THE CANADIAN AMATEUR

SEPTEMBER / OCTOBER – SEPTEMBRE / OCTOBRE 2023

The Importance of Getting On The Air!

Surrey Amateur Radio Communications – VE7SAR: "Our 33 metre extendable tower-trailer served us well for GOTA..."

Publications Mail Agreement # 40028682 Registration # 09866



Benefit from the power of your group

As a **member** of **Radio Amateurs of Canada,** you can save more on your **home and auto insurance** because your association has partnered with **The Personal.**

- **Exclusive group rates**
- **Bundle and save discounts**
- **Advisors who help you find other ways to save**

Profitez de la force de votre groupe

En tant que **membre** de la **Radio Amateurs du Canada,** vous pouvez économiser sur vos **assurances auto et habitation** grâce au partenariat entre votre association et **La Personnelle.**

- **Tarifs de groupe exclusifs**
- **Rabais si vous combinez vos assurances auto et habitation**
- **Conseillers qui vous aident à trouver d'autres moyens d'économiser**

thePersonal
Home and Auto Group Insurer
Group rates. Preferred service.

Radio Amateurs of Canada / Radio Amateurs du Canada

laPersonnelle
Assureur de groupe auto et habitation
Tarifs de groupe. Service unique.

Learn more about the advantages of being part of your group.

thepersonal.com/radioamateurs
1-888-476-8737

Découvrez les avantages de faire partie de votre groupe.

lapersonnelle.com/radioamateurs
1 888 476-8737

The Personal refers to The Personal Insurance Company. **The Personal**® and related trademarks are trademarks of The Personal Insurance Company, used under licence.
Certain conditions, limitations and exclusions may apply.

La Personnelle désigne La Personnelle, compagnie d'assurances. La marque **La Personnelle**MD ainsi que les marques de commerce associées sont des marques de commerce de La Personnelle, compagnie d'assurances, employées sous licence. Certaines conditions, exclusions et limitations peuvent s'appliquer.

TCA
The Canadian Amateur

Canada's Amateur Radio Magazine
La Revue des Radioamateurs Canadiens

Volume 51 Number 5 – tcamag@yahoo.ca | marcom.rac.ca – W: https://www.rac.ca/tca/

September / October 2023 | Septembre / Octobre 2023

Editor / Rédacteur en chef
Alan Griffin
Email: tcamag@yahoo.ca

Advisors / Conseillers
Dave Green, VE3TLY
Norm Rashleigh, VE3LC
Richard Ferch, VE3KI
Ken Grant, VE3FIT
Mike Kelly, VE3FFK

Translation / Traduction
Jacques Roland, VA3DLZ

Technical Diagrams / Schémas techniques
Stan Smith, VE3DDX

Advertising Department:
Rate sheet:
https://www.rac.ca/tca/
Contact: marcom@rac.ca

The Canadian Amateur is published by Radio Amateurs of Canada Inc. / The Canadian Amateur est publié par la société Radio Amateurs du Canada Inc.

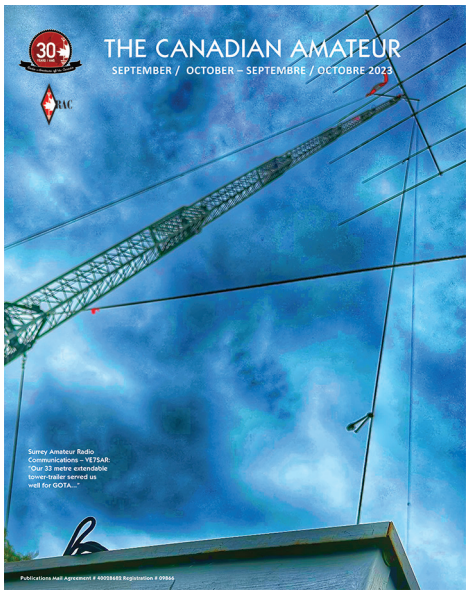
Indexed in the Canadian Periodical Index / Enregistré à l'Index des publications canadiennes : ISSN 0834-3977

Publications Mail Agreement Accord de publications diffusées #40028682. Registration / matricule #09866

The Canadian Amateur
720 Belfast Road,
Suite / Bureau 217
Ottawa, ON, Canada
K1G 0Z5
613-244-4367;
1-877-273-8304
tcamag@yahoo.ca
https://www.rac.ca/

Printed in Canada by
St. Joseph Communications
Ottawa, ON, Canada
Imprimé au Canada sur les presses de St. Joseph Communications
Ottawa, ON, Canada

Return Undeliverable Canadian Addresses to
Circulation Department:
217-720 Belfast Road
Ottawa, ON K1G 0Z5



"Unfortunately, many of our course graduates never get on the air and within a few weeks drop out of Amateur Radio completely. This shouldn't be surprising. For example, research has revealed that only about one-half of new Amateurs actually get on the air. But why not? After all, more new Amateurs are getting certified than ever before." – see page 58

As you will see from the following pages, Radio Amateurs of Canada has a lot going on. We need your help in several areas including the new Auxiliary Communications Service (ACS), RAC Programs and Services, and Information Technology (IT) and website management. For more information visit: https://www.rac.ca/volunteer/

WWW.
HAMSTUDY
.COM

Self study courses for Canadian BASIC and ADVANCED Amateur Radio exams

National & International

RAC National Executive and Board of Directors 4

A Message from the President / Un Message du Président 5

RAC Welcomes New Ontario North/East Director and National Youth Coordinator 8

RAC Scholastic Grants Available Now 9

The Formation of Radio Amateurs of Canada – Tim Ellam, VE6SH 19

Countdown to World Radio Conference (WRC-23) – Paul Coverdale, VE3ICV 26

RAC Regulatory Roundup, Dave Goodwin, VE3KG 27

Changes to the RAC Operating Awards Program – Ante Laurijssen, VA2BBW 42

Message from the RAC Community Services Officer, Jason Tremblay, VE3JXT 43

Call for Nominations for Regional Director | Appel de mises en candidature pour le poste de directeur de région .....4A + 4B

Technical

A Simple RFI "Pre-Test" for Small Switching Power Supply Units – Don Dorward, VA3DDN 13

Amateur Radio Satellites – Keith Baker, VA3KSF 16

QUA – A Topical Digest – Allen Wootton, VY1KX 22

Importance of the Experimental Mindset – Kevin McQuiggin, VE7ZD/KN7Q 30

Radio Magic – Robert C. Mazur, VA3ROM 37

Departments

TCA Advertising Index 2

RAC QSL Bureau System 3

Defence of Amateur Radio Fund (DARF) 3

Silent Keys 9

RAC Membership | Adhésion de RAC ..... see eTCA

Volunteers Welcome 57

Coming Events 64

Please send your articles now to the TCA Editor at tcamag@yahoo.ca

Operating

RAC Scholastic Grants Available Now, Al Eros, VE4ZB 9

Six Metres and Down, Dana Shtun, VE3DS 10

Celebrating 40 Years of Amateur Radio from Space – Glenn MacDonell, VE3XRA 17

The Formation of Radio Amateurs of Canada – Tim Ellam, VE6SH 19

RAC Regulatory Roundup, Dave Goodwin, VE3KG 27

"Radio History: Amateur Radio" – Spurgeon G. "Spud" Roscoe, VE1BC 33

Amateur Radio Qualifications Now Count for Nova Scotia High School Credits .. 42

Message from the RAC Community Services Officer, Jason Tremblay, VE3JXT 43

A Field Day to Remember in Southern Alberta – Peter Pankonin, VA6ARI 44

Community and Emergency Service Reports (ACS/ARES) 45-50

RAC Field Organization Reports / National Traffic System Net Reports 49

West Coast POTA Activations – Sandy Wohl, VE7SFW 50

The Sports Page – The Canadian Contest Scene: Tom Haavisto, VE3CX 51

Contest Calendar for July, August and Early September 57

SARC Program Helps Amateurs Get On The Air – Larry Bloom, VE7LXB 58

Six Park POTA and the NSARA (80m) Competition – John Orritt, VA1JON 60

The Club Corner / "Bits and Pieces...", Phil Boucher, VE3BOC 61

The RAC Challenge + POTA Update – Ante Laurijssen, VA2BBW 62

Coming Events 64

Articles Wanted: We would love to receive your articles – both technical and non-technical. Please send them to the TCA Editor at tcamag@yahoo.ca. The deadlines for the next issues of TCA are September 15 and November 15.

Please Support our Advertisers

Amateur Radio Operators of Canada ..... see eTCA

Coax Publications Inc Study Guides 7

Degen Designs 36

DX Engineering 41

Hammond Manufacturing / Peter W. Dahl Co. 33

Hamstudy.com + Study Guides ..... 1, inside back cover

HC MacFarlane Electronics 64

Premier Communications 28

Radioworld ..... 42, outside back cover

Radio Amateurs of Canada ..... inside back cover

The Personal Home & Auto Group Insurance ..... inside front cover

The Canadian Amateur is published in Canada six times per year to provide Radio Amateurs, those interested in radio communications and electronics, and the general public with information related to the science of telecommunications.

Articles, reviews, letters, features, suggestions, photographs and essays are welcomed. Manuscripts should be legible and include the contributor's name, call sign, phone number(s) and addresses (mail, email and packet, as applicable).

For a complete Author's Guide visit:

http://www.rac.ca/tca/

The contents of this publication are copyright, and may not be reproduced without prior consent except by a bona fide Amateur Radio organization which may reproduce them provided the author and The Canadian Amateur are acknowledged.

The Advertising Department of The Canadian Amateur, on behalf of the magazine, wholly disclaims any responsibility for the content of any advertisement contained herein and makes no representations on behalf of The Canadian Amateur as to the truth of any statement contained in any such advertising.

Radio Amateurs of Canada Inc., and the publisher and editor of The Canadian Amateur, hereby disclaim any responsibility for any statement of opinion or other statement that may be contained in any article published by The Canadian Amateur and any such statement of opinion or other statement contained in such article is solely the opinion of the author of the article and not that of Radio Amateurs of Canada Inc., or the publisher or editors of the magazine, unless it is specifically stated to be the case therein.

The Canadian Amateur is published by Radio Amateurs of Canada Inc., 720 Belfast Road, Suite 217, Ottawa, ON K1G 0Z5

Indexed in the Canadian Periodical Index: ISSN 0834-3977.

Publications Mail Agreement No. 40028682.

Registration No. 09866.

The Canadian Amateur, publié six fois par an, est destiné à fournir aux radioamateurs, à toute personne intéressée à la radio et à l'électronique et au grand public, des informations de toute nature relatives à la science des télécommunications.

Nous acceptons avec plaisir tout article, étude, suggestions, photos et lettres. Les manuscrits soumis doivent être lisibles et porter le nom de l'auteur, son indicatif, son ou ses numéros de téléphone ainsi que ses adresses postales, courriel et paquet s'il y a lieu. Si vous avez envie d'écrire pour TCA :

http://www.rac.ca/tca/

Le contenu de la présente publication est protégé par copyright, tous droits réservés et ne peut être reproduit sans autorisation préalable dont est toutefois dispensé tout groupement reconnu de radioamateurs sous réserve que ladite reproduction paraisse avec les mentions du nom de l'auteur et soit identifiée extraite de The Canadian Amateur. Le service publicité de The Canadian Amateur, agissant au nom de la revue, décline toute responsabilité quant au contenu des annonces publicitaires publiées et ne se porte en aucune façon garant de la véracité des propositions contenues dans lesdites annonces.

La compagnie Radio Amateurs du Canada Inc. ainsi que l'Éditeur et le Rédacteur en chef de The Canadian Amateur déclinent par les présentes toute responsabilité quant aux opinions exprimées ou autres déclarations pouvant apparaître dans tout article publié par The Canadian Amateur et déclarent en outre que toute expression d'opinion ou déclaration figurant dans un tel article représentent uniquement l'opinion de l'auteur dudit article et non l'opinion de la société Radio Amateurs du Canada Inc., ou celle de l'Éditeur ou du Rédacteur en Chef de la revue à moins qu'il soit spécifié que ce soit le cas en l'occurrence.

The Canadian Amateur est publié par la société Radio Amateurs du Canada Inc., 720 rue Belfast, Bureau 217, Ottawa, ON K1G 0Z5

Enregistré à l'Index des publications canadiennes sous le numéro ISSN 0834-3977.

Accord de publications diffusées par courrier : 40028682.

Numéro de matricule 09866.

The RAC QSL Bureau System

https://www.rac.ca/qsl-bureau/

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. 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.

Note: 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.

The Incoming QSL Bureau service is a user-pay system, using one of four methods to get cards to you: (A) envelopes; (B) credits; (C) labels; or (D) combination credit with labels . *Note: Method B is preferred.

Web: http://wp.rac.ca/the-rac-national-incoming-qsl-bureau/

National Incoming QSL Bureau
Ed Spingola, VA3TPV, Manager
PO Box 83
Streetsville, ON L5M 1L5

RAC Outgoing QSL Bureau
PO Box 11156, Station H
Nepean, ON K2H 7T9
T: 613-670-3230
E: ve3exy@myrac.ca

VE1 – VE0 Bureau (B)
Brit Fader Memorial QSL Bureau
Sponsored by the Halifax ARC
Roger Stein, VA1RST
12 Canary Crescent
Halifax, NS B3M 1R1
burch.craft@gmail.com
www.halifax-arc.org/pages/qsl-bureau.html

VE2 Bureau (A, B)*
Jacques Dubé, VE2QK
Résidence du Jardin
897, rue St-Pierre, apt. 104
Trois-Rivières, QC G9A 4W5
jacques.dube@cgocable.ca

VA3/VE3 Bureau (B)
Michael Brickell, VE3TKI
PO Box 46
Streetsville, ON L5M 2B7
bureau-manager@ve3qcb.ca
https://ve3qcb.ca

VA4/VE4 Bureau (B)
Harm Hazeu, VE4HAZ
7 Ashley Cove
Winnipeg, MB R2G 2Z3
ve4haz@gmail.com

VA5/VE5 Bureau (B)
Todd Bendtsen, VE5MX
616 Moffet Drive
Weyburn, SK S4H 2M7
ve5mx@sasktel.net

VA6/VE6 Bureau (B)
Jerry Spring, VE6TL
206 Hampstead Place NW
Calgary, AB T3A 5J2
springjl@yahoo.com
http://www.buro.ve6hams.ca/

VA7/ VE7 Bureau (B)
Ken Clarke, VE7BC
PO Box 1109
100 Mile House, BC V0K 2E0
ve7bc27@gmail.com

VE8/VY0 Bureau (A, B)*
John Boudreau, VE8EV
PO Box 3099
Inuvik, NT X0E 0T0
ve8ev@myrac.ca

VE9 Bureau (B)
Rino Deschenes, VE9VIC
8 B rue Jeanne Mance
Kedgwick, NB E8B1G8
ve9vic@hotmail.com
Web: "VE9VIC" on QRZ.com

VO Bureau (B, C)*
Bill Kirby, VO1BB
60 McNiven Place
St. John's NL A1A 4X1
vo1bb@yahoo.ca

VY1 Bureau (A, B)
Allen Wootton, VY1KX
Box 21217
Whitehorse, YT Y1A 6R8
vy1kx@myrac.ca

VY2 Bureau (A, B)
Douglas Silliker, VY2DS
1072 Barbara Weit Road
Summerside PE
C1N 4J8

Operation of the RAC QSL Bureau System would not be possible without the commitment and hard work of the QSL Bureau volunteers.

Radio Amateurs of Canada, and all those who benefit, salute these dedicated Amateurs and extend sincere appreciation for the long hours they devote to this difficult task.

For a "Behind the Scenes Look at the QSL Bureau" check out the QSL Bureau webpage at:

https://www.rac.ca/qsl-bureau/

The Importance of Showing Up:

Donate to Defence of Amateur Radio Fund (DARF) Trust

The sole purpose of the Defence of Amateur Radio Fund (DARF) Trust is to support the travel expenses of a certified Amateur(s) as a member of the Canadian official delegation at the International Telecommunication Union's World Radiocommunication Conferences (WRC) and Preparatory Meetings.

World Radiocommunication Conferences – organized and held by the International Telecommunication Union (ITU) every four years – update the Radio Regulations, the international treaty that, among other things, sets out the frequencies on which radio services such as the Amateur Radio Service may operate.

The RAC delegate's role is to assist our regulator – Innovation, Science and Economic Development Canada (ISED) – with all WRC agenda issues that may influence allocations to the Amateur Radio Service.

Radio Amateurs have a seat at the table – in fact, there is a specific Working Party which includes the Amateur and Amateur Satellite Service in its title – but they need to be able to participate directly. Stay tuned to the next issue of TCA for an update on the Countdown to WRC-23.

While allowing RAC membership of the Canadian delegation, ISED does not provide any funds towards their participation. As most of these meetings are usually held in Geneva, one of the most expensive cities in the world, DARF's funding is essential.

Without DARF, there would be no Canadian Amateur presence at these international meetings or in the many pre-meetings that take place developing and working out what ultimately becomes Canada's position.

DARF Annual Report 2022:
https://www.rac.ca/darf/

Donate to DARF:
https://www.rac.ca/donation/

Radio Amateurs of Canada / Radio Amateurs du Canada

National Executive



PRESIDENT
Phil A McBride, VA3QR
134 Longfield Road
Acton, ON L7J 2K4
416-884-0480
president@rac.ca



VICE-PRESIDENT
Allan Boyd VE3AJB/VE3EM
27 Red Mill Road, Box 208
Little Current, ON P0P 1K0
705-368-2779
vp@rac.ca



INTERNATIONAL AFFAIRS OFFICER
Serge Bertuzzo, VA3SB
5651 Goldenbrook Drive
Mississauga, ON L5M 3W2
905-567-6592
international@rac.ca



REGULATORY AFFAIRS OFFICER
Dave Goodwin, VE3KG
141 Acton Drive
Smiths Falls ON K7A 5B8
613-430-4911
regulatory@rac.ca



CHIEF INFORMATION AND TECHNOLOGY OFFICER
Jeff Dale, VA3ISP
Box 91
Hammond, ON K0A2A0
cito@rac.ca



COMMUNITY SERVICES OFFICER
Jason Tremblay, VE3JXT
3 Smyth Crescent
Beeton, ON L0G 1A0
705-890-9967
community@rac.ca



CORPORATE SECRETARY
Alvin (Al) M. Masse, VE3CWP
440 Maple Avenue
LaSalle, ON N9J 1P4
519-734-0026
secretary@rac.ca



TREASURER
Margaret Tidman, VA3VXN
583 Drummond Concession 5B
Perth, ON K7H 3C8
613-263-5486
treasurer@rac.ca



HONORARY LEGAL COUNSEL
Marcel D. Mongeon, VA3DDD
Suite 374
3-35 Stone Church Road
Ancaster, ON L9K 1S4
905-390-1818
legal@rac.ca

Regional Directors



ALBERTA/NWT/NU
Stephen Lee, VA6SGL
51 Ireland Crescent
Red Deer, AB T4R 3K8
403-307-1643
dir.alberta.northwest.nunavut@rac.ca



MIDWEST
Ed Richardson, VE4EAR/VE4VT
64 Avalon Road
Winnipeg, MB R2M 2L5
204-254-8425
dir.midwest@rac.ca



ATLANTIC
Al Penney, VO1NO
386 Victoria Road
Aylesford, NS B0P 1C0
(902) 847-0554
dir.atlantic@rac.ca



ONTARIO NORTH/EAST
Craig Delmage, VE3OP
30 Forest Gate Way
Nepean, ON K2G6P3
343-988-6336
dir.ontario.north.east@rac.ca



BRITISH COLUMBIA/YUKON
Keith Witney, VE7KW
2 – 1443 Edwards Street
PO Box 78042 RPO Northside
Port Coquitlam, BC, V3B 7H5
604-475-5254
dir.bc.yukon@rac.ca



ONTARIO SOUTH
Barry Brousseau, VE3SLD
67 Deerpath Drive
Guelph, ON N1K 1V1
519-829-9697
dir.ontario.south@rac.ca



QUEBEC
Guy Richard, VE2QG/VE2XTD
6572 du Chénas
Quebec City, QC G3E 1V8
418-847-3089
dir.quebec@rac.ca

Deputy Directors

ATLANTIC
Joe Earles, VO1BQ
BRITISH COLUMBIA/ YUKON
Allan J Munnik, VA7MP/VE7RMP
MIDWEST
Peter Toth, VE4TTH (Selkirk)

Assistant Directors

ALBERTA / NT / NU
Chris Cameron, VE8WD
Wally Gardiner, VE6BGL
Neal Sunderland, VA6NLS
Bill Till, VE5FN

ATLANTIC
Rino Deschênes, VE9VIC (North-Western NB)
Sheldon Donaldson, VE1HQ (Yarmouth-Shelburne area)
Jim Fisher, VE1JF (Annapolis Valley / Fundy Shore)
Bill Glydon, VY2LI (Prince Edward Island)
Naz Simon, VO2NS (Labrador)
Peter Surette, VE1PJS (Truro and area)
Ken Tucker, VO1KVT (Central Newfoundland)
Michael Newton, VO1OK (Western Newfoundland)
John Bignell, VE1JMB (Halifax and area)

BRITISH COLUMBIA / YUKON
Lou Beaubien, VE7CGE (Burnaby, BC)
Richard Thompson, VE7XT (Victoria, BC)
Ross Wilmot, VA7NRW (Surrey, BC)

MIDWEST
Joe Musgrave, VE5JM (Lloydminster)
Doug Pfaff, VE5DCP (Regina)
Dave Scarfe, VE5UO (Saskatoon)

ONTARIO SOUTH
Keith Baker, VA3KSF (Sarnia)
Jerry Beneteau, VE3EXT (Essex & Kent)
John Lorenc, VA3WM (Niagara)
Stan Leschinsky, VE3TW (Greater Toronto Area)

RAC Section Managers | For Section Reports see pages 45-50

Alberta (AB)
Ron Pettigrew, VE6RWP
29 Michigan Street
Devon, Alberta, T9G 1H7
ve6rwp@gmail.com
780-668-3218

British Columbia (BC)
Acting: Bill Gipps, VE7XS
9362 – 206A Street
Langley, BC
V1M 2W6
bill.gipps@gmail.com

Manitoba (MB)
Jan Schippers, VE4JS
202 Sadler Avenue
Winnipeg, MB
R2M 1P3
ve4js@myrac.ca

Nova Scotia (NS)
Dave Hull, VE1HUL
45 Archibald Street
Truro, NS
B2N 4R5
d.hull@ns.sympatico.ca

New Brunswick (NB)
Jean-Paul (JP) LeBlanc, VE9BK
13 Stelor Drive
Lutes Mountain, NB
E1G 5E5
medals2@gmail.com+

Newfoundland-Labrador (NL)
Boyd Snow, VO1DI
78 Main Road
Bristol's Hope, NL
A1Y 0A7
vo1cbs@eastlink.ca

Ontario East (ONE)
Michael Hickey, VE3IPC
2768 Chartrand Road
Lefaivre, ON K0B 1J0
ve3ipc@gmail.com

Ontario Golden Horseshoe (GH)
Rick Harrison, VA3NV
PO Box 85001
Burlington, ON L7R 4K3
ve3yrh@gmail.com

Ontario North (ONN)
Allan Boyd, VE3AJB
27 Red Mill Road, Box 208
Little Current, ON P0P 1K0
ve3ajb@vianet.ca

Ontario South (ONS)
Brett Gilbank, VE3ZBG
225 Periwinkle Road
London, ON, N6M1B7
ve3zbg@gmail.com

Prince Edward Island (PE)
Bill McMaster, VY2WM
11 Birch Hill Drive
Charlottetown, PE
C1A 6W4
bill@vy2wm.ca

Quebec (QC)
Sylvain Lamarre, VE2LAM
506 rue Père Joseph Jean
Rimouski, QC
G5N 1L18
ve2lam@raqi.ca

Saskatchewan (SK)
Vacant

Territories (TER)
(Northwest Territories/ Nunavut/Yukon)
Vacant

For RAC Membership Inquiries and Change of Address please contact RAC HQ at: rachq@rac.ca

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

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

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, Ontario South (postal codes L, M and N) and Quebec.

As described below the deadline for all original nominations and supporting documentation, including a biographical sketch, must be received by the RAC Secretary at the address indicated below by 12 noon on **Tuesday, October 2, 2023**.

If required, an election for these positions will be held in **October 2023** to take office on January 1, 2024 for a two-year term.

Incumbents:

Alberta/NT/NU: Stephen Lee, VA6SGL

Ontario South: Barry Brousseau, VE3SLD

Quebec: No incumbent. Guy Richard, VE2XTD, has completed the maximum allowed term as a Director.

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.

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, Ontario-Sud (codes postaux L, M et N) et du Québec.

Comme indiqué ci-dessous, tous les documents originaux de mise en candidature et les documents reliés, incluant une note biographique, devront être reçus par le secrétaire de RAC à l'adresse indiquée ci-dessous avant 12h00 **le mardi 2 octobre 2023**.

Si nécessaire, une élection pour ces postes aura lieu en **octobre 2023** et entrera en fonction le 1er janvier 2024 pour un mandat de deux ans.

Candidats sortants :

Alberta/TNO/NU : Stephen Lee, VA6SGL

Sud de l'Ontario : Barry Brousseau, VE3SLD

Québec : Pas de titulaire. Guy Richard, VE2XTD, a terminé le mandat maximal autorisé en tant qu'administrateur.

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
   - deproduire 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. Nominations must be sent to the following address:

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

Note: Please clearly indicate on the mailing envelope that Nomination Documents are enclosed.

7. As indicated previously all original nominations and supporting documentation, including the biographical sketch, must be received by the RAC Secretary at the address indicated above by **12 noon on Tuesday, October 2, 2023**.

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

Faxed or emailed documents will not be accepted.

The envelope will be held unopened until after the closing deadline of **October 3, 2023**. 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 **October 13, 2023**.

---

6. 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

Remarque: Veuillez indiquer clairement sur l'enveloppe postale que les documents de candidature sont joints.

7. Comme indiqué précédemment, 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 ci-dessus avant **12h00 le mardi 2 octobre 2023**.

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.

L'enveloppe restera scellée, jusqu'après la fermeture des mises en candidature **le 3 octobre 2023**. 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 premier octobre 2023 ou avant**.

Canadian Amateur Radio Hall of Fame Award
Nominations: Deadline September 30

Radio Amateurs of Canada recognizes deserving Amateurs by appointments to the Canadian Amateur Radio Hall of Fame.

The Constitution of the Hall specifies that the appointment as Member of the Hall is for "outstanding achievement and excellence of the highest degree, for serious and sustained service to Amateur Radio in Canada, or to Amateur Radio at large". The Trustees of the Hall have interpreted the Constitution to mean that the person has performed significant service over many years to enhance the well-being of Amateur Radio.

No single achievement would necessarily qualify an Amateur for the Hall of Fame, but a lifetime of service would be favourable. Look at the list of Hall Members provided below and you will find Amateurs who have made distinguished contributions in many areas.

Please get together with your fellow Amateurs or club members and submit a nomination or two.

Nominations must be prepared using the Canadian Amateur Radio Hall of Fame Nomination Form. Please send the PDF documents directly to the CARHOF Chair at carhof@rac.ca by September 30.

Please note: The nomination should be kept confidential and known only to the nominator(s). The person being nominated should not be made aware of the nomination nor be asked for his or her approval to be nominated.

Visit: https://www.rac.ca/carhof/

RAC Amateur of the Year Award Nominations:
Deadline September 30

The "Radio Amateur of the Year" Award was created by the Canadian Radio Relay League which merged with the Canadian Amateur Radio Federation to form Radio Amateurs of Canada in 1993.

Through the Amateur of the Year Award, Radio Amateurs of Canada recognizes the outstanding contributions made by Canadian Amateurs. It is the intent of the Board of Directors of Radio Amateurs of Canada to recognize the outstanding Canadian Radio Amateur of the Year, each year such candidates are nominated.

To qualify for the title "Amateur of the Year", an individual should have made an outstanding contribution to Amateur Radio in the past year, or have contributed consistently to the welfare of Amateur Radio over several years. RAC Directors, Officers and Section Managers are not eligible for the award while in office, and not in respect to their term(s) of office.

Nominations with supporting documentation are to be sent to the RAC Corporate Secretary by email to racgm@rac.ca by September 30.

Selection of the winning candidate will be by majority vote of the RAC Board of Directors based on the supporting documentation submitted with the nomination. The winning candidate will be notified. Due recognition will appear in The Canadian Amateur magazine and a suitable plaque will be presented at an appropriate time and place.

Visit: www.rac.ca/rac-amateur-of-the-year/

President's Message / Message du Président



Phil A McBride, VA3QR
president@rac.ca

I miss summers the way they were when I was a kid. School ended, I burned my notebooks and looked forward to nine to 10 weeks of good weather and relaxation. Sure, there were probably a couple of summer camps planned, but nothing too odious. Fast forward to my late teen years and I found myself working, but still not enough to stress me out.

These days, it feels like my entire summer is planned from beginning to end by mid-May. The weather is still great, and I do so many fun things, but it just feels like time accelerates out of control and, before I know it, I'm writing an article that will be published at the tail end of this magical time of year.

Radio Amateurs of Canada held an election for the position of Ontario North/East Director this summer and I'm pleased to welcome Craig Delmage, VE3OP/ VE3KKU, to our Board of Directors. Craig is a long-time RAC volunteer and supporter and I'm looking forward to working with him as a member of the Board. Craig's election is timely as he began his position on August 4 in time to participate in the RAC Planning and Annual General Meetings held just two weeks later. He will complete a two-year term ending December 31, 2024.

Unlike most other national societies, RAC's interface with our regulator is not a political one. RAC sits on the Canadian Amateur Radio Advisory Board (CARAB) with Innovation, Science and Economic Development Canada (ISED) – the federal agency responsible for spectrum management and regulation. This unique medium allows for regular, two-way discussions directly with policy staff about the Amateur Radio Service. The latest CARAB meeting was held on June 27 and a complete report can be found in the "Regulatory Roundup" column on page 27.

From July 16-21, RAC was pleased to host the Youth On The Air Summer Camp 2023 at Carleton University in Ottawa, and from all accounts it was a smashing success. I'd like to thank Roger Egan, VA3EGY and Harrie Jones, VE3HYS and all of the volunteers who spent countless hours planning the logistics around such a complex event. I would also like to thank Camp Director Neil Rapp, WB9VPG, for the opportunity for RAC to host the event, and we look forward to working with YOTA again in the future. Stay tuned to the November-December edition of TCA for reflections on YOTA Camp 2023 from the participants and the organizers.

After attending the Opening Ceremony of YOTA 2023, I travelled to Windsor, Connecticut to attend the Board of Directors meeting of the American Radio Relay League (ARRL) which was held on July 20 and 21. Tim Ellam, VE6SH, President of the International Amateur Radio Union (IARU) and I are pleased to be invited to these biennial meetings as observers as they

J'ai la nostalgie des étés que j'ai connus quand j'avais moins de 10 ans. L'école était finie. J'avais brûlé mes cahiers, et je savais que j'allais pouvoir profiter de 9 à 10 semaines de beau temps et de détente. Il était probablement prévu que j'irais passer un certain temps dans l'un ou l'autre camp d'été, mais rien de trop difficile à supporter. Faisons un bond de plusieurs années vers l'avant pour nous propulser vers la fin de mon adolescence, lorsque j'avais trouvé un emploi d'été, ce qui impliquait certaines contraintes, mais toujours rien de trop stressant.

Ces jours-ci, j'ai l'impression que dès la mi-mai, tout mon été est déjà planifié, du début à la fin. Les conditions météorologiques sont encore excellentes, ce qui me permet de m'adonner à toutes sortes d'activités divertissantes, mais il semble que le temps passe de plus en plus vite, sans possibilité de ralentir la fuite des heures qui s'écoulent, et avant d'avoir pu comprendre ce qui arrive, je me trouve en train de rédiger un article qui sera publié à la fin de cette saison magique de l'année.

Radio Amateurs du Canada a tenu une élection en vue de pourvoir le poste de directeur pour le Nord/Est de l'Ontario dans le courant de l'été, et j'ai le plaisir de souhaiter la bienvenue à Craig Delmage, VE3OP/VE3KKU, au sein de notre Conseil d'administration. Depuis de nombreuses années, Craig fournit ses services à RAC en tant que bénévole et ne cesse de soutenir notre action, et je serai heureux de collaborer avec lui comme membre du Conseil. Son élection a eu lieu à un moment particulièrement opportun, étant donné qu'il est entré en fonctions le 4 août, c'est-à-dire à temps pour participer aux réunions de planification de RAC et à l'Assemblée générale annuelle, qui ont été tenues à peine deux semaines plus tard. Le mandat de deux ans qui lui est confié s'achèvera le 31 décembre 2024.

Au contraire de ce qui se fait avec la plupart des autres sociétés d'envergure nationale, l'interaction de RAC avec notre instance de règlementation ne revêt pas un caractère politique. RAC siège au Conseil consultatif canadien de la radio (CCCR), organe relevant d'Innovation, Sciences et Développement économique Canada (ISDE), qui est le ministère fédéral chargé de la gestion et de la réglementation du spectre. Cette relation privilégiée nous permet d'échanger périodiquement des vues, de manière directe et bilatérale, avec le personnel responsable de la prise de décisions stratégiques sur le Service radio amateurs. La dernière réunion du CCCR s'est tenue le 27 juin et un compte rendu détaillé sur les délibérations qui y ont eu lieu figure à la rubrique intitulée « Regulatory Roundup » (Bilan sur les mesures de réglementation), à la page 27.

Du 16 au 21 juillet, RAC a eu le plaisir d'accueillir les participants au Camp d'été « Jeunes sur les ondes 2023 » à l'Université Carleton, à Ottawa, et à en juger d'après toutes les réactions qu'il a suscitées, il a remporté un succès éclatant. J'aimerais remercier Roger Egan, VA3EGY et Harrie Jones, VE3HYS, de même que tous les bénévoles qui ont consacré un

provide us with an excellent opportunity to see what's going on with our cousins to the south and bring ideas and insight back to our organization. I extended greetings from the Radio Amateurs of Canada and provided an update on our activities in what is a very busy year.

One of the reasons RAC is so effective as an advocate for our spectrum is our participation in regulatory events at the international level. This year, RAC Special Advisor Paul Coverdale, VE3ICV, will attend the World Radiocommunication Conference (WRC-23) in Dubai from November 20 to December 15. RAC maintains the Defence of Amateur Radio Fund (DARF) for the sole purpose of to sending representative to the World Radiocommunication Conferences (WRC) every four years. You can read all about what's been happening inside the Preparatory Meetings as well as what's expected in Dubai in Paul's article on page 26.

By the time you read this Message our biennial Planning Meeting and Annual General Meeting will be part of our 30-year history. The Planning Meeting is a rare opportunity for the Directors and Executives and staff to meet in person to review our current situation and set priorities for the coming years. This year's meeting will be particularly important as it provides an opportunity for us to reflect on the impact of the global pandemic, to assess our response and to make any necessary changes.



Phil A. McBride, VA3QR, Rick Roderick, K5UR and/et Tim Ellam, VE6SH

The AGM will be hosted by the Halifax Amateur Radio Club (HARC) in conjunction with its 90th Anniversary and the next TCA will include an article about its history. It will also include the President's Report to RAC Members, the Minutes of the AGM, and the Financial Statements. For now, enjoy the good weather while it's here!

– 73! Phil A. McBride, VA3QR/VA3KPJ, RAC President and Chair

nombre incalculable d'heures à se charger de tous les aspects logistiques allant de pair avec un événement aussi complexe. Je souhaite également remercier Neil Rapp, WB9VPG, le directeur du camp, d'avoir donné à RAC l'occasion d'organiser cette manifestation, et nous serons heureux de collaborer de nouveau avec l'équipe de YOTA à l'avenir. Vous trouverez dans le numéro de novembre-décembre de TCA une compilation de réactions des participants et organisateurs du Camp YOTA 2023.

Après avoir assisté à la Cérémonie d'ouverture de YOTA 2023, je me suis rendu à Windsor (Connecticut) pour être présent à la réunion du Conseil d'administration de l'American Radio Relay League (ARRL), les 20 et 21 juillet. Tim Ellam, VE6SH, président de l'Union internationale des radio-amateurs (IARU) et moi-même sommes toujours heureux d'être invités à participer en tant qu'observateurs à ces réunions biennales, étant donné qu'elles nous offrent une excellente occasion de prendre connaissance de ce que font nos cousins du sud et de permettre à notre organisation de profiter des idées et initiatives qui y sont débattues. J'ai présenté les salutations des radio amateurs du Canada et fourni une mise à jour sur les activités que nous avons menées au cours de ce qui a été une année fort occupée.

L'une des raisons pour lesquelles RAC se montre aussi efficace dans la défense de notre spectre est notre participation aux manifestations portant sur les questions de réglementation au niveau international. Cette année, le conseiller spécial de RAC, Paul Coverdale, VE3ICV, assistera à la Conférence mondiale des radiocommunications (CMR-23) qui aura lieu à Dubaï du 20 novembre au 15 décembre. RAC assure le fonctionnement du Fonds de défense de la radio amateur (FDRA) à la seule fin d'envoyer un représentant aux Conférences mondiales des radiocommunications (CMR) une fois tous les quatre ans. L'article que Paul a rédigé à ce sujet (voir page 26) contient tous détails utiles sur les activités menées dans le cadre des Réunions préparatoires, ainsi que sur les résultats que l'on espère obtenir à Dubaï.

Lorsque vous prendrez connaissance de ce message, notre Réunion de planification bisannuelle et notre Assemblée générale annuelle (AGA) appartiendront déjà au passé, pour faire partie d'une histoire qui s'étend sur les 30 dernières années. La Réunion de planification est une occasion à ne pas manquer, car elle permet aux membres du Conseil d'administration et de l'Exécutif, ainsi qu'à nos permanents, de se rencontrer en personne pour faire le point de notre situation actuelle et définir nos priorités pour les années à venir. La réunion de cette année sera particulièrement importante car elle nous donnera l'occasion de réfléchir aux effets de la pandémie sévissant à l'échelle mondiale, d'évaluer notre réaction et d'apporter tous changements nécessaires.

L'AGA sera accueillie par le Halifax Amateur Radio Club (HARC) conjointement avec les célébrations de son 90e Anniversaire, et le prochain numéro de TCA comprendra un article sur son histoire. Il comportera aussi le Rapport du président aux membres de RAC, le Procès-verbal de l'AGA et les États financiers.

Profitez bien du beau temps qui devrait encore durer pendant quelques semaines!

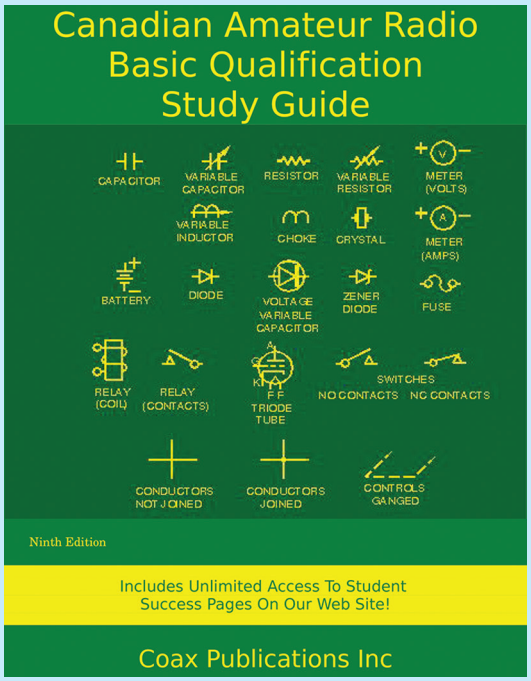
Phil A. McBride, VA3QR/VA3KPJ
Président et chef de la direction de RAC

– Traduction par Jacques Roland, VA3DLZ. Merci Jacques!

COAX PUBLICATIONS INC STUDY GUIDES

Canada's Most Popular Amateur Radio Study Guides!

For over 14 years Coax Publications has produced the best study materials for students studying for their Canadian Basic or Advanced Qualifications in Amateur Radio. Used by the RAC online classes and most Amateur Radio clubs we cover all of the information required for the ISED exams and our books provide valuable context to what you are learning. The price of the books includes lifetime access to the Student Success Pages and *Ask the Professor* help pages on our web site. Students: You willl want to keep these books for reference after you pass your course.



$49.95 + shipping and taxes



$49.95 + shipping and taxes

We Want You To Be Successful!

Canadian Basic Qualification Study Guide

Designed to teach you everything required to earn your Basic Qualification. Covers all material in the ISED Question Bank with additional material for context.

The new 5th printing now available updates some material and adds information about the 630 metre and 60 metre bands.

Still includes unlimited access to our Student Success Pages online. Now printed on opaque 50 lb stock, 8½" x 11" with rugged lie-flat binding.

Canadian Advanced Qualification Study Guide

New for 2023, this new 3rd printing updates some sections that were a bit ambiguous, corrects all known errors in previous printings, and replaces some parts of Section 1.5 related to resonant circuits.

For the student who has prior operating experience and wants a challenge, the Advanced Qualification is the next step.

Now printed on opaque 50 lb stock, 8½" x 11" with rugged lie-flat binding.

Clubs: Volume discounts are available for quantities of 7 and 25 books.

Prices do not include shipping and taxes; these will be added when you place your order depending on where you live.

Canadian Basic Instructors' Guide

Basic Instructors' Guide: $19.95, for the first time instructor, this downloadable file contains suggestions for classroom activities, all of the drawings and photos from the Basic Guide in a form that can be printed or projected, class plans, and other materials, divided by chapter.

Student Success Pages

Student Success Pages: $14 – for those who are studying from other sources, it provides access to our learning support features, including Ask the Professor. Lifetime access is already included when you purchase a book.

All materials are produced and printed in Canada:
Coax Publications Inc, Newmarket, ON, Canada

Order From Our Web Site: http://www.coaxpublications.ca/ord0001.php

RAC Welcomes New Ontario North/East Director and National Youth Coordinator

Ontario North/East Director



Radio Amateurs of Canada would like to congratulate Craig Delmage, VE3OP/VE3KKU, on his election as RAC Director for the Ontario North/East Region (postal codes K and P).

Craig was elected by the members of the region and will take office immediately to complete the two-year term ending December 31, 2024.

"I was born in Alberta and moved around Canada in my youth because my father was a CBC national reporter who was periodically posted. It was the sound of the radio constantly on in our house, with myself hanging around at CBC radio stations after school, as well as my brother who got his Amateur licence first, that helped forged my early passion for radio.

Ever since I obtained my first licence at 16 along with my original call VE3KKU, I have been highly passionate about Amateur Radio. I gathered my newspaper delivery earnings, bought a used HW-16, and put a dipole in my parent's attic. I then drove them crazy pounding brass into the wee hours of each morning. After obtaining my Advanced certification, I was granted VE3OP.

After obtaining my Advanced certification, I was granted VE3OP. I remember the DOC examiner giving me that fateful call I had waited so long for. "I have a two-letter call for you – take it or leave it!" I was praying that it was a nice, rhythmic CW call and it was! Later, I researched the Amateurs that held the call since it was issued in the 1930s. We never "own" call signs, we are just custodians until the next Amateur proudly uses it.

I have fond memories of meeting Fred Hammond, VE3HC, in his living room while attending the University of Guelph. As the founder of VE3UOG, I had no equipment to put on an Amateur demonstration so I asked Fred if I could borrow some. He said, "Of course, come on over!" My jaw hit the floor when I saw the impressive Collins station in his living room and the ladder lines coming through his windows.

