOABHP (A,T)	258,230
VE7FO	384	282	SO20HP (A,T)	254,364
VE1ANU	339	227	SOABLP	238,804
VE3VV	288	202	SOABHP (A)	197,758
K2NV/VE3	294	205	SOABLP	182,450
VE6UM	288	234	SOABLP (A)	174,330
VA3SB	287	209	SOABQRP	168,245
VE3ABN	274	216	SOABLP	166,320
VA7JC	293	166	SOABLP (A)	127,488
VE3HEU	246	197	SO20LP (A)	105,198
VE9OA	150	123	SOABLP (A)	83,640
VE2LX	201	157	SOABLP (A)	79,442
VE6TK	178	126	SOABLP	57,834
VE3DQN	147	119	SOABQRP	54,740
VE7YU	154	136	SO15LP	47,328
VE4CDX	182	124	M1 HP	45,632
VE2HLS	126	119	SO20LP (A)	39,270
VE3XT	159	119	SOABQRP	38,913
VE2GHI	140	102	SOABLP	36,312
VE6KC	116	111	SOABHP (A,T)	33,633
VA3IK	109	96	SOABLP	24,480
VE3CX	78	72	SOABHP (A)	18,504
VE3AYR	87	73	SOABQRP	15,476
VE4VT (VE4EAR)	74	68	SOABLP (A)	15,232
VE3JSQ	71	68	SOABLP	14,348
VE3VSM	93	67	SOABQRP	13,132
VA3FN	71	59	SOABLP	11,977
VE3XAT	69	69	SOABLP (A)	10,488
VA7MM	72	63	SOABLP	10,206
VE2QV	61	59	SOABLP	8,614
VE7BGP	58	55	SOABLP	6,985
VA3ZNW (VA3NZW)	58	49	SOABLP	5,537
VE1NSS	35	34	SO40LP	3,944
VA3RJ	40	38	SO20 QRP	3,192
VE3MDX	34	34	SOABLP	2,516
VA2SG	27	26	SOABLP	1,456
VE5DLD	28	26	SOAB QRP (A)	1,222
VE2VIA	19	17	SOABLP	731
VE2CLM (VE2QV)	12	12	SO20LP	288
VE6CSX	11	11	SOABHP (A)	253
VE6AO (VE6CCL)	5	5	SOABHP (A)	50
VA7IR	3	3	SO80 QRP (A,T)	36
VE7CMT (VA7IR)	2	2	SO160 QRP (A)	16

(A) – Assisted; (T) – Tribander/wires; (R) – Rookie

ALABAMA QSO PARTY

Call	QSO	Mult	Category	Score
VE3NBJ	118	57	SOLPMIX	12,996
VA3ATT	118	47	SOLPCW	11,092
VE2FK	84	43	SOHPCW	7,224
VE9AA	37	19	SOLPCW	1,406
VE1AOE	26	20	SOLPCW	1,040
VE3CX	15	14	SOHPCW	420
VE3MXJ	18	14	SOLPPH	252
VA3RJ	10	9	SOQRPCW	180
VE2GT	9	9	SOHPPH	81

2016 7QP QSO PARTY

Call	QSO	Mult	Category	Score
VE3KP	147	73	SOHP CW	32,193
VE5SDH	75	146	SOLP Mixed	30,300
VE7JH	72	114	SOLP CW	24,624
VE9AA	54	96	MS HP	15,228
VA3EC	42	78	SOLP CW	9,828
VE2FK	41	57	MS HP	7,011
VE7IO	32	56	SOLP CW	5,376
VA7ST	50	30	SOHP CW	4,500
VA3NGE	34	69	SOLP Mixed	4,386
VY2LI	48	36	SOHP Mixed	4,356
VE8NSD	28	9	SOLP Mixed	2,212
VA3PDG	23	21	MS LP	1,173
VE7BGP	13	15	SOLP CW	585
VE3DTI	11	12	SOQPR CW	396
VE2GT	14	14	MS HP	392
VA3NU	8		SOLP Mixed	176

2016 VOLTA RTTY

Call	QSO	Mult	Category	Score
VE2FK	199	47	SOAB	26,450.284
VE2ZT	180	62	SOAB	25,143.480
VA3MJR	163	78	SOAB	23,762.466
VA7ST	154	55	SOAB	15,373.050
VE2EBK	131	52	SOAB	10,933.260
VY2LI	115	38	SO20	7,621.280
VE3IAE	118	38	SO20	7,017.460
VE2NMB	67	38	SOAB	1,919.684
VA2ES	83	34	SOAB	1,916.138
VE6AX	43	30	SOAB	421.830
VE3XAT	33	21	SOAB	275.814
VE3AJ	28	14	SO20	135.632
VE6QO	16	13	SOAB	19.136
VA2RC	6	6	SO20	2.304

ARKANSAS QSO PARTY

Call	QSO	Mult	Category	Score
VA3GKO	58	27	SOLP Mixed	2,996
VE3NBJ	44	20	SOLP Mixed	2,780
VA3PDG	32	22	SOLP Mixed	1,680
VA3ATT	15	12	SOLP CW	960
VE2GT	2	2	SOLP Mixed	4

HIS MAJESTY THE KING OF SPAIN CW CONTEST

Call	QSO	Mult	Category	Score
VE2FK	97	62	SOHPCW	8,990
VY2LI	74	47	SOHPCW	4,794
VE1DT	51	37	SOHPCW	3,219
VA2EW	31	26	SOHPCW	1,274
VE3KP	27	23	SOHPCW	851
VA7ST	35	12	SOHPCW	540
VE9OA	15	13	SOLPCW	247
VE3FJ	66	42	SO20	4,620
VE2BWL	63	37	SO20	3,145
VE1NSS	15	13	SO40	299
VE9BWK	9	5	SO40	75

CONTEST CALENDAR FOR JULY, AUGUST AND EARLY SEPTEMBER 2017

Contest Name	Start	End	Web Address
10-10 Int. Spring Sprint	0001Z May 6	2359Z May 7	http://www.ten-ten.org/index.php/activity/2013-07-22-20-26-48/qso-party-rules
ARI International DX Contest	1200Z May 6	1159Z May 7	http://www.ari.it/
7th Call Area QSO Party	1300Z May 6	0700Z May 7	http://ws7n.net/7QP/new/Page.asp?content=rules
Indiana QSO Party	1600Z May 6	0400Z May 7	http://www.hdxcc.org/inqp/rules.html
Microwave Sprint	0800* May 6 * indicates local time	1400* May 6	https://sites.google.com/site/springvhfupsprints/home/2017-information
Delaware QSO Party	1700Z May 6	2359Z May 7	http://www.fsarc.org/qsoparty/rules.htm
New England QSO Party (Part 1)	2000Z May 6	0500Z May 7	http://www.neqp.org/rules.html
New England QSO Party (Part 2)	1300Z May 6	2400Z May 7	http://www.neqp.org/rules.html
VOLTA WW RTTY Contest	1200Z May 13	1200Z May 14	http://www.contestvolta.com/rules.pdf
CQ-M International DX Contest	1200Z May 13	1200Z May 14	http://www.cq-m.ru/en/rules/149-60th-cq-m.html
Arkansas QSO Party	1400Z May 13	0200Z May 14	http://www.arkqp.com/wp-content/uploads/2017/01/AQP-2017-Rules.pdf
FISTS Spring Sprint	1700Z May 13	2100Z May 13	http://fistsna.org/operating.html#sprints
His Maj. King of Spain Contest, CW	1200Z May 20	1200Z May 21	http://concursos.ure.es/en/s-m-el-rey-de-espana-cw/bases/
CQ WW WPX Contest, CW	0000Z May 27	2359Z May 28	http://www.cqwpx.com/rules.htm
Alabama QSO Party	1600Z Jun 3	0400Z Jun 4	http://www.alabamaqsoparty.org/2017/2017Rules.pdf
ARRL June VHF Contest	1800Z Jun 10	0300Z Jun 12	http://www.arrl.org/june-vhf
His Maj. King of Spain Contest, SSB	1200Z Jun 24	1200Z Jun 25	http://concursos.ure.es/en/s-m-el-rey-de-espana-ssb/bases/
ARRL Field Day	1800Z Jun 24	2100Z Jun 25	http://www.arrl.org/field-day
RAC Canada Day Contest	0000Z Jul 1	2359Z Jul 1	http://wp.rac.ca/canada-day-contest-rules/
DL-DX RTTY Contest	1100Z Jul 1	1059Z Jul 2	http://www.drcg.de/dldxrtty/dl-dx-rtty-english.html
Marconi Memorial HF Contest	1400Z Jul 1	1400Z Jul 2	http://www.arifano.it/contest_marconi.html
IARU HF World Championship	1200Z Jul 8	1200Z Jul 9	http://www.arrl.org/iaru-hf-championship

Note: In the above chart an * indicates Local Time. For more contest information check out these sites: http://www.hornucopia.com/contestcal/; http://www.contesting.com; http://www.sk3bg.se/contest/; http://www.arrl.org/contests/; http://www.arrl.org/contests/calendar.html; http://www.arrl.org/dxcc; http://www.cq-amateur-radio.com/cq_contests/index_cq_contests.html. The "Contest Calendar" is presented as a *guide only.* RAC and TCA do not necessarily endorse or support any of the contests or the accuracy of the information.
Bands: The 30, 17 and 12m bands are never used in any contest.

2016 ARRL JUNE VHF CONTEST

Call	QSO	Mult	Category	Score	Section
VE3WCC	506	198	M	141,372	ONE
VE9AA	772	164	B	126,608	MAR
VE3OIL/R	349	174	R	112,578	ONS
VE1WOW	691	135	A	93,285	MAR
VE3SMA/R (+ VE3RZ)	374	136	RL	63,376	ONS
VE3WJ/R	189	138	R	52,854	GTA
VA3ZV	289	116	A	36,192	ONS
VE3ZV	182	132	B	35,376	ONS
VE5UF	226	131	B	29,606	SK
VA3ST	195	123	A	28,659	ONS
VA6AN	247	105	A	26,145	AB
VE3MMQ	238	106	B	25,228	ONE
VE3CX	244	91	A	22,204	ONN
VA2NQ	205	92	3B	19,320	QC
VA7FC	219	83	B	18,592	BC
VE7JH	200	69	R	16,284	BC
VE7DAY	215	74	B	16,058	BC
VE9CB	203	75	A	15,225	MAR
VO1KVT	249	55	A	13,695	NL
VE2EBK	198	66	A	13,068	QC
VA2HMC	171	72	M	12,528	QC
VE1NB	185	53	A	9,805	MAR
VE3RB	121	55	M	9,350	ONE
VE3EJ	133	57	B	7,581	ONS
VE2JCW	116	60	A	6,960	QC
VE3FHM	87	56	A	5,768	GTA
VE3RX	94	61	A	5,734	ONN
VE6KC	90	55	A	5,665	AB
VE3VN	84	46	A	3,864	ONE
VE2ZT	63	56	A	3,528	QC
VO1DJT	102	33	A	3,366	NL
VE2HAY	60	46	A	2,990	QC
VE3CVG	63	37	A	2,849	ONE
VE3IAE	63	45	A	2,835	ONE
VE2GT	63	43	B	2,709	QC
VA3ELE	51	34	B	2,686	GTA
VE3GFN	62	41	A	2,542	GTA
VE7HR	65	37	A	2,516	BC
VE3VHB	53	45	3B	2,385	ONE
VE3UTT	58	40	A	2,320	ONE
VE3EDY	55	41	A	2,255	ONS
VA3CDD/R	42	27	R	1,890	ONE
VE3NRT	49	35	B	1,715	GTA
VE7SGW	54	31	A	1,674	BC
VA2EN	51	30	A	1,590	QC
VO2AC	62	21	3B	1,302	NL
VA3QWW	45	28	A	1,260	ONE
VE7AFZ	56	19	B	1,178	BC
VE6QO	32	26	A	832	AB
VE3KGC/R	25	16	R	720	ONE
VA7ST	28	22	A	616	BC
VE6AO (VE6CCL)	30	14	A	588	AB
VA5LF	27	21	A	567	SK
VA2MO	26	20	A	540	QC
VA2LGQ (VE3AV)	20	17	3B	357	QC
VE5MX	19	17	B	323	SK
VE6CPP	20	16	B	320	AB
VE3LVW/P	18	15	Q	270	ONS
VE2NTT	14	10	B	190	QC
VE4DRK	14	13	A	182	MB
VE3RKS/R	16	11	RL	176	ONS
VA2RIO	12	13	A	156	QC
VE5DLD	12	12	A	144	SK
VA7MM	13	8	A	112	BC
VA3PC	11	10	A	110	ONS
VA6TTX	12	6	Q	102	AB
VE3GTC/R	9	8	R	96	ONE
VA3RKM	6	6	L	48	ONE
VE9EX	6	5	A	30	MAR
VE7IHL	4	4	A	16	BC
VA7IR	3	3	A	9	BC

3B - Single Op, 3-Band; A - Single Op Low; B - Single Op High; FM - Single Op, FM Only; Q - Single Op Portable; L - Limited Multiop; M - Multi Multi; R - Rover; RL - Limited Rover; RU - Unlimited Rover

BRITISH COLUMBIA/YUKON:

SM Acting Bill Gipps, VE7XS
A/SM Ron McFadyen, VY1RM
A/SM Neil King, VA7DX
STM Al Ross, VE7WJ
SEC Gursimran Gill, VA7GUR
SEC Terry Maher, VYIAK (Yukon)
OBM Bill Foster, VE7WWW
OOC: Dennis Wight, VE7IJJ
ACC: Karla Wakefield, VA7KJW
Web: http://wp.rac.ca/ares-british-columbia/

JANUARY-FEBRUARY SM REPORT:

There has been an update on the Distracted Driving front. The Province of British Columbia has completed their stakeholder engagement and have published a new document. It clearly spells out we can use "push to talk" buttons, on our Amateur Radios, while operating in our motor vehicles. Thanks for everyone's patience and input – it was worth it.

For more information see page 9 and visit: http://www2.gov.bc.ca/assets/gov/driving-and-transportation/driving/publications/electronic-devices-while-driving.pdf

Public Service Honour Roll

January:

VE7XLH: 124; VA7MPG: 171; VE7GN: 150; VE7WJ: 99

February:

VE7XLH: 130; VE7GN: 140; VE7WJ: 98; VA7MPG: 173

– Bill Gipps, VE7XS

ALBERTA:

SM: Garry Jacobs, VE6CIA
SEC: Brian Davies, VE6CKC
STM: Jack Humphries, VE6JRH
OO: Don Momen, VE6JY
Web: http://wp.rac.ca/ares-alberta-yellowknife-nwt/

JANUARY-FEBRUARY SM REPORT:

Hanna and Area
EC Bernard, VE6HFD

We have installed a VHF/UHF radio at the Hanna Emergency Operations Centre (EOC) and will be testing out the systems.

Fort McMurray and Area
Acting EC Al, VE6RFM

A new ARES Training Net on VHF started out well and averaged nine checkins. There have been two NTS training sessions held.

Medicine Hat and Area
EC William, VE6CTM

The Medicine Hat Amateur Radio Club (MHARC) currently has 16 members. Our club room is located in the basement of the Medicine Hat Red Cross building. We are attached as a support group to the Red Cross and they have requested that we establish a

MESSAGE FROM THE RAC COMMUNITY SERVICES OFFICER

Activations and Mobilizations: Part 2

This is a continuation of my Message from the March-April 2017 TCA.

ARES volunteers are asked to check their level of preparedness which means:

- Checking family members to ensure that they are secure
- Checking schedules and availability
- Checking batteries
- Testing primary and backup equipment
- Checking ready packs
- Checking vehicle readiness
- Filling gas tanks

Activation Level 3: Minimal Deployment

Under a Level 3 activation, the Emergency Coordinator (EC) assesses the need for volunteers. The EC contacts key ARES volunteers in order to gather scheduling information.

Operators are asked to continue monitoring the group's primary frequency (TAC1). A net is initiated on TAC1 only if required. An ARES net controller begins making periodic announcements on TAC1 and prepares to initiate an ARES net.

If needed the EC will dispatch ARES operators to key sites such as an Emergency Operations Centre (EOC). A second callout is performed to contact any operators who did not respond to the initial callout.

Activation Level 2: Moderate Deployment

Under a Level 2 activation, at least one EC is on duty at the primary EOC. ECs start the callout to ARES volunteers for a 72-hour schedule. An ARES net is initiated on TAC1. The EC dispatches operators to sites as required. Initial deployments may be up to 12 hours in duration. However, be prepared for longer deployments in a larger emergency, as relief may not be available.

Activation Level 1: Massive Deployment

Under a Level 1 activation, the EC schedules operators to meet site and net control requirements for up to two weeks. All ARES resources are made available to client agencies. All available ARES operators are asked to check in to the ARES net on TAC1, and are dispatched to specific locations and assigned duties.