Now retired, professionally I spent my career in IT and cybersecurity, both within the private sector and the federal government, holding senior positions in management, business development and technology development.

Over the past 45 years, I have been a member of various Amateur clubs, a consistent member of RAC where I currently volunteer, and have enjoyed all kinds of operating modes and events. I am very fortunate that my XYL Roxanne, VE3ROX, holds her Advanced certification as well. I look forward to serving Northern and Eastern Ontario as RAC Director in this very exciting chapter of RAC's history, now 30 years strong."

Welcome aboard Craig!

Phil McBride, VA3QR/VA3KPJ
RAC President and Chair

National Youth Coordinator



Radio Amateurs of Canada is pleased to announce that it has appointed Philip Gebhardt, VE3ACK as its first National Youth Coordinator.

"I have had a lifelong relationship with radio. My father was the Chief Engineer at radio station CKCH and we lived in the house at the transmitter site. That's where I was born. The constant exposure to radio eventually led me to shortwave radio listening using a war surplus receiver from a WWII Lancaster bomber. While the initial attraction was hearing signals from faraway lands, it didn't take long before I was experimenting and building wire antennas.

The next logical step, of course, was Amateur Radio. I received my first licence as VE3ACK in 1968 when the hobby was known as the Amateur Experimental Service. That inevitably led to building transmitters, receivers and converters – and, of course, bigger and better antennas. This was also the start to teaching courses. I taught my first Amateur Radio courses while I was working at the Ontario Science Centre. I later taught night courses for the Toronto District School Board and for various clubs. My current project is organizing a course in Toronto in French. At one point, I taught a shortwave course for Radio Shack in Nassau, Bahamas.

I spent part of my career at Motorola Canada, but I was also a teacher. That gave me the opportunity to introduce Amateur Radio to my Grade 7 and 8 students. With the assistance of Pete Corey, VA3PA (SK) and my brother Eric, VA3EG (SK), I was able to get some of my students licensed. During this period, I also worked with high school students on engineering field experiments to support the theory they were learning in class. One such experiment involved using 2 metres to develop a radio version of the classic double-slit optics experiment performed by Thomas Young in 1801. A second activity related to meteor scatter involved girls from a high school in Whitby. Throughout this period, I was writing articles for radio magazines (TCA, of course) in Canada, the US, the UK and Australia. I also spoke at several conferences on topics ranging from ground conductivity to wire grid polarizers.

And now it is time to move on. With the support of RAC, I am preparing to tackle the position of National Community and Youth Coordinator. I look forward to this opportunity to work with other RAC members to introduce a new generation of operators to the fascinating world of Amateur Radio. Radio may not be the activity it was when I was young, but as engineers, scientists and technologists at Canada's National Research Council, the Canadian Space Agency, NASA and the National Radio Astronomy Observatory will testify: Radio is alive and well and an essential part of modern communications.

Welcome aboard Phil!

Phil McBride, VA3QR/VA3KPJ – RAC President and Chair

Silent Keys – In Memoriam

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

VA3BJD – Barry Delong, of Oakville, Ontario, on May 19, 2023, at age 61

VA3FWK – Frank Love, of Hamilton, Ontario, on April 28, 2023, at age 94

VA3UL – Dave Hodson, of St. Catharines, Ontario, on April 24, 2023, at age 77

VA3WHO – Robert Manley, of Hamilton, Ontario, on March 17, 2023, at age 64

VA7THO – David Thomson, of Surrey, British Columbia, on April 25, 2023, at age 86

VE1IV – Albert Fulton, of Merigomish, Nova Scotia, on June 12, 2023, at age 90

VE1NV – Ross Marshall, of Sydney, Nova Scotia, on March 26, 2023, at age 89

VE1RLL – Bob Lawrence, of Lower Sackville, Nova Scotia, on March 16, 2023, at age 64

VE3EFX – Bill Hardie, of Kincardine, Ontario, on May 12, 2023, at age 91

VE3FGK – David Kerr, of Brampton, Ontario, on April 29, 2023, at age 84

VE3JPC – Jerry Puchyr, of Richmond Hill, Ontario, on March 9, 2023, at age 78

VE3KO – Bill Shaw, of Scarborough, Ontario, on April 4, 2023, at age 92

VE3LFI – Hugh Murrin, of Essex, Ontario, on July 15, 2023, at age 74

VE3OSZ – Bob Kavanagh, of Ottawa, Ontario, on June 3, 2023, at age 91

VE3PA – Bill Catlender, of Scarborough, Ontario, on June 10, 2023, at age 91

VE3TSO – Toivo Soolepp, of Warkworth, Ontario, on June 2, 2023, at age 70

VE3UKE – Andrew Motyliwski, of Mississauga, Ontario, on July 12, 2023, at age 53

VE3UNJ – Mike Larocque, of Brockville, Ontario, on June 3, 2023, at age 81

VE3WBT – Jacques Gauthier, of Thunder Bay, Ontario, on January 1, 2023, at age 61

VE3YXY – Ron McFadyen, of Perth, Ontario, on July 21, 2023, at age 80

VE4PER – Andy Webb, of Portage La Prairie, Manitoba, on August 2, 2023

VE4FA – Frank Green, of Winnipeg, Manitoba, in June 2023

VE5AFI – Ron McDonald, of Melville, Saskatchewan, on December 29, 2022, at age 85

VE5BG – Bill Lampman, of Ottawa, Ontario, on December 1, 2022, at age 102

VE5EN – Gary Fernquist, of Swift Current, Saskatchewan, on May 16, 2023, at age 75

VE5JT – John Tomecek, of Kerrobert, Saskatchewan, on February 10, 2023, at age 103

VE5PS – Anna Sawchuk of Dundurn, Saskatchewan, on November 7, 2022, at age 84

VE5SC – Stan Ewert, of Regina, Saskatchewan, on June 23, 2023, at age 90

VE5WI – Len Pryor, of Marshall, Saskatchewan, on February 13, 2023, at age 84

VE5YY – Martha Pankratz, of Saskatoon, Saskatchewan, on January 11, 2023, at age 98

VE6AVC – Bob Wolstenholme, of Medicine Hat, Alberta, on June 8, 2023 at age 87

VE6BD – Bruce Heroux, of Red Deer, Alberta, on December 6, 2022, at age 72

VE7AKV – Alex Stewart, of Victoria, British Columbia, on May 26, 2023, at age 95

VE7BKF – Bob Ferguson, of Victoria, British Columbia, on April 30, 2023, at age 98

VE7BX – Dave Gillis, of Langley, British Columbia, on May 10, 2023, at age 78

VE7FVM – Mike Mayer, of Mission, British Columbia, on June 28, 2023, at age 85

VE7IHR – Ron Huybers, of West Kelowna, British Columbia, on April 25, 2023, at age 73

VE7TA – Hank Van Der Meulen, of Smithers, British Columbia, on July 22, 2023, at age 94

VE9DR – Donald Hachey, of Moncton, New Brunswick, on May 15, 2023, at age 85

VE9LE – Léon Léger, of Grand-Barachois, New Brunswick, on May 19, 2023, at age 74

VE9NSP – Norma Poirier, of Glenlevit, New Brunswick, on March 3, 2023, at age 68

VE9VL – Victor Lanteigne, of Rogersville, New Brunswick, on March 20,2023, at age 85

Correction:

VE7LDI – Diane Martin, of Merrit, British Columbia, on November 3, 2022, at age 81

Note: * In the above list an * indicates that a call sign has been reissued. The list of Silent Keys is prepared by volunteers.

Please send obituary notices by email to rachq@rac.ca with a copy to: ic.spectrumamateur-spectreamateur.ic@ic.gc.ca.

For more information visit: https://www.rac.ca/silent-keys/

RAC Scholastic Grants Available Now

– Deadline October 31–

Al Eros, VE4ZB – RAC Scholarship and Grants Coordinator

The RAC Foundation is now accepting Scholastic Grant applications from eligible Amateurs for the 2023-2024 school year.

Radio Amateurs of Canada is able to provide grants and scholarships thanks to the RAC Foundation Program.

RAC operates the RAC Foundation in cooperation with the Community Foundation of Ottawa (CFO) which administers and invests the donated funds and disburses the earnings from those invested funds to grant applicants, based upon direction from RAC.

It is thanks to the continued generosity of Amateurs and Amateur Radio Clubs from all parts of Canada that we can support talented Canadian Amateurs who will contribute to the Amateur Radio Service for years to come.

Eligibility Requirements:

Eligible candidates must be:

- in full-time attendance at an educational institution such as a university or community college
- Canadian Radio Amateurs: must be a certified Amateur at time of the grant application

Scholastic grants will have a maximum value of $1,000.

Decisions on grant eligibility and size will be at the sole discretion of the RAC Directors or their designees.

Applications:

All grant applications should be submitted to the RAC Foundation for processing and recommendation by October 31.

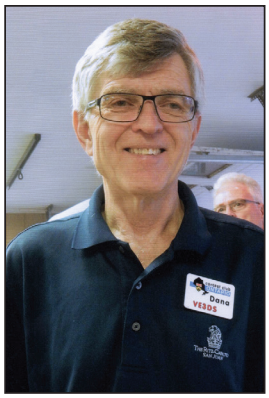
For more information please visit: https://www.rac.ca/grant-information/

Scholarship application:

https://wp.rac.ca/grant-information/scholastic-grant-application/

Six Metres and Down

Solar Cycle 25 Continues to Progress and with it Rising Maximum Useable Frequency



Dana Shtun, VE3DS
ve3dss@hotmail.com
www.qsl.net/ve3dss

Maximum Useable Frequency –

What does that mean exactly and how can it affect VHF?

As solar activity ramps up, the higher bands open longer and longer. Have you noticed all the activity on 21 MHz / 15 metres or 28 MHz /10 metres this past spring and into the summer months? Well that's the result of the increased solar X-ray flux changing the shape of the ionosphere and increasing ionization levels in the F1 and F2 layers.

At the same time, the absorption levels of the D layer seem to be going up as well, making the lower bands a bit less productive of DX or being open for shorter durations. This will continue into the fall and, if the predictions hold and the flux continues to rise, we will see the Maximum Useable Frequency (MUF) increase to 50 MHz or higher – and that means you will be able to work DX on 50 MHz similar to what you can work on 28 MHz! In fact, the flux numbers are now much higher daily than they were when Solar Cycle 24 was rising back in 2011.

Here is an extract from my column at the time describing the period October-November 2011:

First Trans-Pacific F2 Cycle 24 Arrives in VE7: Surprised is exactly what the VE7s are as they were the first Canadian stations to work F2 during the start of Solar Cycle 24 on 50 MHz. In prior cycles the band has typically seen the VE1/VE9/VO1 groups working the early DX. So this cycle is "different" in a good way! John, VE7DAY, passed along the following regarding the fun that the guys have had in October 2011.

"As well as our neighbours to the South, some of 'our guys' worked the South Pacific on F2, for the start of Cycle 24! On October 26 at 02:01 VA7FC worked FK8CP in RG37, followed by Steve, VE7SL! At the same time, VE7CC worked VK4MA in QG64, and 5 minutes later VE7SV worked him. At 02:13 VE7SL also worked VK4MA. Steve also worked VK4WTN and VK4BG."

John writes that his first F2 contact was on November 1, 2011 with ZL1RS in RF64 at 23:13 UTC with 5x7 reports!

John comments that Bob, ZL1RS, was heard for 15 minutes in British Columbia that day!

On November 12, 2011 VE1YX worked W7EW for the opening salvo of the Transcontinental F2 DX of Cycle 24. On November 13, VE6TA worked VE9AA at 17:40 UTC and VE3EN worked VE7DAY at 1745 UTC. John writes that he worked 32 stations that day across the east. Signals reported between the left and right coasts were upwards of 20 over S9 at times on 50 MHz!

At 1810 that same day, VE3KU (now VE3DS) worked VE7DAY followed by VE7SL and N7CW . Signals were typically 559 here over a rather short 3760 kilometre path. More DX was worked on November 16 with a good opening to W6 from VE2XK, VE9AA and the guys on the coast. We did manage to snag WA6KLK in CM89 at 1732, but once again the MUF and path were marginal from FN03."

Canadian Makes First Transatlantic F2 of Cycle 24: In the east, with the Solar Flux running at 161, (A1, K0) the first Transatlantic F2 contact of Solar Cycle 24 was made by yours truly, VE3KU, in a very brief contact with EI7IX in Ireland on November 15, 2011 at 1551 UTC. What was really amazing about this day, was how the various propagation beacons across the Northern path "lit up" that morning. The OY6BEC beacon on 50.035 (10 watts) was 30 – 40 dB over S9 in Toronto at the time of the contact with Dermott in Ireland! Additionally, the TF1SIX and VY0SNO beacons were all copied with very strong signals over a 1½ hour period.

As F2 propagation paths change rapidly, I was also able to make a partial into France with Olie, F6KHM and MM0AMW. However, N8JX in EN63 and VE2XK in FN07 were better positioned to take advantage of the propagation and both made their first F2 contacts ever at approximately 16:00 UTC. Needless to say this was a very exciting day with many stations listening on both sides of the Atlantic and a lot of people scratching their heads about the beacons being so loud; yet no humans were heard from those exotic spots.

We also had reports of African beacons being heard by N8JX, but to date the path has not yet opened on F2. This despite a lot of listening and calling between South Africa and Canada/US."

As I write this column in early **August 2023**, the solar flux is bouncing between the low 200s and 170s so we are way ahead of the last cycle (Cycle 24) and much more like Cycles 21, 22 and 23 in terms of solar activity. If those past cycles are an indication, we should have plenty of days starting in mid-October to work Europe, Southern Africa, the Indian Ocean, South America, the South Pacific, New Zealand, Australia and Asia. Typically, the openings follow the sun with Europe in the early morning to Japan in early evening.

In a presentation to the Front Range Six Metre Group in July 2023, Scott McIntosh – a Solar Physicist and the Deputy Director of the National Center for Atmospheric Research (NCAR) in Boulder, Colorado – mentioned that the solar max was potentially six to eight months out in time so that will be between January and March 2024. You can see his presentation at: https://www.youtube.com/watch?v=u3JQhuPDMbg

That's not optimum for the fall or for us Canadians, but it will provide some interesting Trans-Equatorial Propagation (TEP) paths into southern lands such as the Falklands, Australia and New Zealand and beyond. From a personal perspective, by the time you read this we should have some solar flux numbers in the low to mid 200s – did I get it right?

Here are a few links for you to check out.

Space Weather: https://swe.ssa.esa.int/current-space-weather

Solar flux: https://www.spaceweather.gc.ca/forecast-prevision/solar-solaire/solarflux/sx-5-flux-en.php

Kevin, VE3VN site: www.solarAmateur.net

Watch band conditions by hanging out on the ON4KST chat (50, 144, 222, 432 MHz and up)

Watch FT8 VHF activity on PSK Reporter, Watch DX Maps: www.dxmaps.com

Above all get on the radio, monitor the beacon sub-bands and get on 50.125 and call CQ! Remember to stay clear of 50.110 so we can hear the DX calling CQ on 50.110. Yes there is still a DX window there and I think we will need it this time. What we don't need are KW class SSB guys splattering blind CQs over the DX, eh. If you must get on FT8 remember 50.323 and 50.333 is for intercontinental DX, while 50.313 is more for working in North America. In other words, try not to QRM the DX, but of course the DX has to follow the rule too, and so far its been a bit of a mess.

F2 Openings: Work the strong DX quickly – that means not FT8

Just an observation – and you may not agree with me – but FT8 is effectively "plodding" along at five words per minute (WPM). F2 openings at or near the Maximum Useable Frequency (MUF) means signals propagate almost without loss and little QSB, but the path moves fast so 10 watts or 100 watts is enough at times – but you have to be quick. My earliest Cycle 21 QSOs to KL7NO, EI2W, ZS6LN and others in Southern Africa and beyond were done with 10 watts peak envelope power (PEP) on SSB so why waste time torturing yourself on FT8? Switch up to FT4 at 10 WPM or really work them fast by getting on 50.135 SSB where you can work 30 to 60 stations per hour, or CW below 50.1 at 20+ WPM.

Remember this cycle is unique – not only will it be strong, but the whole planet is now very active on 50 MHz!

Summer 2023 Sporadic E Season

As suggested in my last column, the Sporadic E season has been detrimentally affected by solar activity. The openings this year have been very sporadic (no pun intended) and short lived. While the single-hop openings have been fairly consistent, the lack of multi-hop openings is notable. This was no surprise as it has been the case in the past with Cycles 21, 22, 23 and even 24.

For example, June 20 produced signals from D2UY in Namibia at 1944, but no QSO while June 21 brought a brief opening to CT1ILT in IN50 and EA7AH in IM67. June 22 brought K6VHF from DM43 with a good single- and double-hop opening west including: W7AAD in DM26; KK7C in DM38; NJ7A in DN30; W7CCY in CN96. It then swung east – with G3ZSS in IO90; MI0BOT in IO74; EI7IX in IO53; 2E1IDC in IO91; G0SYO in IO83; ON4CBA in JO21 – and then the band went back west again with N9AOL in EN51 and others.

June 24 was interesting with 9K2GS worked in Kuwait LL39 for a new grid at 1339 UTC, followed by 3B9FR in Rodrigues Island HM10 for a new DXCC (#154). An hour later EA9RY was worked in IM85 for a new VHF/UHF Century Club (VUCC) grid to top things off.

Meanwhile, Mike, VA3MW, at his cottage in FN04, was lucky enough to work Kazakhstan on June 24 with a contact to UN3G, while calling UN8GEQ. He commented that the RR73 took a good five minutes to confirm due to rapid QSB! This is one of the big issues with FT8 – we need a mode that's ultra-fast and ultra-sensitive!

Roger, VE1SKY, sent in a nice report. His DX catches included: 9K2GS on June 19 at 12:02 UTC; ZB2GI in Gibraltar at 12:08 UTC on June 21; SO1WS at 11:23 UTC on June 23; 9H1XT at 11:35 UTC; 7X2RF on June 24 at 16:29 UTC; and PL5/PE6Q on Saba on July 8 at 12:42.



The gang at VE3MIS Multi-op in the ARRL June VHF Contest and CQ WW VHF Contest. From left are Peter Prabucki, VA3ELE, Ancil Lynch, VA3FIP, Joseph Bondi, VE3GKT.

ARRL June VHF Contest

The contest was an amazing one this year, particularly for the digital guys if they were positioned so they could access the Sporadic E clouds. There was a great turnout of Canadian stations from coast to coast which is good news from an activity perspective. The multi-op crew at the Mississauga Amateur Radio Club VE3MIS racked up a great score running the bottom four bands, but adding mid-contest 902 and 1296 MHz as well! I got the station rearranged but ran into a few bugs on Saturday which took a couple of hours to sort out and delayed my start time. The good news was that the DEMI 3456 transverter that I modified to also work on 3400.1 MHz functioned perfectly so we were able to work the guys in Western New York / Rochester on 3400.1 SSB for new multipliers – and still work Canadians on 3456.1.

Speaking of working Canadians, we ran a test with Sasha, VE3SVF, on 3400.1 MHz, and he was able to copy my signal. Sasha is working on some software-defined radio (SDR) designs and we hope he will be QRV on 3.4 and 10 GHz soon! Sasha is 13 years old so he's got a long VHF DX career ahead! Joseph, VE3GKT/R, was very busy rovering from EN92, EN93, EN94, FN03, FN02. It was great to see the high level of commitment in setting up a rover station with multiple bands!

Thanks to others like VE3KH for running the bands, while VE3SST/R was active from FN04 and FN14. The VE3WCC multi-op group was active from FN15 and we were able to work them on the bottom four bands, but the higher bands proved elusive due to poor propagation conditions. Somehow we missed our late night band run with Russ, VE3OIL/R, this year, but we did manage to work him from EN92 and EN81. VE3WY hammered away at the bands with his *big* station from FN04 so Bob should make out very well in the standings.

Other noted stations were VE3ZV, VE3KG, VE3RX, VE3EJ, VA3IKE, VE3MIX, VE3ELL, VA3VTE and VE3IMF. Note that VE3DS was running low power analog, so apologies for missing everyone who was on digital!

In addition, he worked JA7QVI, JA8ISU and JR7VHF around 21:40 UTC on July 12 while trying to host a small BBQ at his home! Later he caught OY1OF at 23:10 for a new DXCC. He mentions that OY1OF is moving to a spot where he has a good shot to North America so look for the Faroe Islands being better represented on 50 MHz this fall.

Grant Furnald, VE6TA writes:

"2023 has been a strange year for 6 metres. After the last two years of fantastic Sporadic E, openings to VE6 this year have been lukewarm. However, it has been somewhat offset by some F2 enhancements to South America and the South Pacific from here. New countries worked so far this year have been New Caledonia FK8CP in March, and both Croatia 9A4BT and Greece SV1DH in June."

Back to VE3DS – July 1 was a good day with things starting at 1316 with SP3CJS in JO81 worked, followed by SP7AWG in JO91, SP6VGJ in JO81, then UX5UO in KO50 in Ukraine, followed by UT5UGR in KO50, S57RR in JN65, S53R in JN76, IK2UCK in JN45, DO4DXI in JH58, DO9LX in JN58, DF1NP in JN58 and SV9CVY in KM25.

July 3 brought VE6BBP in DO43 and VA6ZO in DO32 as well as K8JH in EN28.

July 5 brought another European opening starting with MM0AMW at 1718 and numerous OK, DK, stations, Z37CXY in KN02, SV2AEL in KN10, LZ1ZL in KN22, LY1G in KO05 and lastly PE5T In JO33.

July 6 at 0107 brought OX3LX from grid FQ57 way up on the northwest coast of Greenland for a new grid – my eighth Greenland grid. The next day we worked TG9AJR in EK44 and V31DI in EK57. Things stayed quiet until July 13 when we worked LA7HJA at 1314 in JP50, UT7KF in KN77, UY1HY in KO60, US8UX in KN59 –
all in Ukraine. We then worked SM4EMO in JO79, LY2IJ in KO25, and again US4EX in KN78.

Later that day we had a brief spotlight opening to Japan with JF8QNF in QN02 and JR8AMF in QN03 worked both for new grids in Japan. On July 19, D2UY JI64 was again copied calling CQ from Namibia. July 20 brought a brief opening to XE1O and 6D5C both in DL80.



VE3DZ Achieves Six Metre DXCC

Big congratulations to Yuri Onipko, VE3DZ, for completing DX Century Club (DXCC) on 50 MHz in two years! Keep in mind this was all done on E-skip. So will F2 DXCC be possible in three months? Maybe Yuri will do it over to prove it can be done.... hi.

Two Metre Sporadic E DX

Peter, VA3ELE, was lucky enough to be watching the MUF for 2 metre Sporadic E on July 20 and caught an opening into the Dallas – Fort Worth area working W5LUA. Peter mentions that he was only running 25 watts at the time and vows to be running full power for the next opening. During the ARRL June VHF Contest, I was scouting for E-skip and while turning the 2 metre beam and listening on 144.2 MHz, I caught a southern accent. A quick QRZ brought K5GUN in grid EM50 with S9 signal on SSB. Later we found out he was running 10 watts and an "eggbeater" antenna!

10 GHz DX: Summer Thunderstorms Equal DX

Peter, VA3ELE, worked grid #60 on 10 GHz with a QSO with Rene, VE2UG, who activated grid FN46 on July 3. Meanwhile Hugh, VA3TO, racked up two new grids for 52 VUCC. On July 13, Peter, VA3ELE, snagged grid #61 by working Glen, KC0IYT, in FN42 at 665 kilometres. This was accomplished via the thunderstorms setting up between them which allowed scattering off those 70,000-foot storms! Now think about this – it's on 10GHz!

VHF/UHF Century Club Awards

I started on VHF before grid squares were a thing in North America. Over the years however, we worked a lot of guys on VHF and a lot of grid squares, and actually picked up the VHF/UHF Century Club (VUCC) award on 50 MHz. I wasn't too focused on the other bands, but the with time to kill during the pandemic I started looking into it and quickly realized that I had somehow worked almost enough for VUCC on 222, 432, 902, 1296, 2304 and 3456.

Fortunately, 222 was completed on 100% Logbook of the World (LoTW), but not everyone on the higher bands was on there as well so I had to send out QSLs with SASE's in the hope of getting the cards. Thankfully, most responded and I recently got the cards all verified and the apps into the American Radio Relay League (ARRL). If all goes well we can report making all these VUCCs.

If you are new to the bands, give VUCC a run. It's fun and the certificates look great on the wall. It's all part of the VHF/UHF DX thing.

Contests Fall 2023

The fall contest schedule includes VHF, UHF and SHF contests!

ARRL EME Contest 2.3 GHz and Up: September 9; ARRL September VHF Contest: September 9-11; ARRL 10 GHz and Up Contest: September 16-17

Fall Sprints –144 MHz: September 18;
222 MHz: September 26;
432 MHz: October 4
Microwave Fall Sprint: October 7

ARRL EME 50 MHz to 1296 MHz:
October 28-20 and November 25-26

Where is VHF/UHF/SHF going?

I started writing this column in 1988 in *QST Canada* to spread the word about VHF/UHF/SHF DXing including moonbounce, tropo, aurora, E-skip, F2, meteor scatter, antenna design, SSB, CW, Digital, Satellites, TV and all.

Here we are 35 years later and we still have a large cadre of new Amateurs who have no idea about these activities. Why is that?

Let's redouble our efforts to recruit the new Amateurs on VHF and up including 10 GHz, and also to keep people engaged.
Share your thoughts and enjoy the fall.

– 73 Dana, VE3DS

A Simple RFI "Pre-Test" for Small Switching Power Supply Units

Don Dorward, VA3DDN

This article describes a simple method for evaluating and comparing the Radio Frequency Interference (RFI) put out by what I will call small, switching Power Supply Units (PSUs). As we know these come in many sizes and shapes. Most are AC plug in power supply units, providing low power (35 watts or less) 12 volts DC, or 5 volt DC, USB output type power sources – also automotive "cigar lighter" plug in DC to DC units.

Some other authors have also described simplified test methods for testing PSUs without the need for the usual specialized equipment. The accepted regulatory method for evaluating RFI on AC supplied PSUs requires the use of specialized test equipment such as a spectrum analyzer and a Line Impedance Stabilization Network (LISN). The result of the test is a graph showing measured RFI levels over a wide frequency range and compared with regulatory limits, usually marked on the same graph.

Here are some key terms:

EMI – Means Electromagnetic Interference, which covers just about any kind of signal, over a very wide range and infers that it is interfering with your electronics.

EMC – Means Electromagnetic Compliance and can be a measure of how well an electronic device complies with the current Regulatory Standards, and which usually refers to both emissions and susceptibility.

RFI – Means Radio Frequency Interference and is often used interchangeably with EMI. However, RFI usually refers to a specific subset of frequencies.

Here are some facts:

1) Regulatory RFI tests are focused on conducted RFI, that is coupled back into the AC mains and which then may interfere with other mains-connected electronics.



Figure 1: Examples of the six physical types of Switching PSUs tested.

2) There is also an RF component called radiated RFI, which is not addressed here.

3) It is well known that harmonics of the switching waveform are also coupled out to the DC output cable as well as the AC mains.

4) It is also well known that designs which mitigate and reduce mains coupled RFI, also reduce the coupled RFI on the DC output cable.

5) Except in special cases, the main switching frequency of the PSUs I have described is less than 1 MHz.

During the past year, I have been working on a project to also come up with a simple "pre-test" method, that one could use to assess and compare different PSUs for RFI by a simple means of measuring RFI on the DC output cable.

Test Units

I sifted through my collection of AC-DC and DC-DC switching adapter plug-ins, accumulated over past years, and randomly selected 24 units as typical examples to form a group of test units. These are all 5 VDC or 12 VDC output at three or less amps and most provide their DC output via a short two-wire cord with a DC "barrel" connector. The few with USB output connectors were tested using a modified USB cable, with a DC "barrel" connector on it. The serialization from one to 24 was completely at random as the samples were found.

Figure 1 above shows six of the lot which are representative of the different types of switching PSUs I tested.

Objective

Although I have a spectrum analyzer and an LISN, the prospect of performing compliance scans on 24 PSUs and then trying to compare and rank the resulting 24 scan recordings was not appealing. What I hoped to find was some other measurement tool and/or method that would ideally give a single "no-nonsense", quantitative reading that could then be used to classify a PSU's likelihood for being "RF" quiet", "RF noisy", or somewhere in between.

In the end, I found that my "older" Tenma 72-6603 AC millivoltmeter (Figure 2 on the next page) seemed a good fit for the job. It has a 3 db bandwidth of 20 Hz to 1 MHz and a full scale measurement range of 300uV to 100V AC.



Figure 2: Tenma AC Millivoltmeter used for ripple/noise measurements.

Most of these small PSU's have a fundamental switching frequency in the area of 50 kHz to 150 kHz, but may generate strong harmonics up to and well beyond 1 MHz. We are focused on the strongest harmonics which are mostly less than 1 MHz and which will be captured and averaged by the Tenma AC miilivoltmeter.

Measurements

Table 1 (Figure 3) summarizes the measurements that I have taken from the DC outputs of the 24 randomly selected switching PSUs. Measurements were done where possible at a 1 amp DC load, as it was observed that RFI is considerably higher when the PSU is loaded.

Average ripple and noise was measured with the Tenma 72-6603 AC millivoltmeter, whereas peak-to-peak ripple and noise was measured with a Hantek 5202P DSO using a 10x probe with a BNC adapter.

The Hantek oscilloscope and the Tenma meter were parallel connected to the test box Vout BNC using a BNC "T" connector. See Figure 4 on the right.

For easy comparison, you will see in Table 1 that I have sorted the measurement data on the average ripple and noise column, from minimum to maximum.

Figure 3: Table 1 – Measurement data Summary

Table 1 - Ripple and noise Measurements				Measured on DC Output				
UUT#	Make	Model #	Rated Volts/Amps	Output Voltage @ 1 amp	PP Ripple & Noise, @ 1 amp, mV	AVG Ripple & Noise, @ 1amp, mV	Style	Type/Notes
1	Challenger	PS 2.1-12	12v/3A	12.0	16	2	pl	brick
4	Egston	N2UFW3	12v/2A	11.7	15	3	pl	medical
13	--	XPJ-05C	12v/2A	12.0	50	3	pl	open pcb module
7	Intertek	Y18FF-12	12v/1.5A	11.7	60	18	pl	
8	LPL ?	20120	12v/1A	11.6	138	20	pl	GPS-do
14	Orico	PLP-E120	12v/2.5A	12.1	85	25	pl	
5	FM	FM-120-12	12v/10A	13.5	230	30		enclosed chassis
9	--	1210	12v/1A	11.9	260	41	pl	
11	--	1210	12v/1A	11.7	280	51	pl	
10	--	1210	12v/1A	11.3	230	55	pl	
6	Ho:OTO	ADS-2AM12	12v/1A	11.9	320	56	pl	
15	--	S-24-12	12v/2A	12.3	135	58		enclosed chassis
16	Umec	UPO121A	12v/1A	11.9	300	95	pl	
12	--	LYW-1205	12v/0.5	11.8	700	110	pl	@0.3A
3	Chang	1238	12v/1A	10.1	1040	200	pl	
2	Chang	1238	12v/1A	10.3	1200	220	pl	
Below units are 5V usb output								
21	Shenzen...	XHDQC3.0	5v/2A	5.00	100	12	usb	Amazon fst-chg
22	--	--	5v/3.1A	4.80	50	12	usb	cig. plug (dc-dc)
23	--	YY-22	5v/2.1A	4.80	75	15	usb	cig. plug (dc-dc)
18	I.T.E.	..500050	5v/0.5A	5.19	125	38	usb	Behringer 302
24	--	Tech 1	?	5.04	150	40	usb	cig. plug (dc-dc)
17	Samsung	EP-TA200	5v/2A	4.94	200	50	usb	fast-chg
20	--	3usbchr	5v/3.1A	5.33	250	85	usb	
19	--	BB-520	5v/2A	5.29	600	200	usb	

"pl"= dc plug, wire lead

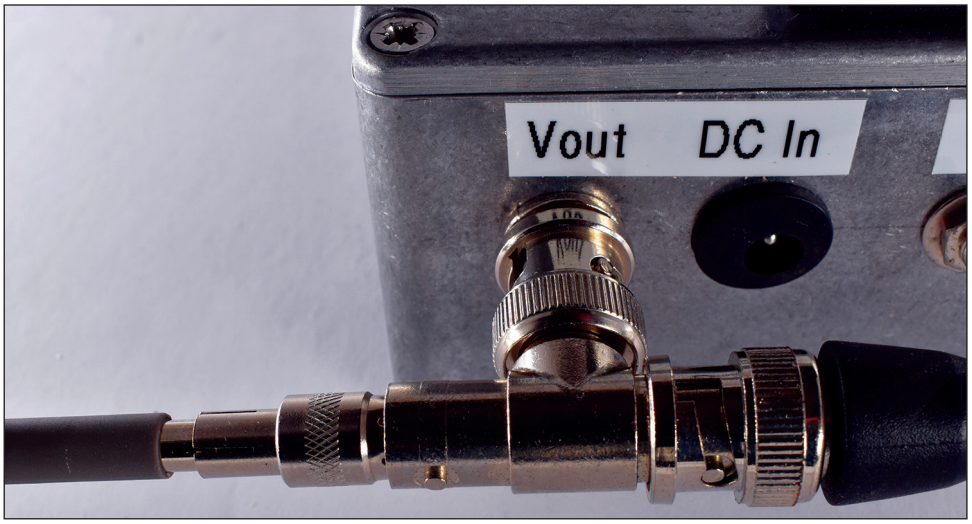


Figure 4: BNC "T" connection, with 10x Scope probe on left and 12" of RG-174 on the right to the Tenma mV meter input.

Test Box

Figure 5 on the right shows the DC load test box I constructed in order to minimize variability in the connection of the measurement devices and the PSU under test.



Figure 5: Load test box with external DC Voltmeter on top.

Figure 6 on the right shows the schematic. Three toggle switches allow selection of 0.3 to 2.3 amp loads by switching in one or all three test loads.

The Vout BNC test signal is taken from the PSU DC "barrel"connector via a 1.25 uF 160V capacitor to block DC from the measurement devices inputs.

A small LED DC voltmeter module was also affixed to the test box to verify that the particular PSU under test was indeed alive and functioning properly.

Review of Test Results/observations

1) It is interesting that the magnitude of the peak-to-peak oscilloscope measurements for the most part closely follow the order of the Tenma average AC ripple/noise measurement values.

2) Alternative AC millivoltmeters similar to the Tenma 72-6603 were made by several manufacturers like Leader, Heathkit, and Hewlett Packard, and may be found on various used equipment websites such as eBay. I note that some Chinese online sellers even offer new instruments, looking very clone-like.

3) During the course of my investigation, I often found it necessary to remeasure some or even all of the test group. I found that the average ripple/noise measurements were reasonably repeatable, whereas the peak-to-peak (PP) scope ripple/noise measurements were less so. The reason for this is not known, but it may be partly due to the differing lengths of DC output cable on each unit and that I did not particularly control the DC output cable position during testing.

4) Both units 1 and 4 measured without question the lowest ripple and noise of all 24 units. This is not surprising as both were properly marked with and/or referenced UL file numbers, FCC and CE marks. Figure 7 shows measured output RFI on the Hantek oscilloscope.

5) For comparison, unit #2 measured the highest ripple and noise of all 24 units. Figure 8 shows measured output RFI on the Hantek oscilloscope. Surprisingly, this PSU was marked with the CE and the Chinese CCC mark – China Compulsory Certificate. You may draw your own conclusions!

Conclusions

It is clear that among the group of assorted PSUs there is significant measured ripple and noise levels on the DC outputs and that measurement of these levels provides a means of comparison. The difficulty comes where one tries to relate these resulting average or PP ripple and noise values as being typical of a PSU being "RF quiet", "RF noisy" or somewhere in between.

At this time, and interpreting the data available, the best I can do would be to suggest the following classification based on the average ripple and noise measurements:

- RF quiet < 20mV
- RF noisy > 100mV

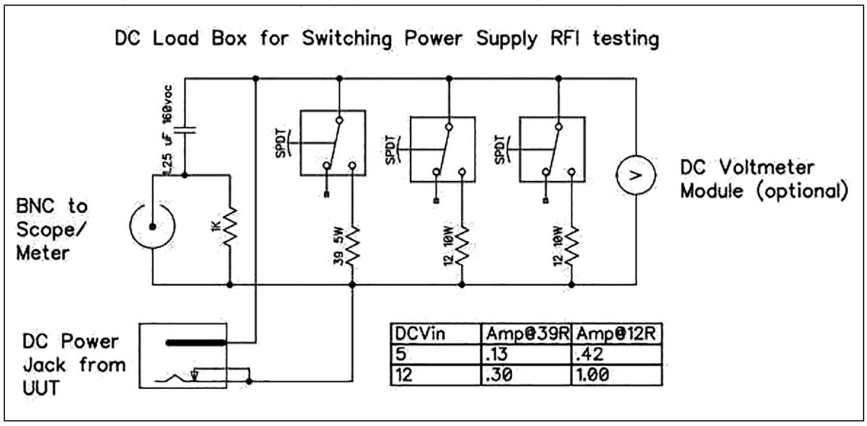


Figure 6: Load test box schematic.

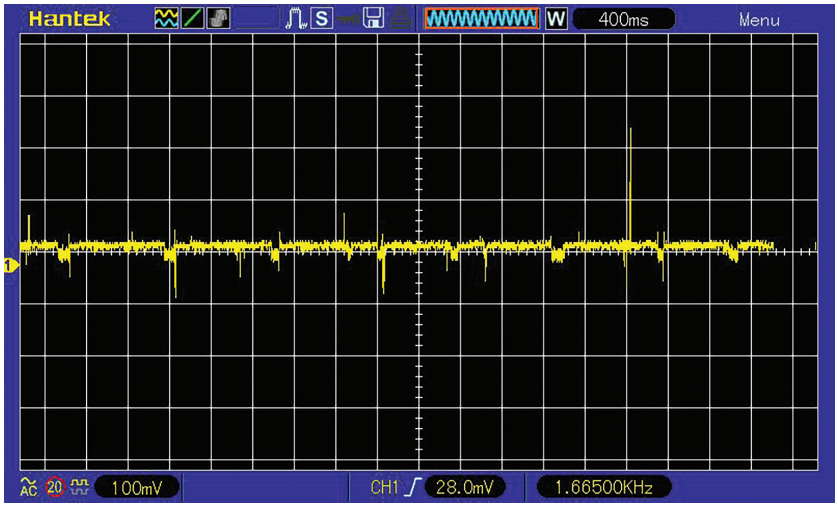


Figure 7: Oscilloscope screen showing measured RFI on unit #1 (best).

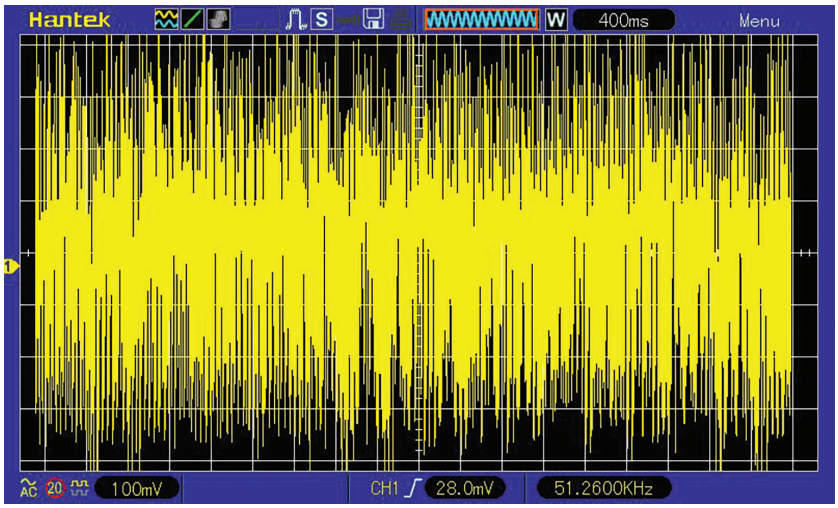


Figure 8: Oscilloscope screen showing measured RFI on unit #2 (worst).

Don Dorward, VA3DDN, has had 43+ years experience in the electronics industry including vacuum tube manufacturing, semiconductor and component testing, R&D, ISO Quality Systems, Regulatory Affairs, UL/CSA/EU/CE/EMC compliance, Environmental testing, Standards & Calibration.

Don has been an Amateur Radio operator since 2002. He is a Life Member of the Institute of Electrical and Electronics Engineers (IEEE) and is a member of the American Radio Relay League (ARRL), Radio Amateurs of Canada (RAC) and the Radio Society of Great Britain (RSGB). He can be reached at va3ddn@myrac.ca.



Keith Baker, VA3KSF/KB1SF
kb1sf@yahoo.com

Amateur Radio Satellites:
Spotlight on AMSAT Organizations

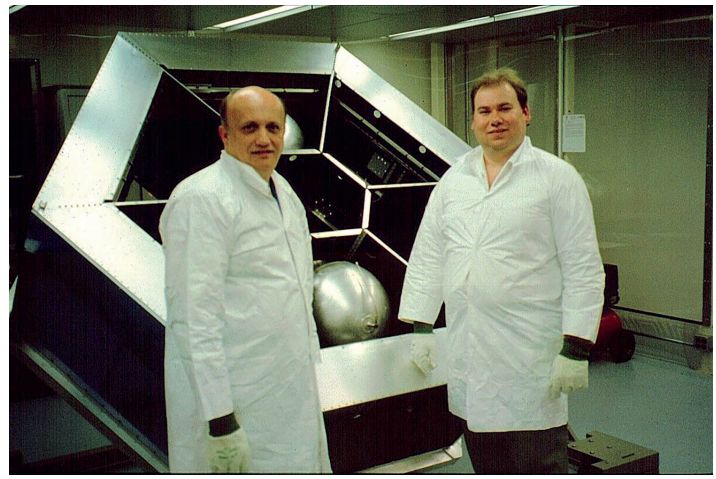
In my last few installments of the column, I've been highlighting the many ways one can get in on the fun of operating on our growing fleet of Amateur Radio satellites. Now that most portable satellite operation will soon be winding down until warmer weather arrives in the spring, it may be a good time to examine some of the worldwide Amateur satellite organizations that make what we do with our Amateur Radio satellites possible.

Radio Amateur Satellite Corporation (AMSAT)

For those who aren't familiar with it, AMSAT is a worldwide group of Amateur Radio operators who share an active interest in building, launching and then communicating with each other through non-commercial Amateur Radio satellites. By any measure, AMSAT's track record has been impressive. Since its founding well over 50 years, AMSAT has used predominantly volunteer labour and donated resources to design, construct and – with the added assistance of international government and commercial agencies – successfully launch well over 100 Amateur satellites into Earth orbit. Today, some 20 of these satellites are operational.

The USA-based Radio Amateur Satellite Corporation – as AMSAT is officially known – was formed in 1969 as a not-for-profit, 501(c)(3) educational organization chartered in the District of Columbia. Its aim is to foster Amateur Radio's participation in space research and communication. Since that time other like-minded groups throughout the world have formed to pursue the same goals and many of these groups share the AMSAT name.

What's more, while the affiliations between the various groups are not formal, they do cooperate very closely with one another. For example, international teams of AMSAT volunteers are often formed to help build each other's space hardware or to help launch and control each other's satellites.