Additional ARES nets are initiated on additional frequencies as required. All nets and sub-nets observe strict net protocols until Level 1 is rescinded.

When you get an Activation Call

When you get a call for an emergency callout, you will be told the emergency frequency that is being used. In some situations, you may be immediately dispatched to a location.
On activation:

- Begin monitoring the emergency frequency and stand by for instructions
- Call the personnel on your own callout page
- Check in to the emergency net during the next general call for checkins
- Prepare your emergency pack and stand by for deployment

When you hear about a Community Emergency or Telecommunications Outage

Begin scanning the ARES frequencies and stand by to join an emergency net. If the community emergency is not serious enough to warrant ARES or Emergency Measures Organization (EMO) activation, the net may not convene.

If the emergency is serious, or if the telecommunications outage is likely to affect critical services, an EC or District Communications Officer (DOC) will initiate the emergency net and call for checkins.

If you discover a widespread telecommunications outage and believe that your EC may not be aware of it, take steps to notify your EC using whatever means are available.

When you are deployed to a location

When you are deployed to a location, take your ready pack and enough food, water and medication to operate comfortably for 24 hours. If you require transportation, advise the EC/AEC or DCO when they call to activate you, or inform the net controller when he/she asks about your status and availability.

CFSO Doug Mercer, VO1DTM
Email: vo1dm@rac.ca
(see page 4 for contact info)

When you arrive at the location

At a location that does not yet have an ARES communication station:

1) Seek out the location site manager and tell them that you have arrived.

2) Ask them where you are to set up the station.

3) Check in to the emergency net and notify the net controller that you are on station and in contact with the appropriate parties.

4) Wear your ARES vest and name badge that clearly says communications operator.

5) If practical, put up a sign identifying your post as a communications station.

6) If you are equipped with an FRS radio and are at a site where FRS is being used by officials, turn your FRS to channel 9, with privacy codes (CTCSS) turned off.

At a site that has an ARES communication station

1) Seek out the station manager if you are the first ARES operator to arrive

2) Find the communications station

3) Refer to the Communications Operating Procedures in the ARES binder at the station and follow procedures to activate the station.

4) Check in to the emergency net and notify the net controller that the station is activated and ready for service.

5) Wear your ARES vest and a name badge with your first name.

Frequencies for ARES operations

Frequencies used during ARES operations will depend almost entirely on the repeater systems and communications plans in place in your region. In addition, the frequencies used during ARES operations may vary depending on the available surviving repeaters,

– continued on the next page

on the area where communications support is needed, and on the number of channels needed to meet end-user requirements.

ARES channels are divided into four types:

1) VHF/UHF FM frequencies

2) Exotic frequencies on bands or modes that will not normally be used, but may be required for special applications

3) HF SSB frequencies for NVIS applications

4) HF/VHF/UHF frequencies

As summer approaches, please enjoy the warm weather and stay safe. Next time I will dig into working within the Incident Command System (ICS).

Doug Mercer, VO1DTM
Community Services Officer

link with the Red Cross agency in Red Deer. The MHARC Club room contains an HF transceiver and antenna plus two 2m transceivers and an IRPL link VE6RCM 147.570 MHz node number 1188. This node also links to repeater VE6VVR 145.410, which is a Yaesu Fusion repeater with both analog and digital abilities and has excellent range for the city area.

We have the ability to support the club station with emergency power. MHARC also supports repeater VE6HAT in Cypress Hills Provincial Park. This repeater is solar-powered and also contains an APRS digital repeater VE6HAT-1. VE6HAT has a range of 100 kilometres. The club has an emergency UHF portable repeater 444.1250 + T, VE6CWK. There is also a D-STAR digital repeater VE6SRG 444.800+. Both these repeaters are owned privately by a club members. These repeaters are made available for local use.

Cold Lake and Area
EC Garry, VE6FGN

We are pleased that a few new members are integrating well into the club. Minus 25°C, wind and snow has kept us indoors ragchewing on HF. More activities to take place in the spring.

Red Deer and Area
EC Stephen, VA6SGL

The Sunday evening ARES VHF net is well attended averaging about 12 checkins. No events, or incidents to report for the period.

Edmonton and Area
EC Les, VA6LM

A meeting is scheduled with Rob Brekke with the City of Edmonton EOC. ARES is entered for Preparedness Get Ready in the Park Event coming up in May.
I hope to see as many as possible at the Red Deer Picnic on June 17-19. We are planning to hold an annual Provincial ARES meeting at the event on June 17 and all information is available at http://www.caarc.ca. There is great visiting, vendor tables, tailgate fleamarket, meetings, raffles and draws all happening from Friday to Sunday. Not to mention the Roast Baron of Beef BBQ pot luck supper included with your admission. Camping is available onsite also. Thanks everyone for the reports.

– SM Garry, VE6CIA

RAC SECTION MANAGER ELECTION NOTICE: BRITISH COLUMBIA

You are hereby solicited for nominating petitions pursuant to an election for Section Manager. The name of the incumbent appears on **page 4** of this issue of *The Canadian Amateur*. A petition, to be valid, must carry the signatures of 10 or more full members of RAC residing in the Section concerned. It is advisable to have more than 10. Photocopied signatures are *not* acceptable. Signatures must be on the petition. Petition forms are available from RAC Headquarters but are not required.

The form below is acceptable:

Notice to all RAC members in the British Columbia Section

_____ (place & date)

RAC Chief Field Services Officer
720 Belfast Road, Suite 217
Ottawa, ON K1G 0Z5

We, the undersigned RAC Full members residing in the ***British Columbia Section***, hereby nominate

_____
(name & call sign)
as Section Manager for this Section for the next two-year term of office.

_____
(signatures & call signs)

_____
(addresses with postal codes)

A Section Manager must be a resident of his or her Section, a licensed Radio Amateur holding an Amateur operator's Certificate (or equivalent as stipulated by the *Radiocommunication Regulations*) and should always operate radio equipment only within the limits and privileges of the certificate and qualification held, and have been a RAC Full Member for a continuous term of two years at the time of nomination.

Petitions will be received at the RAC Headquarters office until 1600E on **July 10, 2017**. If only one valid petition is received, the person nominated will be declared elected. If more than one valid petition is received, a balloted election will take place. Ballots will be mailed from RAC Headquarters on or about **August 1, 2017**. Return of ballots by 1600E **September 20, 2017** and will be counted after **September 27, 2017**.

A Section Manager elected thus will serve a two-year term which begins on **November 1, 2017**. If no valid petition is received, the Section will be resolicited in *The Canadian Amateur*.

MANITOBA:

SM: Jan Schippers, VE4JS
STM: Jan Schippers, VE4JS
SEC: Vacant
DECs: Jeff Dovyak, VE4MBQ (Capital Region and CANWARN); Gord Snarr, VE4GLS (South-East Central Region / South-West Region); Wayne Warren, VE4WR (North Region and Special Projects);
Vacant (North-Eastern Region);
Vacant (North-West Region).
ECs: Ron WIliscroft, VE4QE (Selkirk and District); Bill Boskwick, VE4BOZ (RM of Grey, RM of Dufferin & Town of Carman); Jason Coombe, VE4JYC, (Brokenhead ARES); EC Grant Delaney, VA4GD (LGD of Pinawa and surrounding municipalities)
Web: http://wp.rac.ca/ares-manitoba/

JANUARY-FEBRUARY SM REPORT:

Winter is over and as I write this it seems to be the calm before the storm. What will Mother Nature bring us this year? Ham classes are continuing so by my next report we should have some new call signs out there.

Winnipeg ARES
Jeff Dovyak, VE4MBQ

Our January meeting featured a presentation on Callouts and Equipment with a discussion that resulted in some homework for the Emergency Coordinator.

A big welcome to our newest Winnipeg ARES member Brendan Christianson, VA4RAD.

Our February meeting featured a briefing by Richard Kazuk, VE4KAZ, on the Klondike Derby volunteer event on March 4 and 5 at Camp Amisk.

On February 27, the Province of Manitoba released its first Flood Outlook for 2017. You can read it and other flood-related information at http://www.gov.mb.ca/flooding/.

– Jan Schippers, VE4JS

Traffic Totals
January: 4
February: 3

ONTARIO NORTH:

SM: Allan (Al) Boyd, VE3AJB
ve3ajb@vianet.ca
STM: Patrick (Pat) Dopson, VE3HZQ
dopsonp@vianet.ca
SEC: Stiig Larsen VE3LBX
slarsen@vianet.ca
OBM: Paul Caccamo, VA3PC
va3pc@ciinet.org
Web: http://ontario.racares.ca

JANUARY-FEBRUARY SM REPORT:

Killarney District

Manitoulin Island and North Shore

A booth has been booked for the upcoming Manitoulin Trade Fair in Little Current (May 26-28) for the ARES members of the club to demonstrate the services that the club provides to the communities, and give the guys the opportunity to show some of their capabilities.

Members of the ARES group have been busy with several upcoming projects for the near future. A hall has been procured and notices sent out for the upcoming Basic Amateur Radio Course for April.

A venue for the upcoming CANWARN training has also been established and many of the members have indicated they will be attending – it looks like there will be a good turnout.

Sudbury

On February 23, members of the ARES group – Alan, VA3AJV, Wayne, VE3THN and Thelma, VE3WIP – attended the EOC to update the computers, check the field kits, and get the Winlink HF station running. They have been working on the Winlink station for a while now, tweaking settings and testing, and are pleased to report that their EOC Winlink station is

now working! The group made four successful connections on HF to the Winlink network. Thanks to Wayne, VE3THN for all his time researching settings and helping to set up the Kenwood radio.

– Allan Boyd, VE3AJB

DECs Reporting:
VA3s: PC
VE3s: FAL, JX, LJM
ECs reporting:
VA3s: AJV, SPT
VE3s: EGC, LJM, OTL, MXJ, SUT

ONTARIO – GREATER TORONTO AREA:

SM: Rick Harrison, VA3NV
SEC: Rick Harrison, VA3NV

JANUARY-FEBRUARY SM REPORT:

ARES teams in the GTA Section remain busy. Winter Field Day was an interesting test of the groups' ability to deploy a full station during colder weather. Weekly nets continue to be well attended across most of the Section.

An upcoming half-marathon in Burlington, our local GTA spring Simulated Emergency Test and Field Day in June should continue to test our abilities, enhance our knowledge and provide enjoyment for all.

GTA West –
DEC Kevin Andrews, VA3KRA

See the Halton and Peel reports below.

Toronto –
DEC Malcolm Kendall, VE3BGD

See Toronto report below.

Halton Region

Burlington ARES –
EC Kevin Andrews, VA3KRA

The Burlington EC attended both the Burlington ARC general and Board of Directors meetings in January and February and reported on recent ARES activities. He also attended organizational meetings in January and February in preparation for the Chilly Half Marathon to be held in Burlington on March 5. It appears as if 25 radio operators will be needed for this event.

Reps from Burlington ARES attended the Halton Region Emergency Communications Team (HRECT) meeting on Wednesday, January 25.

Burlington ARES took part in 13 nets in January: 5 HRECT, 5 Hamilton ARES and 3 Burlington ARC. On January 10 the Burlington EC read the OSB for the HRECT net and acted as the net control station (NCS) for the same net on January 24. The group took part in 11 nets in February: 4 HRECT, 3 Burlington ARC and 4 Hamilton ARES. On February 14, the EC read the OSB for HRECT net and provided NCS service for the same net on February 28.

The Burlington EC attended the February 19 meeting of South Halton ARES for a Q&A session related to the Chilly Half Marathon and to request assistance with the event.

Burlington ARES provided the Talkin station for the Burlington ARC Spring Fleamarket on February 25.

Reps from Burlington ARES attended the quarterly GTA ARES meeting in Mississauga on February 26.

South Halton ARES (Oakville/Milton) –
EC George Davis, VE3OGP

The new year began for SHARES with the installation of new tires on their communications trailer and the installation of a donated DMR mobile radio.

Discussion and planning for Winter Field Day took place at the January meeting. Also discussed and approved was attendance and setting up an information table at the Burlington ARC Spring Fleamarket at the end of February.

SHARES representatives attended the HRECT meeting on January 25.

On January 28 and 29 the group took part in Winter Field Day. Their communications trailer was set up and power was provided by several generators. Participation in this event continues to grow. Multiple modes and antenna systems were tested under winter conditions.

A debrief of Winter Field Day activities took place at the group's February meeting. The upcoming Burlington ARC Fleamarket and summer Field Day were also discussed. A new site for this year's Field Day event is being considered and SHARES plans to invite all Amateur Radio operators in the Halton area to take part.

Changes and improvements are planned for the SHARES communications trailer this spring. Also under consideration is construction of a power/generator trailer to enhance activation response time.

SHARES set up an information table at the Burlington Spring Fleamarket. It was used to promote South Halton ARES and other ARES groups in Halton Region.

SHARES EC VE3OGP and VA3CQC attended the GTA ARES meeting at the Red Cross Ontario Zone office in Mississauga on February 26.

Peel Region

Brampton/Caledon ARES –
EC Richard Upfield, VA3RMU

Four 2 metre nets were conducted in January and four in February. There were no other ARES activities.

Radio Stamp Collection Being Sold at Auction

Neil Carleton, VE3NCE, former teacher and RAC Youth Education Program Coordinator, previously had a monthly program "Radio Stamps", on the DX Partyline show of HCJB in Ecuador, which was broadcast around the world on shortwave. It combined the fun of listening to international radio and collecting stamps from around the world. "Collecting stamps on the topic of radio", Neil, VE3NCE, would say, "is another great way to enjoy the radio hobby."

From October 1986 to March 1991, Neil's illustrated monthly column "Radio Stamps" was published in the Canadian International DX Club's newsletter "Messenger". He also wrote articles about radio on stamps for: "DX Ontario", the monthly magazine of the Ontario DX Association; "The Journal", the monthly digest of the North American Shortwave Association; and "Topical Time", the bimonthly journal of the American Topical Association. Neil will be selling his radio stamp collections by auction in May. Further details plus scans of the collections, which include Amateur Radio on stamps, are available on request from Neil as Google Drive files at ve3nce@gmail.com. For auction details contact Brian Wolfenden of Sparks Auctions (http://sparks-auctions.com/) at info@sparks-auctions.com.

Mississauga ARES –
EC Brian Herling, VE3XBH

The January Mississauga ARES meeting was held at the Red Cross Ontario Zone office in Mississauga. Results of the December 15 callout tree test were discussed. Also considered were plans for a display at the Ham-Ex fleamarket in March and a membership questionnaire designed to capture members' location, contact info and available radio and ARES related equipment.

The group's February meeting was held on the 16th of the month. Continued discussion of plans for Ham-Ex took place. ARES events or demonstrations for the year were also considered.

Toronto Region

Toronto ARES Central –
EC Malcolm Kendall, VE3BGD

A meeting was held with the Toronto Red Cross ARES team to go over changes to the weekly Toronto ARES nets. Also discussed were the upcoming GTA (local) Spring SET. More HF activity is planned for this event.

DECs reporting:
VA3KRA and VE3BGD
ECs reporting:
VE3OGP, VA3RMU, VE3XBH, VA3BXG, VE3GRL and VA3TMA

Number of Registered ARES members in Section: 216

Official Bulletin Service January
VE3JUZ 9, VA3KRA 1 (Halton)

February
VE3JUZ 7, VA3KRA 1 (Halton)

ONTARIO EAST:

SM: Michael Hickey, VE3IPC
Email: ve3ipc@gmail.com
SEC: Michael Hickey, VE3IPC
STM: Vacant
OBM: Vacant
Web: http://wp.rac.ca/ares/

JANUARY-FEBRUARY SM REPORT:

Yes, summer is in the air and isn't it just great! With the winter and early spring months behind us, we can now focus on what community events we will be able to support and what EmComm exercise we might be involved in, and can now look at plans for this year's Field Day event.

Activities for many ARES groups have been low key this winter except for a few. Ottawa ARES provided crucial Comms for the 2017 Canadian Ski Marathon, which is a very large undertaking where the unexpected can always occur, challenging radio operations sometimes without notice. See their full report below.

RCW-ARES were also involved in a similar, but smaller scale and under ideal winter conditions. They provided Comms for the Deep River Silver Spoon Ski Race. See their report below.

Cornwall ARES have seen several Radio Amateur antennas replaced for the city of Cornwall and sounding area. A complete report on their area radio Comms infrastructure upgrade is included below.

I want to bring your attention to the Distracted Driving regulations. In Ontario, a temporary exemption for Amateurs in Ontario is due to expire on January 1, 2018.