Keith Baker, VA3KSF/KB1SF (left) and Peter Guelzow, DB2OS (now the AMSAT-DL President) pose with the Phase 3D spaceframe in the clean room where the satellite was being assembled at the Orlando International Airport in Florida. The satellite later became AMSAT-Oscar 40 on orbit. (Courtesy: VA3KSF)

Since the very first OSCAR satellites (OSCAR stands for "Orbiting Satellite Carrying Amateur Radio") were launched in the early 1960s, AMSAT's international volunteers – often working quite literally in their basements and garages – have pioneered a wide variety of new communications technologies that are now taken for granted in the world's satellite marketplace.

All of these accomplishments have been achieved through close cooperation with international space agencies that often have provided launch opportunities at significantly reduced costs in return for AMSAT's technical assistance in developing new ways to launch paying customers. Spacecraft design, development and construction have also occurred in a fiscal environment of individual AMSAT member donations, thousands of hours of volunteer effort, and the creative use of leftover materials donated from aerospace industries worldwide. Indeed, over the years some of these techniques have found their way into "for profit" and government space activities.

One of the most exciting examples of this concept was illustrated by the Auxiliary Structure for Auxiliary Payloads (ASAP) upper stage carrying structure. It was developed as a joint venture between the European Space Agency (ESA) and AMSAT. In the late 1980s, AMSAT was in the process of building its Microsat series of smaller satellites.

Obtaining a launch opportunity for not one, but six of these planned satellites posed a rather daunting challenge. However, AMSAT's volunteer engineers approached the European Space Agency (ESA) with an idea of how they (ESA) might exploit some of the then unused space on their Ariane IV launch vehicle.

To make a long story short, in partnership with ESA, AMSAT helped design and manufacture a very large carrying structure (the ASAP) for use in launching small satellites. The structure fit around the base of the Ariane IV's upper stage, and it served as the platform from which all six of AMSAT's first MicroSats were placed into orbit by ESA in 1990. In return, AMSAT obtained a significant reduction in launch costs. ESA later used the ASAP structure to launch similar, albeit mostly commercial, satellites into orbit.

Thus, using a classic example of the "you scratch my back and I'll scratch yours" approach, AMSAT obtained a virtually gratis launch opportunity while also advancing the state of the art in the space sciences. At the same time, AMSAT helped a commercial launch agency find a new way to both improve the quality of its launch services as well as generate added revenue.

AMSAT-Canada?

While there is no specific AMSAT-Canada organization, the USA-based AMSAT organization – sometimes also referred to as AMSAT-NA – both welcomes and includes many members from Canada as well as from the rest of North America. What's more, I held several posts within the AMSA-NA Executive back in the 1990s, including that of Executive Vice-President, President and as Treasurer in 2011. In addition, Frank ("Robin") Haighton, VE3FRH (SK) of Burlington, Ontario also served as the organization's Executive Vice-President during my tenure as AMSAT-NA President and then slipped into the President's chair following my decision to step aside from those duties in 2000.

In addition, because the organization includes so many Canadian members, AMSAT-NA also sponsors a Canadian position on the Amateur Radio on the International Space Station (ARISS) Worldwide Working Group.

As AMSAT-NA is a major contributor to ARISS, this position is in addition to the position sponsored by Radio Amateurs of Canada that's currently held by RAC's immediate Past-President Glenn MacDonell, VE3XRA (see the article on the right). As you can see, Canadian Amateurs have been (and remain) well represented in the inner workings of the AMSAT organization.

AMSAT-UK

One of the earlier AMSAT groups that formed soon after its North American counterpart was AMSAT-UK in England. Initially, it centred around work that Sir Martin Sweeting, G3YJO and associates were doing at the University of Surrey in England. He and his crew of engineers pioneered some of the very first AMSAT satellites, of which UoSAT-2/UoSAT-OSCAR-11 launched in 1984 is *still* semi-operational to this day. Similar UoSAT satellites followed and were primarily designed around a "store and forward" messaging technique as well as what's called "bent pipe" FM transponders.

Based on his early successes under the AMSAT-UK umbrella, Sir Martin then went on to found a small commercial satellite construction organization called Surrey Satellite Technology, Ltd with the expenditure of just 100 British Pounds and four employees.

Celebrating 40 Years of Amateur Radio from Space

Glenn MacDonell, VE3XRA
RAC Delegate to ARISS International Executive



In November-December 1983, NASA Astronaut Owen Garriott, W5LFL, became the first Radio Amateur in space to communicate with earthbound fellow Amateurs.

Owen Garriot became interested in space in third grade after studying a mechanical representation of the solar system. In Junior High School his father took him to a radio and electronics demonstration where Morse code caught his attention and led to a lifelong interest in Amateur Radio and a professional career in Electrical Engineering. He was also an active pilot who logged more than 2,900 hours in jet and light aircraft, helicopters and spacecraft.

Garriott was selected as a scientist-astronaut in 1965 and he was the "science-pilot" for the first crewed mission on Skylab – the first US space station – in 1973. He had proposed using Amateur Radio during this mission but NASA did not agree at that time. During his 60 days on Skylab he completed three spacewalks.

By the time of his second flight, the STS-9 Skylab-1 mission on the Space Shuttle Columbia, he was able to bring with him a battery powered handheld 2 metre FM transceiver (Motorola MX-300) and a specially built loop antenna that could be attached using Velcro to a shuttle window. The radio and associated equipment were developed and certified by another NASA Radio Amateur Lou McFadin, W5DID. The system allowed Garriot to communicate with Amateurs on Earth using both FM and CW.

Making the first contact was a challenge. Garriot's CQ was easily heard on Earth but the large number of responders and the "FM capture effect" meant that Garriot could hear only static and a series of partial transmission. However, on the third day of his 10-day mission he completed his first QSO and over the balance of his mission he communicated with more than 250 Amateurs around the world including Jordan's King Hussein, JY1 and US Senator Barry Goldwater, K7UGA.

This first step opened a new era for Amateur Radio from space. The use of Amateur Radio on STS-9 led to an official NASA program, the Shuttle Amateur Radio Experiment (SAREX). In 1988, a permanent Amateur Radio station was installed on the Russian Mir Space Station. In 1996, SAREX was replaced by the Amateur Radio on the International Space Station (ARISS) program, with a formal agreement to involve the space agencies and national Amateur Radio organizations of Canada, Europe, Japan, Russia and the United States.

As one of the founding partners of ARISS, Radio Amateurs of Canada participates in decisions on ARISS developments and Canadian volunteers support contacts in all parts of the Americas except the United States. Our contribution to the upcoming 40th Anniversary celebration will highlight the roles Canadian volunteers have played and the impact of these activities on those who participated in them.

Stay tuned to RAC website and the pages of TCA magazine as the celebration continues.

ARISS: https://www.rac.ca/ariss/ and https://www.ariss.org

The organization has gone on to build and launch over 70 satellites for numerous commercial customers and their satellites have accumulated some 500 years of total time on orbit. In 2002, Queen Elizabeth II knighted Martin for his pioneering work in building and launching cost-effective, small spacecraft.

AMSAT-UK, whose organizational committee is still chaired by Sir Martin, has gone on to build and/or support many Amateur satellite construction projects including FUNCube (AO-73) which was launched on November 21, 2013. It was specifically designed to encourage youth to consider careers in Science, Technology, Engineering and Math (STEM) and featured an inexpensive computer-dongle-based, "plug and play" receiver specifically engineered to receive and decode AO-73's downlink. AO-73 contained both a mode U/V SSB/CW transponder and a Mode U/V FM transponder for its STEM mission, although only the telemetry beacon remains operational.

AMSAT-UK maintains one of AMSAT's more extensive websites, which has a wealth of information on Amateur Radio and Amateur satellites including an extensive glossary. You can find it at: https://amsat-uk.org/

AMSAT-DL

The German AMSAT group (AMSAT-DL) was another of the earlier AMSAT groups to form and – with the assistance of members from AMSAT-NA and AMSAT-UK – was the first organization to build and launch AMSAT's so-called "Phase 3" satellites intended for longer access times on orbit. Using a highly elliptical orbit scheme first pioneered by the Soviet Union (called a Molniya orbit), AMSAT-DL's Phase 3 satellites provided Amateurs worldwide with upwards of several hours of access with a footprint that encompassed an entire hemisphere of the Earth.

Unfortunately their first Phase 3 satellite was lost due to a launch failure but their Phase 3 satellites AO-10, AO-13 and, to a lesser extent AO-40, were significant successes. I fondly recall being able to have a simultaneous, three-way conversation with an Amateur in Germany and Japan from my Ohio, USA QTH via AO-13.

AMSAT-DL built and launched Amateur Radio's very first "Phase 4" satellite on November 15, 2018. The transponder was carried aboard a Qatari television satellite in geo-stationary orbit over Africa that provides hemispheric coverage to Europe, the Middle East, portions of Asia and Africa.

For many years, AMSAT-DL has also been designing a "Phase-5" satellite as a possible orbiting platform for Amateur Radio activity on Amateur frequencies, as well as relay of scientific package data from the surface of the planet Mars on commercial/scientific frequencies. Like their AMSAT-NA and UK counterparts, AMSAT-DL maintains a very extensive website in both English and German at: https://amsat-dl.org/en/

JAMSAT

The Japanese AMSAT organization (JAMSAT) is another one of the major AMSAT organizations. It works in close cooperation with the Japan Amateur Radio League (JARL) and together they are the builders of the Japanese Amateur Radio Satellites (JAS).

The JAS satellites have been constructed around a 26-sided polyhedral spaceframe which weighs in at some 50 or so kilograms. Their first satellite (JAS-1a) – which later became Fuji-OSCAR 12 (FO-12) on orbit – was successfully launched in August 1986. Fuji-OSCAR 20 (FO-2) was successfully launched in 1990 and yet another Fuji-sat (FO-29) was launched in 1996. While FO-12 and FO-20 have long since gone silent, FO-29 remains semi-operational.

All of these satellites were built commercially with the Japan Amateur Radio League footing most of the costs. For the Phase-3D (AO-40) satellite project, JAMSAT funded and built a full-colour CCD camera to be carried aboard the satellite. A CCD camera is a type of digital camera that uses a charge-coupled device (CCD) to capture images.

The project was called Spacecraft Camera Experiment for Observation of Planets and the Earth (SCOPE). Back when I was the AMSAT-NA President, I had the distinct honour of collecting the flight-model camera and its JAMSAT handler from the Orlando, Florida airport where Phase 3D was undergoing final integration at the time. I then helped to mount it into the Phase-3D space frame. Prior to AO-40's unfortunate demise on orbit, the camera was able to snap several stunning camera shots of the earth.

Brief Satellite Status Update

Unfortunately, several of our popular analog satellites on orbit are now only intermittently operating or, sadly, have gone completely silent. This list includes AMSAT-UK's AO-73, all of the Chinese XW series as well as their CAS series of satellites. Fortunately, RS-44 – presumably still attached to its upper stage rocket body – remains operational, as is our old reliable AO-7 launched back in 1974.

AO-91 and SO-50's FM transponders remain active, as does the recently launched Tevel satellite constellation. There are also a number of digital "store and forward" satellites in orbit. Information about the current status of these and other satellites can always be found on AMSAT-NA's website at: https://www.amsat.org/status/

Wrap Up

I would like to once again invite you to view my entire "Getting Started" series of columns – starting with my satellite column in the July-August 2018 edition of *The Canadian Amateur* magazine – aimed specifically for beginners on the "birds". You can find them on the RAC website.

AMSAT-North America has recently placed many of my "Getting Started" articles that have appeared in previous columns of *The AMSAT Journal* (AMSAT-North America's membership publication) into a single, freely downloadable .PDF file. That compendium of columns can be found at: https://www.amsat.org/introduction-to-working-amateur-satellites/

That's all for this installment. I'll shine the spotlight on other AMSAT groups in future columns. In the meantime a far more detailed history of AMSAT can be found on the AMSAT-NA website at: https://www.amsat.org/amsat-history/

As always, I look forward to meeting you on the birds!

TCA

The Formation of Radio Amateurs of Canada

The Merger between the Canadian Radio Relay League and the Canadian Amateur Radio Federation: A Personal Reflection



Tim Ellam, VE6SH
President of the International Amateur Radio Union

I am often asked how I became involved in what Noel Eaton, VE3CJ, once called the "political" side of Amateur Radio. Back in 1979, Stephen Bjarnason, VE6CGH and I were hitchhiking in Europe and made a brief stop in Geneva, Switzerland solely to try and operate the International Telecommunications Union's club station, 4U1ITU. Both of us had little understanding about the work of the ITU and were only interested in putting a then somewhat rare DXCC entity on the air. Despite our disheveled appearance (this was the 1970s after all) we managed to talk our way into using the station for a few hours.

At some point, the manager of the station, Gerard deBuren, HB9AW, dragged us away from the radio room and as we were leaving he enquired as to what we intended to do with our lives after university. Gerard had spent some time explaining how the ITU allocated spectrum to the Amateur Radio Service and the role Amateurs played in the various ITU meetings. I was surprised at this as I thought that the ITU likely had better things to do than deal with Amateur Radio.

Tim Ellam QC, VE6SH, was the General Counsel and First Vice-President of the Canadian Radio Relay League from 1990 to 1993. He held a number of Executive positions in Radio Amateurs of Canada from 1993 to 2002. Tim provided his services pro bono when he acted for the CRRL in the merger. He is currently the International Amateur Radio Union (IARU) President, a position he has held since 2009. Tim can be reached at ve6sh@iaru.org.

In any event, I told Gerard my goal was to become a lawyer to which he replied that maybe one day he would see me at the ITU in a professional capacity (little did I know that would become true). In the interim, he encouraged both of us to be active in our member society which at the time was the Canadian Division of the American Radio Relay League (ARRL) appropriately called the Canadian Radio Relay League (CRRL).

The memories of that visit stuck with me and in 1989 as a freshly minted lawyer I gave some serious thought to helping out the Canadian Radio Relay League (CRRL) as by that time the Canadian Division of the ARRL had become a completely separate organization.

I assumed the best way to offer my services was to write to CRRL President Tom Atkins, VE3CDM and propose that I might be of assistance. Not unreasonably, Tom who had no knowledge of who I was, called CRRL Alberta Director, Ken Oelke, VE6AFO, to check on my bona fides! Luckily, I had known Ken for some years and he was able to vouch for me as someone who was sincere in wanting to help. Tom then called me and we had a lengthy chat (or perhaps an interrogation) and in due course I was asked to help CRRL General Counsel Bob Benson QC, VE2VW, with a number of ongoing activities. My timing turned out to be fortuitous as Bob was planning on retiring.

In May 1990, I attended my first CRRL Board Meeting in Toronto and was appointed as the new CRRL General Counsel at the relatively young age of 29.

WARC-92 and DARF

One of the first tasks I had as Counsel was to settle a trust – which became known as the Defence of Amateur Radio Fund (DARF) – established by Tom and CRRL Treasurer, Bill Loucks, VE3AR (SK). The trust's stated purpose was to assist with the expenses for a Canadian Amateur to attend as a member of the Canadian government delegation to the forthcoming ITU World Administrative Radio Conference (WARC).

The regulator (then Communications Canada) wanted to ensure that the proposed Amateur Radio delegate to WARC-92 had the support of both the Canadian Radio Relay League and the Canadian Amateur Radio Federation (CARF).

I will not go into the ensuing discussions only to say throughout 1991 neither organization could agree on a delegate, with the result that Canada had no person representing the Amateur Radio Service on the official government delegation and, hence, no need for the DARF funds.

I had heard rumblings about a possible merger between CRRL and CARF for some time. A joint CRRL/CARF committee had been looking at merger since 1989 and in 1990 the Board of Directors of both organizations had endorsed in principle the idea of a merger. However, it was very likely the WARC-92 incident which drove both organization to seriously consider combining their resources.

Practically, it made sense to have one strong society representing Canadian Amateurs given the relatively small number of people in each body, and the regulator made it very clear it only wanted to deal with one organization.

There were no doubt other reasons behind the merger, but I believe it was certainly reinforced by this issue.

The Cobourg Meeting

In 1991, it was proposed that there would be a joint meeting between the Boards of CRRL and CARF to establish a framework for merger. This meeting was set for June 2 in Cobourg, Ontario.

In the weeks leading up to that event I spent some time briefing the CRRL Board on the various legal issues that had to be addressed to merge with CARF. Given that I am still bound by solicitor-client privilege, I am limited to what I can say about this advice other than to say while it sounds easy to combine two societies,

the reality is there were a number of legal and financial hurdles to consider.

Both the CRRL and CARF were incorporated as non-profit companies under the provisions of the archaic *Canada Corporations Act*. This legislation did not have a mechanism to "merge" two such entities so really what you were looking at was to start a new non-profit company, transfer the assets and liabilities to the new entity and wind up the old ones. Both the CRRL and CARF also had for-profit publication arms that would need to be dealt with. Sounds simple in practice, but in reality it would be an immense amount of work and consume almost two years of time.

I provided an opinion to the CRRL Board prior to the meeting in Cobourg and also presented a summary of the required steps. I indicated the parties would have to move cautiously given the cost of bringing both organizations together. I also pointed out that while happy to help, I was a litigator rather than a corporate lawyer and I would need assistance from others in my firm.

After what was some initial wariness between the two parties at the Cobourg meeting, the Boards eventually sat down to discuss the challenges facing both organizations. I know the discussions were taped for posterity, but it is sufficient to simply say we decided to proceed with the initial steps to incorporate what we all agreed should be called "Radio Amateurs of/du Canada".

I vividly remember CARF Director Norm Waltho, VE6VW, holding up a hand-drawn sketch of the proposed new logo which is essentially the same logo RAC uses today. My first task when I returned to Calgary was to register the new RAC name with the government authorities. The first step in the merger had begun.

ARRL Funding Myth

One of the misconceptions we had to overcome is that many people thought the CRRL was funded at least in part by the ARRL.

Other than a modest one-time payment made by the ARRL to the CRRL in 1988 (to compensate for the loss of the CRRL page in *QST* magazine), the CRRL relied totally on funding from its members.

Once we had satisfied CARF there were no hidden sources of funding, the details for the merger began to take shape. CARF retained Jennifer Sims, a non-Amateur commercial lawyer to act for them and I took on the same task for the CRRL.

Meetings and More Meetings

Keeping in mind the discussions were before the use of email or video conferencing, there were a lot of required meetings over the next two years (1991 to 1993). By this time, Dana Shtun, VE3DS, had become the CRRL President when Tom Atkins retired to focus on International Amateur Radio Union (IARU) Region 2 activities.

Farrell, "Hoppy" Hopwood, VE7RD, was the CARF President and both he and Dana put together a joint working group to facilitate the merger negotiations. Jennifer and I would exchange faxes setting out the issues between the parties and then we would arrange meetings with the working group to try and resolve what we saw as the critical issues.

Most of these meetings were in person and more often than not I would finish work early on a Friday and jump on a plane to Toronto for weekend meetings in Cobourg or a similar location between Toronto and Kingston.

During this period, we received tremendous support from Debbie Norman, VA3RGM, the General Manager at CARF and her counterpart at CRRL, Ray Staines, VE3ZJ. Both Debbie and Ray provided Counsel with the required background material and were a constant source of information for us.



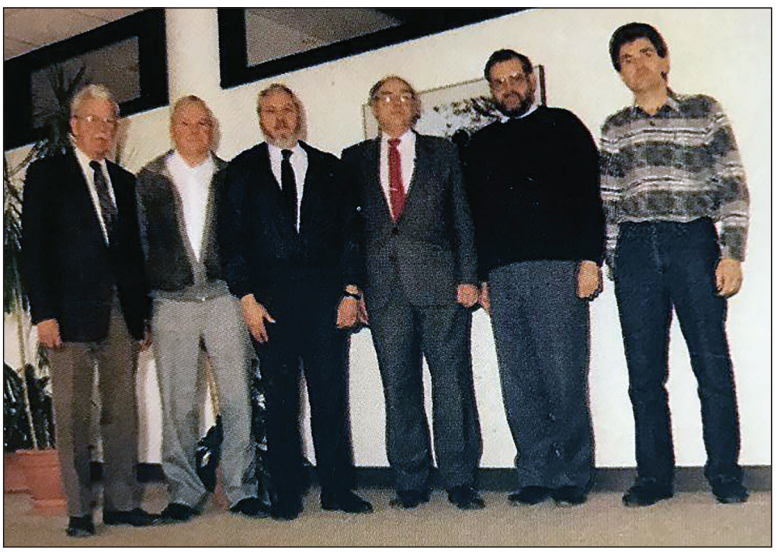
Jennifer Sims (CARF Legal Counsel) and Tim Ellam, VE6SH (CRRL Legal Counsel)

Challenges

While the incorporation of RAC was done quickly and relatively easily (RAC was in fact incorporated on paper in October 1992), the devil was very much in the details. The parties had to agree on the transfer of memberships and assets (mainly office equipment) and deal with liabilities (life memberships) and equipment leases.

Further, there were tax issues facing both of the publication entities and a number of smaller details, such as transfer of the IARU QSL Bureau, assignment of certain publishing licences, transfer of the licence for *QST* back to the ARRL and assignment of the second-class postage permit for *The Canadian Amateur* (TCA) magazine. We also had to draft a new constitution and by-laws (in both official languages) as well as a number of other required documents.

In preparing for this article, I retrieved my files from storage and in reviewing them I



The Merger Committee in London, Ontario on April 21, 1990. From left: Clayton Bannister, VE3LYN (CARF); George Spencer, VE3AGS (CRRL); George Sansom, VE3GWS (CARF); Francis Salter, VE3FRS (CARF); Harry Maclean, VE3GRO (CRRL); and Dana Shtun, VE3DSS (CRRL)

was reminded exactly how much had to be done to bring the "merger" to fruition. My file takes up more than two banker's boxes of material!

Through all the negotiations full credit must go to Dana and Hoppy. Whenever we ran across an issue or there was disagreement on a point, both of them worked the group through the problem and encouraged us to "make it happen". I think I can safely say the merger would not have happened without both Presidents being focused on making RAC a reality and pushing us to overcome any potential hurdles.

The Final Agreement

By early 1993 we eventually had dealt with all the issues. Jennifer Sims and I arrived at a final agreement after a marathon round of negotiations and late night editing of the numerous drafts of the required documents (I still shake my head how we did all of this before email). RAC became a reality on May 2, 1993 when the Directors of both organizations signed the agreement to transfer the assets and liabilities to the new organization and wind up CRRL and CARF. Final Annual General Meetings for both the CRRL and CARF were also held in 1993 and the process begun to wind up both organizations.

IARU Membership

One of the key initial steps for RAC was to maintain the IARU membership previously held by the CRRL. Luckily, one of the great supporters of RAC was Larry Price, W4RA, then IARU Secretary and ARRL International Affairs Vice-President. Larry was able to very efficiently ensure RAC was able to continue as the IARU Canadian member-society. I would point out that through all of the discussions the ARRL was and continues to be very supportive of its Canadian sister society. In addition to Larry, then ARRL President George Wilson, W4OYI and CEO Dave Sumner, K1ZZ, were very enthusiastic about RAC and indeed, all three gentlemen attended the first RAC Annual Meeting in Calgary in 1994.

Teething Pains

As was to be expected, RAC had some initial growing pains. Not every Canadian Amateur was enamored with the new organization and it took some years before RAC was fully accepted as the representative society. Further, when bringing together two different organizations there are always things that are done differently from one group to the next. It took a few months before the new Board members and Executive were on the same page. I served for a period of time as RAC Vice-President and I can attest to the fact that the new organization quickly found its feet and began to work in concert for its members.



RAC Directors and Executive on May 2, 1993. Back row: George Spencer, VE3AGS (Vice-President International Affairs); Bill Loucks, VE3AR (Treasurer); Dana Shtun, VE3DSS (First Vice-President); Eric Ilott, VE3XE (Secretary); Earle Smith, VE6NM (Vice-President Government Relations); Debbie Norman (General Manager); Farrell Hopwood, VE7RD (President); Clayton Bannister, VE3LYN (Vice-President Administration); Tim Ellam, VE6SH (Honorary Legal Counsel). Front row: Dave Fancy, VE7EWI (Pacific Director); Ken Oelke, VE6AFO (Alberta/NWT Director); Bob Shehyn, VE5FY (Midwest Director); George Gorsline, VE3YV (Ontario Director); Bob Bishop, VE3JAB (Ontario Director); Jean-Guy Riverin, VE2JGR (Quebec Director); and Carl Anderson, VE1UU (Atlantic Director).

RAC Today

Even with the initial hurdles RAC quickly became a strong organization and a key member of the IARU family. As the current IARU President, I am well aware of how RAC is supportive of the Amateur Radio Service at the national and international level.

Your organization has an excellent relationship with the regulator (witness the new 60m allocation for example) and at ITU many RAC members have supported international efforts to protect the Amateur spectrum.

I have worked with Tom Atkins, Jim Dean, VE3IQ, Ken Pulfer, VE3PU and Bryan Rawlings, VE3QN. All represented Canadian Amateurs and the Amateur Radio Service to a very high standard, and a good part of the success the IARU has had over the past several years is down to them.

In my career as a lawyer I can say that the negotiations to combine the CRRL and CARF were some of the most challenging I have been involved with. I do not say that to disparage anyone, but simply to note that everyone was very passionate about their respective positions. All of the stakeholders did have one single goal though and that was to ensure members of both organizations had strong and viable representation at the national and international level. Thirty years from the date of inception, RAC has grown to be that body and I am pleased I had some small part in bringing both organizations together.

On behalf of the IARU, I extend my congratulations on RAC's thirtieth anniversary. RAC is a leading member of the IARU and I am sure under the present leadership it will continue to grow and represent the interests of all Canadian Radio Amateurs. I often say to people that Amateur Radio has changed and will continue to change. Quite often, we are resistant to change, but RAC has certainly understood the current challenges to the Amateur Services and is leading the way in adapting to those changes.

All Canadian Radio Amateurs can be very pleased we have an excellent organization representing our interests with the regulator. I am sure RAC will celebrating many milestones in the future!

Figure 1: Checkpoint 5 of the Kluane-Chilkat International Bike Relay.

Amateur Radio and Public Service





Allen Wootton, VY1KX
Box 21217 | Whitehorse, Yukon
vy1kx@myrac.ca

"QUA – A Topical Digest"

In addition to the many opportunities that Amateur Radio provides for learning and experimentation, there has always been a strong public service component where Amateurs contribute their unique skills to various local, regional and international events. One such event is the Kluane-Chilkat International Bike Relay that is held in June on the beautiful 240 kilometre long highway that passes from Haines Junction in the Yukon into the northwest corner of British Columbia and then across the Canada–US border into Alaska where it ends at Haines (https://kcibr.org/).

After a three-year cancellation due to the pandemic, the relay was held again this year. The excitement and enthusiasm of the bike riders and their supporters and the dedication of the organizers this year provided a very clear example of how much we lost in worthwhile human interaction over the intervening time.

This bike relay is amazing. Over 1,200 riders take part in teams of eight, four or two. Some hardy characters ride the whole distance by themselves. Support vehicles accompany the riders so the highway has its busiest day of the year on the day of the relay.

As you can imagine, communications along the route are very important for the safety of participants. Cellphone coverage is extremely limited so for many years the Yukon Amateur Radio Association (YARA) has provided communications for the event through the extensive repeater network established and maintained by the association.

YARA volunteers at each of the checkpoints and in key official relay vehicles are able to pass messages throughout the route on this network. Typical messages include: injured riders; items left behind at a checkpoint; and a bear near the highway. Figure 1 above shows Checkpoint 5 which is located at the summit of the Haines Junction, Yukon, to Haines Alaska highway. Riders and their supporters wait anxiously for their team members while the checkpoint volunteers record arrivals and departures.

RAC-ARRL Field Day 2023

In addition to the many public events that are supported by Amateurs, the annual RAC-ARRL Field Day provides us with an opportunity to test and improve our operating skills in environments that are away from our home stations. In such situations it is seldom that all the equipment works flawlessly! There may be problems with power supplies, antennas, radios or computers, or perhaps missing connectors or adaptors, the essential small pieces of equipment that are easily forgotten or misplaced.

This year YARA operated a 2A station from its communications trailer. Propagation was not very good and we experienced some problems with a transceiver and with computers, but the exercise provided a very good learning experience.

George Privett, VY1GP, set up a "show and tell" table on which YARA members placed various projects or items of interest and explanations of them for everyone to look at. This table generated a lot of discussion and new ideas for projects and operating. It was fascinating to see the tiny QRP radios that George and Malcolm Farrell, VY1FC, have been building and using in comparison to a power amplifier tube that Geoff Grant, VY1BG, brought for display!



Figure 2: CBC North announcer Elyn Jones and her mum Anne Jones, VE3KWI, in front of the YARA communications trailer during Field Day 2023.

We were also really pleased to welcome Elyn Jones, the host of the CBC radio morning program "Yukon Morning" to our site. Elyn brought her mum Anne Jones, VE3KWI, and it was great to have a short discussion with her about the experiences she and her husband have had through Amateur Radio. Figure 2 shows Elyn and Anne in front of the YARA trailer at our operation site at the corner of the Alaska Highway and the main road leading into Whitehorse.

Common Mode Current and Antenna Feeders

The coax that is so commonly used for an antenna feeder appears at first glance to have only two conductors: one down the centre and the other the shield. In fact there are three conduction routes: one in the centre conductor, a second in the inner surface of the shield and a third in the outer surface of the shield.

The two conduction routes in the shield are the result of the "skin effect" in which RF currents flowing through the shield induce eddy currents at right angles that force electrons towards the shield's inner and outer surfaces. Consequently, the inner and outer shield surfaces form two totally distinct conductors.

The current flowing in the centre conductor and the inner surface of the shield are closely coupled – they are equal in magnitude and of opposite phase.

These currents are differential mode currents. Any current on the outer surface of the shield is a common mode current; it has the same phase as the current in the inner conductor (see Figure 3).

Since the shield of the coax is connected to ground at the transceiver, the current **I3** that flows on the outer surface of the shield depends on the impedance of this route to ground. This is affected by the length of the shield, the length of wire connecting the transceiver to ground and the frequency of operation so, for a given installation, at some frequencies the impedance could be high and the current **I3** low, whereas at other frequencies the opposite could be true.

The common mode current is a source of problems. On transmit it will cause unwanted emission from the coax feeder, and the unequal currents in the dipole legs will cause distortion of the antenna pattern. On receive, the common mode current is picked up from various sources near the feeder. It results in noise in the receiver. Antennas fed with open wire line will also have common mode current if the currents in the two conductors are not of equal magnitude and opposite phase.

Baluns

A way in which to diminish or eliminate common mode current on an antenna feeder is to use a balun choke. The term balun is a shortening of *balanced* to *unbalanced* – that is, from the unbalanced coax in which the centre conductor and shield are at very different potentials to the balanced connection at a dipole.

One very easy way to make such a balun choke is to wind coax around a ferrite toroid as shown in Figure 4 on the next page. An excellent article by Steve Hunt, G3TXQ (SK) entitled "High performance common-mode chokes" that appeared in the May 2015 issue of *RadCom Plus* provides a great deal of information regarding this type of balun.

The article gives a very clear explanation of common-mode currents and what a balun is and why it is important to use one on an antenna system. It also provides some very good, practical information about balun construction. You can find the article at https://gm3sek.files.wordpress.com/2019/01/G3TXQ-RC.pdf

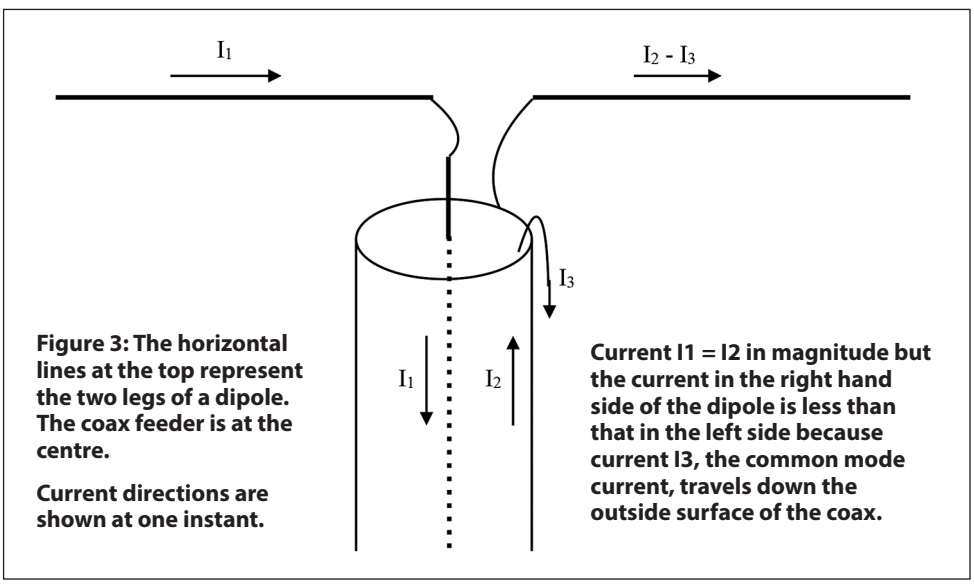


Figure 3: The horizontal lines at the top represent the two legs of a dipole. The coax feeder is at the centre.

Current directions are shown at one instant.

Current I1 = I2 in magnitude but the current in the right hand side of the dipole is less than that in the left side because current I3, the common mode current, travels down the outside surface of the coax.

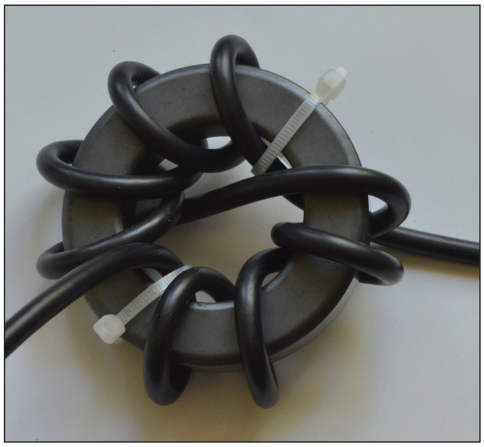


Figure 4: Because of the way in which the coax is wound around the toroid, any common mode current flowing on the surface of the shield produces a magnetic field in the toroid that changes at the frequency of the signal. This changing magnetic field results in a high impedance to the flow of common mode current. Current flowing on the coax's central conductor and the inner surface of the shield is unaffected. In this example the coax is RG-58 and the core is an FT240-43. It is a 1:1 balun; there is no impedance transformation. It is also a current balun because it chokes any common mode current.

Another way in which a balun choke can be constructed is by using separate pairs of wires wrapped around a ferrite toroid or ferrite rod. A toroid balun of this type is shown in Figure 5. The wire pairs are wrapped around the core starting at the top surface on one side and winding around to the other side. If you look carefully at the photo you can see how this was done. In this example the core is an FT240-43 ferrite toroid, the enamelled wire is 18 gauge and there are 12 turns on each side of the core.



Figure 5: A 1:1 current balun constructed with pairs of 18-gauge enamelled wire on an FT240-43 toroid core.

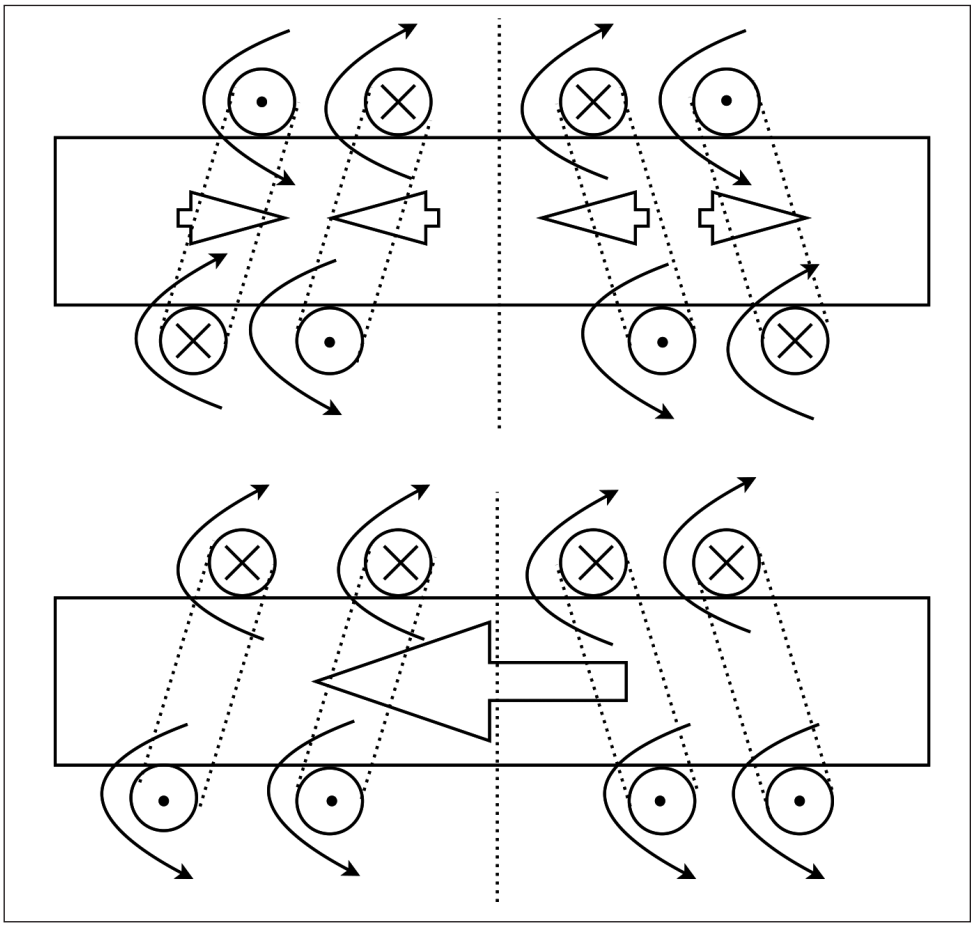


Figure 6: The diagrams show the toroid core edge on and the cross-sections of the closely wound wire pairs. The Xs show current flow into the page, dots show current flow up, out of the page.

If at the start of the balun (at the bottom of the picture in Figure 5) the wires are labelled, left to right, AB:A'B', they are connected A to B' and B to A'. At the end of the winding the wire positions will be BA:B'A' and their connection is B to A' and A to B'.

Another way of considering the connections is that at both ends the outer two wires are connected together and the inner two are connected together. There is no impedance transformation for this balun; it is a 1:1 balun, 50Ω input and 50Ω output. Once again, it is a current balun.

In the diagrams of Figure 6, I've tried to show how this type of balun affects the common mode current while leaving the differential mode current unaffected. The drawings show the toroid edge on, with the half turn of the first pairs of windings complete. The circles represent the cross-section of the wires, an X shows a current flowing in to the page and a . (dot) indicates current coming out of the page.

The "Right Hand Rule" predicts the direction of the magnetic field around a current carrying wire. To use the rule, aim the thumb of your right hand in the direction of current flow and the curl of your fingers will give the direction of the magnetic field. You can see how this rule works in the diagram of Figure 6. If the current in a wire is coming up, out of the page, then the magnetic field around that wire curls counterclockwise. If the current is down into the page the curl is clockwise. These directions are shown by the curved arrow lines around the wires.

In the top diagram the tightly coupled differential mode currents produce magnetic fields in the toroid that are in opposition to one another (the large arrows). They cancel. In the bottom diagram, common mode currents produce magnetic fields in the same direction. They add to one another, but change reluctantly in response to the alternating common mode RF current. The result is a high impedance to this current and a very effective choke balun.

Measured Results

I made several baluns, one using coax wound around the toroid (Figure 4) and three using pairs of wires like the one shown in Figure 5. Each one was made on a ferrite toroid of mix type 43. This is a ceramic material containing iron oxide, nickel and zinc and its magnetic permeability makes it a suitable choice for most of the high frequency range. Mix type 31 may be another useful ferrite but I haven't yet tried it.

Toroids come in various sizes. I had FT80-43, FT114-43 and FT240-43 sizes, the first number being the toroid's diameter in hundredths of an inch. The coax balun was wound on one of the FT240-43 toroids. The baluns using pairs of wires were constructed on each of the toroid sizes I had. For the FT114-43 core I used 11 turns (all that would fit) of PVC insulated 24 gauge on each side of the core. I used 12 turns of 24 gauge enamelled wire on each side of the FT80-43 core.

Using my nanoVNA, I measured two characteristics of each balun over the range from 1 to 30 MHz. One was the voltage standing wave ratio (VSWR) and the second was the common mode rejection. The VSWR was measured by connecting a 50Ω resistor to the balun's output and the nanoVNA to the input.

To measure the common mode rejection I connected the nanoVNA's output to the two input terminals of the balun through two 50Ω resistors. Then I connected the balun's two output terminals to the nanoVNA's input terminal, again through two 50Ω resistors. With these connections both conducting paths through the balun had the same current in the same phase. That is, they had common mode current and the path loss recorded by the nanoVNA was the balun's common mode rejection. In addition, since each path presented a 100Ω resistance, the parallel combination was a 50Ω load for the nanoVNA.

My VSWR and common mode rejection results for the FT240-43 balun wound with wire are shown in Figures 7 and 8. These results were very similar to those I obtained with the baluns wound on the two other sizes of mix 43 ferrite. As you can see, the VSWR was very low over the whole range. In addition, since a common mode rejection of 20 dB is considered to be good, this balun and the others that I made offer really excellent performance. Even up to 60 MHz the results were excellent. I tried all three of the wire wound baluns on my antenna and was very surprised to find that even the smallest one did not show more than a very slight increase in temperature even when subjected to 100 watts for 30 seconds on a dead band.

I found the balun wound with coax gave a very low VSWR just like the result shown in Figure 7. Its common mode rejection was better at low frequencies but worse across the whole range. By about 25 MHz common mode rejection was less than 20 dB.

There is a lot of useful information regarding toroid cores on the Palomar Engineers website and they also

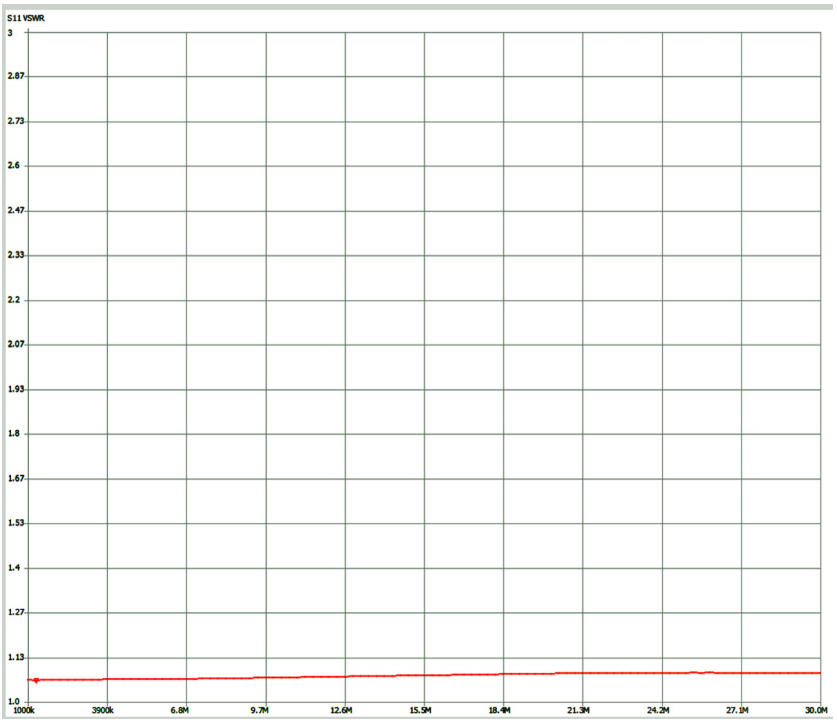


Figure 7: VSWR for a 1:1 current mode balun wound with 18 gauge enamelled wire on an FT240-43 toroid.

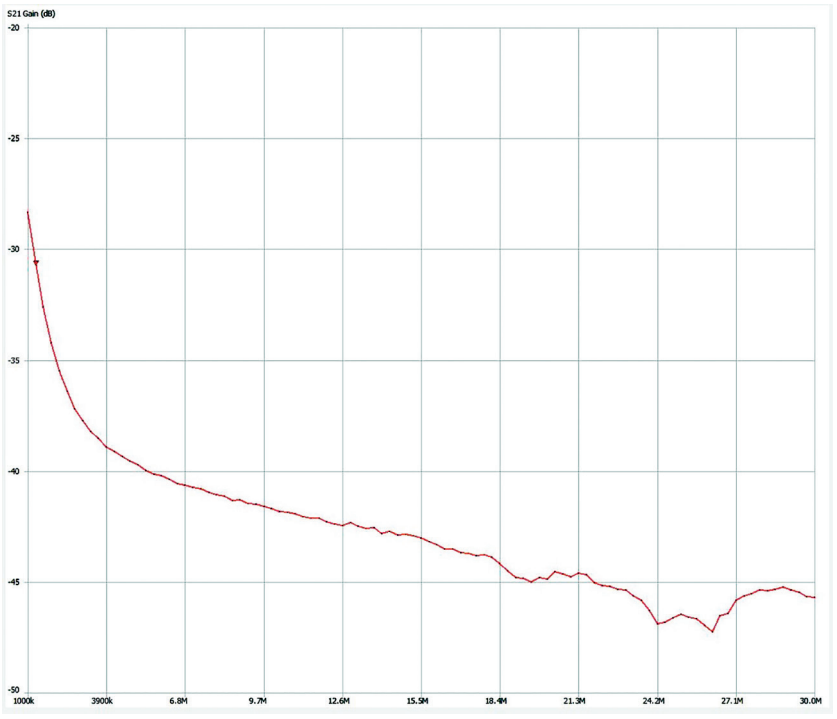


Figure 8: Common mode rejection for a 1:1 current mode balun wound with 18 gauge enamelled wire on an FT240-43 toroid.

sell these toroids (https://palomar-engineers.com). A free, downloadable "Tech Data Flyer" covering ferrite and iron powder toroids is available from Amidon Associates and I have found this pamphlet very useful in the past. The parts supplier Mouser Electronics has the FT240-43 toroids available for $13 (part #623-5943003801), FT80-43 $1.75 (part #623-5943000501) and the FT114-43 $1.60 (part number 623-5943000501).

Unfortunately, Amateur literature seems to use the inch designations for toroid cores but manufacturers parts are designated in millimetres so it can be quite confusing to find the right parts.

– continued on page 29

Countdown to World Radio Conference (WRC-23)

WRC-23 will be held in Dubai from November 20 to December 15

Paul Coverdale, VE3ICV
RAC Special Advisor
World Radiocommunication Conference

The next World Radiocommunication Conference (WRC-23) is quickly approaching. It will be held in Dubai in the United Arab Emirates from November 20 to December 15.

World Radiocommunication Conferences, which take place every four years, are the venue for updating the rules (known as the *Radio Regulations*) governing all types of radiocommunications services, on a worldwide basis. This includes the Amateur and Amateur Satellite Services.

In the past, WRC's – and their predecessor World Administrative Radio Conferences (WARC) – have been beneficial to Amateurs in opening up new spectrum, such as the WARC bands and 60, 630 and 2200 metres. However, with the proliferation of commercial wireless services (especially 5G and 6G) there is increasing pressure on existing Amateur frequency allocations in the VHF, UHF and microwave regions. It is therefore important for the Amateur Radio community to participate in WRCs.

The International Amateur Radio Union (IARU) provides a consolidated voice at World Radio Conferences and several national Administrations include Amateurs in their delegations. RAC has participated in WRCs and the associated preparatory meetings for many years, under the auspices of ISED.

World Radio Conferences work on a strict agenda which is determined at the preceding Conference. The agenda typically consists of a number of items, generally relating to the identification of new or revised frequency bands and/or operational and regulatory considerations for specific services, both terrestrial and satellite. To support these agenda items, technical studies are carried out in the appropriate Study Groups of the International Telecommunication Union's Radiocommunication Sector (ITU-R), which are assigned by the first Conference Preparatory Meeting (CPM-1), held immediately after the WRC.

Several months prior to the next WRC a second Conference Preparatory Meeting (CPM-2) is held.



CPM-2 essentially serves as a dry run for the upcoming Conference, and is where the results of the technical studies, already completed, and associated proposed updates to the *Radio Regulations* and/or new or revised ITU-R Resolutions are presented and initial views of all Administrations are aired. CPM-2 for the current study cycle was held in March 2023 and RAC participated.

There are several Agenda Items in the current study cycle related to Amateur Radio, but the one of most concern to the Amateur community is Agenda Item 9.1b:

"Review the amateur service and the amateur-satellite service allocations in the frequency band 1240-1300 MHz to determine if additional measures are required to ensure protection of the space-to-Earth segment of the Radio Navigation Satellite Service (RNSS) operating in the same band."

The origin of this agenda item was an isolated case of interference in Germany from a high power amateur TV station. This case of interference was quickly dealt with by the German authorities. The concern to Radio Amateurs is the possibility of unrealistic restrictions being applied to all Amateur operation in the 23cm Amateur band (a secondary allocation) due to the perceived potential for interference with a radionavigation-satellite service (RNSS) – a primary allocation.

The Amateur position has always been that any interference can be dealt with on a national basis – as it was in Germany – and doesn't require any new *Radio Regulations*. Nevertheless, guidelines in terms of a new ITU-R Recommendation are being developed which are intended to assist Administrations and the Amateur and Amateur-Satellite Services to ensure the protection of the RNSS (space-to-Earth) in the frequency band 1240-1300 MHz.

These guidelines have been the subject of intense discussion over several meetings to try to reach a compromise between the Amateur and RNSS communities, which would allow Amateur operation in the 23 centimetre band to continue while minimizing the chance of any interference into RNSS systems.

Some tentative agreements have been reached with respect to preferred specific frequency blocks and associated power levels, but the work is still not complete. The aspects causing the most problems are consideration of the frequencies overlapping with other RNSS systems especially the Global Navigation Satellite System (GLONASS) and COMPASS, and a proposal to protect airborne RNSS systems within the GLONASS band by placing restrictions on Amateur operation in the vicinity of airports.

A further complication is a proposal made by one Administration during CPM-2 that protection of space-to-space RNSS receivers should also be covered by the new Recommendation. This is considered outside the scope of Agenda Item 9.1b and was opposed by several Administrations including Canada.

There is one more meeting planned prior to WRC-23 to complete the remaining technical work on the new Recommendation. RAC will participate and will coordinate with the IARU and remain engaged to ensure that the documents finally agreed to be taken to WRC-23 provide as favourable a position as possible with respect to all agenda items impacting Amateur Radio.

Stay tuned to the RAC website and to the pages of TCA for future updates.

RAC Regulatory Roundup

Annual Meeting of Canadian Amateur Radio Advisory Board (CARAB) Meeting

On Tuesday, June 27, representatives of Radio Amateurs of Canada and Innovation, Science and Economic Development Canada (ISED) held the annual meeting of the Canadian Amateur Radio Advisory Board (CARAB) to map out proposals, plan our future work and provide updates on ongoing projects.

Two senior ISED officials and I attended the meeting in person at ISED HQ and the remaining delegates attended by virtual presence (MS Teams) from across Canada.

The ISED delegation included:

- Marc-André Rochon, Senior Director, Spectrum Management Operations Branch
- Christine Volonté, Manager Radio Licensing Policy, Spectrum Management Operations Branch
- Caroline Kennedy, VA3WYZ, Manager, Satellite Authorization Policy, Engineering, Planning and Standards Branch
- Kevin Hartley, VE7OVY, Technical Policy Analyst, Amateur Radio Advisor, Spectrum Management Operations Branch
- Cristopher Rivas-Vargas, VA6RGZ, Technical Policy Analyst, Compliance Program, Spectrum Management Operations Branch
- Lorne Burke, Spectrum Portfolio Manager, STS-Atlantic and Ontario Region and Amateur Radio Service Centre, Spectrum Management Operations Branch
- Joel Dubois, District Director, Eastern and Northern Ontario Region and Amateur Radio Service Centre, Spectrum Management Operations Branch

The RAC delegation included:

- RAC President Phil McBride, VA3QR
- RAQI President Gabriel Houle, VA2QA
- RAC Vice-President Al Boyd, VE3AJB,
- RAC Atlantic Director Al Penney, VO1NO
- RAC Exam Standards Committee member François Daigneault, VE2AAY
- RAC Regulatory Affairs Officer Dave Goodwin, VE3KG

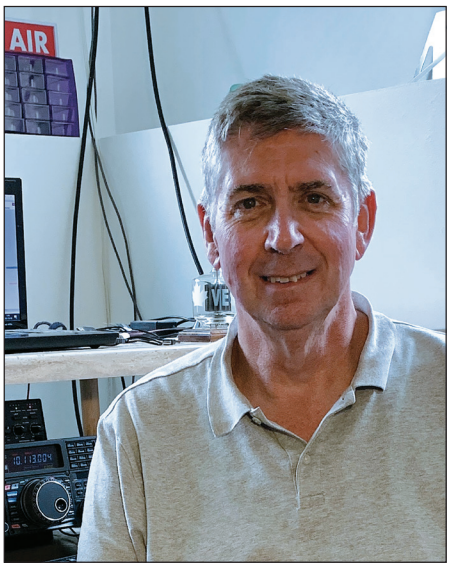
Here is what we discussed:

1) On RAC's behalf, I gave an extensive presentation requesting changes and updates to "RIC-9 – Call Sign Policy and Special Event Prefixes", which contains ISED's policy on call signs for the Amateur Radio Service. These have been outlined in previous columns and were the subject of two detailed resolutions passed at the March and May 2023 meetings of the RAC Board. ISED asked excellent, probing questions and undertook to review RAC's proposals. I have already given presentations on RAC's proposals to clubs across the country and I would be happy to do so for any clubs that are interested. I'm just a Zoom call away.

2) François Daigneault, VE2AAY, made a detailed presentation on the work being done by the RAC Exam Standards Committee (RAC-ESC) to improve the standard of the questions and answers in the Basic and Advanced Question Banks. RAC's purpose in making this presentation was to give ISED confidence in the process the RAC-ESC is using and to facilitate acceptance of our recommendations.

3) On behalf of ISED, Caroline Kennedy VA3WYZ, reported on their new Satellite and Earth Station regulatory and administrative framework, including the authorizing of Canadian Amateur Radio satellites and ground control stations. Technically, effective April 1, 2000 Amateurs would no longer be "licensed" in Canada but would instead be "certified." However, other Canadian legislation continues to require "licences" for Canadian satellites and the ground stations that control them.

ISED has come up with a simplified regime which will make it possible for Canadian



Dave Goodwin, VE3KG
RAC Regulatory Affairs Officer
regulatory@rac.ca
https://www.rac.ca/regulatory-advocacy/

Amateur satellites and ground control stations to be "licensed". This change will have no impact whatsoever on Amateurs who communicate with each other using Amateur satellites and they can continue to do so freely. But, for the numerous Amateur Satellite projects now in development at Canadian universities, this overcomes a major stumbling block. ISED implemented the satellite portion of the new regime in April 2023. The Ground Station portion will be implemented this October.

4) Kevin Hartley, VE7OVY, reported on ISED's work to modify "RIC-1 – Guide for Examiners Accredited to Conduct Examinations for Amateur Radio Operator Certificates". ISED is adding new language to provide specific direction on conducting virtual examinations for Amateur qualifications. In response to the pandemic in early 2022, Accredited Examiners (AE) have been conducting exams over the internet following provisional instructions which ISED provided. This update to RIC-1 will formalize and clarify these procedures. RAC has provided ISED with suggestions based on our experiences with virtual examinations. The revised RIC-1 has not yet been published but we will issue a bulletin when it is released.

5) RAC and ISED agreed to work together to develop best practices or guidelines for Amateurs to engage ISED's enforcement arm on rare occasions – such as intruders or a badly-behaved Amateur.

The guidelines will provide information on what information Amateurs need to collect for ISED. RAC Vice-President Al Boyd, VE3AJB and RAC member Patrick Kierans, VE3KPA, are working with a designated ISED officer and his team on this important task.

6) ISED provided some statistics on the numbers of Radio Amateurs in Canada and it is included in this coloumn.

7) The next CARAB meeting is tentatively scheduled for June 2024. In the coming year, RAC and ISED will continue working on these matters and others.

ISED Statistics on Amateur Radio in Canada

At CARAB, ISED kindly provided some detailed statistics about Amateur Radio in Canada for the Fiscal Year from April 1, 2022 to March 31, 2023 (FY2022-23).

Amateur Radio's "Undead"

There is a spectre haunting these statistics. They include an unknown number of Radio Amateurs who have passed away – we call them "Silent Keys" (SKs).

When ISED moved Amateur Radio away from station licences in 2000, they abandoned the best means of keeping our database of Amateurs accurate: annual licence renewals. Instead they developed what I call "The 125-year Rule". This means ISED will keep your certificate and your call signs allocated to you until your 125th birthday, unless ISED gets authoritative evidence that you have passed away, or you decide to surrender a call sign.

Many Amateurs' deaths are reported to ISED with obituaries and death notices, but an unknown number of Silent Keys are never reported. RAC has proposed to correct this with changes to the ISED call sign policy, but it may take a long time to fix. In the meantime, please consider adding an instruction in your will to have your executor inform ISED.

And so here are some numbers, courtesy of ISED, that you should take with a grain of salt:

- 75,789 – that is how many individual Amateurs ISED said there were in Canada on March 31, 2023. This is *not* the number of call signs, this is the number of people holding Amateur certificates.
- Average age of a Canadian Amateur: 64
- Number of Amateurs below the age of 30: 3,428 or 4.5%
- Number of Amateurs over the age of 90: 5,401 or 7%
- Number of new Amateurs April 1, 2022 to March 31, 2023: 1,473 or a growth of 2%.

Let's pause for a little interpretation. Because these stats include an unknown number of Silent Keys it inflates our numbers, especially among the oldest groups. I suggest this data exaggerates:

- the number of Amateurs
- their average age
- the proportion of over-90s among us

On the other hand, the proportion of younger Amateurs is likely to be slightly higher. In addition, the growth rate is also likely to be slightly higher than ISED's raw data indicates. Yet another interpretation is that Amateur Radio makes you live longer. I like that one.

Here are two other age-related distortions:

1) Canada is an aging society. So are most urbanized, industrialized societies. We are having fewer children than we used to, and we are living longer. The median age of a Canadian has risen from 27.5 years in 1975 to 41.1 years in 2020. Life expectancy in 1975 was 73 years and in 2020 it was over 82 years. So yes, Amateurs are older, but so is everybody.



2) To become an Amateur, you have to pass a tough exam. Ignore those who complain about the exams being "tougher in my day". They're wrong. A 100-question multiple choice exam combining regulations, procedures, science, electronics, math and safety is the opposite of easy. We will never have many Amateurs under the age of 15, even though they are 16% of Canada's population. How many under-10s could pass the Basic exam? If it isn't Zero, it's darned close to it.

Radio Amateurs of Canada has enjoyed the statistical expertise of Frank Howell, K4FMH, who is Professor Emeritus at Mississippi State University and Adjunct Professor at Emory University.

As part of a larger project, Frank has pored over the ISED database and other documents. He estimates that approximately 7% of individuals in the Canadian Amateur Radio database are Silent Keys. That's about 5,000. It would be reasonable to infer that these 5,000 SKs are more numerous among our oldest cohort. That's because older people are more likely to die than younger people. So, Frank estimates that about 5,000 people in the Amateur database are SKs. In FY2022-23, ISED heard about only 230 Amateurs passing away.

If we accept Frank's estimate of 5,000 SKs, we currently have about 70,000 Amateurs in Canada. According to ISED's numbers, Amateur Radio is growing at a rate of 2% per year. Canada's average rate of growth for the national population is 1% per year.

The population of Canada has doubled since Centennial Year (1967) from about 20 million to almost 40 million. In that same period, the Amateur population has more than quadrupled from about 15,000 to about 70,000. In raw numbers, Canada has the sixth-largest Amateur population in the world and the fourth-highest proportion of our population who are qualified Radio Amateurs: one Canadian in every 513 is a Radio Amateur.

Other Interesting numbers

Canada has 1,689 Amateur Radio Clubs with certificates and call signs. That's one club for every 42 Amateurs. That seems like a ridiculously large number of clubs.

Canada's 320 Accredited Examiners (AEs) reported 1,650 examinations. ISED officers conducted only 19 exams for Amateurs, or about 1% of the total.

Canadian Amateurs earned 1,725 qualifications in Fiscal Year 2022-2023:

- 308 Basic
- 1136 Basic with Honours
- 235 Advanced
- 46 Morse Code qualifications
- 1,786 new Amateur call signs were issued

BC and PEI Lead Growth

Comparing the rate of growth of the Amateur population by province and territory gets complicated because of the highly uneven distribution of our population.

One thing is absolutely clear. Amateur Radio in British Columbia and Prince Edward Island is growing at rate vastly ahead of the rest of Canada. While BC has 14% of Canada's population, 35% of the new Amateurs in Canada live in that province. PEI, with 0.4% of the national population, had 1% of the growth. In both provinces, Amateur Radio is growing at a rate 2.5 times their share of the population.

Ontario, with over a third of Canada's population, and almost three times the population of BC, had fewer new Amateurs: 521 new Amateurs in BC vs 456 in Ontario. This is not a one-off: for years, we have seen similar numbers. BC and PEI Amateurs, clubs and training have done a remarkable job of recruiting and helping people become Radio Amateurs. Bravo!

Amateurs by Province and Territory

A few weeks after the CARAB Meeting, ISED provided me with numbers of Amateurs and clubs in each province and territory as shown in Table 1.

There are numerous distortions in these numbers. Among them, this combines individual Amateurs and clubs. These numbers are based on which province or territory Amateurs and Clubs indicated as their "primary address", and these numbers are based on data several weeks after the data presented above.

The two columns on the right were based on my calculations and data on Canada's population from Statistics Canada for the second quarter of 2023.

Radio Amateurs by Province and Territory (courtesy of ISED)

Province/Territory	Individuals Amateurs + Clubs	% of Canada's total Amateur population	Amateurs per population
YT	181	0.2%	1:245
NU	31	0.04%	1:1,313
NT	89	0.1%	1:513
BC	19,199	24.7%	1:283
AB	7,594	9.8%	1:619
SK	1,544	2%	1:791
MB	2,140	2.8%	1:675
ON	22,436	28.9%	1:691
QC	18,235	23.5%	1:484
NB	1,871	2.4%	1:444
NS	2,428	3.1%	1:431
PE	372	.5%	1:473
NL	1,364	1.8%	1:391
Outside Canada	137	0.2%	---
Grand Total (as of July 13 2023)	**77,621**	**100%**	**1:513**

Looking at these numbers, the three territories stand out in different ways:

The Yukon has the highest density of Radio Amateurs per population at 1 Amateur for every 245 Yukoners.

Nunavut has the lowest density at one Amateur for every 1,313 residents of that territory.

The Northwest Territories has *exactly* the same proportion of Amateurs among its population as the country as a whole: one for every 513 people.

Among the provinces, British Columbia is the standout, with one Radio Amateur for every 283 British Columbians.

Ontario stands out for the opposite reason, with Radio Amateurs being only 40% as common among the population as they are in British Columbia.

I have no good explanations for the wide difference in density per population.

Some place had to be first, some other place had to be last, and every other place was going to fall somewhere in between.

If every province and territory had the same density of Amateurs as British Columbia or the Yukon, Canada could have 150,000 Amateurs.

We have room to grow.

– 73, Dave Goodwin, VE3KG

TCA

– "QUA", continued from page 25

The YouTube videos #100 and 101 made by TRX lab, though longer than need be, have a great deal of interesting and useful information regarding baluns. I watched these videos before constructing my wire baluns and decided to go ahead with making the baluns using wire that I had available, even though the presenter said that a certain type of Teflon-covered wire was needed in order to achieve a good VSWR. Based on my experience, the wire type and gauge don't matter, except for its insulating ability, current capacity and diameter – that is, not so big that the number of turns on the toroid is limited by the wire size. A Google search for TRX lab #100 or TRX lab #101 will bring up these videos.

If you have any questions about my results or the construction of the baluns, or any other comments, please contact me at vy1kx@myrac.ca.

Importance of the Experimental Mindset

Kevin McQuiggin, VE7ZD/KN7Q

Experimentation has long been a part of Amateur Radio. In fact, experiments by Amateur Radio operators as far back as the early 1900s have been responsible for many of the discoveries and innovations in radio, and in the development of new techniques, both technological and operational.

A lot of Amateurs are reticent when it comes to experimentation – perhaps they fear failure, or perhaps they fear for their reputation among other Amateurs should they try to invent something new and have it not work, or work less efficiently, than they had imagined.

I would argue to the contrary, and believe that experimentation is a force that has the potential to drive Amateur Radio, radio technology in general, and operating practises forward into new territory, paving the way for future Amateurs (and even industry). Tinkering is a hallmark of Amateur Radio. Without experimentation and reflection on experimental results, both successful and unsuccessful, the radio art would not have developed as broadly and as fast as it had.

In the spirit of experimentation, I usually have a few projects in progress or "on deck" for future consideration. Here are a few.

FreeDV

I heard of FreeDV through one of the weekly Amateur Radio newsletters that is distributed via email and on the web. It sounded interesting so I thought that I would give it a try. FreeDV (https://freedv.org) is an open source Amateur digital voice technology that is being developed by Amateurs for use on HF as an alternative to some of the commercial digital voice applications that depend on licensing fees. It uses your computer for digital voice encoding and decoding and interfaces to your HF radio via the common "CAT" interface.

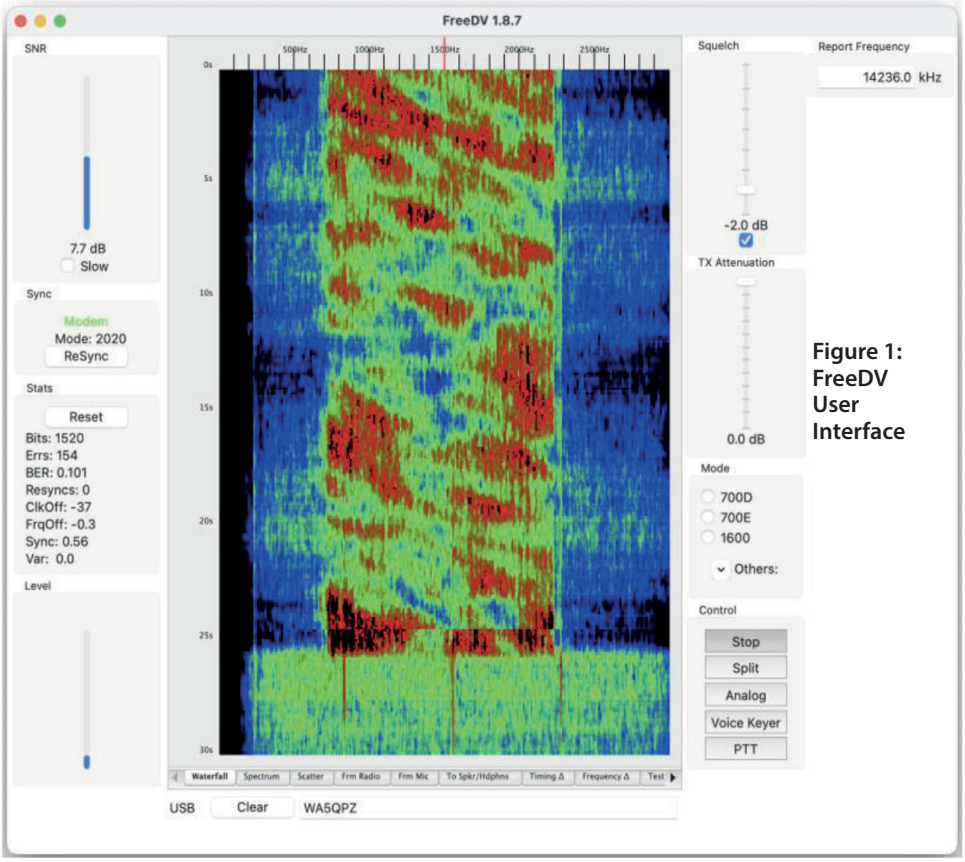


Figure 1: FreeDV User Interface

The FreeDV application runs on Windows, MacOS and Linux. It provides a simple user interface to set up your rig, push-to-talk (PTT) control, and select an appropriate HF frequency (see Figure 1). Operationally, it digitizes your voice and transmits it in less bandwidth than would be used for an SSB or other analog voice signal. The mode incorporates forward error correction (FEC) so that decoded signals are easily "copyable" by your ears.

I have made a number of QSOs on 10m, 15m and 20m with FreeDV, and also spent a lot of time monitoring the specified calling frequencies.

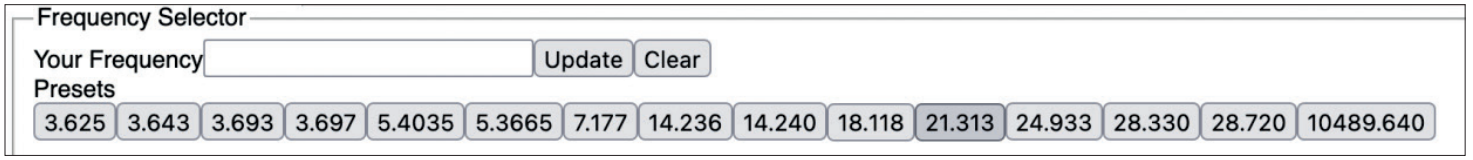
Figure 1 shows the user interface of the program and what a typical FreeDV signal looks like.

Figure 2 shows the current set of FreeDV frequencies.

The mode works very well but with the poor antennas I have at my new home I have found that decoding can be spotty. The FEC prevents data frames (encoded voice packets) with corrupted data from being decoded, so signals with my poor antennas are sometimes a bit "choppy".

As a new mode not yet fully "discovered" by the Amateur community, FreeDV suffers from the "chicken and the egg" problem: there are not a lot of stations on the air so Amateurs who give FreeDV a try drop out because there are not a lot of other stations to work. I can say from my own experience, however, that just about any time of day the "FreeDV QSO Finder" website (http://qso.freedv.org) lists 10 or more stations on the air and available for QSOs over several HF bands.

Figure 2 – Standard Frequencies for FreeDV



With a fair antenna – better than my hiking "PackTenna" strung at 5-foot elevation along the side of the house – there will usually be someone on HF to work. See Reference 1.

I will note as well that the project is under active development and new-and-improved versions of the FreeDV app are released frequently. The development team and devoted users are friendly, welcome newcomers, and provide assistance to "newbies" with setup or operating questions.

I'd highly recommend downloading FreeDV and giving it a try.

Vintage Chart Recorder

My wife Laura, VE7LPM, and I love to visit secondhand stores to look for interesting items. Her interests vary from mine, but we get along well with this activity and have made several "finds" of really neat stuff.

On a recent trip to Chemainus, British Columbia –we are exploring our new local area here on the Island – I found an interesting old chart recorder. It is an "Esterline-Angus Model AW" and it charts an input voltage of 0 through 50 millivolts on scrolling chart paper. The units were popular in the telephone and electric utility industries and date from around 1950. See Figure 3.

It was in pretty good condition for a 70-year-old device, only $70, and came with a photocopied excerpt from the "Model AW" operating manual. I succumbed and bought the unit.

My thinking was that if I could get it working – there was no indication whether it was functional or not – I could use it with a microcontroller like an Arduino to plot temperature, air pressure or maybe signal strength of received radio signals. I could connect the recorder to my Earth-Moon-Earth (EME) receiver and plot lunar echoes or something fun like that. This is an example of how experimentation doesn't have to be serious.

As I lugged it to the car (it weighs about 30 pounds) I had no idea of how I would use it, but I was sure that I could do something fun with it. After some online digging, I found full documentation on the chart recorder online at the United States National Institutes of Health (NIH) – certainly an odd location to find a manual for such an old device, but they have an extensive set of historical documents. It appears that the NIH owned several of these units at one time. See https://history.nih.gov/display/history/Manuals.

I took the device apart at home. In the secondhand store it was unclear how the power cord attached to it. This was clearly the first issue to deal with. When I removed the cover and looked inside the unit, I discovered to my surprise that it did not require any external power. The chart paper advance movement was mechanical! See Figures 4 and 5.

Moving a little lever from STOP to START – with both a normal and "Rapid Feed" setting – started the mechanism ticking (tick-tock-tick-tock…) and the chart paper started advancing at a perceptible rate. A removable crank was stored inside the unit's case as well. You can see the crank in Figure 5. This was very interesting.

I reviewed the manual and learned that the mechanism would run for about seven days on a full wind at normal speed. At the "Rapid Feed" setting it would last only half that time. The unit was solidly built and obviously designed to withstand a harsh mechanical environment.

The paper moved, but had gotten hung up in the geared sprockets so the next step was to reload it. I cut off about a foot and consulted the manual for how to rethread the paper. Luckily, the device had almost a full roll of paper in it. I checked eBay and determined that vintage NOS (new old stock) paper rolls were plentiful and inexpensive. Some other hobbyists or collectors of these devices must exist. I ordered two rolls for future use.

The paper can move at a rate between a half-inch to 12 inches per hour. There are three 2-gear sets stored inside the device – one set installed and two alternate sets. To change the paper movement rate, you change the two gears shown in Figure X. With three sets of gears and two clock speeds this means that there are six different paper speeds possible.

Next came a study of the plotting mechanism. The plotting pen is connected to a robust internal ammeter. Voltage input feeds an internal resistor network, and the current flow operates

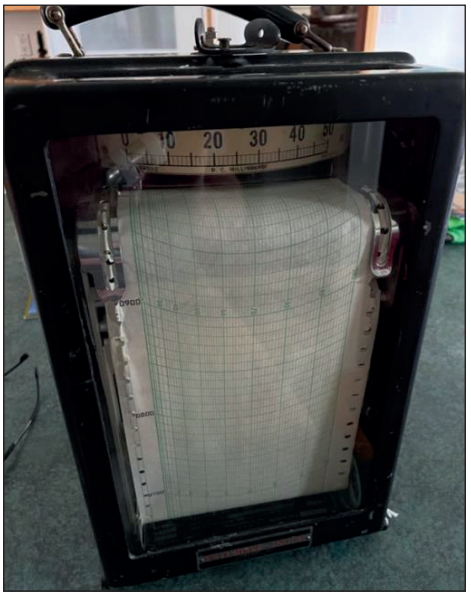


Figure 3: Vintage Find in Chemainus

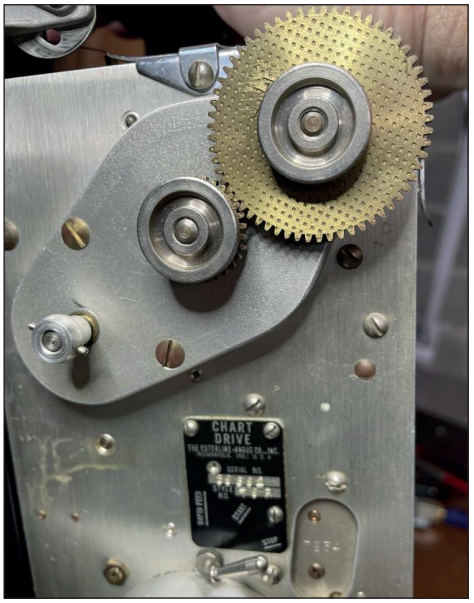


Figure 4: Chart Drive Switch and Feed Rate Gears

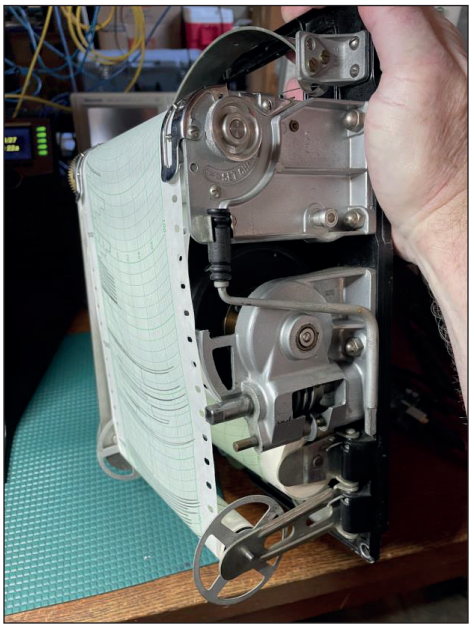


Figure 5: Mechanical Power Unit

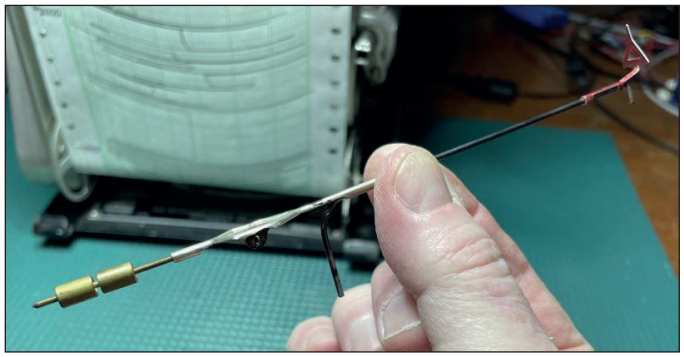


Figure 6: The Pen

the meter and swings the pen back and forth to draw a line on the moving chart paper.

It was time to investigate the pen. I was amazed to find that the device has a big inkwell in it and that the ink is drawn through the pen by capillary action. You can see the capillary and pen balancing mechanism in Figure 6.

The pen, however, was all clogged up with dried ink. I had two concerns. I was not sure if I would be able to clear the capillary channel of the dried ink and I did not know if suitable ink would still be available. If I couldn't get ink to the pen, then the device would not be that useful. Time to experiment.

I looked at the pen under a magnifier. The outlet hole was very fine. I tried soaking the pen in water and then in 99-percent isopropyl alcohol. It was still clogged.

I could see dried red ink under the magnifier. The hole was too small to be breached by normal hookup wire so that idea was out. Then I remembered that I have a supply of #30 stainless steel "wire wrap" wire in the shack. Maybe this would be fine enough to breach the clog.

It turned out that this fit the requirement. I was able to open a channel through the pen using the #30 wire. I inserted the fine wire at the pen itself and in a few attempts pushed it back through the capillary tube to the 1 mm input tube where the pen picked up its ink from the inkwell.

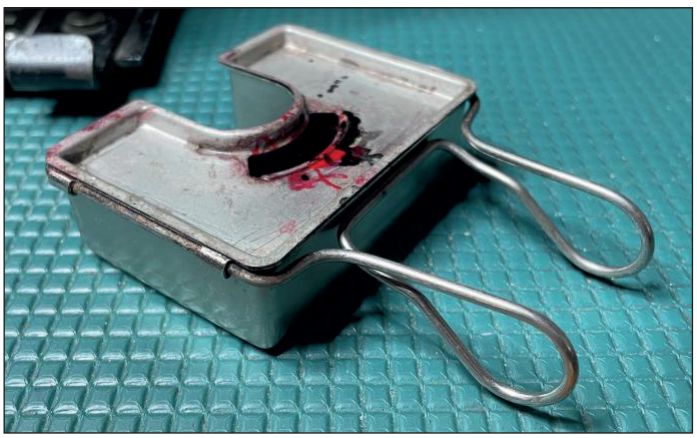


Figure 7: The Inkwell

I blew air through the pen to ensure that the capillary was now open. This issue was resolved.

Next to the problem of finding suitable ink. A web search of local stationary stores didn't turn up liquid ink in a format that was usable. There was ink for inkjet printers, ink cartridges for fountain pens, glittery ink for painters. Good old-fashioned fountain pen "ink in a bottle" seemed impossible to find.

I had been searching for "bottled ink" and "fountain pen ink" with no luck. Laura, VE7LPM, suggested checking craft stores and this idea panned out. The modern term for what I need is "craft ink". I bought one bottle of red craft ink and one of black. I'd start with red because it would look better against the dark green gradations on the chart paper. This would prove to be a mistake.

Before filling the inkwell (see Figure 7), I needed to check out the ammeter mechanism and ensure that the pen would move with the application of voltage to the binding posts on the rear of the unit. This was confusing because the unit had five binding posts. I did not have any schematics so it was up to visual inspection of the circuit to figure this out.

I unbolted the clock/chart paper mechanism and this exposed the ammeter and electrical connections (Figure 8). It turned out that two of the binding posts were not connected to anything. I suppose they were for future expansion or for additional features that were not installed in my unit.

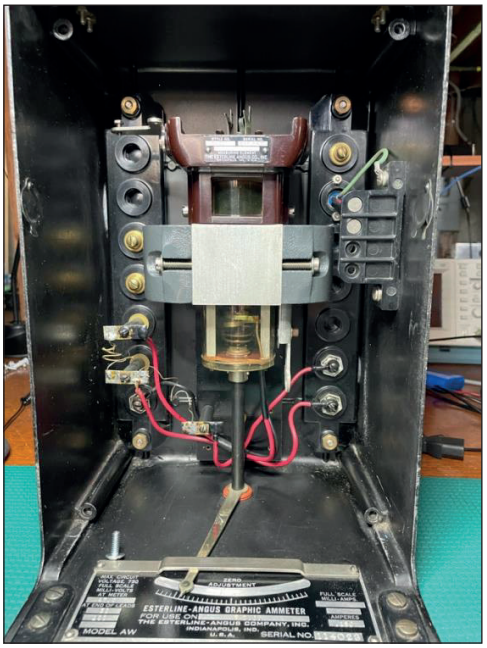


Figure 8: Meter Electricals



Figure 9: Choice of Maximum Input Levels

One binding post was for ground and the other two were labelled "100 mv" and "50 mv" (see Figure 9). I surmised that this was the maximum voltage that should be applied to either post.

The meter mechanism was straightforward, with two inputs. Current flowing through a resistor network was routed through the meter leads, causing the movement and pen to swing back and forth.

Current varied linearly with applied voltage so the meter could be calibrated to show millivolts.

"Radio History: Amateur Radio"

By Spurgeon G. "Spud" Roscoe, VE1BC

In this sweeping history, author Spurgeon G. Roscoe takes a look at the world of Amateur Radio in North America from the time of the World Wars all the way to the present day.

Roscoe presents an account that is at once intimate and wide-ranging, covering topics from Amateur Radio's role on the Canadian ships of the 1920s and '30s and during wartime to the involvement of women in the craft, to the technical details of how some of the equipment involved has evolved over time, to a detailed look at the American Radio Relay League and what has appeared in the pages of its membership journal, *QST*, over its many years in circulation.

His own deep, nearly lifelong involvement in Amateur Radio not only brings a deep base of knowledge to this ambitious project, but a particularly penetrating and oftentimes sentimental lens to it, too – particularly when it comes to documenting the activities of the Halifax Amateur Radio Club and the many members who have passed in and out of it over the years.

Expansive and detailed at once, "Radio History: Amateur Radio" is essential reading for anyone involved or interested in the hobby worldwide. To order your copy please contact the author directly at spudrve1bc@outlook.com



HARDCOVER EDITION
978-1-03-913321-1
8.5 x 11.0 inches
Black & White interior |376 pages

Order now: spudrve1bc@outlook.com

HAMMOND MANUFACTURING®



www.pwdahl.com
www.hammondmfg.com

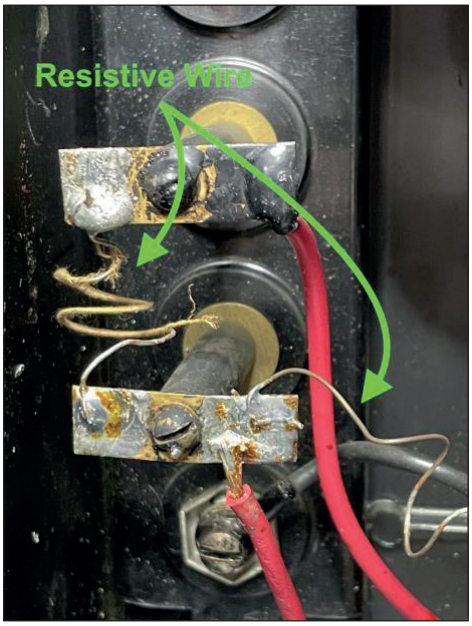


Figure 10 :Two Resistive Wire Loops

There were two lengths of silver wire connected in series that I determined must be resistive wire and part of the resistance network (see Figure 10 on the next page). Why would the manufacturer not use fixed resistors?

Resistive wire is manufactured to have a constant value of resistance per inch (see Reference 2). A 1-ohm wire would present 1 ohm of resistance per inch. 4.5 ohms could be achieved by measuring 4.5 inches of the wire and using that in the circuit. If a device needed 7.25 ohms resistance, then it was easier for the techs to measure out 7.25 inches of resistive wire than to select and solder several small resistors together in series or parallel. Why was this?

In the mid-20th century, fixed resistors were sometimes not used in the manufacture of devices where the circuit's required resistance was small, or where the specific resistance values needed could vary from unit to unit. With ammeters in particular, differences in response from one device to another were common. The manufacturing tolerance of fixed resistors at the time made fixed resistors quite "sloppy" in their actual value. A 5-ohm fixed resistor, even with the lowest tolerance of the day, could vary between 3 and 7 ohms, especially as the resistor aged.

Expensive test equipment like this chart recorder needed high accuracy so resistive wire was used in assembly and testing of each unit because the wire had higher resistive consistency. A different length of resistive wire would be used in each chart recorder to account for any variations in its ammeter 's response. This would ensure that each chart recorder's output was accurate.

I tested the ammeter in my unit by applying a small voltage to the input terminals. Alas, I noted that the meter did not move at all. I checked the current flowing through the input leads. It was 0.0 amperes. No current flow? This meant an open circuit. I had some debugging to do.

I looked very closely at the circuitry inside the device. I applied about half a volt to the inputs and checked the voltage at the back of the binding posts. 0.5 volts. Further down the circuit was fine too. However, at the next connection point – the far end of the second length of resistive wire – it was 0.0 volts. The resistive wire was open. This seemed bad as I wasn't sure if this wire was even available anymore and I didn't know its resistive value in any case.

Good fortune intervened. A closer inspection revealed that the end of the resistive wire had popped off the pad where it had been soldered down. The technician who installed the wire had coiled it up like a spring and soldered the far end to a pad where the circuit continued.

Over the decades, the constant tension on the end of the wire caused by the de facto spring had pulled on the end of the wire and eventually caused it to pop off of the solder pad. This is a great example of how something that seemed practical at the time – coiling up the resistive wire to get it out of the way – had resulted in an unintended consequence.