RAC Ontario South Director Phil McBride, VA3QR and RAC North/East Director, Al Boyd, VE3AJB, have obtained some official letters of support to present to the province that support our cause, but more are needed. Want to forward a letter of support? Please feel free to contact your Director at any time (see page 4). For more information please see page 9 or visit the RAC website at: http://wp.rac.ca/distracted-driving-in-canada-an-update-2/

ARES/EmComm Group reports:

Submitted by EMRG/Ottawa ARES Group Assistant Group Coordinator Mike Kelly, VE3FFK

The **Ottawa ARES/EMRG Group** held their monthly repeater tests on January 4 and February 1. Net participants included Dave, VE3KMV, Jean, VE2OCQ, Tim, VA3PYC, Jeremy, VA3ZTF, Dave, VE3AV, Paul, VE3CPH, AEC Mike, VE3FFK, Stuart, VE3SMF and Bob, VE3YYG. On both occasions the Red Cross liaison person was unavailable to let us in to check the radios there. Jeremy was able to do repeater checks when mobile back home. The test had all repeaters checking out fine. The digital systems seem to be running reliably also.

The 2017 Canadian Ski Marathon (CSM) was held on February 12 and 13 in the mountain areas of Quebec and involved 21 Amateur Radio volunteers. The Canadian Ski Marathon is a perennial event in which Amateurs from several clubs between Ottawa and Montreal – including members from the Ottawa ARES/EMRG group – volunteer for duty and are well used to working year after year.

This year, Amateurs provided communications during the two-day event from 4 am until 7 pm each day, providing eyes and ears for safety and security to the marathon organizers for their 1800 marathon participants. Most of the assignments were for about nine hours each day, except for the net control team and mobile stations, such as Admin 2 and Road Runner, which would have been about twice that. It is estimated by the marathon net control team that they generated about 46 pages of logs during the net control station's multiple shifts. There were many changes this year. One of those was that Amateurs were not responsible for communications for the Safety Team. The event field service ended up with stations at all checkpoints, a few water stops and a net control station, but nowhere else.

Unfortunately, there was a fatality on the trail on Saturday. Although the strain was heard in the voices on the air, everyone remained calm and did the best they could under the circumstances. We did hear back from the CSM Board that Amateur Radio operators performed extremely well under duress. In this type of large-scale event one can expect to be really tested in the ability to adapt on the fly to strenuous situations.

The 2017 CMS annual event radio volunteers were: Neil Herber, VE3PUE, Malcolm Harper, VE2DDZ, Alan MacPhee, VE3ZTU, Mike Kelly, VE3FFK, Margaret Tidman, VA3VXN, Tyler Tidman, VA3DGN, Clayton Jenkins, VE3CBJ, Jeffrey Arcand, VA3PEW, Glenn MacDonell, VE3XRA, Tom Mercer, VA3LJS, Jeffrey Arcand, VA3PEW, Rick Furniss, VE3IHI, Luc Pernot, VE3JGL, Richard Hagemeyer, VE3UNW, Harrie Jones, VE3HYS, Harold Hamilton, VA3UNK, Arthur Smith, VA3BIT, Marc Pichette, VA3DRV, James Keep, VE2KHC and Leonard Paul Chodat, VE3LPH. Many thanks go to all.

Since the CSM organization moved to a commercial company for "safety", Amateur Radio provides little added value to this event as by Federal law we cannot provide communications services for commerce. So with that, the Radio Amateur volunteers look forward to providing ongoing services to the other upcoming events that Amateurs are involved in such as: the CN Cycle for CHEO, the Rideau Lakes Cycle Tour to Kingston and others. "Learning from each event and applying the lessons forward is a great way to stay sharp and provide value to the community".

Submitted by GC Earle DePass, VE3IMP, SD&G-ARES Group

The **Stormont Dundas & Glengarry (SD&G)-ARES Group** read the Ontario Bulletins each Monday at 7 pm local on the club's 2m net conducted on VE3SVC (147.180 MHz.+). Amateurs are also asked to then check in on the VE3MTA (UHF) repeater. Occasionally, the net control station calls for checkins on a new ARES repeater located in Cornwall (VE3VSW) and VE3SVR in Morrisburg. This process confirms the serviceability of nearby SVARC repeater systems at least once a week, should they be required by SD&G ARES.

Since the ARES EmComm exercise in September 2016 at the Benson Centre, the antenna work contracted by the City of Cornwall to Turris Communications (formerly Christie & Walther Communications) was completed. The Benson Centre, which previously had no ARES infrastructure now has a Diamond X-200 dual band antenna mounted at the highest point on the building and fed by Andrews LDF4-50A Heliax cable running from the meeting room identified by city staff. In addition, Turris replaced a failed Jetstream dual band antenna at the Cornwall Civic Complex with a Diamond X-200 antenna. These two sites are designated as evacuation centres in the event of a declared emergency. Also replaced were two Jetstream dual band antennas with Diamond X-200 antennas at Cornwall City Hall, the city's primary Emergency Operations Centre (EOC).

The City Hall site also hosts a Motorola commercial radio programmed for several City of Cornwall frequencies and its antenna, a Sinclair SRL-201 ground plane, had failed over time so it was also replaced with a Sinclair SRL-210 folded dipole antenna, the same model as was previously installed (in 2014) at the Campbell Street EMS building, the city's secondary EOC location. The Campbell Street site also has a Diamond X-200 dual band antenna for ARES use, installed at the same time as the Sinclair antenna. All this work was paid for from the budget of the city's Emergency Management department, at taxpayer's expense.

The commercial radios at the City Hall and EMS HQ sites are programmed for Cornwall repeater VE3SVC (147.180 +) and for 146.520 simplex so these could be used for ARES operations if there is a delay in ARES equipment arriving on site.

In South Dundas County, the VHF repeater VE3SVR (146.760 –) is temporarily out of service while the municipalities' Public Works Department makes improvements to the site's equipment shelter and repaints the water tower the repeater antenna is mounted on. Morrisburg's UHF repeater VA3ESD (443.150 +) remains on the air as it is located at a different municipal building, and the nearby Iroquois repeater VE3IRO (145.290 –) provides adequate mobile coverage of Morrisburg. When VE3SVR returns to service it is expected to support several digital modes in addition to analog FM. Credit for this goes to the Iroquois Amateur Radio Club.

AEC Doug Pearson, VE3HTR, attended the City of Cornwall's CEMC meeting on February 24. Doug confirmed that ARES being a non-governmental organization (NGO) is again welcome at the upcoming Introduction to Incident Management System (IMS 100) and Basic Emergency Management (BEM) courses.

Submitted by RCW-ARES Group coordinator Bob Howard, VE3YX

The **Renfrew County West (RCW)-ARES Group** conducted four ARES Wednesday evening nets. On January 28, the group provided backup Comms for the 45th Deep River Silver Spoon Ski Race. As before, the group doubled as Marshals and Comms at the 5K checkpoint and as the EmComm for the Red Cross and Ski Patrol at the chalet on Balmer Bay Road. At the 5K checkpoint, group members radioed back to the base the "bib" numbers of the skiers and in the 15K race that passed us to ensure that no one got left out on the course. No skiers disappeared on the course and no injuries or events requiring the Red Cross or Ski Patrol occurred.

RAC FIELD ORGANIZATION REPORTS

National Traffic System (NTS) Net Reports

Net (Manager)	Sessions	QNI	QTC
January 2017:			
Alberta ARES	29	399	11
APSN (VA6IX)	29	1368	16
Aurora (VE7GBO)	31	2348	21
BCEN (VE7XLH)	31	183	10
BCYTN (VE7WJ)	31	200	35
CECA (VE7GN)	5	84	18
MEPN (VE4JS)	31	476	0
MMWXN (VA4GD)	31	544	2
MRS (VE4HK)	9	313	0
MSMN (VE4AEW)	22	577	0
February 2017:			
Alberta ARES	20	408	45
APSN (VA6IX)	25	1564	25
Aurora (VE7GBO)	28	2142	26
BCEN (VE7XLH)	28	203	16
BCYTN (VE7WJ)	28	337	41
CECA (VE7GN)	4	77	8
MEPN (VE4JS)	28	663	2
MMWXN (VA4GD)	28	473	0
MRS (VE4HK)	9	257	0
MSMN (VE4AEW)	20	535	0

We used 2m simplex for the chalet to base, and 2m simplex to a mobile crossband, then 440 to the base for the 5K checkpoint. Group member Tony, VA3HWH and Ron, VE3ZRV, were at the chalet with Rob, VA3AGN, at the base, while Yvonne, VE3RYA and GC Bob, VE3YX, were at the 5K checkpoint with Ken, VE2HFX, at the base. The temperature was –2°C with light snow falling and no wind. The conditions couldn't have been better for sitting out at a checkpoint.

The RCW-ARES Group's Upper Ottawa Valley to Ottawa packet network is a little flaky at the moment. The VE3STP node which is a critical link is running on solar power and the battery is having some grief. The node works on sunny days or when the weather is warm. When it becomes practical to access the site, the battery will be replaced.