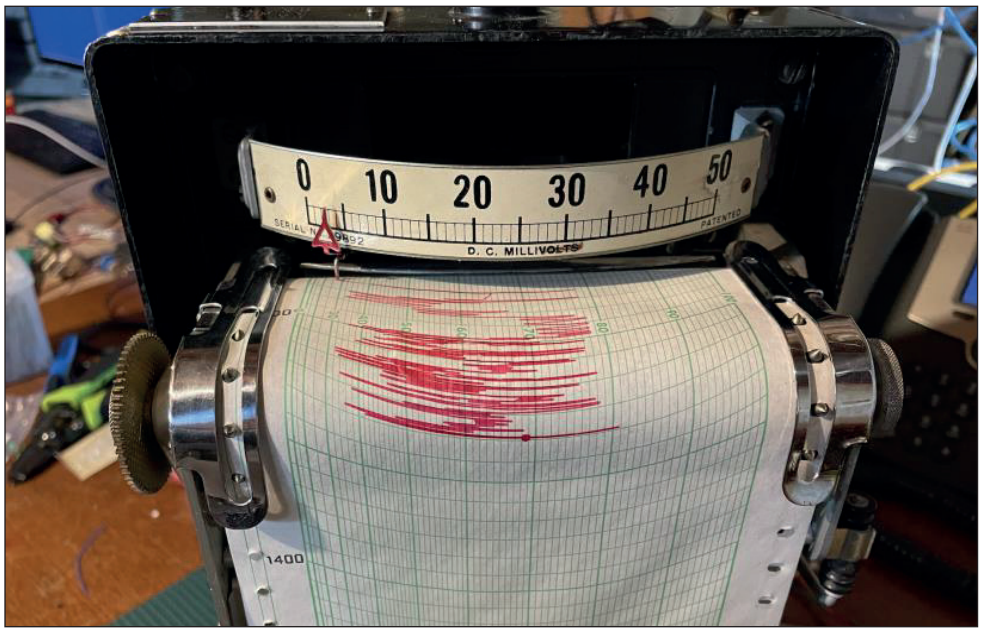
All was not lost and it was a simple repair. I heated up the soldering iron and re-soldered the wire end to the pad using a larger blob of solder over the end of the wire, to prevent it from causing mischief for another unsuspecting Amateur who buys the device from whatever a secondhand store might look like in the year 2073.

The meter sprang to life and, after reassembling the unit and turning the clock mechanism on, I was able to move the pen back and forth by varying input voltage manually. The pen traced my inputs in nice red (craft) ink as shown in Figure 11.

Things went south the next day when I discovered that the red ink inside the capillary tube had dried up overnight and blocked the capillary tube. Study of the bottle revealed that the craft ink had an acrylic component. I am guessing that exposure to the air in the inkwell and at the tip of the pen had caused the red ink to dry much more quickly than for old style "fountain pen" ink.

I had to remove the inkwell and pen, drain the inkwell, clean out the capillary tube again and refill the well and pen with the backup black ink. I noted from the bottle that the black ink did not have an acrylic

Figure 11: The Recorder is Alive!



component. I reran the tests and the black ink worked well for plotting. It also did not dry up overnight or over the next few days. The chart recorder was back in business.

First "Real" Plotting

With the recorder functional it was time to connect it to a real, varying voltage source. I decided to write a short program for a handy Arduino microcontroller (see Reference 3) that would vary the output voltage on a couple of its pins and use this varying voltage as input to the chart recorder.

A basic Arduino is not really designed for this, but I could get the effective output voltage from its "PWM" pins to vary a small amount. It wouldn't represent anything of real value like a temperature or a signal level, but I thought that it would still be a good test. I could add a digital-to-analog converter chip to the basic Arduino later. This would allow for actual "real world" plotting.

I thought it would be very fun to see the chart recorder controlled by a modern computer, likely the first time that it had ever been used in that manner. One issue was that the chart recorder was expecting an input voltage between 0 and 50 millivolts. This is difficult to achieve from an Arduino as the PWM outputs vary between 0 and 5 volts. This could damage the chart recorder. A voltage divider was needed.

Some Ohm's Law calculations determined that a voltage divider made up of two resistors of about 49 ohms and 0.5 ohms in series would lower the voltage to about 50 millivolts maximum at the "top" of the 0.5 ohm resistor. I put a suitable circuit together on a reusable breadboard. The 50 mV binding post of the chart recorder was connected to the top of the 0.5 ohm resistor. Ground on the Arduino went to the ground binding post.

I wrote a short program for the Arduino to exercise the PWM lines and loaded it into the Arduino's flash memory. The program would cycle the PWM lines through four distinct average voltage values.

The PWM output pins went to the voltage divider. I turned the chart recorder's run switch to "rapid feed". The chart paper started to move. I started the Arduino and to my delight I saw the pen moving and

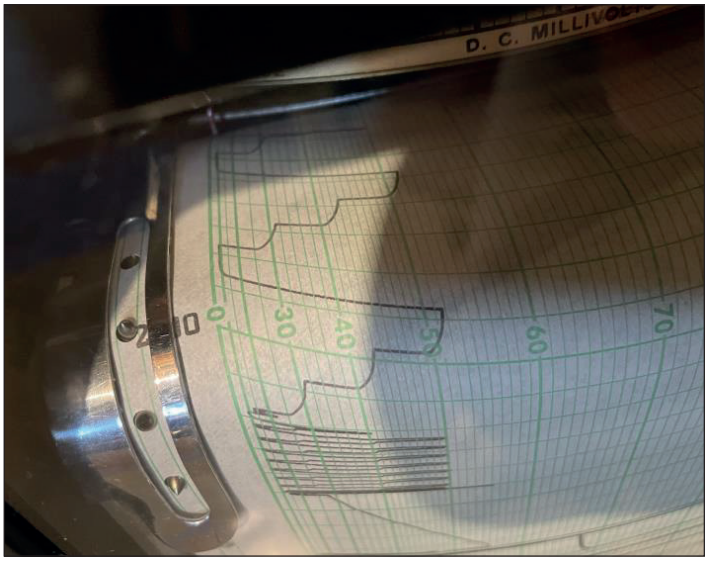


Figure 12:
First Plot in Decades

tracing out the very simple four-step movement shown in Figure 12. The plot didn't show anything of value, but it proved that an Arduino could control the vintage device.

I ordered some digital-to-analog converter (DAC) chips from the excellent online hobbyist supplier Adafruit (see Reference 4). The breakout board uses the common MCP4725 12-bit digital-to-analog converter chip and was easy to interface to my Arduino using the two wire I2C serial bus (see Reference 5). A 12-bit converter supports 2**12 or 4096 distinct voltage level outputs so that was more than enough for the chart recorder.

The issue then was that the DAC output is high impedance: it cannot provide much current to drive external circuitry. This was a problem because the meter on the chart recorder needs 200-300 mA of current. The MCP4725 can only provide about 20 mA on its voltage output pin. I needed a current amplifier so that the DAC output voltage could drive a 200-300 mA load. A simple transistor amplifier can provide this current boost, but even this approach would draw more current than the MCP4725 could provide.

After some research I learned that this problem was common, and that a simple solution was to use an operational amplifier (op amp) as a "unity buffer" to increase output current. See Reference 6 for some background material.

Op amps have high input impedance and do not load the voltage output from the DAC at all. They are also low impedance and can provide significantly greater output current at the same voltage as their input.

This approach seemed to fit the bill so I found a common LM741 op amp in my junkbox and by following some examples on the internet I got a unity buffer working.

To further isolate the chart recorder's load from the DAC, I added a common collector amplifier (see Reference 7) based on the very common 2N3904 NPN transistor to the op amp output.

I chose a couple of resistors to calibrate the chart recorder's needle to get it to move from fully left to fully right on the chart paper scale as the DAC output ranged from 0 to 5 volts, corresponding to digital values from 0 through 4096. The transistor provides significant current amplification and could easily source enough current to drive the chart recorder's needle to full scale. The circuit I am using is shown in Figure 13 on the next page.

I chose the scaling resistors R1, R2 and R5 largely through experimentation as I found that calculating their values mathematically was not that successful. The math served only to find a good starting point. I think that the old chart recorder's current consumption is non-linear so the resistor values represent a happy medium that works well enough for my home experiment.

The bottom line is that the chart recorder interface is working! I captured the schematic in the excellent open source KiCad (see https://kicad.org) and am working on a printed circuit board (PCB) for the project. Once I have the PCB in hand I can use the old chart recorder in the shack. It won't be too useful given today's powerful computing and display technologies, but it will be fun to watch when it is in action!

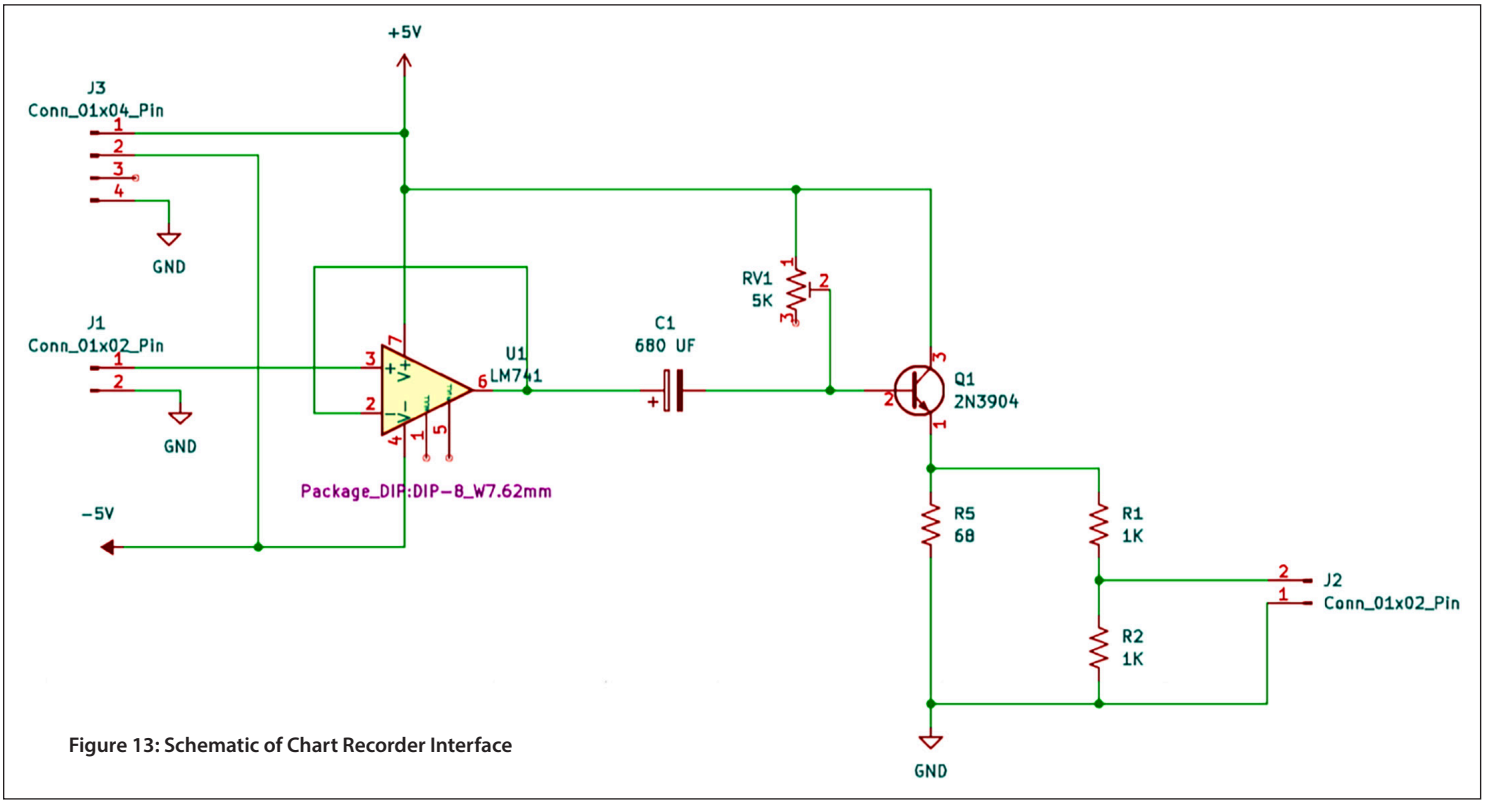


Figure 13: Schematic of Chart Recorder Interface

Conclusion

I hope that everyone will think about how they can incorporate a little more personal experimentation into their Amateur Radio activities. This is not only fun, but it will also allow each of us to push our personal envelope as well as the collective limits of the Amateur Radio Service. Experiment with oddball antenna designs, weird modulation schemes or novel ways to interconnect station equipment. Have fun and learn!

Maybe your experimentation will result in some new type of antenna, a new digital mode, or a novel communication technique that will be widely adopted by other Amateurs. Even if it doesn't, then you will have learned more through the effort.

Experiments don't have to be successful to be valuable. We learn more from our failures than from our successes. They help us eliminate what does not work and refocus on better approaches to solving the problem at hand.

A failed experiment is a great way to find the path to a successful one.

Feedback can be sent to me at mcquiggi@sfu.ca. Thanks for reading!

– 73, Kevin VE7ZD / KN7Q

References:

1) See https://www.packtenna.com/

2) See https://en.wikipedia.org/wiki/Resistance_wire

3) Arduino microcontrollers are available through their non-profit organization at https://www.arduino.cc/.

4) Visit https://www.adafruit.com/. The particular DAC breakout board I bought is only US$4.95 and is available at https://www.adafruit.com/product/935.

5) The breakout board is only US$4.95 and is very easy to use. See https://www.adafruit.com/product/935#technical-details.

6) For an introduction to unity gain amplifiers see: https://www.learningaboutelectronics.com/Articles/Unity-gain-buffer and https://electronicsreference.com/analog/op_amps/voltage-follower/ .

7) See https://en.wikipedia.org/wiki/Common_collector

Kevin has been an Amateur since 1977 and has experience in many interesting areas of our hobby including DXing, contesting, satellite work and experimental packet radio systems. He has a BSc in Computing Science and an MA in Communication from Simon Fraser University where his research topic was "Amateur Radio and Innovation in Telecommunications Technology".

Kevin's current research interests are focused on software defined radio and new digital weak signal modes. He is also interested in how digital radio systems such as the free "gnuradio" package can be used to enhance Amateur Radio training. He is a regular contributor to the SARC newsletter "The Communicator", which is available online at ve7sar.blogspot.ca. We thank the SARC for granting permission for us to use this article.

Degen
Antennas, Connectors, Cables and More
WWW.DEGENDESIGNS.COM
416-347-8517
SALES@DEGENDESIGNS.COM

RADIO MAGIC

Snap Circuits Part 3: Optical Communications



Robert C. Mazur, VA3ROM
va3rom@gmail.com
www.va3rom.com

The Photophone: A Wireless Breakthrough

In the summer of 1880, Alexander Graham Bell and Sumner Tainter introduced the revolutionary "photophone".

This groundbreaking invention harnessed the concept of using sound waves to modulate a beam of light to transmit Morse code, voice and other sounds over line-of-sight distances up to 213 metres (see Figure 1).

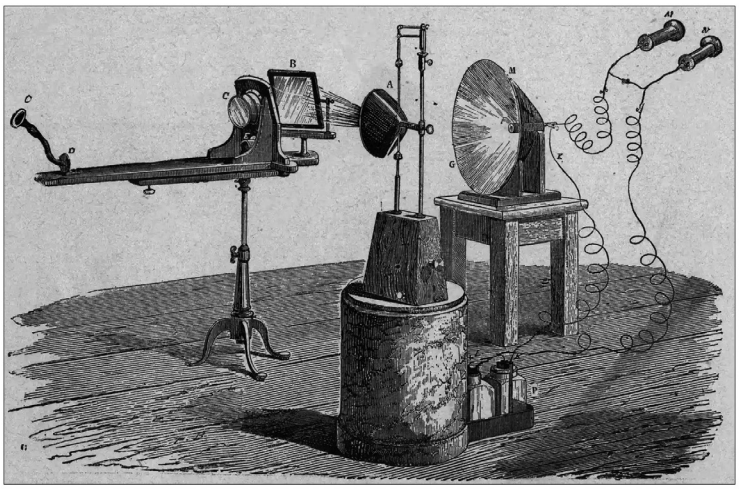


Figure 1: The Photophone (1880). Credit: Getty Images.

Bell considered it to be a greater invention than his telephone and was so enthralled that he wanted to name his newborn daughter "Photophone" – his wife thought otherwise. Bell also wrote an enthusiastic letter to his father announcing the birth.

"I have heard articulate speech by sunlight! I have heard a ray of the sun laugh and cough and sing! I have been able to hear a shadow and I have even perceived by ear to the passage of a cloud across the sun's disk. You are the grandfather of the Photophone and I want to share the delight of my success. Can imagination even picture what the future of this invention is to be? We may talk by light to any visible distance without any conduction wire. In general science, discoveries will be made by the photophone that are undreamed of just now."

But the press was not so enthused. The New York Times, in an August 1880 editorial, noted derisively:

"The ordinary man will find a little difficulty in comprehending how sunbeams are to be used. Does Prof. Bell intend to connect Boston and Cambridge by a man going through the streets carrying a coil of No. 12 sunbeams on his shoulder, suspending them from telegraph pole to pole? There will be a general feeling that there is something about Prof. Bell's photophone which places a tremendous strain on human credulity."

The photophone had obvious limitations: it required a careful and rock steady alignment between the line-of-sight transmitter and receiver; it depended on sunlight or another intense light source; plus it didn't work very well or not all in bad weather conditions. It was a successful failure because it was born a century too early and because of the birth of another form of wireless called "radio". But Bell's concept of using light to transfer information from point A to point B laid the groundwork for today's optical communications systems. In the 21st century, well over 90% of the world's analog/digital information is transported around the planet using beams of light reflecting over and over again along bundles of hundreds or even thousands of very thin, glass-spun fibre optic cables (see Figure 2) laid overland or on the bottom of seas and oceans.

Note: *Well known Radio Shack author Forest Mims III, in his "Engineer's Mini-Notebook: Communications Projects and also Optoelectronics Circuits" has written a light wave communications tutorial plus created several circuits that you can build including a modern electronic version of Bell's photophone that easily outperforms the original (see Reference and Resources).*

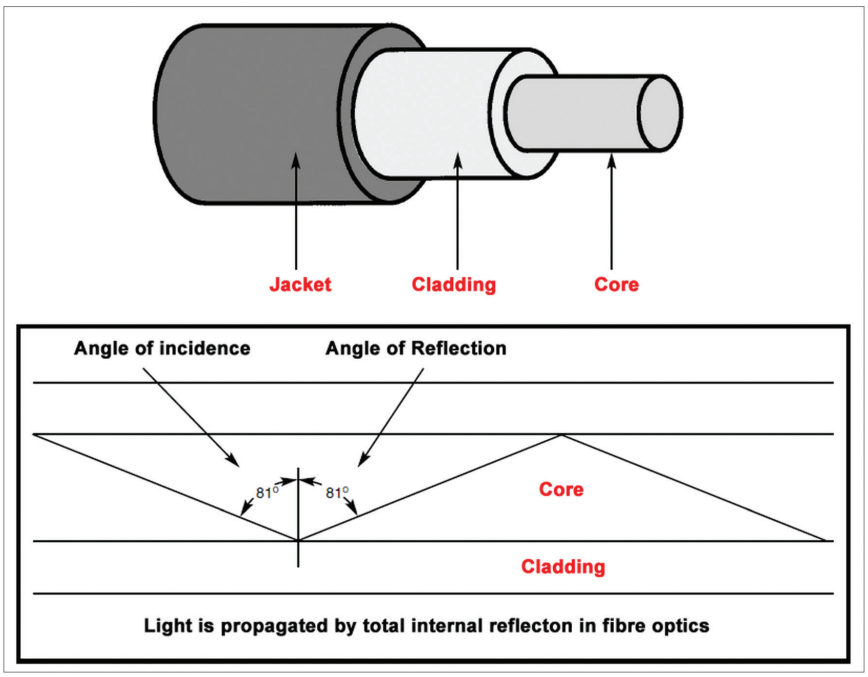


Figure 2: Fibre Optic Cable Structure. Credit: Elenco Electronics.

What is Light, Actually?

A great debate raged for centuries in the world of physics; was light a wave or composed of particles? Isaac Newton, in 1666, used prisms to split sunlight into the colours of the rainbow, which he believed to be composed of "corpuscles" (his term). His corpuscular or particle theory explained why light travels in straight, parallel rays (rectilinear) as well as reflection and refraction. But another genius of the time, astronomer Christiaan Huygens, disagreed because other experiments revealed its wave-like behaviours such as polarization plus interference and diffraction patterns. So how could it be both?

Note: *The major colour divisions produced by a prism are defined as: red, orange, yellow, green, blue, indigo and violet (remember "Roy G. Biv" for physics tests). This is also the order of their energies from lowest to highest and wavelengths from longest to shortest (see Figure 3A). However, unlike prisms, our analog eyes blend the analog colour continuum instead of producing sharp digital divisions so we can distinguish many more of shades of "colour" than just seven!*

In 1864, James Clerk Maxwell unified the electric and magnetic field laws of Gauss, Ampere and Faraday, proving that the once thought separate forces of electricity and magnetism – including light – were all manifestations of one electromagnetic (EM) fundamental (universal) force. Maxwell's equations famously predicted that changing/oscillating electric and magnetic fields generate a traverse EM wave that propagates at the speed of light in a vacuum (see Figure 3B). But no one could prove that Maxwell's theoretical EM waves existed until the late 1880s when Heinrich Hertz conducted a series of experiments generating and detecting them in the laboratory as well as confirming Maxwell's predicted properties of the EM waves.

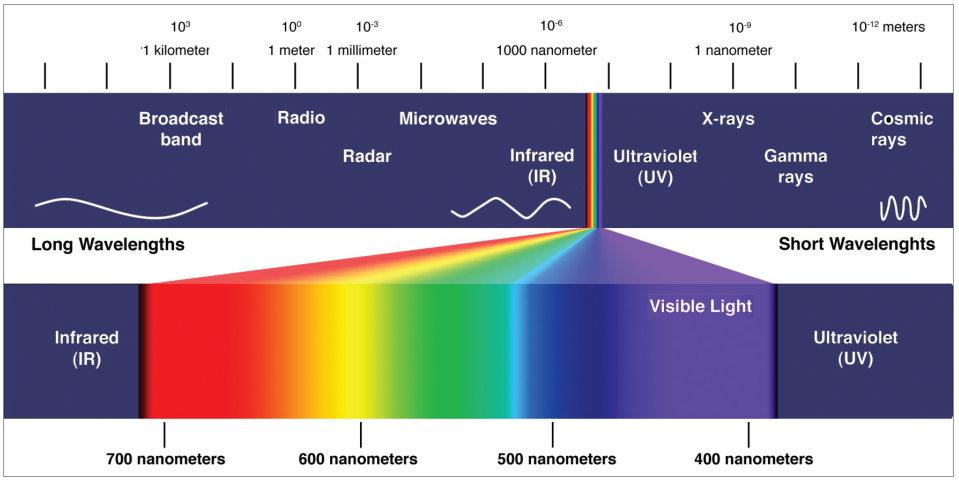


Figure 3A: The EM Spectrum. Highlighting the light spectrum. Credit: NASA/NOAA.

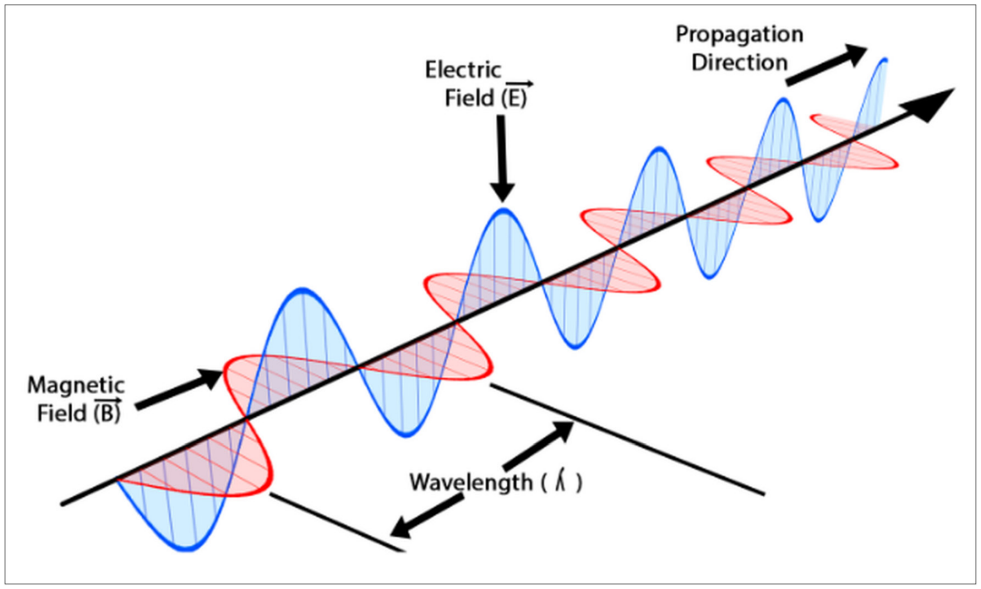


Figure 3B: Maxwell's EM Transverse Wave. Credit: https://physics.stackexchange.com

In 1905, Albert Einstein presented his theory explaining the photoelectric effect, which occurs when certain materials are exposed to light and generate an electric current. Light, proven by Maxwell to be an EM wave – and therefore the entire EM spectrum– exists because of a light speed (in a vacuum), zero rest mass, zero charge, discrete quantum bundle or packet (named the "photon", in 1926) having both energy (oscillating electric and magnetic fields) and momentum proportional to their frequency.

The higher the frequency (or the shorter the wavelength), the more energy and momentum each photon carries, but it's a microscopic amount until the wavelength gets really, really short. Photons are emitted/absorbed by charged particles (electrons, positrons, protons and ions) caused by their sudden acceleration/deceleration, electron transitions in atoms and by thermonuclear reactions. They span a wide range of wavelengths (frequencies) and energies (temperatures or colours) creating an EM spectrum with manmade major divisions of: radio waves, microwaves, infrared (IR), visible light and ionizing radiation where the wavelength becomes shorter and shorter and the photon becomes more and more particle-like: ultraviolet, X-rays and gamma rays.

The Optocoupler

An optocoupler (optical coupler) or optoisolator (optical isolator) is an encapsulated solid-state device consisting of an input side usually using an LED, a dielectric barrier/channel plus an output side with a phototransistor or similar light sensitive device (see Figure 5, insert). It electrically isolates/separates two different circuits but allows communications/control between them by using light.

The dielectric is an extremely thin transparent material such as plastic or glass that focuses LED light on the phototransistor and also prevents any reflection back to the LED.

A phototransistor is a special type of solid-state, bipolar junction transistor that operates via the photoelectric effect and has current gain.

Most optical communications systems use variations of the optocoupler for converting an electrical signal to light transmitted at point A, then back again

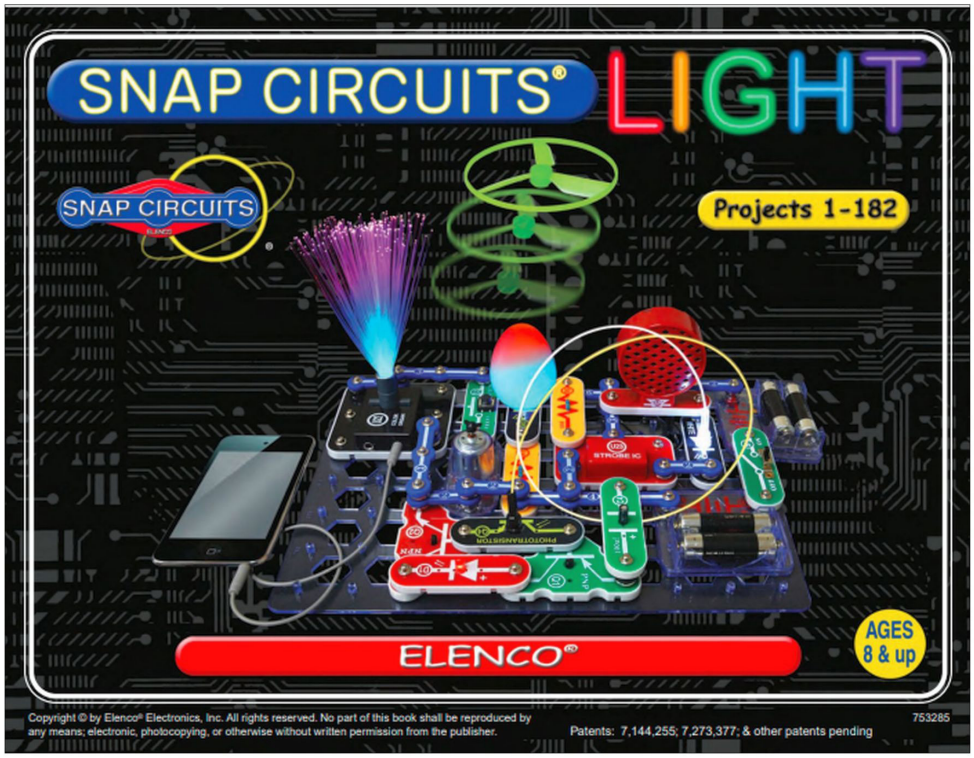


Figure 4: Snap Circuits Light Kit (Box Art). Credit: Elenco Electronics.

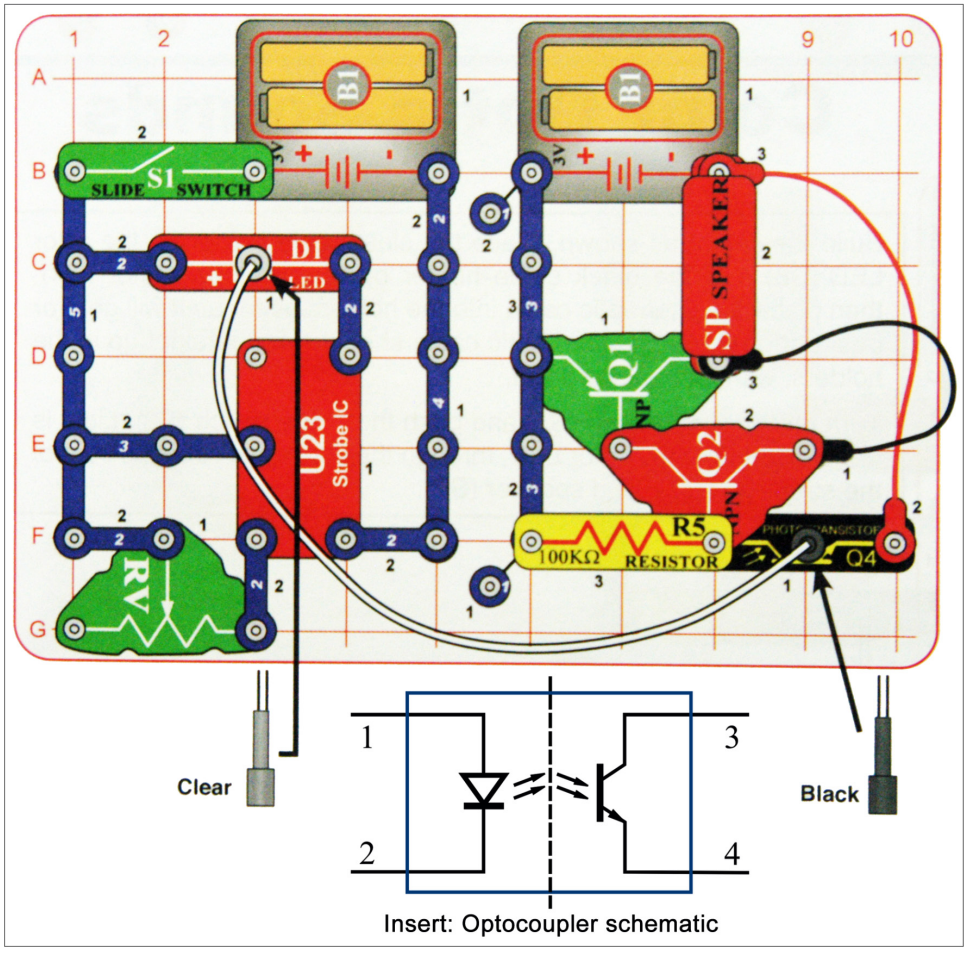


Figure 5: Optical Communications: Fibre Optics. Credit: Elenco Electronics.

when received at point B by separating the LED and phototransistor and using either a fibre optic cable or open air.

Amateurs and other hobbyists typically use optical communications systems over open air for two-way voice, Morse code, data and even video. Serious experimenters have managed to send/receive signals between stations using high powered LEDs to distances over 200 kilometres between hilltops or mountain peaks! The higher up you are the farther the line-of-sight range to the optical horizon is plus the atmosphere is usually more stable and transparent than at ground level.

But before buying/building then lugging equipment up hundreds of metres of hills or mountains, I'd rather try optical communications in the flat comfort of my home radio shack using an Elenco Snap Circuits kit specifically designed for hobbyists to see if this topic is interesting enough to pursue in more depth. Like LEGO Brick build kits, Snap Circuit build kits are very addictive and stimulate curiosity and creativity in minds of all ages across many fields of study, and you can even incorporate LEGO Brick builds into many Snap builds.

Snap Circuits Light Kit

To continue on and conduct the experiments, you'll need the Snap Circuit Light kit (see Figure 4) or have the equivalent components in your parts box. There's a list of Snap Circuit kit suppliers provided in the References and Resources section of Part 1 of this series in my column in the May-June 2023 TCA.

Note: *Because components are mounted horizontally, I'll use the supplied length of fibre optic cable for the visible light experiments.*

Fibre Optics: Experiments 1 to 3

1) Build the circuit depicted in Figure 5 on the next page (Snap Circuits Light kit project 12). As you adjust variable resistor RV slowly from left to right, stopping in increments along the way, the voltage applied to the control pin of the "strobe" integrated circuit U23 varies; U23 is an encapsulated multivibrator (square wave) oscillator. The oscillator's audio output amplitude modulates the light output of red LED D1 (it will flicker at low voltages/ low oscillations). Its light is transported via the fibre optic cable to a separate audio amplifier circuit whose audio tone and level are controlled by phototransistor (Q4) conversion of light to an electrical current.

2) The audio produced will be low in tone and level so replace it with LED D8. It's a special red, blue and green LED controlled by a programmed chip that rotates its light output through various colours in a repeating sequence. Adjust RV again and compare the difference (if any) from the red LED.

3) Switch to white light LED D6 and repeat the experiment. There should be a now very noticeable difference. If you have other Snap Circuits kits, try green LED D2 or bicolour LED D10, which outputs yellow light when forward biased and orange-red (to my eyes) when reversed biased.

Question 1: Why do different colours of light produce different produce different audio tones and levels as you adjust variable resistor RV?

Question 2: Why don't you see any light along the clear looking length of fibre optic cable? Remove it from the phototransistor and look at the open end when the circuit is active.

Caution: *Only do this using LEDs from this kit!*

Fibre Optics: Experiment 4

4) Using white LED D6, adjust the audio level an tone using variable resistor RV to suit your ear then replace on/off switch S1 with press switch S2. Now you can use S2 to send Morse code by on/off keying oscillator U23.

Note: *Because the audio amplifier is always on, replace the three section link connected the positive side of the battery pack to Q1 with switch S1.*

Elenco created a fibre optics communications kit (see Figure 6) and training course (FO-30K). It's a separate optical transmitter and receiver (two kits required for two-way communications) that uses a fibre optic cable, but you can also use open air for line-of-sight experiments, bounce the LED light using mirrors or see what happens when you pass the LED's output through various optical filters (included in the Snap Circuits Light kit). You can also add simple lenses to focus and concentrate the light beam to increase the open air separation beyond a few metres.

Infrared: Experiments 4 to 7

There are five modern subdivisions of infrared: near, short, middle, long and far. Near IR (meaning the nearest to visible light) is used by television/PVR IR remote controllers that transmit specific IR code sequences to various devices, but for this

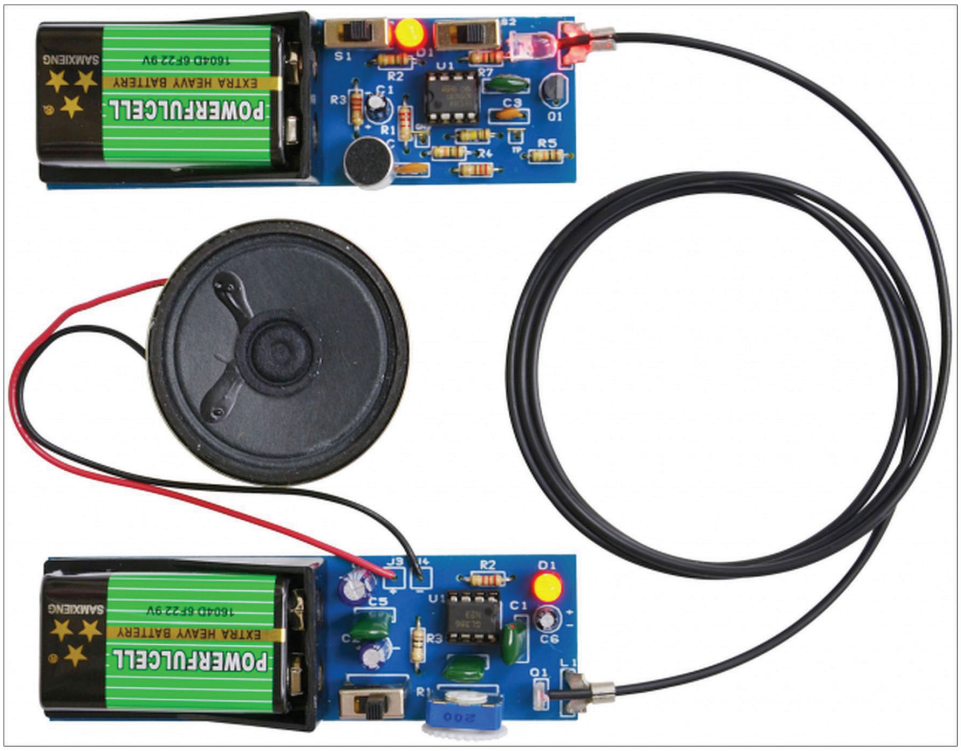


Figure 6: Elenco Fibre Optics Kit (FO-30K). Credit: Elenco Electronics.

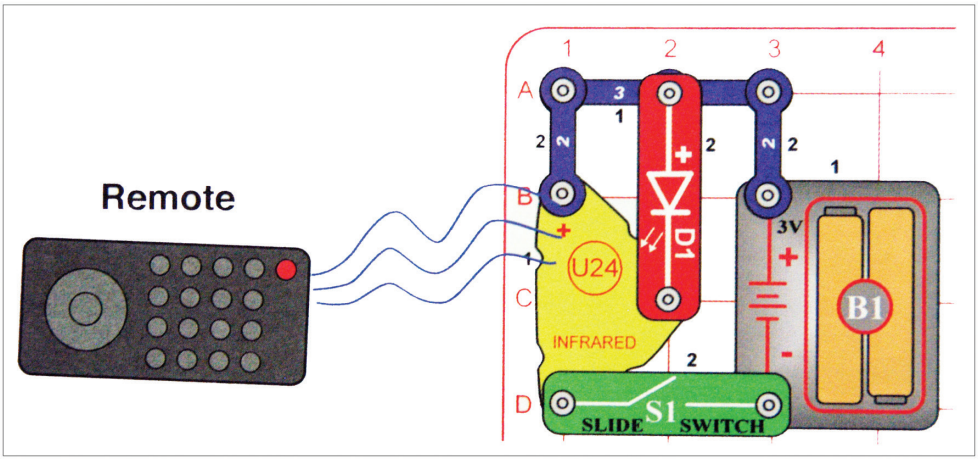


Figure 7: Optical Communications: Infrared Detector. Credit: Elenco Electronics.

experiment we'll just detect the presence of any IR signal.

Anything with a temperature emits IR energy that can be detected and measured by IR devices. The James Webb Space Telescope is using this simple fact to peer farther and farther back in space-time. Consumer digital cameras can also image this light spectrum by using an IR optical filter (or be internally modified) for both terrestrial and astronomical photography.

4) Build the circuit depicted in Figure 7 (Snap Circuits Light kit project 41). Now use any handy IR remote, point it at the infrared detector U24, press any button on the remote and red LED D1 should flash rapidly so long as you keep pressing the IR remote's button. Because white light sources also contain some IR, you may need to darken a brightly lit room.

5) Try sending slow Morse code across a room to the IR detector. You'll be sending a short series of flashing LED light for the "dot" and a longer series for the "dash". If you're quick with the finger press and release you can send just one flash for the dot.

6) Try reflecting your remote's IR light off of smooth walls, mirrors, paper and other flat objects to see if you can hit the IR detector and trigger the LED. Even make a game out of it (IR tag). You can also add sound to

Gear Galore, Advice from Real Hams, and Free Shipping!



Our Canadian customers tell us they love DX Engineering's **fast, free FedEx ground shipping for orders over $299 USD,** but that's just the beginning of what you can expect:

- 30,000 Amateur Radio products, from transceivers to towers, antennas to amps, connectors to coaxial cables
- Most knowledgeable support in the industry, whether you're into Digital, EMCOMM, DXing, or Contesting
- Convenient ordering by phone or online

About Shipping: When you place your order, we will estimate the cost of Landed Cost Delivery. If your order total before shipping, taxes, and fees is at or over $299 USD, FedEx ground shipping is free. You are responsible for paying any applicable customs, duties, taxes, and fees. These can be paid when you place the order, so there will be no surprises or out-of-pocket expenses when your goods arrive.



Email Support 24/7/365 at DXEngineering@DXEngineering.com

Click the Help Center link at DXEngineering.com and the information you need is right at your fingertips. It's another way DX Engineering is making it easier than ever to enjoy the world's greatest hobby—Ham Radio!

Ordering (via phone):
9 am to midnight ET, Monday-Friday
9 am to 5 pm ET, Weekends

Tech Support:
9 am to 7 pm ET, Monday-Friday
9 am to 5 pm ET, Saturday

+1 330-572-3200 | DXEngineering.com

DX ENGINEERING

make it easier to confirm "hits". The Light kit has several ways you can do this.

7) The Light kit comes with four optical filters: prismatic, red, blue and green. Put each type in front of your IR remote and see what effect, if any, they have on the IR signal.

Visible Light: Experiments 8 and 9

8) Shine a white light source (an LED flashlight is perfect) through each optical filter and project the light produced on a flat white surface and observe the effect (if any) of each on visible light.

9) If you have an air thermometer handy, in a darkened room shine the light produced by the red, green and blue filters on the thermometer to see if it can detect any increase or decrease in the ambient air temperature. It may not be sensitive enough but it doesn't hurt to try.

A digital temperature sensor and microcontroller combination would definitely be able to show that the EM light photons having different colours (wavelengths) also have different temperatures (energies).

Question 3: Why can't we detect IR (without electronic assistance) but other creatures naturally can. Hint: The answer is right before your eyes.

My Final

With Elenco's Snap Circuits Light kit and/or additional resources, you can dive deeper into the principles and applications of optical communications. Experimenting with optical circuits and understanding the various properties of light opens the door to the fascinating world of optical technology that now includes optical (photonic) computers. – 73

References and Resources

Electromagnetic Radiation –
https://tinyurl.com/3b8yh3h6

Elenco Electronics –
https://tinyurl.com/mtrkbbc5

Engineer's Mini-Notebook: Communications Projects –
https://tinyurl.com/4befs934

Fibre Optics –
https://tinyurl.com/bdds2chd

James Webb Space Telescope –
https://tinyurl.com/mshwcrve

Multivibrator –
https://tinyurl.com/b56nfjsr

NASA: Inverse Square Law of Light (tutorial) – https://tinyurl.com/bdeahxyr

Optical Communications for the Amateur
https://tinyurl.com/mu94y6j7
https://tinyurl.com/43a6py3x
https://tinyurl.com/34vare48

Optical (Photonic) Computers –
https://tinyurl.com/yc29amyk

Optocoupler –
https://tinyurl.com/4xnmexnn

Optoelectronics Circuits –
https://tinyurl.com/bdfz2twt

Photoelectric Effect –
https://tinyurl.com/4m827h29

Photophone –
https://tinyurl.com/yn26jj6u

Phototransistor –
https://tinyurl.com/24jy2mse

Snap Circuits Light Kit (manual) –
https://tinyurl.com/2b5m7zyd

Changes to the RAC Operating Awards Program

The Radio Amateurs of Canada (RAC) Contests and Awards Committee is pleased to announce the following changes to the RAC OperatingAwards Program:

1) The **Canadaward** now has a "Basic" endorsement, which means that you don't need to have all the contacts confirmed on a single band to apply for it. The single band endorsements are still available, but are no longer a requirement.

2) The RAC Headquarters call sign VA3RHQ has been added to the list of official RAC stations that count towards the **Worked All RAC Award**.

3) The **Trans-Canada Award** has been replaced with the new **Canadian Century Club Award**, which is awarded for having worked 100 different Canadian stations. Depending on how popular it is, we may add endorsements for 200, 300 or more stations. Participating in the RAC contests can quickly boost your numbers! The rules and geographical breakdown of the contacts are explained in the official rules on the RAC website.

4) RAC is pleased to announce the new **Worked All North America Award** for working North American entities. This will be a fun award for DXers the world over and will be offered in three levels – Bronze, Silver and Gold – depending on the number of North American entities you confirm contacts with.

5) **eQSL.cc confirmations are now being accepted**. We will now accept confirmations from eQSL.cc as long as they are from "Authenticity Guaranteed" users. This will give you one more option in case those stations you work don't use Logbook of The World or don't do paper QSL cards.

6) **Scans and screenshots of LoTW/eQSL confirmations are no longer required.** We have decided that it is no longer necessary to send over scans or screenshots of your electronic confirmations. Instead, just fill out the application with all the details, and have two other Amateurs sign it stating that they have verified that you indeed have these electronic confirmations, just as you would do if they were paper QSL cards.

7) **One step online submission and payment** – We will be adding an online form to the RAC website where you can submit your application and payment. This will get rid of the previous extra step of having to send an email with a PayPal link for the payment and will ensure all the information I need to process the application is there.

We will post the newly revised official rules as well as the new application form and any further updates to the RAC website. Please refer to it for any news.

Ante Laurijssen, VA2BBW
RAC Awards Manager

Amateur Radio Qualifications Now Count for Nova Scotia High School Credits

High School students in Nova Scotia who successfully complete the RAC Online Basic and Advanced courses are now able to obtain graduation credits for Amateur Radio qualifications under the province's Personal Development Credit Program. The Basic and Advanced qualifications will count for one half a credit each.

The purpose of the Personal Development Credit Program is to provide greater flexibility in meeting graduation requirements by providing High School credit to students who have successfully completed an approved program or course of study external to the public school system. Credits will be awarded for approved courses or programs of a High School standard that contribute to the Atlantic Essential Graduation Learnings, and meet the standards defined in the policy directives and guidelines. Personal development credits will be reflected on a student's High School transcript thereby enhancing the transcript for the student.

A list of all courses and qualifications that count for Personal Development Credit is at: https://www.ednet.ns.ca/docs/pdc-approved-providers-courses.pdf

Information on how to apply for Personal Development Credit can be found at: https://www.ednet.ns.ca/docs/pdc-student-family-information.pdf

Radio Amateurs of Canada is investigating similar programs in other provinces and territories.



Message from RAC Community Services Officer

Jason Tremblay, VE3JXT | Community Services Officer | community@rac.ca



CanWarn Program and Training

On May 26 and June 14, Radio Amateurs of Canada once again partnered with the Ontario Storm Prediction Centre (OSPC) to provide an online CanWarn Training session.

CanWarn is short for Canadian Weather Amateur Radio Network, a program run by Amateur Radio to support the Meteorological Services Division of Environment and Climate Change Canada (ECCC). Members of CanWarn – also known as ground-truthers – confirm information reported by ENCC from observations of satellites and radar. They also share information not detectable by these technologies.

CanWarn was first conceptualized by the Windsor Amateur Radio Club in 1986 with the help of Environment Canada. The first training session was held in Windsor during the winter of 1986/1987 and the program performed well for decades until it didn't.

In 2019, Environment and Climate Control Canada (ECCC) failed to complete a file for intellectual rights to the name "CanWarn". The Amateur community also neglected the CanWarn program and only a few CanWarn Nets exist now in Canada. As a result, ECCC turned to social media for insights to help predict storms.

In 2020, ECCC began shutting down weather radio sites across Canada and switched to the National Public Alerting System (NPAS) and Alert Ready Emergency Alert System for weather warnings and severe weather alerts.

Although social media provides a great deal of information to Canadians, it takes time to process and act upon reports from individuals.

The need for public involvement has also significantly increased in recent years as a result of the climate change crisis. Environment and Climate Change Canada still needs ground proofing to issue special weather statements that can save lives.

As a result, education initiatives on how to prepare for emergencies and on the CanWarn program are vital.

Radio Amateurs of Canada has adopted CanWarn as its national severe weather preparedness program and is pleased to provide free storm spotter training to help protect Canadians from severe weather.

Individuals can report information to the weather desk by email, and Winlink has a document that meets the requirements of Environment and Climate Change Canada. It's time to re-evaluate how we address CanWarn and its training to ensure its success for years to come.

For more information please visit the RAC CanWarn webpage at: https://www.rac.ca/emergency-services/canwarn/

The Field Organization and Auxiliary Communications Service

Radio Amateurs of Canada is collaborating to improve its emergency and disaster communication services.

We are working with relevant authorities to rebrand and reform its services to better serve our clients. As part of this effort, the name "Amateur Radio Emergency Service" (ARES) is being replaced with "Auxiliary Communications Service" (ACS). However, existing local groups with proven programs will continue to operate. The new ACS program will have new training requirements and members will have to join the training to qualify for future services.

In Ontario, Emergency Management Ontario (EMO) has been moved from the Office of the Fire Marshall to the Treasury Board. The Ontario Budget has allocated $110 million over five years to expand the services of non-governmental organizations (NGOs) within the Ontario Corps program. Radio Amateurs of Canada intends to make a proposal to augment our services and increase volunteer membership under the criteria of both the Auxiliary Communications Service and Emergency Management Ontario's current requirements.

RAC intends to create a program which is managed, funded and advised by stakeholders, with equipment and assets we own. We anticipate a growth in the Rapid Response team or "strike teams" approach with "drop kits" in each Section where provincial authorities can sign onto the program. These will be managed by the ACS Section Coordinators for those sections. Asset management will also be handled by RAC. This will give continuity and control for the training and certification of ACS members under the directions of their signed stakeholders.

The RAC Field Organization has been reorganized to better address the country's growing needs. With the exception of Ontario – which has been divided into four Sections based on Emergency Management Ontario's sectors – each province now has its own Section. The Territories have been combined into a single Section (TER) to improve interoperability during emergencies.

RAC also has expanded the leadership of the Sections to include a Sectional Council, which will promote the growth of Section-based programs. New Section Managers have already been appointed, and a new National Youth Coordinator has been appointed (see page 8).

Despite some delays due to Covid-19, RAC has made significant progress since the official launch in January 2023. We are now actively recruiting volunteers for ACS positions and formalizing the training program.

Stay tuned to RAC website and the pages of TCA for more information.

TCA

A Field Day to Remember in Southern Alberta

Peter Pankonin, VA6ARI

At final count, 32 operators either camped or visited during Field Day 2023 at the Fort Macleod Lion's Club campground in southern Alberta. Thanks to Gary Wheeler, VE6CV, who put great effort into the successful event, Amateurs attended from as far away as Calgary and Medicine Hat. Except for one storm that soaked everything Friday evening, the weekend weather was perfect on Saturday and Sunday, completely lacking the west wind southern Alberta is so famous for.

Some have commented that this year's event was more like a mini hamfest, with workshops, a fleamarket, pizza supper, and a pancake breakfast. Kevin Wittke, VE6KVV, made a bunch of very unique and creative signs that were placed around the campground and on every camper's site. It was difficult to choose a sign because they were all so good. The signs made for a very festive atmosphere. (Vince, I left the CW sign for you. I figured you would grab that one). Brian Layton, VE6LAY, helped Kevin get the signs up around the campground. Brian was also the registration, guestbook, raffle ticket coordinator and pizza controller man for the event.

Upon arriving at the campground, no one could miss the 260-foot half-wave antenna belonging to Renze Dam, VE6DC, which was stretched out across the entire hill from a tall tower. We knew we were in the right place!

Before noon on Saturday, the group gathered to honour Tom Buchanan (SK) with kind words and memories by various Amateurs who knew him best, followed by a minute of silence. Tom's daughter's arrived later in the day and were given a tour of everyone's campsite and mobile "shack"

On Saturday, Barry Rushford, VE6BGR and Cory Rushford VE6CYT, gave a presentation on the NanoVNA, talking about how to calibrate the NanoVNA, as well as how to run NanoVNA Saver software. To demonstrate, they tested an antenna Cory made for the other Cory Martin, VE6COR, showing how slight adjustments affecting the resonance of the antenna are displayed on the NanoVNA Saver software.



Some of the Field Day participants

Later in the day, Martin Heseltine ,VE6FH, gave a presentation on AREDN networks and an ADRCS server running on his portable PC, along with a copy of asterisk. Martin demonstrated how IP phones can be used on a AREDN network to contact other Amateurs on a radio mesh network.

Another highlight of the day was Vince D'Eon, VE6LK, attempting to contact other CW operators using a piece of string soaked in salt water as an antenna. Unfortunately, though we could hear their transmissions, Vince was unable to contact them. We blamed the failure on the heat of the day drying out the string too quickly.

Sunday started out with a huge pancake and sausage breakfast, prepared by Dave Jackson, VA6IRE, with the flipper operated by Peter Pankonin, VA6ARI. There was a generous supply of both pancakes and sausages and anyone who left hungry has only themselves to blame.

Breakfast in the Park

After 12 noon on Sunday, the draws began. There were two free Fort Macleod campground weekend passes and a draw for a new Yaesu handheld (HT). As the luck of the Irish would have it, new Amateur Dave Jackson, VA6IRE, was the lucky winner. Congratulations Dave!

The raffles and donations raised over $200 for the campground to plant new trees. Special thanks to George at GPS Central for the donation of the handheld! Everyone also left with a new Yaesu cap.

As a relatively new Amateur, this was only my second Field Day. I decided to go QRP this year with my Xiegu G90 HF transceiver and an End Fed Half Wave antenna pointed roughly northeast. This was powered with a little homemade battery box using my DeWalt 18-volt drill battery. With all the activities going on throughout the two days, I only managed about 20 contacts, but the biggest thrill was that I seemed to have a direct conduit to British Columbia, Oregon and Washington. Many operators were reporting a 10 to 20 over 9 signal, as I broke through the pileups with my 15 watts. I also attempted some FT8 but was not aware that WSJT-X has a "Field Day" mode and so rather than use that I ended up just fumbling around trying to change the standard messages to Field Day messages, which didn't work all that well. I'll know for next year.

Speaking of next year, the general consensus is that we will once again plan for another Field Day at the Fort Macleod Lion's Campground, but hopefully even bigger and better than this past one.
A special huge thanks to everyone who helped put on this awesome event and to all of you who attended! Also, a great big thanks to the Lion's Club Campground for hosting us again this year.

In case you haven't seen it, we made the front cover of the Fort Macleod Gazette. Thanks to Frank McTighe for the great article and for stopping in to talk to us. You can read it at the following link: https://tinyurl.com/2wzcxkw7

Community and Emergency Service Reports (ACS/ARES)

BRITISH COLUMBIA / YUKON:

Acting SM: Bill Gipps, VE7XS
A/SM: David Musselwhite, VY1XY
A/SM: Neil King, VA7DX
STM: Al Ross, VE7WJ
SEC: Acting Al Munnik, VA7MP
SEC: Terry Maher, VYIAK (Yukon)
OOC: Dennis Wight, VE7IJJ
ACC: Karla Wakefield, VA7KJW
CEC: Gursimran Gill, VA7GUR
SBM: Fred Orsetti, VE7IO
Website: www.va7mpg.ca

May-June SM Report:

If you have an item of interest to include in this section, please send it to the Acting Section Manager Bill Gipps, VE7XS, at bill.gipps@gmail.com and to the TCA Editor at tcamag@yahoo.ca.

70cm QSO Party –
Kishore Nair, VA7UZ

Taking a cue from the VHF QSO party REPARS, the Richmond Amateur Radio Society decided to host the UHF QSO party in April to raise awareness of UHF simplex propagation in the Lower Mainland. We carried out this exercise to ensure our community is safe and in the event of an emergency our volunteer Amateur operators can activate radios in our community centres.

We planned to activate all community centres in Richmond which have fixed mounted radios and grant 10 bonus point for working them, but we could activate only two call signs due to the pandemic. We received a dozen logs and enjoyed the enthusiasm of the participants.

Looking at the success of this event we are looking forward to making it a yearly event!

Surrey Amateur Radio Club
Field Day GOTA
John Schouten, VE7TI

This year, our focus was to get our course graduates on the air for Field Day. We run quarterly online Basic Amateur Radio courses that have been very well attended which have produced a large number of new Amateurs, both young and old, but it has not given much opportunity for them to get over their mic fright, or to get involved in the hobby.

One of our previous students, Larry Bloom, VE7LXB, a retired High School teacher, approached our club with an offer to become involved and help develop a program to get new Amateurs active. We have since appointed Larry as our New Amateur Coordinator and he is developing get on the air workshops, a weekly net and a blog (https://VE7RSC.blogspot.ca) – all devoted to answering questions for new Amateurs.

This year we decided to focus our Field Day on these new Amateurs and Larry filled all 24 hours with inexperienced contest operators. The result was fabulous and I believe we may have set a new record by a GOTA station with 404 logged contacts. For more information see the article on page 58.

"Vancouver Last Line of Communications"

An article by Roger Collins of Check News, entitled "Vancouver Islands last line of communication is run entirely by volunteers", highlights the Island Trunk System Island Trunk System as follows:

"For over 30 years, the Island Trunk System has served as a lifeline for those out of cell service and as a network for emergency communications in the event of a calamity.

It's a series of radio repeaters that can carry the signal from a low-powered handheld device all the way across Vancouver Island.

The radio system is made up of roughly 14 repeater stations across the Island. Most of the equipment has been donated, salvaged, or repurposed from old commercial facilities, making this a genuine community-driven initiative.

While the Island Trunk System is used regularly for day-to-day communication needs, its true value is best demonstrated in moments of crisis." For the complete article visit:

https://www.cheknews.ca/when-catastrophe-calls-the-unseen-heroes-of-vancouver-islands-last-radio-lifeline-are-ready-1150584/

Public Service Honour Roll

May:
VVE7XLH: 80; VA7MPG: 124; VE7GN: 120; VE7WJ: 80
June:
VE7XLH: 78; VA7MPG: 155; VE7GN: 105; VE7WJ: 100

ALBERTA:

SM: Ron Pettigrew, VE6RWP
SEC: Brian Davies, VE6CKC
STM: Don Moman, VE6JY
OO: Don Moman, VE6JY
wp.rac.ca/ares-alberta-yellowknife-nwt/

May-June SM Report:

Foothills Amateur Radio Society
Wally Gardiner VE6BGL

An impromptu event organized at the Lions Campground by Amateurs in Southern Alberta in Fort MacLeod was a great success!

Work continues on implementing new technology in the Amateur Radio Emergency Data Network (AREDN) and we continue to experiment with adding video cameras, remote receivers and bi-directional telemetry to the mesh network. The 900 MHz repeaters are now fully DMR accessible and we have been also looking at M17 as a digital resource.

Calgary – John Jardine VE6ONO

On June 17, the Calgary Emergency Management Agency (CEMA) held an Emergency Preparedness Day at the Genesis Center in northeast Calgary. The event was well attended and Brent, VE6BXB, Steve, VE6EVL and John, VE6ONO, worked with the Calgary Amateur Radio Association (CARA) to raise public awareness of ARES/ACS. Steve brought his Go-Kit and answered a lot of related questions about it. The CARA trailer was a big hit with many tours of it given.

During Field Day on June 24/25 John, VE6ONO, was operating from the CARA Field Day site. I was the only ACS operator present at that site. I sent a status report to Garry, VE6CIA, via HF Winlink.

We have also started the ARES/ACS nets again.

Cold Lake – Garry Naylor, VE6FGN

We had our annual general meeting last week, however not much else has been happening.

Northwest Territories and area –
Paulo Ranzani, VE8PR

Most of the antenna repairs were done and the roof covering fixed. We still have problems connecting our repeater to Echolink due to security concerns.

We attended the RAC CanWarn meeting, hosted by Geoff Coulson and Jason Tremblay, VE3JXT.

AREDN is back to normal operation after some server changes, thanks to Martin Alcock, VE6VH.

We continue to test new digital modes for further development such as: M17 and DMR; AS3935 lightning detector for my home Weather Station; and Windows 11 Pro Arm on a Raspberry Pi 4.

Grande Prairie – John Gilje, VA6JG and Mike Cassidy, VE6MJC

The Grande Prairie ARES group is up and running.

Red Deer – Steven Lee, VA6SGL

Work has continued on the mobile, crank-up tower project through May and June. The tower was successfully transported to and deployed at the Field Day location, west of Bowden, where it carried a multi-band dipole, 2m Yagi and 2m vertical.

Field Day was a reasonable success for the group, with approximately 20 members and non-members attending and participating in the event.

At the request of the Canadian Red Cross, the radio station installed at the Red Deer branch has been taken down and removed.

Medicine Hat – William Baugh, VE6CTM

The Medicine Hat Amateur Radio Club has been asked by Red Cross to vacate the Red Cross Office in Medicine Hat so the station is being removed. Until we find another location we will operate from our homes as most of us have both HF and 2m capabilities.

We currently run a Sunday Morning net and stats are radioed in each Sunday by HF.

– SM Ron Pettigrew, VE6RWP

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 Williscroft, VE4QE (Selkirk and District); Bill Boskwick, VE4BOZ (RM of Grey, RM of Dufferin & Town of Carman); Jason Coombe, VE4JYC, (Brokenhead ARES); Grant Delaney, VA4GD (LGD of Pinawa and surrounding municipalities)
wp.rac.ca/ares-manitoba/

May-June SM Report:

Winnipeg ARES – Jeff Dovyak, VE4MBQ

The Manitoba Marathon, which is a Father's Day tradition in Winnipeg, was held on Sunday, June 18 with around 8,000 runners.

Enhanced communication was at the forefront of this year's event after extreme heat caused the mid-race cancellation last year. For more information see:

https://news4winnipeg.com/nearly-8000-people-hit-the-pavement-for-the-45th-annual-manitoba-marathon/

Traffic Totals
May: 3
June: 3

ONTARIO – GOLDEN HORSESHOE:

SM: Rick Harrison, VA3NV
ASM: George Davis, VE3OGP
SEC: Rick Harrison, VA3NV
ASEC: Robert Galambos, VA3BXG
va3bxg@gmail.com

May-June SM Report:

York Region ARES
EC Mike Crabtree, VA3MCT

The Golden Horseshoe Section ran a surprise desktop exercise in June to test the ability to get in contact with volunteers to ask them if they were available for activation on short notice. To make it realistic it was assumed that cellphones network were overwhelmed and could not be used to reach anyone. The alert was sent out by text message with the assumption that cell data was still operational which is not always the case. The response was minimal at best so thankfully this was only a test and we hope to learn from it.

The York Region Amateur Radio Club (YRARC) is working with the York Emergency Management Office and the York Regional Police on their Emergency Operations for major incidents. We had an opportunity to see the police vehicles for remote/mobile operations. Some of them have Amateur Radio equipment installed, which we will arrange to retest and check on the latest programming of memories.

The YRARC is still working with both local municipalities as well as non-governmental organizations (NGOs) covering the GTA.

Some operators are hearing about our Winlink capabilities and reaching out for help from outside York Region and we are all happy to assist. We are also looking into traditional Packet systems as a secondary to Winlink.

Our YRARC evening voice net that started near the beginning of COVID has now surpassed 1200 nets and still bringing in 20-25 check-ins.

73, EC Mike Crabtree, VA3MCT

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

May-June SM Report:

Albany District

Elliot Lake – EC Bob Young, VE3ETE

Our Tuesday evening net participation was lighter, averaging 37 in April and May and 38 in June. Our NCS Earl, VE3AB, continues with the CW and SSB nets on 144.200 MHz, followed by the FM net on Tuesday nights, in order to give our more numerous FM stations first chance at checking in. I have been NCS for the C4FM digital net when Earl had other responsibilities. The local CEMC continues to be copied with our Winlink weather reports.

I attended the Manitoulin ARC Annual General Meeting as well as a club meeting via Zoom and one "Show & Tell" at Collins Hall. All were well attended.

I checked into the Procomm net 20 times.

There were 13 XRF-103 reflector checkins (DSTAR) and also checked into ONTARS on Sunday mornings, 11 times.

My DX100 was achieved on April 12. Grace, VA3GS, turned 90 on June 7 and a celebration was held at the Masonic Lodge and many attended. The club Executive decided we would work individually on Field Day and I didn't get a good start due to other responsibilities and only made about 16 contacts.

Amethyst District

Despite a serious forest fire season, ARES activity has been quiet this summer. Several members participated in Field Day. Thunder Bay has been working with the local hospital to be ready to provide emergency communications using Winlink.

Atikokan – EC Warren Paulson, VE3FYN

There was no activity in June, other than participating in weekly nets.

Fort Frances

In the month of June we did checks on the Emergency Operations Centre and its backup radios and computers. Along with the weekly checks, all is running good here.

Kenora

For Field Day on June 24, six members and an 11-year-old Amateur to be met at the Kenora Emergency Operations Centre. The aspiring Amateur made two phone contacts and another member did a CW demo and made a contact.

We did nine FT8 contacts and then we wrapped it up with several Winlink HF VARA emails including one to our SEC Stiig Larsen, VE3LBX, for 100 points! A good time was had by all!

Sioux Narrows – Nestor Falls
EC Woody Linton, VE3JJA

Field Day was held at the main EOC in Sioux Narrows. The main goal of the event was to familiarize members on the operation of the ARES station's equipment. FT8 was the primary mode and five Amateurs attended on the Saturday. Winlink messages were sent via HF to the Section Manager and Section Emergency Coordinator.

Thunder Bay – EC Brad Harris, VE3MXJ

My Assistant Emergency Coordinator (A/EC) Lori, VE3VAI and I went to our local hospital to meet with their Emergency Management Team. We did a demonstration on how to send emails and data without the internet, using Winlink VARA FM mode.

Killarney District

Sudbury – EC Marc Savignac, VE3SNA

Sudbury Amateur Radio Club and the Sudbury ARES/ACS jointly held their Field Day at the old radar base. All went well and participants are looking forward to next year.

– 73, SM Allan Boyd, VE3AJB

DECs Reporting:
VA3s: PC
VE3s: FYN

ECs reporting:
VA3s: ECO
VE3s: FYN, ETE, JJA, MXJ, RYD, SNA, TGI, YDN and ZDR.

ONTARIO EAST:

SM: Michael Hickey, VE3IPC
Email: ve3ipc@gmail.com
SEC: Michael Hickey, VE3IPC
STM: Vacant
OBM: Paul Caccamo, VA3PC,
va3pc@ciinet.org
Web: http://wp.rac.ca/ares/

May-June SM Report:

I had an excellent meeting with CEMC Millie and Alt CEMC Jason at the decommissioned Ambulance station in Embrun and spent the balance of the afternoon on the road with Jason. The purpose was for me to inspect the building for the installation of a communications tower to support a VHF/UHF antenna for their primary Emergency Operations Centre. Our first stop after was at the local Embrun Fire Station for a quick look at its tower and antenna, then we went to the Russell Fire Station for inspection.



I then visited the Mother Theresa Intermediate School in Russell where in 1998 I was asked to set up my personal radio station inside the library during the Ice Storm. I operated for nearly a week from there despite many challenges, too numerous to mention here. I decided to start the PR-ARES Group in April 1998 as a result of this experience.

This was my first visit to the school since the Ice Storm 1998 and it brought back many memories. I met the school's Principal in front of the school and he took a photo for me.

Submitted by Prescott-Russell (PR-ARES) Group Coordinator Lance Peterson, VA3LP

The Prescott-Russell ARES Group and the Prescott-Russell ARC provided the Eastern Ontario ARES District (EOAD) basic ARES Training course on May 27-28 in Embrun. The course was attended by 19 Radio Amateurs from across Eastern Ontario. GC Lance, VA3LP, was the primary instructor along with his able assistant, Gilles, VE3NPI. The first day of training provided a short simple overview of the RAC ARES/ACS Organization, the roles and responsibilities in a local ARES/ACS organization, suggestions for deployment kits in the EOAD, standardized net operations and procedures, operating etiquette and radio procedures. Lastly, an overview of the Eastern Ontario District Mutual Aid Program (DMAP).

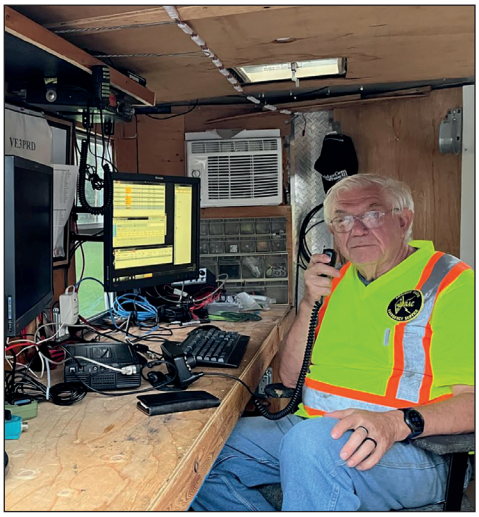
On the second day the trainees were brought into the class using the DMAP procedures as if deployed to an adjacent ARES Group that required assistance. In this exercise the trainees are briefed on the exercise, where each will be deployed to and given tactical call signs. Then again using the DMAP procedures, they were deployed to various places through Embrun and Russell. The deployed portion of the exercise was approximately one hour in duration in which each student would send and receive at least one radio message. This gives the trainees an opportunity to be involved in a highly controlled net with very specific protocols. Upon returning from the deployment, the trainees were again signed back in using the DMAP procedures to ensure that all have returned and been debriefed.

At the end of the class, Stuart, VE3SMF, gave a briefing on the Winlink system and how it is being developed by the Canadian Winlink Operations Team (CWOT) as a very useful Amateur Radio email system over the air for emergency operations.

As any training should be, everyone had opportunities to learn something about themselves. From how their equipment works (or doesn't work) to what changes need to be designed into any upcoming training.

One very specific feedback was that due to the number of very new Radio Amateurs taking the training, prior to deploying the trainees, it is best to have a preview of how net operations will be conducted by showing an exchange between net control and outstations as well as how the outstations would be sending/receiving a message.

It is vital that everyone understand that many new Amateurs who are attracted to emergency radio communications (EmComm), need a little more guidance that those with many years of experience in operating.



Harry, VA3ZAK, operates Field Day 2023 from the Prescott-Russell Communications Trailer shown below. Photos by Pierre, VA3HWK.



The following were the attendees:

Leo, VA3EBI, Mickael, VA3PAI, Patrick, VA3PEL, Daniel, VA3GLB, Dan, VA2EEK/VA2EV, Reg, VA3WZN, Joel, VA3WBK, Jan, VA3XAR, Charlene, VA3CZC, Steve, VE3EZB, Roger, VA3GBV, Dave, VE3YH, Louise, VE3LOI, John, VE2EQL, Earnest, VA3EWV, Hunter, VA3HWF, Jason, VE3PRY, Norman, VE3NPP and Simon, VA3DZT.

The PR-ARES Group would like to thank Millie Bourdeau, CEMC for Russell Township, and the Town Council for the use of their Council Chambers as a venue to provide this training. It is this kind of support from the community that helps ARES/ACS groups train to provide support back to the community.

If you would like to receive the Training Course material and the DMAP manual, contact GC Lance Peterson, VA3LP, at va3lp1@gmail.com.

The Prescott-Russell ARES Group and the Prescott-Russell ARC participated in the annual Field Day at the Larose Forest Welcome Centre. The trailer was provided by Jeff, VA3ISP for the

club's use and was set up in the parking area and two stations were used. A multiband dipole and a vertical antenna were set up on the south side with the trailer and an end-fed wire antenna was set up on the north side. The stations were operated prior to the start of Field Day as POTA stations and then the log was also submitted as POTA activations.

The stations were operated throughout the day up until just before midnight on Saturday when a storm front was moving through and it was deemed too dangerous to continue. Everything was buttoned up until early the next morning. At first light, the stations were activated and continued until the event ended. The event was coordinated by Joel, VA3WBK and Mickael, VA3PAI and participants included: Lance, VA3LP, Gilles, VE3NPI, Jim, VA3KV, Harry, VA3ZAK, Mario, VE3WBK, Alan, VA3ONN and Chad, VE3OUO.

The Prescott-Russell ARC Inc. would like to thank the United Counties of Prescott and Russell for the use of the Larose Forest Welcome Centre to hold our Field Day this year.

Submitted by PR-ARES Group leadership member Mike Hickey, VE3IPC

On June 27, Mike, VE3IPC, CEMC Millie and Alt CEMC Jason visited the decommissioned ambulance station in Embrun to assess the radio station room equipment and tower installation requirements for (EOC-1) and to inspect the Russell Fire station tower's side-mounted Amateur Radio antenna and its coax, using binoculars. This came as a result of the Township providing an approved but smaller than requested budget amount for the CEMC. With a smaller tower, preliminary number crunching indicates that a complete station should fall within budget and some funds may be available for a new coax and antenna for the Russell Fire station (EOC-2).

Mike also ran some repeater communications tests from his mobile while near the old ambulance building having max 65 watts with a 5/8 wave VHF antenna on the van's roof. Frequencies tested were: 146.940 VE2CRA and 146.880 MHz VE3EMV, were solid RX with medium power key up. 147.300 VE3TWO southwest of Ottawa 1/4 scale on RX display using max power to key-up. 146.805 MHz VE3RWC Pine Hill PQ RPT was fully functional and the RX was 1 to 2 bars signal strength depending where the van was positioned. On one occasion it was 3 bars RX.

Submitted by Peterborough ARES – Assistant GC John deLagran, VE3VL

Harmen Minnema, VE3EMA, has been officially appointed by the RAC Ontario East Section Manager as the new Peterborough ARES Group Coordinator. Many thanks go to John, VE3VL, for building up and training the ARES group over several years of effort. Harmen will be leading with a new emphasis on municipal partnerships, digital technology and the Auxiliary Communication Service. John, VE3VL, is continuing with Peterborough ARES in a role as an Assistant Group Coordinator.

Harmen, VE3EMA and Jerry, VA3CN, met with Selwyn Township CEMC Angela Chittick to discuss how Peterborough ARES could help with Auxiliary Emergency Communications. Angela gave a tour of their EOC and discussed locations for a radio station. Angela will be meeting with Selwyn Emergency Management Team to discuss our role and to confirm if we could install a radio station at their EOC.

Harmen, VE3EMA, John, VE3VL and Clay, VE3YCL, checked the radio equipment at the City EOC in May including the VARA FM link to a VE3KPG and the new VE3BUY-10 nodes on low power. The radio check went well.

There were an average of 12 check-ins to the weekly net in May.

Richard, VE3IQZ, Martin, VA3OMW and GC Harmen, VE3EMA, reprogrammed frequencies as well as performed a radio and antenna check at Peterborough County EOC.

Harmen, VE3EMA, Robert, VE3IEL, Martin, VA3OMW, Devon, VE3DEV, Nina, VE3IRK, Jon, VE3XOE, John, VA3NW and Richard, VE3RKY, completed the Basic Emergency Management EM-200 course co-hosted by Otonabee – South Monaghan CEMC Chuck Parsons, VA3NY and EMO Field Officer for Severn Sector, Eric Thibaudeau.

Peterborough ARES along with Peterborough ARC held their Field Day Event at Newhall Park. Multiple bands and digital modes including Winlink were operating throughout the 24 hours. At least 27 members participated.

There were an average of 11 check-ins to the weekly net in June.

Submitted by the RCW-ARES GC Bob Howard, VE3YX

Renfrew County West (RCW-ARES) Group Coordinator Bob, VE3YX, reports that despite repeated emails there was a very low turnout for Field Day this June. Consequently, we did not set up our portable garage in Riverside Park, Pembroke but instead used a pop-up sun shelter and operated 1A with the call VA3NRR. Technical issues, rain, mosquitoes and thick forest fire smoke made this a Field Day to remember despite the fact that it was our least successful to date. The team had 73 SSB contacts and sent 5 IMS-213 messages by Winlink packet, one to SM Mike, VE3IPC and 4 to others who had indicated their willingness to receive FD Winlink messages.

Participants were: Alex, VA3TFZ, Ean, VE3TLG, Jim, VE3JTE, Yvonne, VE3RYA, Robert, VA3AGN and GC Bob, VE3YX. Bill, VE2IQ, provided the ARRL bulletin.

The club's IRLP node 2520 has been put back into operation. There is a bit of an odd noise on the audio that has yet to be tracked down and squashed.

Submitted by the LNL-ARES Club Secretary Tyler Tidman, VE3DGN

Lanark North Leeds (LNL)-ARES Club Secretary Tyler, VE3DGN, reports that in May some members of the LNL-ARES team once again assisted other Amateurs from the Ottawa region to support the 2023 Rideau Challenge Journey. Since 1990, Scouts from around the region have gathered in the Marlborough Forest to hike part of the Rideau Trail, practise their orienteering skills and generally have fun and learn other elements of camp-craft.

This year's event operated a controlled, simplex net on 2 metres FM away from any local repeaters using field-expedient, portable antenna masts, and gave some of the Scouts a chance to get on the air and an opportunity to ask questions about Amateur Radio too. For more details, visit: https://newhamsottawa.ca/index.php/Main/RCJ and https://en.wikipedia.org/wiki/Rideau_Trail

In June, the LNL-ARES team conducted their Field Day activities for the first time in over a decade from Conlon Farm in Perth with about 10 participants – and all QRP, no less. The Rideau Lakes Cycle Tour, which normally occurs on the second weekend of June and usually sees a lot of radio volunteers from LNL-ARES, was postponed until the end of July due to air quality concerns.

GCs (ECs) or Assistants reporting: VA3LP, VE3VL, VE3IMP and VE3YX

OBS reporting: VE3IQZ

QUEBEC / QUÉBEC:

SM: Sylvain Lamarre, VE2LAM
lamarrsy@yahoo.com

May-June SM Report:

Regional Coordinators of regions 05 (Estrie) and 16 (Montérégie) are proceeding with a rotation of responsibilities with their respective assistants: Dominique Jean, VA2DJ, will take the leading role for region 05, while Mario Coutu, VE2SJR, will take the leading role for region 16. In addition, for regions 04-17 (Mauricie / Centre du Québec), Alain Levasseur, VE2BUJ, has announced his retirement as Regional Coordinator so RAQI is looking for a replacement.

Jean-Michel Vien, VA2XJM, the new RAQI Emergency Measures Manager, held his first virtual meeting with the Regional Coordinators team on July 20. New alternate communications "channels" between all the Regional Coordinators have been added to facilitate quick communications. A new Zello channel is now available to the Coordinators team – which can be used with "Network radios" or with regular cellphones – and a unique "group email address" has also been created, avoiding the need to enter each email address individually when sending email to the group.

On the Emergency operations side:

RAQI's Regional Coordinators have been in a "pre-alert" state during the first days/weeks of the intense forest fires Quebec has seen and which prompted evacuation of many localities. Most of the forest fires raged uncontrolled from end of May until mid-June and about one-third were still active but controlled as of mid-July. Regular commercial communications infrastructure were not affected, Québec's Sécurité Civile had their communication systems functioning properly so RAQI's Regional Emergency Communications teams were not requested.

Rapport SM de mai et juin :

Les Coordonnateurs Régionaux des régions 05 (Estrie) et 16 (Montérégie) procèdent à une rotation des responsabilités avec leurs adjoints respectifs : Dominique Jean, VA2DJ, assumera le rôle principal pour la région 05, tandis que Mario Coutu, VE2SJR, assumera le rôle principal pour la région 16.

De plus, pour les régions 04-17 (Mauricie / Centre du Québec), Alain Levasseur, VE2BUJ, a annoncé sa retraite en tant que Coordonnateur Régional, donc RAQI est à la recherche d'un remplaçant.

Jean-Michel Vien, VA2XJM, le nouveau responsable des Mesures d'Urgence RAQI, a tenu sa première rencontre virtuelle avec l'équipe des Coordonnateurs Régionaux le 20 juillet.

De nouveaux « canaux » de communication alternatifs entre tous les Coordonnateurs Régionaux ont été ajoutés, afin de faciliter des communications rapides : un nouveau canal Zello est maintenant disponible pour l'équipe des Coordonnateurs (peut être utilisé avec des « Network Radios » ou avec des téléphones cellulaires ordinaires), et une adresse unique "de courriels de groupe" a également été créée, évitant d'avoir à saisir chaque adresse courriel individuellement lors d'envois au groupe.

Du côté des opérations d'urgence :

Les Coordonnateurs Régionaux de RAQI ont été en état de « pré-alerte » pendant les premiers jours/semaines des feux de forêt intenses que le Québec a connus et qui ont entraîné l'évacuation de nombreuses localités.

RAC FIELD ORGANIZATION REPORTS
National Traffic System (NTS) Net Reports

Net (Manager)	Sessions	QNI	QTC
May 2023:			
APSN (VE6JY)	31	2136	9
Alberta ARES (VE6JER)	8	308	13
Aurora (VE7GBO)	31	2997	0
BCEN (VE7XLH)	30	174	11
BCYTN (VE7WJ)	31	451	28
CECA (VE7GBK)	5	144	6
MEPN (VE4JS)	31	608	0
MMWXN (VA4GD)	31	486	0
MRS (VE4HK)	9	225	0
MSMN (VE4AJ)	23	537	0
Saturday (VE4AJ)	4	77	0
June 2023:			
APSN (VE6JY)	30	1509	12
Alberta ARES (VE6JER)	10	351	6
Aurora (VE7GBO)	30	2868	0
BCEN (VE7XLH)	27	149	10
BCYTN (VE7WJ)	30	436	31
CECA (VE7AKE)	5	91	5
MEPN (VE4JS)	30	543	1
MMWXN (VA4GD)	30	434	1
MRS (VE4HK)	9	288	0
MSMN (VE4AJ)	22	492	0
Saturday (VE4AJ)			0

La plupart des incendies de forêt ont fait rage de manière incontrôlée de la fin mai à la mi-juin et environ un tiers étaient encore actifs mais maîtrisés à la mi-juillet. Les infrastructures de communications commerciales régulières n'ont pas été affectées, la Sécurité civile du Québec a utilisé ses systèmes de communication sans problèmes, de sorte que les équipes régionales de communications d'urgence de RAQI n'ont pas été sollicitées.

Sylvain Lamarre, VE2LAM,
Mesures d'urgence RAQI

NEW BRUNSWICK

SM Jean-Paul Leblanc, VE9BK
medals2@gmail.com

May-June SM Report:

Now that the summer is over, it is time to start building the New Brunswick Section. There is only one of me and I can't do everything by myself. I need a team of dedicated volunteers to take on various functions within the Section. There is an immediate requirement for the following volunteer positions:

- Assistant Section Manager
- Sectional ACS Coordinator
- Sectional Community and Youth Coordinator
- Sectional Radio and Traffic Coordinator
- Sectional Training Officer
- Sectional CanWarn Coordinator
- ACS Group Coordinator
- ACS Rapid Response Team Leader
- ACS Provincial Response Team Coordinator

The most important position is that of Assistant Section Manager. As shown above I also envision several deputies covering various regions in the province. These are very important positions given the increasing number of hurricanes, ice storms, flooding and forest fires. Becoming a volunteer is a great way to give back to your community and ensure the safety of New Brunswickers.

This is your opportunity to get involved in a very important aspect of our hobby. The only requirement is that you be a RAC member. If you are interested in any of these positions, please contact me at medals2@gmail.com and let me know which position you are interested in and why and also send a short bio of your Amateur Radio interests.

I would also appreciate it if all New Brunswick Amateur Radio Clubs would provide me with regular monthly updates on their activities for inclusion in my SM report. If you have a long write-up I will send it to the TCA Editor for possible inclusion in the Public Service / ACS column. This is a great way of getting free advertising for your club activities.

Building the New Brunswick Section will not happen overnight. It will take time and a dedicated team of volunteers who have the best interests of all Amateurs in the province.

Le Nouveau-Brunswick est la seule province bilingue au Canada et j'encourage nos amateurs francophone à faire partie de notre nouvelle organisation.

– 73, Jean-Paul Leblanc, VE9BK

PRINCE EDWARD ISLAND

SM Bill McMaster, VY2WM
bill@vy2wm.ca

May-June SM Report:

The Prince Edward Island Amateur Radio community has been very active. The weekly nets on 2 metres and 80 metres have continued to draw good attendance despite the improving weather and outdoor activities. The 2 metre Simplex net continues to meet once a month and seems quite popular with the group of Amateurs around the central PEI area. RAC members have activated a number of PEI parks for Parks On the Air (POTA). There have been several Lighthouse On the Air (LOTA) activations as well.

The Winlink VHF RMS gateway located in the radio room adjacent to the Emergency Operations Centre of the PEI Emergency Measures Organization (EMO) got off to a rocky start. The gateway only had access to the internet via a Wi-Fi connection with EMO and it lost internet access on several occasions, although the gateway is configured to store incoming messages and forward them once internet access is restored. It was also discovered that the 210-C2 antenna used for the gateway was damaged, likely by Hurricane Fiona, and was not providing the expected coverage. Both of these issues will be addressed in the near future.

Continuing on the topic of Winlink, discussions have been started regarding the training of CanWarn participants in the Maritimes on the use of Winlink. It's possible that Winlink Forms Templates may become part of some CanWarn reporting in the future.

Many Island Amateurs attended SMART 2023 (Symposium for Maritime Amateur Radio Technology) hosted by the WestCumb Amateur Radio Club. This was the sixth annual symposium and it was an incredibly well organized and executed event. Amateurs across the Maritimes look forward to this activity. Brent, VY2HF and Bill, VY2WM, gave back-to-back presentations on Winlink and RMS Gateways. Our hats go off to the WestCumb ARC for all their efforts in providing a first-class event.

In early May, nine new Amateurs gained their certificates following the spring Basic Radio Course put on by the Charlottetown Amateur Radio Club. The club has also been employing a club Discord server to facilitate out-of-band discussions. They have found this to be a highly valuable resource to share information, ask questions and generally discuss topics with other club members.