The RCW-ARES Group was asked to provide EmComm for the Pembroke "Coldest Night of the Year" (CNOY) event. The event's website (https://canada.cnoy.org/home) states: "The Coldest Night of the Year is a super-fun, family-friendly fundraiser that raised over $4,000,000 for hungry, homeless, and hurting individuals and families across Canada."

The goal for the Pembroke event was $40,000, but it raised $73,700 at last count. The event was a walkathon with 2K, 5K and 10K walks. We provided seven radio operators, three fixed stations and four mobiles. The fixed stations were: the Pembroke Legion with GC Bob, VE3YX, which was the main centre for the event; Rotary Park with Yvonne, VE3RYA, which was a warm-up centre along the route; and "The Grind" with Dwight, VE3ZLO, which is the centre for the Renfrew County Safe Shelter for Youth. The mobiles were used as route marshals and for transport of people and supplies as needed. The mobiles were: Fred, VA3FPB (also involved with the event organization); George, VE3GPD; Rob, VA3AGN; and Ron, VE3ZRV. The RCW-ARES group used the Pembroke repeater VE3NRR for all Comms Ops. Info and photos are available on its website.

On February 28, GC Bob, VE3YX, attended an exercise planning meeting for the City of Pembroke at their Council chambers. Bob showed an ARES PowerPoint presentation to the group. RCW-ARES group will be involved in the upcoming exercise.

– 73, Michael Hickey, VE3IPC

Districts Reporting:
Eastern Ontario and Severn
ECs (GCs) or Assistants reporting: VE3FFK, VE3IMP and VE3YX.
DECs reporting: VA3LP.
OBS reporting: VE3YX, VE3FFK, VE3KII and VE3IQZ.

MARITIMES:

SM: Craig Seaboyer, VE1DSS

JANUARY-FEBRUARY SM REPORT:

A busy time for Amateur Radio here – new beginnings for some, continued learning for others.

The first topic I want to share with the Amateur Radio community is the ongoing support that the Nova Scotia government has shown with its renewal program for repeater sites. Not only is the Nova Scotia Amateur Radio Association (NSARA) allowed to stay in the current repeater sites, the current government has started updating the towers, antennas, feedlines and buildings. Along with this very positive step, the NSARA has been an active player in the rebuilding of these sites. There are strict guidelines and rules to enter and leave the government repeater sites as expected, but they are clear, well thought out and communicated to those who require this information.

The Truro Amateur Radio Club has recently started an on-air "Newbie Round Table" net on Sunday night. It is open to any Amateur operators and the topics discussed are ones that new Amateurs have in common: "How do I access the repeater network?", "What is the best digital radio to get?" "What is IRLP?" and so on. The more seasoned Amateurs answer the questions brought up by the net controller or any of the other "newbies". There are a lot of Amateurs that check in, along with many more that just listen in.

Exercise Handshake is a radio exercise on the last Tuesday of each month beginning at 7 pm AT. The exercise began in December 2008 as a radio net for the Trunked Mobile Radio (TMR) system, agencies and operators around the province of Nova Scotia.

The idea behind the net was to encourage First Responders to learn how to use these radios under normal conditions, and to report any problems (dead batteries etc) to net control so they can inform Public Service Field Communications (PSFC) of Nova Scotia of any problems with the radios. This way in a real emergency or disaster, the radios will work and operators will be available to use them.

The net grew to include testing of all modes of communications including Satellite phones and Amateur Radio. Amateur Radio operators associated with the local Emergency Measures Organization (EMO) were asked to learn the operation of TMR radios in case they were needed as radio operators in Emergency situations.

The exercise is also a great time to test backup power (batteries, generators etc.) for radios and Emergency Operations Centres (EOC) around Atlantic Canada.

Amateur associated with EMO, ARES, CANWARN and the Red Cross are invited and encouraged to take part in this exercise.

"It is better to practise learning how to use these radios and run backup power in a monthly exercise than to have then sitting on a desk and expecting them to work in a power outage or a real emergency or disaster."

With the new TMR2, all agencies throughout the Maritimes can now join in on the exercise and are encouraged to do so. The exercise is a great learning tool for TMR2. I have been the net controller for TMR2 for the past year.

In the Antigonish Amateur Radio Club, our small core group is expanding and it is an exciting thing to watch. From a club that was dormant for 10 years, it has been nurtured and now has reached a new threshold.

After our President, Doug Holmes, VE1AHF, was granted his status as an Examiner, we have our first successful writing of an Advanced Amateur Radio exam. I wrote and passed my Advanced Amateur exam on March 27, with a mark of 90%! There are several more exams scheduled in the future.

– Craig Seaboyer, VE1DSS

NEWFOUNDLAND-LABRADOR:

SM: Boyd Snow, VO1DI

JANUARY-FEBRUARY SM REPORT:

As usual, January and February were a little slower on the Amateur front. There was lots of DX to be worked, but not much happening locally.

The New Year saw the start of the VE100VIMY portable operations, at 0000 UTC January 1, with Nova Scotia and Prince Edward Island leading the charge. Many Amateurs throughout the section were chasing the call sign as it made its way across the country. As always, propagation made the hunt very interesting, but most guys had fun and, in general, had great success with capturing it.

From a personal perspective, this is one of the greatest events that I have had the pleasure of taking part in since becoming an Amateur.

A big congratulations goes out to the Vimy Commemorative Station Society for putting this all together.

For more information about the event see the article on pages 2 and 31 and visit http://ve100vimy.ca/.

So far this winter, there have been no reports of any trouble with any of the repeaters around the section. All seem to be holding their own in the harsh winter climate. The worst of winter is usually the tail end, with freezing rain and sleet being the major hazard.

Hopefully, old man winter will be kind this year and grant us a reprieve. However, given how mild this winter has been so far, I don't think he is going to do that and expect the worst is yet to come.

There it is, as I have it, for this time around. Please remember that our wonderful hobby is meant to be enjoyed by all who participate. If there is a club or ARES group in your area, join in, or at least support their efforts. Please keep up the good work and keep the news coming.

– Boyd Snow, VO1DI

Newfoundland-Labrador Traffic Totals
January
Cod Jigger Net: 498
Evening Traffic Net: 713
VHF Caribou Net: 467
February
Cod Jigger Net: 412
Evening Traffic Net: 789
VHF Caribou Net: 517

COMING EVENTS

THE HAMFEST AND FLEAMARKET CALENDAR

The following events are listed by date. Some dates and details are tentative. For more Hamfests and Fleamarkets please go to: http://rac.eton.ca/events/upcoming.php

THIRD ANNUAL SIMCOE COUNTY HAMFEST
Sponsor: Barrie Amateur Radio Club Inc.
Date: Saturday, May 6.
Time: Vendors 8 am; Public 8:30 am.
Place: Barrie, Ontario; Grenfel Community Centre, 1989 Sunnidale Road, L0L 1Y0 (Springwater Township).
Description: This is a rain or shine event, you may tailgate or setup under the rink roof. Barrie Amateur Radio Club will be selling refreshments and snacks. There will be Public Service/ARES and Barrie Amateur Radio Club WAX group displays.
Cost: Vendors $5; Public free. Voluntary contributions to the Grenfell Community Centre building fund are welcome. Springwater Township is very supportive of our event. Let us show we care about the community too.
Talkin: VE3RAG 147.00 MHZ + 156.7.
Info: Brant Smith, VE3UME, Barrie ARC President, 705-733-0554, ve3ume@gmail.com
Web: http://barriearc.com

MAPLE RIDGE SWAP MEET
Sponsor: Maple Ridge Amateur Radio Club
Date: Sunday, May 7.
Time: Vendors 7:30 am; Public 9:am; Open for pancake breakfast 8 am.
Place: Pitt Meadows, British Columbia; 12460 Harris Road, one Block South of the Lougheed Highway in the old REC Building.
Description: Ham Radio & computer Swapmeet. The largest in the Fraser Valley. Great prices lots of stuff. Concession will remain open during the event.
Cost: Entry $5 includes chance to win a radio. Tables $20 includes one entry and a chance to win a radio.
Talkin: 146.800 -600 + Tone 156.7.
Info: Call Nick 604-465-9476 or contact ve7te@mrarc.net.
Web: http://www.mrarc.net

33RD ANNUAL SMITHS FALLS FLEAMARKET
Sponsor: Rideau Lakes Amateur Radio Club
Date: Saturday, May 13.
Time: Vendors 7 am; Public 9 am.
Place: Smiths Falls, Ontario; Smiths Falls Curling Club, 13 Old Sly's Road (same location as last year).
Description: Our 33rd annual fleamarket of Amateur Radio equipment includes a large number of commercial and private vendors, a canteen, a consignment table and an equipment testing table.
Cost: Vendors: Tables (appx 2.5x5 ft) $10 (admission not included). Admission: $5 per person (includes door prize ticket). Youth under 16 admitted for free.
Talkin: VE3RLR on 147.21+.
Info: Contact: ve3rlr@gmail.com.
Web: http://www.ve3rlr.ca

35TH QUEBEC HAMFEST 2017
Sponsor: Club Radio Amateur VE2CBS Sorel-Tracy inc.
Date: Sunday, May 28.
Time: Inside Vendors 6 am; Public 7 am to 12.
Place: Sorel-Tracy, Quebec; Curling Aurele-Racine, 3010 Place des Loisirs.
Description: Snack bar ready to serve you. Non-service VR locations
Cost: $8 (free at 11 am); Children 12 and under free. Vendors: Inside tables $10 plus admission.
Talkin: VE2RBS repeater on 145.370 (CTCSS 103,5). VA2CST-C 146.985 MHz - DV, VE2FCT-B 446.250 MHz - DV.
Info: Call Pierre, VE2DVJ, at 450-855-1653.
Web: http://www.hamfest.qc.ca/

BCARCC ANNUAL GENERAL MEETING
Sponsor: British Columbia Amateur Radio Coordination Council. Hosted by the North Shore Amateur Radio Club.
Date: Sunday, May 28.
Time: Registration: 9 am; AGM: 10-12:30.
Place: North Vancouver, BC; North Shore Emergency Management, 147 E. 14th Street, 2nd floor of RCMP Building.
Cost: 2017 Membership dues of $20 per delegate should be mailed to Treasurer Brian Summers, VE7JKZ, 3451 Salsbury Way, Victoria, BC V8P 3K7. Download membership renewal form from website.
Talkin: VE7NSR 147.26 MHz +600 No Tone.
Info: Contact Secretary Ed Frazer, VE7EF, at 604-921-6614 or ve7ef@rac.ca.
Web: http://www.bcarcc.org

CENTRAL ONTARIO HAMFEST & FLEAMARKET
Sponsors: Guelph & Kitchener-Waterloo Amateur Radio Clubs
Date: Sunday, June 4.
Time: Vendors 7 am; Public 9 am to 12 noon.
Place: Waterloo Regional Police Association Recreation Centre, RR 2, 1128 Rife Road, North Dumfries Township.
Description: 43 years and still going strong. Indoor tables and tailgating; major vendors, loads of collectibles; free prize draws, Excellent snack bar ready to serve you. Easy parking.
Cost: Public $8 (under 12 free); Vendors inside 8-foot tables $21 includes 1 admission. Additional inside tables $13. Tailgater spaces $16 includes 1 admission; additional tailgate pads $8; additional admission $8.
Talkin: VE3KSR repeater on 146.970 (CTCSS 131.8) and 146.520 simplex. At simplex range switch to 146.520.
Info: Nick Waterman, VA3NNW, Registrar, at info@hamfest.on.ca. Vendors and tailgaters can register on our website.
Web: http://www.hamfest.on.ca

LONDON VINTAGE RADIO CLUB FLEAMARKET
Sponsor: London Vintage Radio Club
Date: Saturday, June 10.
Time: Public and Vendors: 7 am.
Place: Guelph, Ontario; Hammond Manufacturing, 394 Edinburgh Road North at the corner of Speedvale and Edinburgh in the east side of the parking lot.
Description: Bring your own table. You will find antique and vintage radios, Amateur Radio equipment, tubes, radio collectables, parts, magazines and all sorts of radio goodies for sale, trade etc. The Hammond Museum of Radio will open for visitors from mid-morning to 3 pm.

Cost: Vendors $10; Admission is free.
Info: Contact larry.asp@sympatico.ca.
Web: http://lvrc.homestead.com/fleamarket.html

RED DEER PICNIC
Sponsor: Central Alberta Amateur Radio Club
Date: Friday, June 16 to Sunday, June 18.
Time: Friday 2 pm until noon on Sunday.
Place: Red Deer, Alberta.
Description: Annual CAARC picnic with tailgate fleamarket, commercial vendors, socializing, bunny hunts, SARA AGM, ARES meeting, draws and prizes.
Talkin: 147.150, 146.520.
Info: Contact ve6cia@rac.ca.
Web: http://www.caarc.ca

54TH INTERNATIONAL HAMFEST
Date: Saturday, July 8.
Place: Beausejour, Manitoba; at the US Lodge in the International Peace Garden south of Brandon on the Canada-US border, R0E 0C0 PO Box 1011.
Description: Fleamarket, Rabbit Hunts, Mobile Judging, Homebrew Contest, Prizes, Food Concession, Sat night Dance, Free Saturday Lunch for those registered. Mike Cizek, W0VTT, will be checking QSL cards.
Cost: $20 per person.
Info: Richard Holder, VE4QK, ve4ihf@mts.net 204-268-1702.
Web: www.internationalhamfest.ca

ONTARIO HAMFEST
Sponsor: Burlington Amateur Radio Club
Date: Saturday, July 8.
Place: Milton, ON; see website for information.
Time: Vendors use Robert Street Gate: Inside & Commercial Vendors 7 am, Tailgate Vendors 8 am; Public 9 am at Thomas Street Gate only.
Description: The Ontario Hamfest started in Elora Gorge in 1974 and has been at the Milton Fairground Location for the past 30 odd years. Great location, lots of room for Tailgaters, always something for the Radio Amateur, computer enthusiast or Hobby involving Electronics. Hamburgers, Sausage on a Bun, and Pop will be Available. As always, Coffee is Free.
Cost: $8 per person; Children 12 or under admitted free with adult accompaniment. Inside Vendors $8 per person plus $20 per table. Tailgating Vendors $8 per person plus $8 per single width vehicle space. Pre-registration not required for Tailgating Vendors.
Talkin: 146.520 MHz.
Info: Public: ontariohamfest@barc.ca; Vendor tables: ontariohamfesttables@barc.ca.
Web: http://www.barc.ca

PARRY SOUND HAMFEST
Sponsor: Parry Sound Amateur Radio Club
Date: Saturday, August 12.
Time: Vendors 7:30 am; Public 8:30 am.
Place: Parry Sound/Nobel, Ontario
Cost: Indoor $10 (includes table); Indoor $7 (table not included); Tailgate $5.
Talkin: VE3RPL 145.49 156.7 pl.
Description: Tailgate and indoor arena. Free coffee.
Info: Contact psarc@ve3rpl.com
Web: http://www.ve3rpl.com

SASKATCHEWAN HAMFEST
Sponsor: Parkland Amateur Radio Club Inc. and Saskatchewan Amateur Radio League
Date: Saturday, August 12.
Time: Public 9 am.
Place: Yorkton, Saskatchewan.
Cost: Public $10 / Students Free. Register before May 31, only $5. Tables $15.
Talkin: 145.490- MHz (Yorkton Repeater) 447.500- MHz (Portable Freq. to be used at the Event).
Info: Contact Parkland_Amateur_Radio_Club_Inc@hotmail.com
Web: http://nonprofits.accesscomm.ca/parc/Sask_Hamfest_2017.html

SPARC-FEST 5
Sponsor: Sun Parlour Amateur Radio Club
Date: Sunday, August 13.
Time: 9 am.
Place: Leamington, Ontario; 1002 Mersea Road 4.
Cost: Free admission.
Talkin: 146.970 MHz, 118.8 hz pl
Description: 5th annual Hamfest of the SPARC and the only Hamfest west of London. Outdoor trunk sales, ham radio exams, a true small town friendly event! Annual SPARC summer BBQ.
Info: Bill, VE3ES, at ve3es@yahoo.com

9TH ANNUAL JUNK IN THE TRUNK HAMFEST
Sponsor: Ontario Swap Shop
Date: Saturday, August 26.
Time: 7:30 am to 11:30 am.
Place: Newmarket, Ontario; at the Newmarket Theatre parking lot, 505 Pickering Crescent.
Description: Bring any or all of your surplus radio related items only.
Cost: Public free admission; Vendors $5 Per space per car; additional spaces $5. All money is donated to the Theatre group.
Talkin: 146.520 Simplex or the local repeater 147.225.
Info: Contact Mike, VE3MKX, at mkx@bell.net.