Several of the organizers of Exercise Handshake in Nova Scotia have contacted me to try to raise awareness and ultimately participation in Exercise Handshake by both the Amateur Radio community and emergency service organizations on the Island. Initial discussions have been held with the PEI EMO about activating the EMO EOC during Exercise Handshake on the last Tuesday of each month. In addition, some information sessions are planned with both the Amateur Radio community and emergency response organizations over the next few months.

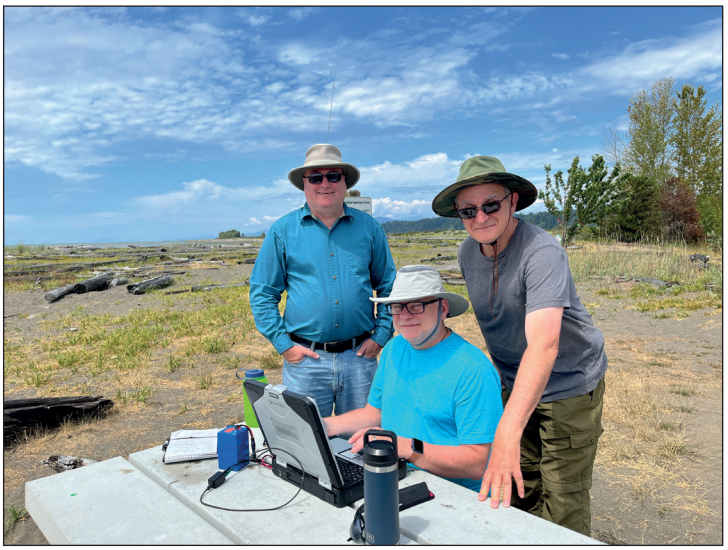
I attended the PEI Emergency Measures Organization's Council of Non-government Organizations, which may be able to provide services in emergency or disaster situations.

Finally, following the success in Nova Scotia (see page 42), RAC members in PEI are making inquiries with the Department of Education and Early Years Education Department about having Amateur Radio certification be counted for High School credits. There is a lot of interest within the community to making this happen.

Bill McMaster, VY2WM
President, Charlottetown Amateur Radio Club
www.charlottetownarc.com

TCA

West Coast POTA Activations



Rob, VA7RPE, Peter, VE7XPW, and Sandy, VE7SFW, enjoying POTA.

On July 12 and 13, Rob Eichhorn, VA7RPE, Peter Walsh, VE7XPW, and Sandy Wohl, VE7SFW, pictured above, activated Iona Beach Park (POTA #VE-5502) and the Britannia National Historic Site (POTA # VE-5320) in Richmond, British Columbia.

Their setup was an Elecraft KX3 transceiver with a Digirig interface to a laptop running FLRig and FT8. The antenna is a Chameleon MPAS Lite multi-band vertical. A total of 50 QSOs were made.

The Britannia activation is adjacent to the historic Britannia Shipyards, the Murakami House (a registered historic home) and the nearby Japanese bunkhouses that were erected a century ago during the height of the salmon industry.

The Gulf of Georgia Cannery National Historic Site (POTA VE-4792) is nearby.

The three are members of the Delta Amateur Radio Society, VECTOR, and the Orca DX and Contest Club, in addition to Radio Amateurs of Canada.

– 73, Sandy Wohl, VE7SFW

TCA



The Sports Page: The Canadian Contest Scene



Tom Haavisto, VE3CX | ve3cx@myrac.ca

At Dayton this year, I had a chat with Don Moman, VE6JY. Like many of us, he is no longer young and nimble, and climbing towers is not as it easy as it was in the past. Don has come upon a new passion – namely becoming a Contesting Elmer for new Amateurs and I asked him to share his thoughts about his new role.

The first thing to keep in mind about new Amateurs is that they are inexperienced and impressionable. If you are in a position to act as a role model, you need to lead by example – such as being a net control for a net that is likely to attract new Amateurs. Many experienced Amateurs seem to be set in their ways and we may need to offer more examples of being a good role model. It seems that nets and contesters are at cross-purposes, creating friction between the groups. This is where being a good role model can really shine.

Nets do not own a frequency.

The bands are a shared resource for all to enjoy and we all need to get along together. If there is an ongoing QSO or a contester is occupying a frequency, the net needs to move. They have no more right to any frequency than other users, and if the frequency is in use everyone should respect that. Just as contesters or ragchewers should respect that if a net is using a frequency, they should also move. Please change frequency (QSY) at least 3 kHz.

For example, the Alberta Public Service Net (APSN) – "a directed radio net organized for the public service and convenience of all appropriately licensed radio operators which is a part of the National Traffic System – moves all the time and users have become accustomed to this. You can find more information at https://www.apsn3700.net/

If someone moves in on a net that is in progress, it may well be that propagation has shifted. Since no one has exclusive use of any frequency, there is nothing wrong with being courteous and moving. If the other person chooses to be obnoxious, two wrongs don't make it right. Frequency fights negate the purpose of the net and are a black eye for the Amateur Radio Service. Move or coexist. Simple. Being polite is always appreciated by everyone.

You should also consider signal quality, and if you "sound good"? Overdriven audio, excessive background noise, RF feedback and wide signals are just not acceptable. In many cases, just turning down the audio levels will help greatly. Most contesters have already figured that out. If you sound good, people will call you. If you have distorted audio and are difficult to understand, people will have difficulty working you. Having good quality audio will also improve your contesting efforts.

Praise good quality signals.

Many new Amateurs lack the knowledge to determine their signal quality and depend on someone to gently nudge them and help correct things. Perhaps the other station is not aware that they are having issues and you can offer your assistance. The Kiwi remote receiver is great for checking how your transmitted signal sounds on the air. They are the handiwork of John, ZL/K6FVO, and have really impacted the world of remote listening. They are inexpensive, good-performing, feature-rich HF receivers that anyone can access just using their browser – no special software required.

You can find more info at http://kiwisdr.com and a map of remote receive sites at http://rx.linkfanel.net.

Don has three public Kiwis online and each can handle eight users. The receivers are tuned to different frequencies and modes. They are a great tool to check your audio quality and signal strength (check the S meter extension). They are fine for listening to the bands, checking into nets and chatting with friends if you can't hear them on your own equipment. If you have high noise nearby, a remote receiver can offer a "different perspective" on how the bands sound from a different location.

For contacts such as in contests and working DX stations, users should follow the DX Century Club (DXCC) and each individual contest rules as the usage of remote receivers and remote stations. In some cases, there are distance limitations for how far a remote receiver can be, especially on 160 metres.

Don likes to announce some of the upcoming major contests in the net announcements section. It is a good idea to include the contest exchange and explain the types of stations they are likely to work and to invite those checking in to briefly share their contest experience for the past weekend. Seeing their friends and others they know participating just may tweak their interest and you as a Contest Elmer can answer any questions regarding the contest.

WRTC 2022

The World Radiosport Team Championship (WRTC 2022) was held on July 8-9 in Bologna, Italy, with a total of 58 teams competing. There are special rules for competitors so even qualifying to be a competitor is no small feat, and doing well poses additional challenges. To win has to be the thrill of a lifetime that many of us can only dream of. The winners were Yuri Onipko, VE3DZ and Yaroslav Oliinyk, UW7II, who took first place operating as I44W. Todd Bendtsen, VE5MX and John Sluymer, VE3EJ, placed 29th operating as I44Q. Gilles Renucci, VA2EW and Victor Androsov, VA2WA, placed 46th operating as I43B. Well done guys!

The next WRTC will be held in the United Kingdom in 2026. The first qualifying events will be the 2023 CQWW SSB and 2025 ARRL DX SSB contests.

– continued on page 53

WORLD WIDE DIGI DX CONTEST – August 2022

Call	Category	QSOs	Grid	Score
VE3MGY	SOAB LP	659	122	107,238
VE2OWL	SOAB LP	352	80	51,680
VE1RSM	SOAB LP	298	90	51,660
VA3CQG	SOAB HP	169	57	23,142
VA7MM (VE7HRY VA7MAY VA7MM)	M1 LP	153	59	20,178
VE5MX	SOAB HP	165	51	16,626
VO1AX	SOAB HP	180	59	15,989
VO1BYD	SOAB LP	200	37	11,729
VE3IDT	SOAB LP	146	37	10,286
VE1BZI	SO20 LP	216	22	7,040
VE3BR	SOAB LP	102	40	6,480
VA3RSA	SOAB LP	143	37	6,438
VA3RTG	SOAB QRP	111	46	5,382
VE2NMB	SOAB LP	101	29	4,843
VE7KAJ	SOAB LP	102	23	3,864
VA3IK	SOAB LP	90	25	3,300
VA3DYD	SOAB LP	57	33	2,343
VE3SMA	SOAB LP	55	25	2,175
VY1FC	SO20 LP	72	15	1,785
VE7DFJ	SOAB LP	62	20	1,440
VE2PI	SOAB HP	50	16	1,120
VE2QH	SOAB LP	49	16	1,024
VE3GJP*	SOAB LP	27	18	864
VE3PQ	SOAB LP	28	14	518
VE3LMN	SOAB LP	33	13	403
VA7DGT	SO20 LP	23	7	196
VE6SYD	SOAB LP	4	4	20

*Log received after deadline. Not eligible for awards.

CQWW DX CONTEST, RTTY – September 2022

Call	QSO	Zones	DX	SP	Category	Score
VE3DZ	2,027	79	222	192	SOAB QRP	2,417,672
VE2CQ (VE2CSM VE2FK VE2PI)						
	1,615	68	178	170	EM	1,575,808
VA3LR	1,056	82	212	154	SOAB HP(A)	1,157,632
VE3MGY	974	64	151	162	SOAB LP(A)	734,019
VE2BVV	898	52	147	112	SOAB QRP	702,860
VE3NZ	929	50	157	110	SOAB HP(A)	702,789
VE3TW	908	55	128	136	SOAB HP	666,391
VA3LML (VA3LML VE3KTB)						
	790	58	151	123	M1 HP	598,264
VE6BBP	814	60	101	160	SOAB QRP	567,207
VE3BR	734	62	140	135	SOAB HP(A)	562,453
VE5KS	720	66	124	130	SOAB QRP	496,320
VE3GYL	680	57	132	112	SOAB HP(C)	476,784
VE7CC	1,156	31	88	56	SO20 HP(A)	468,825
VE2RYY	980	30	93	50	SO20 HP(A)	440,631
VE5RI (VE5FF VE5WI VE6VAC VA6NJK VA6GWS)						
	757	58	85	145	MM	436,608
VE3WVA	662	57	103	138	SOAB HP	404,982
VE4VT	502	76	142	124	SOAB HP(A)	377,568
VE3TM	537	50	127	94	SOAB LP(C)	346,880
VA3WW	610	54	116	92	SOAB HP(C)	339,290
VE3PJ	511	59	177		SOAB LP(A)	335,120
VO2AC	580	37	99	111	SOAB HP(C)	325,299
VO1CH	660	24	84	46	SO15 HP(A)	255,948
VE3NFN	462	40	104	90	SOAB QRP	253,890
VE3RUA (VA4JP K0MKL)						
	449	50	84	134	M1 LP	252,992
VE3EY	395	62	123	90	SOAB HP(A)	240,900
VA3RTG	388	52	115	83	SOAB QRP	236,750
VA3OGG	507	40	76	128	SOAB HP(R)	231,068
VE2NMB	432	41	91	99	SOAB LP(A)	220,374
VE7SZ	672	24	68	50	SO15 HP(A)	218,538
VA7KO	673	28	69	52	SO20 HP(A)	212,772
VE5SF	437	52	73	106	SOAB LP(A)	203,742
VE2HEW	390	41	83	93	SOAB LP(A)	189,658
VE7DX	388	48	63	111	SOAB HP(A)	172,050
VA3WB	296	55	101	73	SOAB LP(A)	157,094
VA7RY	306	47	73	89	SOAB LP(A)	144,210
VE6WQ	478	21	59	46	SO15 HP(A)	126,882
VA3FF	243	47	95	60	SOAB LP(A)	118,170
VA2QR	246	42	87	61	SOAB LP(A)	106,210
VA3PAF	264	38	71	76	SOAB LP(A)	102,120
VE3DZP	212	49	114	32	SOAB HP(A)	96,525
VA7XH	329	27	44	70	SOAB HP	94,047
VE3FZ	181	51	109	45	SOAB LP(A)	81,590
VE3ORY	229	34	62	64	SOAB HP	78,080
VE2OWL	178	35	64	42	SOAB LP(C)	63,732
VA3IK	194	31	53	54	SOAB HP	60,306
VA6RCN (VE3RCN)	182	34	41	71	SOAB QRP	56,210
VA7DX	230	17	34	43	SO15 LP(A)	44,932
VE4DL	207	21	20	75	SOAB LP(A)	44,776
VE2GSO	154	18	40	40	SOAB QRP	37,534
VE3MZD	142	24	62	13	SO15 HP(A)	35,541
VA7MAY	162	24	24	59	SOAB HP	34,775
VE6SPS	144	23	19	74	SOAB QRP	32,828
VE7NNT	128	24	23	64	SOAB LP(A)	28,305
VA7EET	127	25	23	62	SOAB LP(A)	27,720
VA3ROC	112	26	48	31	SOAB LP(A)	24,360
VE7IO	123	24	28	47	SOAB HP(A)	23,562
VE3EUS	112	20	39	30	SOAB QRP	23,229
VE7MID	151	14	21	38	SO40 LP(C)	21,973
VA3UAP	94	24	38	34	SOAB LP(A)	20,640
VE3HG	84	21	26	38	SO QRP ALL	15,895
VE3JZT	83	27	29	44	SOAB HP(R)	15,600
VA3FN	72	27	38	23	SOAB QRP	14,608
VE3SST	87	14	30	26	SO20 HP	14,280
VE1ANU	94	10	17	28	SO20 HP(A)	10,835
VE3BFU	74	8	13	26	SO QRP 40M	7,050
VE6BMX	61	12	13	18	SO HIGH 10M	6,235
VA1XH*	13	3	9	3	SO40 LP	540
VE7BGP	11	8	5	11	SOAB QRP	432
VE2GT	2	2	2	2	SOAB QRP(C)	24

* received after the 5 day deadline and are not eligible for awards
Rookie (R): licensed less than 3 years
Classic (C): single op, no assistance, 1 radio, max 24 hours

ARRL SEPTEMBER VHF CONTEST – September 2022

Call	QSO	Mult	Category	Score
VE3OIL/R	338	118	R	72,688
VE3MIS	269	105	MO Lim	36,435
VA2WA	223	95	SO HP	22,705
VE3DS	137	72	SO Analog	16,992
VE3WY	192	90	SO HP	16,830
VA3IKE	102	67	SO HP	7,906
VE3SMA	101	34	SO LP	4,862
VA3TIC	99	43	SO LP	4,042
VE3BW	84	41	SO 3B	3,403
VE2ZAZ	70	38	SO LP	2,850
VE3SST	64	32	SO LP	2,272
VA7SC	67	20	SO Analog	2,020
VE3PJ	69	30	SO 3B	1,860
VA2BN	58	34	SO 3B	1,768
VE2BAP/R	53	29	R	1,682
VE7DAY	45	32	SO HP	1,568
VE3MSC	44	24	SO LP	1,224
VE7HR	49	16	SO Analog	1,152
VE3ELL	43	23	SO HP	1,035
VE3NEA	48	21	SO LP	1,008
VE7AFZ	47	19	SO HP	988
VA3UAP	47	20	SO LP	860
VA3WB	37	21	SO 3B	714
VE3LFS	34	20	SO 3B	620
VE2OTA	29	19	SO LP	570
VE3RWJ	59	6	SO FM	462
VA7MM	28	8	SO Analog HP	304
VA2DG	22	8	SO FM	272
VA7RKM	20	10	SO LP	240
VA3PAF	21	12	SO 3B	228
VE3WVA	17	9	SO HP	171
VA3OGG	17	8	SO Analog 3B	168
VE2HAY	12	11	SO Analog	165
VA3PC	13	11	SO HP	121
VE3EG	13	6	SO Analog 3B	96
VA3EON	12	7	SO Port	91
VE7DX	13	7	SO HP	91
VA2WDW	9	6	SO Analog	90
VE7LOE	5	5	SO Analog Port	45
VE3FU	5	5	SO Analog Port	40
VE3AYR	6	4	SO FM	36
VE3JZT	6	6	SO LP	36
VE7VIE	6	5	SO Port	30
VA6AN	8	3	SO 3B	24
VE3KG	4	4	SO Analog 3B	24
VE2GT	3	2	SO HP	4
VE7BGP	2	2	SO Analog 3B	2
VE3OMV	1	1	SO Analog 3B	1

IOWA QSO PARTY – September 2022

Call	Category	Score
VE3MV	SOLP	330
VA3PAF	SOLP	220
VA3PC	SOLP	182
VA3IJK	SOLP	135
VE3AYR	SOLP	96
VA3GKO	SOLP	70
VA3RKM	SOLP	70
VE2GT	SOHP	63
VE3DQN	SO QRP	60
VA3IDD	SOLP	42
VE3HZ	SOLP	40
VE3JZT	SOHP	35
VE3AC	SOLP	20
VA3FN	SOLP	12

COLORADO QSO PARTY – September 2022

Call	Category	Score
VA3GKO	SOPH LP	1,190
VA3PC	SOPH LP	740
VA3IDD	MOPH LP	330
VE3MV	SOCW LP	216
VA3IJK	SOMIX LP	152
VA3FN	SOCW LP	100
VA6RCN	SOMIX LP	72
VA3PAF	SOPH LP	50
VE3AYR	SOCW LP	48
VA3RKM	SOCW LP	24
VE3DQN	SOCW QRP	24
VE3HZ	SOPH LP	24
VE3KOT	SOMIX LP	18
VE9RLW	SOPH LP	18
VE2GT	MOPH HP	6

TENNESSEE QSO PARTY – September 2022

Call	QSO	Mult	Category	Score
VE3TW	98	63	SOABMIX HP	18,922
VE3EJ	81	63	SOABCW HP	15,509
VE3WG	83	56	SOABMIX LP	14,244
VE3MV	69	49	SOABCW LP	10,443
VA3GKO	50	35	SOABPH LP	5,350
VA3FN	47	36	SOABCW LP	5,276
VE3PQ	44	36	SOABCW LP	5,052
VA3IDD	36	28	SOABPH LP	3,224
VA3PAF	39	24	SOABMIX LP	3,008
VA3RKM	28	26	SOABMIX LP	2,184
VE2FK	31	22	SOABCW HP	2,146
VE3HZ	26	20	SOABPH LP	1,660
VE3NRT	20	17	SOABCW HP	1,120
VE9RLW	11	11	SOABPH LP	463
VE3AYR	12	12	SOABCW LP	432
VE3DQN	11	11	SOABCW QQP	363
VA3PC	10	7	SOABPH LP	210

TEXAS QSO PARTY – September 2022

Call	QSOs	Mult	Category	Score
VE6RST	136	54	SO CW	24,032
VE3TM	72	34	SO CW	8,844
VE3MV	72	38	SO CW	8,708
VA3EC	42	27	SO CW	3,902
VA3PAF	40	128	SO MIX	2,944
VA3RKM	43	22	SO CW	2,838
VE3AYR	28	17	SO CW	1,928
VA3FN	24	19	SO CW	1,368
VA3IJK	22	16	SO CW	1,056
VE3KP	23	14	SO CW	966
VE3JZT	12	48	SO MIX	768
VA6RCN	3	23	SO MIX	230
VE3DQN	9	27	SO QRP	189
VA2KD	5	17	SO MIX	85
VE3AC	6	6	SO PH	72
VA3GKO	5	5	SO PH	50
VE2GT	2	8	SO MIX	24
VE9RLW	3	3	SO PH	18
VE3HZ	2	2	SO PH	8

WAE CONTEST, SSB – September 2022

Call	QSO	QTC	Class	Mult	Score
VY2ZM	1676	1706	SOHP	409	1,383,238
VE3AT	1488	1377	SOHP	353	1,011,345
VE3UZ	203	206	SOHP	164	67,076
VA3OOL	166	174	SOLP	144	48,960
VA3IDD	165	160	SOLP	146	47,450
VA3LR	149	153	SOHP	128	38,656
VE3DZ	165	160	SOHP	107	34,775
VA3RTG	127	129	SOLP	114	29,184
VE3TW	132	135	SOHP	104	27,768
VE2IAA	116	117	SOLP	110	25,630
VE3BFU	146	0	SOLP	122	17,812
VE3EY	71	70	SOLP	94	13,254
VE9WH	75	60	SOLP	94	12,690
VE3KTB	66	67	SOHP	80	10,640
VA3KRT	54	53	SOLP	73	7,811
VA2UR	48	41	SOHP	73	6,497
VE3GJP	37	37	SOLP	55	4,070
VA3OKG	39	26	SOLP	52	3,380
VA2OBW	36	0	SOHP	48	1,728
VE3OMV	40	0	SOLP	40	1,600
VA3GHB	31	0	SOLP	44	1,364
VE2HIT	27	0	SOLP	47	1,269
VA2KD	19	20	SOLP	28	1,092
VA3WPS	20	0	SOHP	35	700
VE2HEW	20	0	SOLP	26	520
VE3OU	1	0	SOLP	3	3

The Sports Page, continued from page 51

The opening ceremony brought everyone together and there were lots of handshakes and hugs as contesters from around the world renewed friendships or met for the first time. The event began with speeches by Tine Brajnik, S50A, WRTC Chairman, the President of the Marconi museum and the President of the ARI national society. A great kickoff to the event! You can find links to the official ceremonies by searching WRTC 2022 on YouTube and also at: https://www.wrtc2022.it/en/news-11.asp

Hope to see you on the bands.

– 73, Tom Haavisto, VE3CX

CQ WORLD-WIDE, SSB – October 2022

Call	QSO	Zones	Countries	Category	Score
VE3EJ (VE3EJ VE3EK VE3JM VE3OI)					
	6,049	173	597	M1 HP	11,834,130
XL3T	6,291	137	456	SOAB HP	9,135,758
VA2UR (VA2UR DM4AO K9EL VA2CZ VA2SJ VE2IR)					
	6,067	138	474	M2	8,744,256
VA2WA	4,961	138	478	SOAB HP(A)	7,979,664
VY2TT (K6LA)	4,405	97	339	SOAB HP	4,993,944
VC3U (VA3EC SP4Z N2WQ)					
	2,800	139	469	M1 HP	4,057,184
VE6SV (VE6TL VE6SV VA6BGE VE6RST VE6JF)					
3,481	119	300	M1 HP	3,025,599	
VA3DF	1,754	133	440	SOAB HP(A)	2,812,857
VC3R (VE7VR)	2,521	99	292	SOAB HP	2,323,322
VE4VT	2,740	110	297	SOAB HP(A)	2,309,725
VE5PV (VE5WI VE5CJB VE5FF VE5FN VA6NJK VE6FRD VE6WP)					
	3,283	79	179	MM	1,665,906
VE2GSO	2,317	59	183	SOAB HP	1,316,964
VA2EBI	1,001	107	371	SOAB HP(A)	1,299,682
VE6TN	1,323	98	250	SOAB HP(A)	1,064,532
VA3MW	1,130	95	289	SOAB HP(A)	1,026,432
VE7NY	1,764	74	161	SOAB HP(A)	988,880
VA3WB	1,059	88	282	SOAB HP(A)	987,530
VE2PIB (VE2PIB VA2MP VA2ALF VE2LOA VE2FAL VA2WOW)					
	1,265	81	236	M1 HP	954,487
VE3VN	1,859	32	125	SO15 HP(A)	780,604
VE3NE	920	83	274	SOAB HP(A)	774,333
VE5SF	1,095	88	214	SOAB LP(A)	756,510
VE2IDX (VE3ZF)	2,159	38	115	SO20 HP(A)	754,290
VA3CW	759	93	268	SOAB HP(A)	731,747
VE3WG	862	88	249	SOAB LP(A)	707,363
VE3TW	736	80	241	SOAB HP(C)	636,222
VE7SAR (VA7XH VE7TXL VA7XB VA7VJ VA7FMR VA7LGN VE7TI VA7BKI VA7QD)					
	973	90	190	M1 HP	609,000
VE9XX	1,505	30	120	SO10 HP	574,650
VA3LR	635	73	236	SOAB HP(A)	562,998
VA7BEC	1,062	79	161	SOAB LP(A)	553,440
VE9FM (VE9FM VE9MWA)					
	742	59	221	M2	536,760
VA3SWG	994	57	155	SOAB LP(A)	505,196
VA1XH	656	71	211	SOAB HP(C)	502,806
VE3GYL	758	70	175	SOAB HP(C)	452,760
VE3GJP	690	79	200	SOAB HP(R)	423,522
VE3VY	698	66	178	SOAB LP(A)	389,424
VE3CWU	532	67	188	SOAB LP(A)	379,440
VE2HIT	500	81	205	SOAB LP	378,092
VE6FI	1,199	58	98	SOAB HP(A)	376,272
VO2AC	1,216	23	99	SO10 HP	348,066
VA3OKG	542	60	167	SOAB LP(R)	331,420
VE3KTB	457	78	205	SOAB HP(A)	330,261
VO1GRC (VO1AX VO1IV VO1BYD)					
	1,065	45	113	M1 HP	319,318
VE3BX*	873	53	123	SOAB LP(A)	314,688
VE6WQ	1,247	27	88	SO15 HP(A)	309,350
VE3KG	810	28	114	SO10 HP	297,916
VA3IDD	537	60	165	SOAB LP(A)	288,225
VA2OT	464	61	184	SOAB LP(A)	281,505
VE3ZZ	439	59	177	SOAB HP(A)	279,424
VE7SZ	987	31	89	SO15 HP(A)	276,840
VE7WNK	406	88	173	SOAB HP(A)	274,050
VY2OM (VY2OM VY2BG VY2OL)*					
	490	57	168	M2	270,675
VA3RTG	399	60	173	SOAB LP	247,446
VE3TG	389	61	167	SOAB LP	247,380
VO1CH	656	26	113	SO10 HP	236,022
VE3WVA	497	68	138	SOAB HP	223,922
VE5MX	1,001	23	75	SO10 HP	222,264
VA3KRT	389	53	155	SOAB LP(C)	216,112
VE3EY	370	63	148	SOAB HP(A)	216,064
VE4IM	790	55	80	SOAB HP	215,730
VE2IAA	556	58	117	SOAB LP	202,825
VE2CSM	716	34	94	SOAB HP(A)	201,472
VA3TNM	333	65	162	SOAB HP(A)	200,668
VE2OV	315	74	168	SOAB HP(A)	193,842
VE6AO (VE6TC VE6CCL VE6KLE)					
	1,183	39	44	MM	189,572
VA3WU	273	77	205	SOAB LP(A)	187,812
VE3NFN	384	43	151	SOAB LP	181,778
VE4SG	983	24	73	SO20 HP	180,226
VA3PC	248	67	188	SOAB HP(A)	171,360
VE3RVZ	324	60	128	SOAB LP	163,936
VE7DX	921	25	60	SO10 HP	160,565
VA2CO	328	49	128	SOAB LP	157,176
VE7CV	333	64	125	SOAB LP	155,169
VA3DBT	311	55	134	SOAB LP(C)	150,822
VE5FX	324	53	131	SOAB HP	150,144
VA2CST	369	52	122	SOAB HP	145,290
VY2DS	341	58	141	SOAB HP	141,887

VE2HTC	281	49	133	SOAB LP(R)	135,590
VA1CC	235	52	163	SOAB HP(A)	135,235
VE3HZ	351	51	119	SOAB LP(A)	132,430
VA3MLV*	626	23	68	SO20 LP(C)	131,859
VE6UM (VE6BMX)	973	21	49	SO10 HP	131,390
VE3GKT	287	61	133	SOAB LP(Y)	131,338
VE2HEW	304	53	118	SOAB LP(A)	125,343
VA3GD	258	59	127	SOAB LP	122,574
VE2ZDR	313	41	107	SOAB LP	114,700
VE3BK	250	57	128	SOAB HP(A)	113,405
VE2WAT	354	25	94	SO10 HP	113,288
VE3EPS	270	38	112	SOAB LP	105,000
VA2CF	285	50	115	SOAB LP	103,785
VE7AX	214	64	116	SOAB LP(A)	100,260
VA2OBW	245	56	107	SOAB HP	99,430
VE1RF	228	57	120	SOAB LP	97,173
VE2EZD	257	36	106	SOAB HP(A)	96,560
VO2NS	477	30	68	SOAB HP(A)	91,042
VE7IZ	235	58	88	SOAB HP(A)	85,994
VE3DZG	230	48	96	SOAB LP	84,960
VE3HG	192	42	114	SOAB LP(A)	83,772
VE3YT	316	45	78	SOAB HP(A)	83,763
VE6IVN	210	60	110	SOAB HP(C)	82,450
VE3KOT	196	49	107	SOAB LP(R)	79,092
VE3KBI	200	40	110	SOAB LP	78,150
VE3OMV	239	41	91	SOAB LP(Y)	76,428
VA6MA	234	61	99	SOAB HP(A)	76,160
VA3HDL	167	48	118	SOAB LP	75,530
VA2QR	177	48	112	SOAB HP(A)	74,400
VE7HS	244	54	82	SOAB LP(A)	72,216
VE9WH	192	47	98	SOAB LP(A)	71,485
VE3NR	165	45	115	SOAB HP(A)	69,600
VE3VM (VE3RRH VA3OV)					
	196	41	104	M2	69,310
VE3CX	310	20	58	SO10 LP	67,236
VE1BSD	189	39	86	SOAB LP(C)	64,625
VE3YAA (VE3DQ)	160	43	106	SOAB HP(A)	62,878
VE3AXT	157	45	102	SOAB LP	59,829
VE7BV	176	56	84	SOAB LP(A)	59,360
VE5CPU	190	46	75	SOAB HP(C)	57,475
VA3WW	198	24	87	SO10 HP	57,387
VE3FZ	155	42	102	SOAB LP(A)	56,448
VE3RCC	161	47	97	SOAB HP(A)	53,856
VE3MQ	186	47	93	SOAB LP	53,480
VE9FI	444	13	51	SO80 HP	50,304
VA7CTG	166	51	75	SOAB LP(R)	48,762
VA3IPG	159	44	88	SOAB LP(A)	48,180
VE3TM	210	17	63	SO10LP(C)	47,600
VA7DXC	198	42	56	SOAB LP(A)	44,786
VE3LMS	144	30	80	SOAB LP	44,220
VE2OWL	127	33	83	SOAB LP(A)	41,064
VE5KS	214	22	50	SO10 LP	39,888
VE2ZL	185	34	64	SO QRP ALL	39,298
VE1SQ	195	17	64	SO 20LP	38,637
VA6RCN (VE3RCN)	174	45	56	SOAB LP	37,572
VA1RST	131	34	72	SOAB HP	37,524
VE7FE	147	33	56	SOAB HP(A)	36,846
VE3LRL	127	39	82	SOAB HP(A)	35,332
VA7XU	329	18	34	SO20 HP	34,788
VE3MF	99	36	91	SOAB LP(A)	33,655
VE3BZ	125	37	79	SOAB LP	33,640
VA3CK	119	42	74	SOAB LP(C)	33,060
VE3LON (VE3KGK VE3GAM VE3ACW)					
	123	37	78	M1 LP	32,660
VA3EJN	159	19	57	SO10 LP	32,376
VE9RA	225	15	53	SO20 LP(A)	32,096
VA3OOL	143	21	63	SO20 LP(R)	31,080
VE3VGJ	135	37	69	SOAB LP	29,150
VE7RSV	124	43	52	SOAB LP	29,070
VE2VIA	142	29	61	SOAB HP	28,800
VA3IK	125	27	59	SOAB HP	28,208
VE6CLG	115	47	56	SOAB LP(R)	26,677
VE3ETE	127	34	66	SOAB LP(A)	25,500
VA3TPS	115	33	59	SOAB LP	25,116
VE3RXO	116	42	68	SOAB LP	24,860
VE6SPS	159	30	36	SOAB LP	22,374
VE7YAH	98	43	54	SOAB LP	20,564
VA3QB	91	35	62	SOAB LP	20,467
VE6ZC	120	37	40	SOAB LP(C)	20,174
VE2SMS	122	32	67	SOAB LP	19,503
VE3FAC	106	17	51	SOAB LP	19,448
VE6CSX	106	39	43	SOAB LP(A)	19,106
VE9WRS	98	28	52	SOAB LP	18,560
VA2XZA	90	31	52	SOAB LP	17,430
VE3IDT	112	16	45	SO 20LP	16,958
VE6GK	87	36	45	SOAB LP(C)	16,767
VE3SVQ	91	30	65	SOAB LP	16,340
VE3MV	79	32	51	SOAB LP(A)	16,185
VA7TU	98	29	46	SOAB HP(A)	15,975
VE6FT	104	27	35	SOAB HP	15,128
VE3QN	77	23	52	SOAB HP(A)	14,850
VE9RLW	100	18	44	SOAB LP(C)	14,384
VA3WPS	65	27	47	SOAB HP(A)	13,468
VA3QAK	68	31	49	SOAB LP	13,040
VE7COR	132	17	25	SO15 LP(C)	12,810
VE5WD	71	39	45	SOAB LP	12,096
VE2EVQ	73	25	37	SOAB HP(A)	11,222
VA2KS	65	26	44	SOAB LP	11,200
VE3VMJ	77	30	40	SOAB LP	11,060
VA2GRU	73	24	35	SOAB LP	9,735
VA3CJZ (VA3WPS)	68	20	38	SOAB LP(A)	9,628
VE6ZE	70	36	31	SOAB LP	9,179
VA3CBU	94	14	30	SOAB LP	8,756
VA3ROC	55	30	44	SOAB LP(A)	8,658
VE3PN*	151	8	19	SO160 HP	8,073
VY2LI	61	23	35	SOAB LP(C)	8,004
VE3JZT	65	27	40	SOAB LP(R)	7,839
VE2JR	71	23	34	SOAB LP	7,809
VE2RRE	52	19	31	SOAB LP	6,850
VA2LGQ	60	14	34	SO20 HP(C)	6,528
VA6TVA	67	22	25	SOAB LP(R)	6,345
VA6TP	59	17	26	SO20 HP	6,321
VE6DDD*	41	28	33	SOAB HP(A)	6,222
VA4HZ (VE4HAZ)	50	17	28	SOAB LP(A)	5,850
VE3MT	50	18	32	SOAB HP	5,800
VA3OGG	56	25	32	SOAB HP	5,415
VE3KAH	41	21	26	SOAB LP	4,418
VE7BGP	42	22	23	SOAB LP	4,230
VE6SYD	34	23	29	SOAB LP(R)	4,212
VE6CA	67	11	17	SO40 HP(C)	3,892
VE2KLW	42	10	19	SO40 LP(R)	2,697
VE5SKI	32	17	17	SOAB LP(C)	2,482
VE1XOR	30	10	21	SOAB HP	2,449
VE3OU	28	12	21	SOAB LP(A)	2,442
VA6AGR	33	16	16	SOAB LP(R)	2,432
VA3MQS	35	13	23	SOAB LP(A)	2,412
VE5GC	87	7	7	SO10LP(C)	2,366
VA3PAI	26	11	18	SOAB LP(R)	2,030
VA7UY	38	17	16	SOAB LP	1,980
VA3IHG	31	7	18	SO20 LP(R)	1,875
VE6GTZ	26	14	16	SOAB LP	1,620
VE7TI	24	7	19	SO20 HP(A)	1,560
VA3AC	137	3	4	SO160 LP	1,540
VE2QV	25	11	15	SOAB LP	1,508
VA3SB	27	9	15	SOAB LP	1,488
VA2VT	21	11	16	SO10 LP	1,485
VA6TI	30	18	17	SOAB LP(A)	1,470
VE7GOG (VA7QCE)	21	13	11	SOAB LP	888
VE2XCA*	32	7	8	SOAB LP	825
VE6CLE	28	12	12	SOAB LP(R)	792
VE4GKM	23	12	14	SOAB LP	754
VA7RYL	19	8	12	SOAB LP(C)	720
VA7EET	14	11	9	SOAB LP(A)	640
VE3DPS	16	7	11	SOAB LP(A)	630
VA3FN	16	10	12	SOAB LP	528
VE2LRZ	65	2	2	SO160 LP	496
VE6KLE	24	9	6	SOAB LP	480
VA3TTZ*	10	5	8	SO 20LP	286
VE2GT	9	3	7	SO10 HP(C)	270
VE3BFU	26	4	3	SA QRP 40M	266
VE3TZF	8	5	7	SO10 LP	264
VE2LJV	5	3	4	SO40 LP	70
VA7LGN*	7	4	3	SOAB LP(A)	63
VA7IR	13	2	3	SA QRP 80M	50
VE9ML	6	1	2	SA LOW 160M	24

Checklog: VA2EW, VE2KTA, VE3OUI, VE7XFA
* indicates the log was received after deadline and is not eligible for awards
Rookie (R): licensed less than 3 years
Classic (C): single op, no assistance, 1 radio, max 24 hours
Youth (Y): Operator 25 years old or less

Articles Wanted

We would love to receive your articles – both technical and non-technical. Please send them to the TCA Editor at tcamag@yahoo.ca. The deadlines for the next issues of TCA are September 15, November 15 and January 15.