VANCOUVER ISLAND HAM HAPPENINGS
Sponsor: Cowichan Valley Amateur Radio Society
Date: Sunday, August 27.
Place: Duncan, BC; 2687 James Street, Island Savings Centre
Time: Vendors: 8 am; Public: 9 am to 12 noon.
Cost: Admission: $5; Tables: $15.
Talkin: 145.470 127.3.
Description: The largest Swap Meet on Vancouver Island. Commercial vendors, door prizes and refreshments.
Info: To reserve a table please email Gabor, ve7jh@rac.ca or call/text 250-715-8634.
Web: http://www.cvars.com

OTTAWA (CARP) 21ST ANNUAL HAMFEST
Sponsor: Ottawa Amateur Radio Club, Inc.
Date: Saturday, September 9.
Time: Commercial Vendors: 7:30 am Private Vendors: 8 am; Public: 9 am to 12 noon. RAC Annual General Meeting: 1 pm (tentative).
Place: Ottawa (Carp), Ontario; Carp Agricultural Fairgrounds, 3832 Carp Road, in the W. Erskine Johnston Arena at the north end of the fairgrounds.
Description: The region's largest fleamarket and hamfest. All of the big Amateur Radio retailers are going to be there! Major door prize draws. Breakfast, coffee and snack concessions. Volunteer organizations and displays including RAC, ARES, QCWA, etc. Onsite Amateur Radio licence exams. Get your licence, or upgrade during the hamfest! Note: if you are upgrading, bring the 11-digit certificate number on your licence to speed processing. We are also pleased to host the RAC Annual General Meeting (see page 11).
Cost: General Admission $6; $14/table (plus admission). Please book tables early to reserve your preferred table location.
Talkin: VE2CRA, 146.94-, 100 Hz
Info: Ed, VE3WGO; fleamarket@oarc.net.
Web: http://www.oarc.net/fleamarket

CANADA 150 EVENTS:

Special Event Station VC3C2C

Announcing a Special Event Station VC3C2C, celebrating Canada's 150th Birthday and the 85th Anniversary of the Hamilton Amateur Radio Club.

VC3C2C will be on the air:

1) In the CQWWWPX CW contest (CW only) on May 27 and 28.

2) On June 24 and 25 for Field Day from Valley Park in Hamilton (look for us on many bands) instead of the Club call of VE3DC.

3) On Canada Day July 1 for the RAC Canada Day Contest (see page 42) instead of using the club call VE3DC.

Additional times may be announced later.

– Rick Danby, VE3BK, of the Hamilton Amateur Radio Club.

Special Call Sign VX3150

Former TCA columnist, Garry V. Hammond, VE3XN, has received authorization to use the special call sign VX3150 to celebrate Canada's 150th Birthday. The VX3150 call will first be used on July 1 during the RAC Canada Day Contest. These are special prefixes that will count separately for the Canadian Maple Leaf Award and the CQ magazine WPX Prefix Award.

"In 1967, Communications Canada allowed VE Amateurs to use the optional prefix 3C. I enjoyed celebrating our Canadian centennial (100th birthday) for the year, as 3C3GCO. I was a 25 year old enthusiastic amateur radio operator with two years experience.

It will be an honour to help celebrate Canada's 150th birthday in 2017 with the call VX3150. I hope to work you on CW, SSB, or RTTY on any or all bands from 6 through 160m. QSL via VE3XN. For more information visit https://www.qrz.com/db/VE3XN/

If your club has an upcoming Canada 150 event please send it to tcamag@yahoo.ca and we will be happy to share it.

VHARA SWAP MEET
Sponsor: Victoria Haliburton Amateur Radio Association
Date: Saturday, September 16.
Place: Bobcaygeon, ON; 96 King St. E., Bobcaygeon Legion, corner of Highway 36 and King Street.
Time: Vendors 6:30 am; Public 9 am to 11:30 am.
Cost: Public $5; Vendor $17 for a 6-ft or 8-ft table. Payment in advance.
Talkin: 147.195 +.
Description: A new location for this years VHARA Swap Meet is the Bobcaygeon Legion. New and used Amateur Radio equipment and supplies. Ample parking, nearby.
Info: Bill, VE3WAH, at ve3wah@gmail.com.
Web: http://www.vhara.ca

Once again, RFinder kicks it up a notch!
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Find RFinder in Google Play, the Apple App Store on your iPhone/ iPad/iPod Touch or on the web at www.rfinder.net for only $9.99 [usd]. Use RFinder in your favourite radio programmer such as RT Systems or CHIRP or access it at http://web.rfinder.net. New Social functions let you post your postion and repeater you are monitoring to APRS, Facebook and/or Twitter. Your net control will love it! Finding hams monitoring machines has never been easier!

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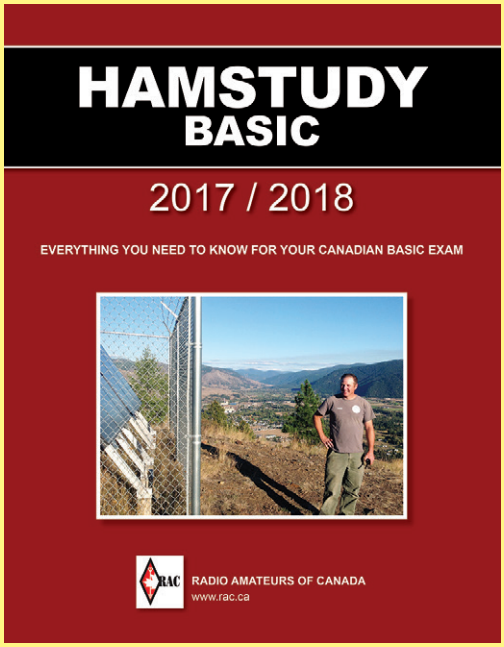

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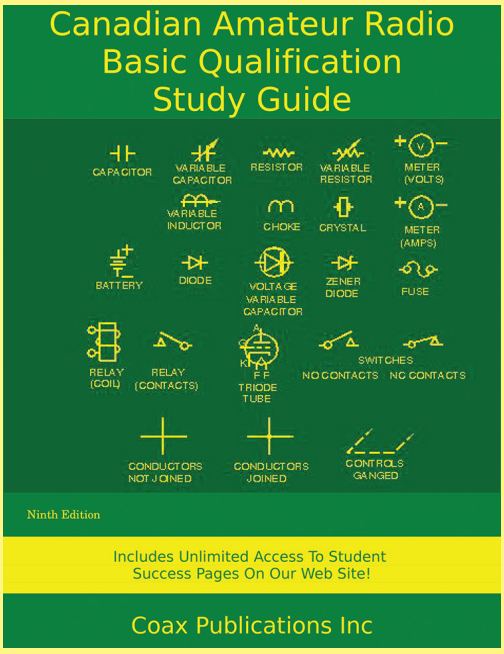
The Canadian Amateur Radio Basic Qualification Study Guide, 9th Edition – New 2nd Printing

Reprinted for 2017, this book includes all information required to pass the latest (2014) Innovation, Science and Economic Development's examination.

Coax Publications Study Guides are revised bi-annually or whenever changes occur in the Question Bank.



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Note: The Canadian Amateur Radio Advanced Qualification Study Guide is also available.
Please see the ad on page 15 for more information.

Radioworld

4335 Steeles Ave. West, Toronto, ON M3N 1V7
Phone 416-667-1000 Fax 416-667-9995
email: sales@radioworld.ca

Spring Savings Sale

May 1st - 14th, 2017

- Exclusive Deals on selected Icom Radios
- NO TAX on Icom Accessories
- NO TAX on Comet Antenna products
- NO TAX on Books and DVD's

ICOM
COMET
RAC
ARRL
RSGB
Nifty!

May 15th - 28th, 2017

- Exclusive Deals on selected Kenwood Radios
- NO TAX on Kenwood Accessories
- NO TAX on Comet Antenna products
- NO TAX on Books and DVD's

KENWOOD
COMET
RAC
ARRL
RSGB
Nifty!

Exclusive offers throughout the Spring.... Just in time for Field Day!

May 29th - June 11th, 2017

- Exclusive Deals on selected Yaesu Radios
- NO TAX on Yaesu Accessories
- NO TAX on Coax Cable and Connectors
- NO TAX on Rigblaster products

YAESU
RIGblaster

June 12th - 26th, 2017

- Exclusive Deals on selected FLEX Radios
- NO TAX on FLEX Accessories
- NO TAX on Coax Cable and Connectors
- NO TAX on Rigblaster products

FlexRadio Systems
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Must mention this AD when ordering to get instant "NO TAX" savings!

central Radioworld

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