CALIFORNIA QSO PARTY – October 2022

Call	CW QSO	Ph QSO	Mult	Category	Score
VA7RR	232	562	58	SOAB LP	105,560
VE3DZ	383	207	55	SOAB LP(A)	85,965
VE3RZ	303	192	56	SOAB HP(A)	72,408
VE3YT	346	127	54	SOAB HP(A)	69,768
VE3GFN	296	71	55	SOAB LP(A)	56,650
VE3UZ (VE3UZ,VE3GYL)	193	184	56	M/S	53,032
VE3TW	232	151	52	SOAB HP(A)	51,896
VE6TN	162	224	55	SOAB LP	51,370
VE3PJ	173	186	55	SOAB LP(A)	49,005
VE3MV	289	3	54	SOAB LP(A)	47,142
VE5KS2	221	107	53	SOAB LP(A)	46,481
VE3TM	206	59	52	SOAB LP	38,272
VA3WB	180	72	47	SOAB LP(A)	32,148
VE9VIC	189	0	53	SOAB LP(A)	30,051
VE3BR	141	73	51	SOAB HP	29,019
VE3MGY	196	0	48	SOAB LP(A)	28,224
VE3EJ	205	0	45	SOAB LP(A)	27,675
VE3VN	172	27	48	SOAB LP	27,360
VE3NE	141	20	47	SOAB HP(A)	21,761
VE2FK	156	0	45	SOAB HP(A)	21,060
VA3PAF	136	43	40	SOAB LP(A)	19,760
VA3EC	165	0	39	SOAB LP	19,305
VE5GC	134	0	41	SOAB LP	16,482
VE5UO	95	62	40	SOAB LP(A)	16,360
VE6BBP	130	0	41	SOAB LP(A)	15,990
VE3MA	133	0	40	SOAB LP(A)	15,960
VA3GKO	0	149	50	SOAB LP	14,900
VE4XT	79	31	48	SOAB LP	14,352
VA3FN	118	0	37	SOAB LP	13,098
VE3KOT	109	11	37	SOAB LP	12,913
VE3JM	112	0	37	SOAB HP(A)	12,432
VE3LRL	0	137	45	SOAB HP(A)	12,330
VE4YH (VE4YH, VE4EA, VE4CDX)	42	77	39	M/S	10,920
VE3CWU	97	0	36	SOAB LP(A)	10,476
VA3IDD	0	132	39	SOAB LP(A)	10,296
VE3AC	0	112	43	SOAB LP(M)	9,632
VE3VY	86	0	35	SOAB LP	9,030
VE3FH	76	17	33	SOAB LP	8,646
VA3PC	0	100	41	SOAB LP(A)	8,200
VE3EY	82	0	32	SOAB LP	7,872
VE7RSV	0	97	40	SOAB LP	7,760
VA6TI	69	0	37	SOAB LP(A)	7,659
VE3HZ	0	99	37	SOAB LP(A)	7,326
VE3KP	66	0	33	SOAB HP	6,534
VA3WW	0	91	35	SOAB HP(A)	6,370
VE3KTB	63	4	30	SOAB LP	5,910
VA3KRJ	66	1	28	SOAB LP	5,600
VE3LMS	38	37	28	SOAB LP	5,264
VE7AX	31	32	32	SOAB HP(A)	5,024
VE9RLW	0	65	35	SOAB LP	4,550
VE3ODR	0	56	38	SOAB LP	4,256
VE6CLG	0	63	31	SOAB LP	3,906
VY1CO	29	18	28	SOAB HP	3,444
VA1MM	50	0	22	SOAB HP(A)	3,300
VE3NFN	40	0	27	SOAB LP	3,240
VA6RCN (VE3RCN)	33	0	27	SOAB LP	2,673
VA3TPS	0	49	27	SOAB LP	2,646
VA3IJK	28	9	24	SOAB LP	2,448
VE6SPS	0	43	28	SOAB LP	2,408
VE5SF	20	18	23	SOAB LP	2,208
VE3HG	32	0	22	SOAB LP	2,112
VA3LR	0	39	27	SOAB HP	2,106
VA2UR	32	1	21	SOAB HP(A)	2,058
VE4GV	11	25	22	SOAB HP(A)	1,826
VE4BG	0	33	25	SOAB LP	1,650
VE3EUS	30	0	18	SOAB LP	1,620
VA2KD	0	32	23	SOAB LP(YL)	1,472
VE8GER	0	28	23	SOAB LP	1,288
VE3AYR	24	0	17	SOAB LP	1,224
VE2GT	0	30	20	SOAB HP	1,200
VE6CA	0	26	21	SOAB HP	1,092
VE3OSZ	20	0	16	SOAB LP	960
VA3RKM	9	0	9	SOAB LP	243
VE3SST	7	3	9	SOAB LP	243
VE5JHN	0	10	9	SOAB LP	180
VE3JZT	1	5	6	SOAB LP(A)	78
VE3VIG	3	0	3	SOAB LP	27

ILLINOIS QSO PARTY – October 2022

Call	Category	Score
VE3MV	SOABMIX LP	11,132
VA3PAF	SOABMIX LP	4,662
VA3FN	SOABCW LP	3,696
VE2GT	SOABMIX HP	3,680
VA3IDD	SOABPH LP	3,526
VA3RKM	SOABCW LP	3,036
VE3PQ	SOABCW LP	1,960
VE3AYR	SOABCW LP	1,950
VA3IJK	SOABMIX LP	900
VE3AC	SOABPH LP	782
VE3CWU	SOABMIX LP	780
VE3DQN	SOABCW QRP	504
VE9RLW	SOABPH LP	285
VE3HZ	SOABPH LP	140
VA3PC	SOABPH LP	90
VE3JZT	SOABPH LP	25
VE3NKL	SOABCW QRP	2

NEW YORK QSO PARTY - October 2022

Call	QSO	Mult	Category	Score
VE3TW	214	56	SOMIX HP	17,864
VE9VIC	154	42	SOCW LP	12,936
VE3MV	137	40	SOMIX LP	9,600
VE3OMV	103	38	SOMIX LP	6,384
VA3GKO	105	51	SOPH LP	5,355
VE3HZ	87	43	SOMIX LP	3,870
VA3FN	63	27	SOCW LP	3,402
VE3NFN	64	25	SOCW QRP	3,200
VA3IDD	76	41	SOPH LP	3,116
VE3AC	68	37	SOPH LP	2,516
VE3CWU	54	32	SOMIX LP	2,432
VE3AYR	45	25	SOCW LP	2,250
VA3PAF	43	27	SOMIX LP	1,836
VA3RKM	41	23	SOMIX LP	1,472
VE3LRL	43	32	SOPH HP	1,376
VE2GT	44	27	SOPH HP	1,188
VA3IJK	33	18	SOMIX LP	900
VE3JZT	22	16	SOMIX LP	528
VE3PQ	18	14	SOCW LP	504
VE3DQN	13	10	SOCW QRP	260

PENNSYLVANIA QSO PARTY – October 2022

Call	CW QSO	PH QSO	Mult	Category	Score
VE3MV	108	37	54	SOABMIX LP	14,462
VA3FN	97	0	41	SOABCW LP	8,554
VA3PAF	40	72	52	SOABMIX LP	8,504
VE3KP	82	0	41	SOABCW HP	6,924
VE3JZT	28	63	50	SOABMIX LP	6,550
VE3HZ	1	106	56	SOABMIX LP	6,248
VA3IDD	0	106	49	SOABSSB LP	5,594
VE3DN	44	0	28	SOABCW QRP	5,128
VE3LRL	0	97	50	SOABSSB HP	5,050
VA3GKO	0	92	48	SOABSSB LP	4,416
VE3DQN	40	0	25	SOABCW QRP	4,400
VE3AC	0	83	46	SOABSSB LP	4,218
VE6RST	58	0	27	SOABCW HP	3,532
VA3KRJ	37	0	21	SOABCW LP	2,154
VE9RLW	0	49	33	SOABSSB LP	2,017
VA3KTT	0	46	33	SOABSSB LP	1,718
VA3PC	0	38	30	SOABSSB LP	1,340
VA3IJK	9	6	15	SOABMIX LP	560
VA3OOL	7	0	7	SOABCW LP	298
VE2GT	1	7	8	SOABMIX HP	272
VA2KD	0	6	6	SOABSSB LP	36
VA3RKM	4	0	4	SOABCW LP	32

OCEANIA DX CONTEST, CW – October 2022

Call	QSOs	Mult	Category	Score
VE2OWL	14	14	SO ALL LP	714
VE7TK	20	11	SO 10M HP	660
VA3WB	18	16	SO ALL LP	624
VA3OKG	16	14	SO ALL LP	602
VA7MM	19	17	SO ALL LP	493
VE3TM	12	12	SO ALL LP	408
VA3RKM	4	4	SO ALL LP	40
VA3KRJ	2	2	SO 20M LP	4

OCEANIA DX CONTEST, SSB - October 2022

Call	QSOs	Mult	Category	Score
VE7TK	36	30	SOAB HP	2,340
VE2HIT	16	12	SOAB LP	672
VE3BFU	12	11	SOAB HP	407
VA3IDD	11	11	SOAB LP	253
VA3TNM	9	9	SOAB HP	216
VA3LUK	6	6	SOAB HP	108
VE3EPS	7	5	SO20 LP	35
VE3AC	1	1	SO10 LP	3
VY2GF	1	1	SO15 LP	2

WASHINGTON STATE SALMON RUN – October 2022

Call	QSO	Category	Score
VE7CV	204	SOABMIX LP	20,032
VE3MV	51	SOABCW LP	3,866
VA3TNM	47	SOABCW HP	3,461
VE3PQ	39	SOABMIX LP	3,200
VE3TM	44	SOABCW LP	2,876
VE7RSV	45	SOABPH LP	2,610
VE3KP	35	SOABCW HP	2,285
VE2GT	23	SOABMIX HP	1,784
VA3PAF	23	SOABMIX LP	1,780
VE7ZO	18	SOABCW HP	1,148
VE9RLW	21	SOABPH LP	1,130
VE5GC	17	SOABCW LP	1,112
VA3RKM	16	SOABCW LP	1,076
VA3IJK	17	SOABMIX LP	914
VA3IDD	17	SOABPH LP	840
VA7EET	16	SOABPH LP	820
VA3PC	14	SOABPH LP	808
VE3AC	15	SOABPH HP	800
VA2KD	12	SOABMIX LP	790
VE3KOT	15	SOABCW LP	770
VE3AYR	8	SOABCW LP	644
VE3HZ	8	SOABPH LP	596
VA6RCN	6	SOABMIX LP	578
VE3JZT	6	SOABMIX HP	565
VE3DQN	0	SOABCW QRP	500

WORKED ALL GERMANY – October 2022

Call	QSO	Mult	Category	Score
VE3VN	402	105	SOCW LP	126,630
VE2FK	299	73	SOCW LP	65,481
VE9HF	222	80	SOCW LP	53,280
VE3TM	235	64	SOCW LP	45,120
VE9KK	198	72	SOCW LP	42,768
VE9ML	163	489	MO	31,785
VA1MM 151	151	53	SOCW LP	24,009
VE3KG	82	52	SOMIX HP	12,792
VE9OA	83	38	SOMIX HP	9,462
VA3IDD	73	43	SOSSB LP	9,417
VE4EA	51	21	SOCW LP	3,213
VE3BFU	36	23	SOSSB LP	2,484
VE2QV	36	22	SOCW LP	2,376
VA3FN	31	20	SOCW LP	1,860
VA3PAF	23	17	SOMIX LP	1,173
VE9RLW	20	15	SOSSB LP	900
VA2AGW	20	15	SOMIX HP	900
VA3EC	14	10	SOCW LP	420
VE7IO	2	2	SOMIX HP	12

MAKROTHEN RTTY CONTEST – October 2022

Call	QSO	AvgQSO/km	Category	Score
VE2BVV	443	4,594	SOLP	2,035,167
VE3MGY	527	3,386	SO2R LP	1,784,530
VE3NE	342	4,522	SOHP	1,546,385
VE3NFN	262	3,794	SOLP	993,902
VE2FK	200	3,815	SOHP	763,001
VE3KTB	171	3,535	SOHP	604,419
VE2PI	158	3,622	SOHP	572,266
VE2QV	91	4,353	SOLP	396,123
VE5KS	98	3,065	SOLP	300,409
VA3IK	71	3,883	SOHP	275,672
VE3EY	51	5,144	SOHP	262,368
VA3UAP	50	4,875	SOLP	243,754
VA7ZM	55	2,895	SOLP	159,237
VE2EZD	23	3,315	SOLP	76,246

ARIZONA QSO PARTY – October 2022

Call	CW QSO	Ph QSO	Mult	Category	Score
VE5KS	55	43	55	SO LP	8,515
VE7CV	43	35	48	SO LP	5,908
VE3AC	0	25	21	SO LP	625
VA6RCN	12	7	15	SO LP	565
VA3IDD	0	25	18	SO LP	550
VA3FN	17	0	12	SO LP	508
VA3RKM	16	0	12	SO LP	484
VA3PC	0	21	16	SO LP	436
VE3JZT	6	10	14	SO LP	408
VA3PAF	10	5	12	SO LP	400
VE3MV	11	2	10	SO LP	340
VE3TM	14	0	11	SO LP	308
VA3IJK	9	5	9	SO LP	307
VE2GT	4	5	8	SO HP	204
VE3KP	8	0	6	SO HP	196
VA3KRJ	9	0	5	SO LP	190
VE3HZ	0	8	8	SO LP	164
VA3EC	6	0	5	SO LP	160
VE3DQN	2	0	2	SO QRP	108
VE9RLW	0	5	5	SO LP	25
VE3AYR	3	0	2	SO LP	12

ARRL SWEEPSTAKES CONTEST, CW – November 2022

Call	QSO	Mult	Class	Section	Score
VY2TT (K6LA)	1,297	83	SOAB HP	PE	215,302
VE5SF	844	84	SOAB LP	SK	141,792
VE3YT	837	84	SOU LP	ONS	140,616
VY1CO (VA7ST VY1CO)	816	84	MOST HP	TER	137,088
VE3VN	707	83	SO QRP	ONE	117,362
VE3MGY	668	84	SOU LP	ONS	112,224
VE3SMA	655	82	SOAB LP	GH	107,420
VE4GV	647	81	SOU HP	MB	104,814
VE3TM	589	84	SOU LP	ONE	98,952
VE3CX	602	80	SOU LP	ONN	96,320
VE3NNT	601	80	SOAB HP	ONE	96,160
VA3SB	575	82	SOAB HP	ONE	94,300
VE3GFN	558	84	SOU LP	GH	93,744
VE1RSM	543	84	SOU LP	MAR	91,224
VE3RZ	532	84	SOU HP	GH	89,376
VE7YU	517	82	SOAB LP	BC	84,788
VE6BBP	560	75	SOAB LP	AB	84,000
VE3ZI	505	83	SOAB HP	ONN	83,830
VA1MM	496	83	SOAB HP	MAR	82,336
VE7XF	471	84	SOU HP	BC	79,128
VE6KC	436	81	SOU HP	AB	70,632
VE3BR	423	82	SOAB HP	GH	69,372
VY1AAA	443	76	SOAB HP	TER	67,336
VE2FK	405	83	SOU HP	QC	67,230
VE5MX	393	84	SOU HP	SK	66,024
VA6RCN	399	81	SOAB LP	AB	64,638
VE4XT	375	84	SOU LP	MB	63,000
VE3EY	378	80	SOAB LP	GH	60,480
VA2VT	357	82	SOU LP	QC	58,548
VE7KW	361	80	SOU QRP	BC	57,760
VO2AC	363	72	SOU HP	NL	52,272
VE3UZ	314	82	SOAB LP	ONS	51,496
VE3KOT	339	74	SOAB LP	GH	50,172
VO1HP	338	72	SOU HP	NL	48,672
VE3TW	296	81	SOU HP	GH	47,952
VE3VY	297	78	SOAB LP	ONE	46,332
VA2OT	296	76	SOU LP	QC	44,992
VE4VT	279	75	SO QRP	MB	41,850
VE9OA	278	75	SOU HP	MAR	41,700
VE2EZD	255	81	SOU HP	QC	41,310
VA3FN	255	75	SOAB LP	ONS	38,250
VE3PJ	230	75	SOU LP	ONE	34,500
VE5GC	252	66	SOAB LP	SK	33,264
VA7MM	226	71	SOAB HP	BC	32,092
VE7NI	215	71	SO QRP	BC	30,530
VA3EC	210	60	SOU LP	GH	25,200
VA3TMV	180	64	SOU LP	ONS	23,040
VA3DKL	185	60	SOAB LP	ONS	22,200
VA2WA	209	53	SOU HP	QC	22,154
VO1BQ	188	54	SOAB HP	NL	20,304
VE9VIC	147	66	SOAB LP	MAR	19,404
VE3TG	120	79	SOAB LP	ONE	18,960
VE3NE	161	57	SOU HP	GH	18,354
VA1RST	109	78	SOU HP	MAR	17,004
VE3KP	137	56	SOAB HP	ONE	15,344
VE6VS	124	61	SOAB LP	AB	15,128
VA6BGE	112	54	SOU LP	AB	12,096
VE3FNT	116	50	SOAB LP	ONS	11,600
VE3KTB	90	60	SOU LP	ONS	10,800
VY1KX	93	52	SOAB LP	TER	9,672
VA3PAF	104	43	SOAB LP	ONS	8,944
VE2OWL	77	50	SOAB LP	QC	7,700
VE3KG	70	41	SOAB LP	ONE	5,740
VA7EU	66	43	SOAB LP	BC	5,676
VA6TI	68	41	SOAB LP	AB	5,576
VE3AYR	56	44	SOAB LP	GH	4,928
VE3HG	63	36	SOAB LP	GH	4,536
VE2QV	58	38	SOAB LP	QC	4,408
VE7JKZ	51	37	SOAB LP	BC	3,774
VE3KJQ	58	25	SO QRP	ONE	2,900
VE3GMZ	40	24	SO QRP	GH	1,920
VE7AF	35	26	SOAB LP	BC	1,820
VE7ARN	32	26	SOAB LP	BC	1,664
VE7BGP	20	18	SOAB LP	BC	720
VA3IIF	19	17	SO QRP	GH	646
VE2KLW	2	2	SOAB LP	QC	8
VA3OOL	-1	0	SOU LP	ONS	0

Contest Calendar: September, October and Early November

CWOps CW Open	0000Z, Sep 2	2359Z, Sep 2	https://cwops.org/cwops-tests/cw-open/
All Asian DX Contest, Phone	0000Z, Sep 2	2400Z, Sep 3	https://www.jarl.org/English/4_Library/A-4-3_Contests/2022AA_rule.htm
Colorado QSO Party	1300Z, Sep 2	0400Z, Sep 3	http://ppraa.org/coqp
Tennessee QSO Party	1800Z, Sep 3	0300Z, Sep 4	http://tnqp.org/rules/
MI QRP Labor Day CW Sprint	2300Z, Sep 4	0300Z, Sep 5	https://www.miqrp.net/contest
WAE DX Contest, SSB	0000Z, Sep 9	2359Z, Sep 10	http://www.darc.de/der-club/referate/referat-conteste/worked-all-europe-dx-contest/en/
Alabama QSO Party	1500Z, Sep 9	0300Z, Sep 10	https://alabamacontestgroup.org/aqp/rules/
ARRL September VHF Contest	1800Z, Sep 9	0300Z, Sep 11	http://www.arrl.org/september-vhf
North American Sprint, CW	0000Z, Sep 10	0359Z, Sep 10	http://ncjweb.com/Sprint-Rules.pdf
ARRL 10 GHZ and Up Contest	0600*, Sep 16	2400*, Sep 17	http://www.arrl.org/10-ghz-up
Scandinavian Activity Contest, CW	1200Z, Sep 16	1200Z, Sep 17	https://www.sactest.net/blog/rules/
Texas QSO Party	1400Z, Sep 16	2000Z, Sep 17	http://www.txqp.net/
Iowa QSO Party	1400Z, Sep 16	0200Z, Sep 17	http://www.w0yl.com/IAQP
Washington State Salmon Run	1600Z, Sep 16	2400Z, Sep 17	http://salmonrun.wwdxc.org/
New Hampshire QSO Party	1600Z, Sep 16	2200Z, Sep 17	http://www.w1wqm.org/nhqso/NEW_HAMPSHIRE_QSO_PARTY_RULES.pdf
New Jersey QSO Party	1600Z, Sep 16	0359Z, Sep 17	http://www.k2td-bcrc.org/njqp/njqp_rules.html
North American Sprint, RTTY	0000Z, Sep 17	0359Z, Sep 17	http://ncjweb.com/Sprint-Rules.pdf
CQ Worldwide DX Contest, RTTY	0000Z, Sep 23	2400Z, Sep 24	http://www.cqwwrtty.com/
Maine QSO Party	1200Z, Sep 23	1200Z, Sep 24	http://www.ws1sm.com/MEQP.html
Russian WW MultiMode Contest	1200Z, Sep 30	1159Z, Oct 1	www.rdrclub.ru/news-radio/russian-ww-mm-contest/159-rus-ww-multimode-contest
Oceania DX Contest, Phone	0600Z, Oct 7	0600Z, Oct 8	http://www.oceaniadxcontest.com/
California QSO Party	1600Z, Oct 7	2159Z, Oct 8	http://www.cqp.org/Rules.html
Makrothen RTTY Contest	0000Z, Oct 14	1559Z, Oct 15	http://www.pl259.org/makrothen/makrothen-rules/
Nevada QSO Party	0300Z, Oct 14	2100Z, Oct 15	http://nvqso.com/contest-rules/
Oceania DX Contest, CW	0600Z, Oct 14	0600Z, Oct 15	http://www.oceaniadxcontest.com/
Scandinavian Activity Contest, SSB	1200Z, Oct 14	1200Z, Oct 15	https://www.sactest.net/blog/rules/
Arizona QSO Party	1500Z, Oct 14	0500Z, Oct 15	https://www.azqp.org/
Pennsylvania QSO Party	1600Z, Oct 14	2200Z, Oct 15	http://paqso.org/pa-qso-party-rules.html
South Dakota QSO Party	1800Z, Oct 14	1800Z, Oct 15	http://www.sdqsoparty.com/
10-10 Int. Fall Contest, CW	0001Z, Oct 21	2359Z, Oct 22	http://www.ten-ten.org/index.php/activity/2013-07-22-20-26-48/qso-party-rules
New York QSO Party	1400Z, Oct 21	0200Z, Oct 22	http://www.nyqp.org/
Worked All Germany Contest	1500Z, Oct 21	1459Z, Oct 22	http://www.darc.de/der-club/referate/conteste/worked-all-germany-contest/en/rules/
UK/EI DX Contest, SSB	1200z, Sep 30	1200z, Oct 1	https://www.ukeicc.com/dx-contest-rules.php
Stew Perry Topband Challenge	1500Z, Oct 21	1500Z, Oct 22	http://www.kkn.net/stew/
Illinois QSO Party	1700Z, Oct 22	0100Z, Oct 23	https://w9awe.org/ilqp/
NA SSB Sprint Contest	0000Z, Nov 12	0359Z, Nov 13	https://ssbsprint.com/rules/
CQWW Worldwide Contest, SSB	0000Z, Oct 28	2400Z, Oct 29	http://www.cqww.com/rules.htm
Ukrainian DX Contest	1200Z, Nov 4	1200Z, Nov 5	http://urdxc.org/rules.php?english
ARRL Sweepstakes Contest, CW	2100Z, Nov 4	0300Z, Nov 6	http://www.arrl.org/sweepstakes
WAE DX Contest, RTTY	0000Z, Nov 11	2359Z, Nov 12	https://www.darc.de/der-club/referate/conteste/wae-dx-contest/en/
JIDX Phone Contest	0700Z, Nov 11	1300Z, Nov 12	http://www.jidx.org/jidxrule-e.html
OK/OM DX Contest, CW	1200Z, Nov 11	1200Z, Nov 12	http://okomdx.crk.cz/index.php?page=english

Note: In the above chart an * indicates Local Time. 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.

Volunteers Needed!

As you will see from the pages of this magazine, Radio Amateurs of Canada has a lot going on. We need your help in many areas including Information Technology (IT) and website management, the Auxiliary Communications Service and other programs and services. For more information please visit: https://www.rac.ca/volunteer/

Articles Wanted

We would love to receive your articles – both technical and non-technical. Please send them to the TCA Editor at tcamag@yahoo.ca. The deadlines for the next issues of TCA are September 15, November 15 and January 15.

SARC Program Helps Amateurs Get On The Air

Larry Bloom, VE7LXB
New Amateur Coordinator
Surrey Amateur Radio Communications

Surrey Amateur Radio Communications (SARC) had its beginnings almost 50 years ago in the Electronics Lab of a local secondary school. Today, SARC is affiliated with the Surrey Emergency Program Amateur Radio (SEPAR). SARC and SEPAR include both Amateur Radio operators and other community volunteers involved in the City of Surrey Emergency Program.

For the past 15 years, SARC has offered Basic Amateur Radio courses. These courses are well attended, have received much positive feedback and have produced many new Amateurs of all ages. For years, they were offered in a classroom setting, but the pandemic has changed all that. Today, course offerings are all online and students have indicated that is their preferred learning method. As a result, participants reside both locally and throughout North America. For example, two of our recent graduates live in Mexico.

Unfortunately, many of our course graduates never get on the air and within a few weeks drop out of Amateur Radio completely. This shouldn't be surprising. For example, research has revealed that only about one-half of new Amateurs actually get on the air. But why not? After all, more new Amateurs are getting certified than ever before.

Although the exam pass rate may be high and applications are climbing, this does not automatically lead to *active* Amateurs. If new Amateurs do not have a practical knowledge base, they are limited in what they can accomplish. Amateur Radio is a prized skill set but it's not intuitive.

The obstacles to becoming an active Amateur include: a poor understanding of repeaters, lack of familiarity with on-air jargon, unease in programming radios, and a natural reluctance to press the Push-to-talk (PTT) button.

I graduated from the SARC course in late spring 2022. Like many course graduates, I became "stuck" after receiving my certification. I had no idea how to program my radio or activate a repeater. I was also reluctant to press the PTT button so my certificate went up on the wall and my radio went into a drawer.



Father and son team Dmitry, VA7DVO (logging) and his son Alex, VA7PVC (calling CQ), both recent graduates of our Basic course at the GOTA station



GOTA coach Anton, VE7SSD, provides suggestions to Dale, VE7LWT, Ernie, VE7ODK and Katrina, VA7WBT



John, VA7XB, looks on as Larry, VE7LXB, our New Amateur Coordinator, logs for Dale, VE7LWT.

Stubbornly, after a few months I talked a friend into becoming an Amateur so I would be able to have a friendly contact. Fate intervened when SARC course instructor, John Schouten, VE7TI, offered to program our radios. Armed with offsets, memory channels and sub-audible tones, my friend and I made contact through a local repeater. Eureka, I had pressed the transmit button and survived!

Despite my anxiety over how club members would respond to my lack of electronic skills and expertise, I worked up the courage to attend one of the Saturday morning SARC breakfast get-togethers. I soon discovered that this was needless anxiety as I was welcomed warmly and genuinely.

As a result of this experience and given my increased confidence, I approached John with a plan that I felt might help other course graduates transition into the active world of Amateur Radio.

After some brainstorming, we produced a model:

1) A free "Get On The Air" (GOTA) workshop for course graduates which would review simplex and repeater operations, on-air etiquette and how to make those first contacts. The session would also cover VHF/UHF radio and antenna options, survival communications and an introduction to contesting. Importantly, we would also offer radios to program participants. The workshop would then conclude with an informal net to help new Amateurs get over microphone fear.

2) A weekly GOTA Net with a Roundtable in which new Amateurs would be encouraged to discuss their progress and pose questions to the Elmers attending.

3) A blog (ve7rsc@blogspot.com) focused on new Amateur issues which would complement our existing blogs.

4) Follow-up assistance for new Amateurs including regular emails with topics of interest, frequent hands-on projects, offers of inexpensive antenna upgrades and HF training at the Operational Training Centre.

5) The creation of a New Amateur Coordinator volunteer position who would be responsible for organizing and managing all SARC initiatives for new Amateurs.

Interest in our new GOTA program has exceeded expectations. The March workshop filled up quickly and our June workshop required a second session. Our August workshop was half-filled with registrations within two weeks of posting.

Participation has ebbed and flowed in our GOTA Net but it is slowly growing in numbers. Activating a repeater some 30 kilometres away can be challenging with a cheap handheld radio and an antenna – even if the handheld has already been programmed. The frustration has had an unseen benefit as many participants have decided to explore radio and antenna upgrades and can now reach our repeater.

Our first GOTA HF contest was the American Radio Relay League (ARRL) Rookie Roundup. To qualify as a contestant, operators were limited to a maximum of three years experience as an Amateur. The contest was held on Sunday, April 16 and our group competed as Multi-Op using the club call sign VE7SAR. Although propagation conditions were not optimal, we made 38 QSOs over 16 states and two provinces. Our final score was 1,026 including multipliers. Not too shabby for our first time competing, but the best was yet to come – Field Day!

This year the ARRL gave emphasis to "Get On The Air" stations and SARC decided to give it a priority due to the bonus point potential. Although our GOTA participation has been minimal in past years, in no time we had a motivated group of new Amateurs backed by the full support of our club Directors.

Beginning at 11 am PST, our GOTAs began transmitting out of the SEPAR trailer using an IC-7610 transceiver graciously lent to us by Icom. The IC-7610 is an HF (short wave) transceiver, and one of the high-end models in the marketplace. For the next 24 hours, we ran, we pounced, and we spun the dial on the 15, 20, 40 and 80m bands, utilizing our 110-foot "Bigfoot" mobile tower with a TH-7 Tribander – a TH-7DX, 7-element, broadband Tri-Band Beam for 10, 15 and 20 metres.

Given their lack of HF experience, we had one new Amateur transmitting while another logged. After an hour, the operator took a break, the logger took the operator's place, and another GOTA sat in the logging chair. I was amazed at how quickly the new Amateurs picked things up. Our biggest issue was convincing them to relinquish the mic!

Exhaustion set in by 11 am on Sunday morning, but we knew that we had accomplished something special as we discovered that we had made 391 QSOs! Congratulations to: Doug De Jong, VE7JDJ, Lesley Verhulst, VE7CMI, Katrina Reynolds, VA7WBT, Dale Burghall, VE7LWT, Mike Porisky, VE7YEG, "UB" Adabi, VE7UBZ, Ernie Symchych, VE7ODK, Alex Sevostiyanov, VA7PVC, Dmitry Sevostiyanov, VA7DVO, Larry Bloom, VE7LXB, and Manvir Judge, VA7BKI, for their efforts and enthusiasm. Thanks also to GOTAs Aravind, De and Gary who visited to cheer us on. We know that we can't compete as GOTAs next year, but we're confident a fresh crop of new Amateurs will do us proud at Field Day 2024.

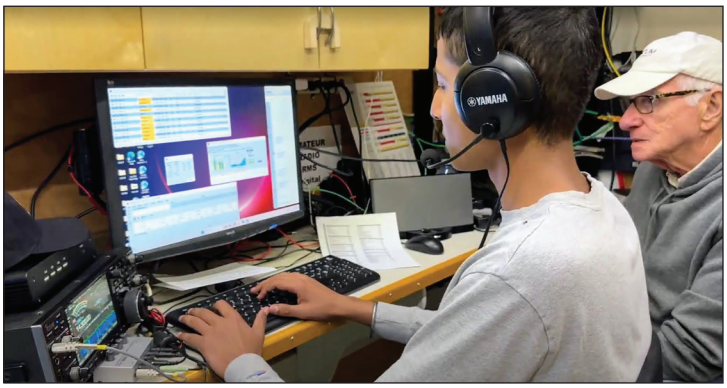
We would love to hear from other Amateur Radio clubs who are considering GOTA initiatives. Let's brainstorm and share ideas that may assist new Amateurs as they start their Amateur Radio journey. If you would like more information on the SARC GOTA project, our Amateur Radio course or you would like to be added to our GOTA mailing list, feel free to drop us a line at gota@ve7sar.net or check out our blog ve7rsc.blogspot.com.



Lesley, VE7CMI, awaits her turn to operate while Dale, VE7LWT, logs for "UB" Adabi, VE7UBZ.



Doug, VE7JDJ, running on N1MM+ while Manvir, VA7BKI and Mike, VE7YEG look on.



Manvir, VA7BKI, operates as John, VA7XB, looks on.

Our GOTA Net takes place every Thursday evening at 8 pm PST. VE7RSC North 147.360 MHz+ tone: 110.9Hz IRLP node 1736. Our Echolink node number for VE7RSC-VHF: 496228.

Larry Bloom, VE7LXB, resides in Langley, British Columbia. Larry is a retired High School teacher who passed his Amateur Radio Basic with Honours in late spring of 2022. He is the New Amateur Coordinator as well as a Director for Surrey Amateur Radio Communications (SARC) and is passionate about helping new Amateurs get started in Amateur Radio.

Larry helped develop the GOTA (Get On The Air) Workshop and is Net Control for the GOTA 2 metre Net which meets each Thursday evening at 8 pm. Larry is also a member of Surrey Emergency Program Amateur Radio (SEPAR) and competes in HF contests as part of the SARC team.

Six Park POTA and the NSARA (80m) Competition

John Orritt, VA1JON

The Pictou County Amateur Radio Club (PCARC) predominantly operates as a Portable/Field Day type station for Parks On The Air (POTA), Field Day, Lighthouses On The Air and other similar events. Our monthly meeting place is a common area and is unsuitable for a traditional station with fixed equipment and dedicated space. The club has been participating in the Nova Scotia Amateur Radio Association (NSARA) 80m competition since 2017, with a few events missed because of the pandemic and weather conditions.

Our operating setup has evolved with an emphasis on a quick and easy setup, cable management and operation within a vehicle. With practice, we can be on site and set up within about five minutes. We have a swing-up mast system with a purpose-built 80m inverted V antenna, centred on 3.750 MHz. The radio is installed on a fitted table and powered from two separate batteries; we definitely don't want to flatten the car battery in the winter!

The radio used is a Yaesu VX-1700 HF single sideband. It's not the most traditional of radios, but it is easy to operate and the forward-facing speaker eliminates the need for two pairs of headsets. We have an ICOM IC-2300H for VHF and we used the MAVCOM Link System to announce when we were going to move locations. For backup, we had a spare radio, antenna tuner and wire in the event that we had to "MacGyver" something to get on the air.

Because the competition takes place in March, the weather is always a factor and in each of the previous years we have gone out in a snowstorm. An early start was necessary so that we could be set up at our furthest point for 8 am, moving throughout the competition towards home.

The plan was to use a few Provincial Parks as operating locations so that we could boost our POTA count at the same time. This also had the benefit of tempting John Macnutt, VE9EZ, out of bed before noon. Tony Russell, VE1AWR, volunteered to go as well – he hasn't operated indoors yet. My daughter Clare filled the fourth seat as she likes these expeditions.

A route to some promising locations was planned, paying attention to County borders. We started at Whycogomah Provincial Park (VE-0954) in Inverness County and then travelled via the Little Narrows ferry to MacCormack Beach Provincial Park (VE-0929) in Victoria County.

We then had a decision to make: keep operating exclusively from parks or try to get the maximum number of counties for the competition. John, VE9EZ, wanted to push on for POTA so we continued to Ben Eoin Provincial Park (VE-0888) in Cape Breton. Once there we were struggling to make contacts on 80m and still needed to get 10 contacts for a valid POTA activation. If you reduce the transmitted power on the VX1700 – I have it set for 10,20 and 100W – you can usually get it to transmit into anything so we used the 80m antenna on 10m to get the rest we needed. This was repeated twice just to get enough contacts in two other parks.

Then the sun came out! The revised plan was to finish Cape Breton Island and then activate whatever we could on the mainland. Tony, VE1AWR, and I had operated from Battery Park last year and we knew that St. Peters Canal National Historic Site (VE-4848) in Richmond County would be suitable. The competition has a break between 12 pm and 2 pm so we had a leisurely drive down and setup. On starting the competition again, we weren't getting anywhere as no one was responding, but we could hear plenty of activity. After checking with an antenna analyzer, we discovered that the mast had twisted while we were setting up and the dipole arms were shorting out. A quick fix and we were back on the air.

At this point we were open to just parking and operating from a side road in Guysborough County, but anywhere that was suitable hadn't been ploughed yet. Since we were getting closer to Boylston Provincial Park (VE-0452) we decided to go there. This is a fantastic park for POTA as it is easy to get into, has lots of space and trees and is close to the sea. If you decide to go there, take a vertical antenna with you.



John, VE9EZ, operates while Tony, VE1AWR, closely supervises.

From previous competitions, we knew that Beaver Mountain Provincial Park (VE-0886) in Antigonish County would be open and accessible. Tony, VE1AWR, got us there just in time and we were on the air at 5:53 pm and made six more NSARA contacts to close out the competition. This is another great park with overhead covered benches, lots of space and it's high up.

We had a successful day, the weather was in our favour and we were fortunate with the road conditions. There are always improvements to be made. For example, if we had started in Cape Breton County near Eskasoni and then travelled counterclockwise through Cape Breton Island, we might have had time to operate in Pictou County as well. Another possibility would be to have a long wire on a reel and just deploy that for an antenna, but it really goes against the grain to take a less capable antenna.

In the end, we made 53 NSARA contacts, 16 counties (multipliers) and operated from six Provincial Parks in six Counties and logged 65 POTA contacts. We still haven't attained a clean sweep but we'll keep trying.

The author John, VA1JON, lives in Pictou County and was clearing trees from Hurricane Fiona when he sent in this article.

The Club Corner + Bits and Pieces

phillipjboucher@gmail.com | www.phillipjboucher.com



Phillip Boucher, VE3BOC

"The Rural Practice"

Welcome to another "Club Corner" column! I have been trying to find a workaround to my dilemma in now being in an RF-tight rural town with no access to any repeaters nor an HF radio.

In previous columns I have mentioned the Wilderness Protocol, which is a set of steps that are taken to monitor the 2 metre call frequency of 146.520 MHz to allow communications between Amateurs who are out hiking or backpacking in uninhabited areas – for example, the wilderness. These locations are outside repeater range so the protocol provides an alternative opportunity to be heard when assistance is needed, and there are set times for monitoring the frequency for urgent or emergency traffic.

I was thinking, why not do the same if you live in a rural area with no access to repeaters? RF-tight rural areas throughout Canada could use 146.52 for establishing operations between local stations, or local stations with mobile stations passing through or stopping in the town. I want to call this the "Rural Practice".

With the Rural Practice, those Amateurs who are at home, mobile or with a handheld in rural areas throughout Canada that have no access to repeaters, can establish quick and easy simplex communications with each other. And advertising the fact that you monitor 146.52 simplex will only add to an increased use of the Rural Practice.

I have read multiple articles and forums of operators who have decals on the back of their vehicles that indicate they monitor 146.52 and some even include the operator's call sign. Any other operator behind them can establish contact with them and move frequency to carry on a contact. It seems that there are more Amateurs in Canada that monitor 146.52 than I was aware of. From now on when I have time to write, I will also be monitoring 146.52 and stating that I am monitoring if any operators in or passing through Smithville, Ontario would love to have a chat.

Here and There...

On June 11, Seattle, Washington disaster drills simulated a city-wide power outage The exercise, called "Power Down", involved 25 Amateurs from the Auxiliary Communications Service of Amateurs who were dispatched to transmit messages using voice and digital modes. Most of the stations communicated via nets using repeaters that have emergency power backup. The exercise was a success but it unearthed a number of challenges, especially with coverage issues with repeaters that are used less frequently. These and other issues will be addressed.

Emergency drills like these are necessary to identify any gaps and problems in emergency response so they can be corrected before an actual emergency occurs, and help to become proactive rather than reactive. We Amateurs love to provide communications support for local events and more than 40 members of the Nashville Amateur Radio Club, Williamson County ARES, and Stones River Amateur Radio Club partnered to provide operational support leading up to and throughout the 2023 Great Tennessee Air Show on June 10 and 11.

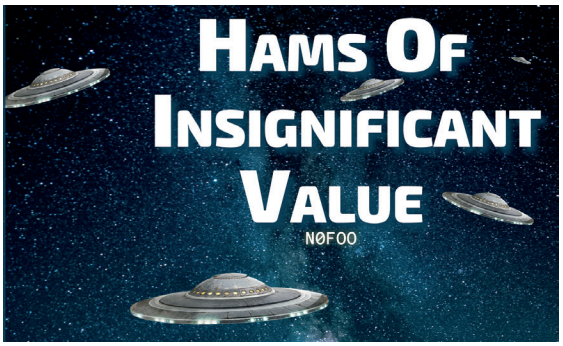
Operators were able to employ multiple technologies during the event including: simplex radio operations; RF mesh networking; mobile VoIP phones; IP surveillance cameras; APRS tracking; and weather monitoring and measurement. The result was an entertaining and safe event for everyone involved. Amateurs from the Middle Tennessee Emergency Amateur Radio System have been supporting the air show since the mid-1980s.

Here is another example of what is being done to get the youth interested in Amateur Rado. In the Czech Republic, an Amateur Radio camp will be set up to introduce and involve 10 to 15 year olds in all aspects of the hobby. The event will take place at the Kids on the Air (KOTA) Subregional Camp at Castle Trhanov, (what kid wouldn't want to learn Amateur Radio in a real castle?) outside Prague from September 15 to 17.

Eerie and Weird ...

Elmwood, Wisconsin is the reputed UFO capital of the state based on residents' claims of having had so many UFO sightings over the years.

In the last weekend of July the annual UFO Festival is held. That's right. The UFO Festival. And the US government has come out to say that UFOs are real – nervous chuckling is allowed.



There will be speakers, crafts, sales, food, aliens and anything UFO related.

And starting this year? Amateur Radio operators, broo ha ha ha ha.

Members of the "Hams of Insignificant Value", N0FOO (https://n0foo.com/) will be calling QRZ on the HF bands.

They bring a message of peace: "Take me to your feedline."

I find this not only very creative but also an interesting way of getting more people exposed to Amateur Radio.

Now, what happens if they happen to get a reply to their CQ from some Alien out there?

That's it for now.

Please send your club news and bits and pieces to me at:

phillipjboucher@gmail.com

TCA

The RAC Challenge Update



Ante Laurijssen, VA2BBW

Some would argue that summertime is the best time to enjoy the great outdoors. Personally, I prefer the cooler temperatures of autumn, but if you add Amateur Radio to the equation I could easily be persuaded to wade through mosquitoes and sit in the heat and humidity to make some contacts in the sun. And from the looks of it I am not the only one.

The month of June was another busy one for our Portable Operations Challenge participants, with 19 Amateurs sending in their submissions from across the country. Congratulations to Richard Pierik, VE1RPX, not only for finishing first, but also for achieving the Silver Coureur des Bois Award for having completed 50 activations!

Other than our winners, I wanted to share with you a couple of stories that caught my attention. The first was from Michael Van Kuyk, VE7KPZ, sharing his Field Day experience with the North Okanagan Radio Amateur Club (NORAC):

"Field Day 2023 with 368 QSOs divided by 7 operators. All solar powered including the logging laptops. Woohoo!"

This certainly piqued my interest so I reached out to him for some more information and he sent me a link to a writeup of the event that he put together: https://norac.bc.ca/index.php/news/1181-event-report-field-day-2023

He also put me in contact with Simon Rizzardo, VE7RIZ, who also participated in this event with his son Bryson:

"Last year for Field Day with the Kamloops Club was the first Field Day that Bryson and I have attended. Bryson had such a blast getting on the air last year that he was pumped to attend again this year. Unfortunately the Kamloops club had to cancel so the next option was to attend a nearby club event.



Bryson and I made the decision to pack up our motorhome and head out for the NORAC Field Day in Armstrong. We had a great time with a new group of Amateurs that welcomed us to attend. My son and I had a great time and were very surprised by the great feast that was had on Saturday."

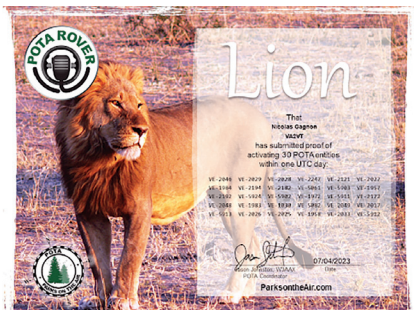
Another very interesting submission I received was from an ostrich! Did you know that ostriches are known for activating 20 POTA parks in one day?



Matthew McConnell, VA3UMM, sent us the above photo with this little message:

"My friend Ashtyn Ribble, VA3TYN, and I decided to go on a monster POTA rove around our area. We had a vertical 20 metre dipole suspended from trees using an arborist throw bag for quick deployment and my FT-450."

What an accomplishment! 20 parks activated in one day! These ostriches certainly did not stick their heads in the sand. But in July, they did fall prey to a pair of lions... One of the lions in question is none other than July's runaway winner, Nicolas Gagnon, VA2VT. He had this to say:



"This special activation was done with Pat, VE2YYQ. We were doing the POTA Rover Award – Lion, consisting in activating 30 POTA entities within one UTC day. It was not easy on the back but I'm glad it was finally done."

Coureur des Bois (June)

Richard Pierik, VE1RPX

"The Top Five"

RAC Challenge Top 5: June 2023

Place	Name/Call	Points
1st	Richard Pierik, VE1RPX	31,790
2nd	John McGrath, VE3FDZ	24,528
3rd	Chris Bisaillion, VE3CBK	21,200
4th	Jeff Zimmerman, VE3JZT	13,440
5th	Gerry Bell, VE3PYJ	9,240



RAC Challenge Top 5: July 2023

Place	Name/Call	Points
1st	Nicolas Gagnon VA2VT	630,035
2nd	Robbie Morrison, VE7NB	329,208
3rd	John McGrath VE3FDZ	60,840
4th	Stuart Hayes, VE3RGO	50,800
5th	Pierre Jolin, VE2GT	47,232

However, the big moment for Nicolas was no doubt participating in the VB2M expedition to la Petite-Île-au-Marteau in Zone 2. After submitting his report, he instantly climbed atop the leaderboard, dislodging Robbie Morrison, VE7NB, who up to that point seemed like he would take it all, having had an excellent month with a great score. Nicolas and the VB2M team managed to make over 12,000 contacts from the island, which is not only a POTA park, but also IOTA entity and ARLHS lighthouse. Congratulations!

I received a report from Thomas Cort, VA2NW, for his July 1 operation during the unofficial Canadian POTA mega activation of the Trans-Canada Trail:

"July 1st was a big day for Amateur Radio in Canada. Not only was it the RAC Canada Day Contest, the SKCC Slow Speed Saunter, the 13 Colonies event, and the Polar Bear Summer Picnic Event but it was also the date of a new informal yearly event. The unofficial event encourages stations in Canada to operate portable from different locations along the Trans Canada Trail, Parks on the Air reference VE-5082. The goal is to have stations in every province and territory as well as getting the most activators activating a single Parks on the Air entity in a day.

With all of the different activities going on, I chose to participate in the Polar Bear Summer Picnic Event from the Trans Canada Trail. I wanted to avoid all of the crowds in the National Capital Region so I chose to operate about an hour north of Ottawa in the small town of Venosta, Quebec where the Trans Canada Trail passes through on old rail bed. Right off the highway there's a great little spot with all of the amenities: parking, a picnic table, a bench, and an out house.

I arrived and quickly setup a small station: Venus SW-3B QRP CW transceiver, AlexLoop Walkham magnetic loop antenna on a Pyle speaker stand, 6.5Ah TalentCell battery, a paper logbook, and a CW Morse cootie key.

I spotted myself on QRP Spots and within a few minutes I made my first contact on 30m with a station in Ontario. As we were wrapping up and sending our 73s, I started hearing loud booms.

It was not fireworks, but thunder. I had to pack up. I tried waiting it out in the van but the thunder persisted and then the rain came. I only made one contact, but I'm glad I was about to get out and enjoy Amateur Radio from the field, even if it was just for a few minutes."

I received a few stories and pictures from other participants including from two members of July's leaderboard: John McGrath, VE3FDZ and Pierre Jolin, VE2GT. Pierre sent us some pictures from his Parc Ducharme activation including the one above of his vehicle and antenna setup. I need to steal that trailer hitch antenna mount idea!

On July 25, John wrote: "Nice day for POTA. Six parks and one late shift park before the bugs."

I also received a few cool pictures from others including David Gillingham, VE3DZG, taken at Chutes Provincial Park, and Gerry Bell, VE3PYJ, taken at Stephen's Gulch Conservation Area. Thanks for sharing guys!

That about does it for June and July. So far I am very happy with the number of Portable Operations Challenge submissions I receive. Keep up the good work, and don't be shy to send me pictures and stories of your adventures that you want to share with RAC members. I am always happy see those arrive in my inbox and want to showcase more of them. You never know who you could inspire.

The RAC Portable Operations Challenge is open to any RAC member. Simply submit your report online and your scores will automatically be calculated.



Gerry Bell, VE3PYJ, at Stephen's Gulch.



Pierre Jolin, VE2GT at Parc Ducharme in Sainte-Thérèse, Quebec.



David Gillingham, VE3DZG, at Chutes Provincial Park in Sables-Spanish Rivers in Ontario.

While you don't have to operate from a POTA park, IOTA island, SOTA summit or any other such spot, these all count as multipliers for your monthly total.

As long as you are out operating somewhere portable in the field and you are a RAC member you can submit your report for the challenge.

For more information on the Ostrich Rover, Lion Rover and other POTA awards: https://parksontheair.com/pota-awards/

Coming Events:

The following events are listed by date. For updated information and other events please visit the RAC Events Database: https://secure.eton.ca/rac/events/index.html

Ottawa (Carp) 2023 Hamfest
Sponsor: Ottawa Amateur Radio Club
Date: Saturday, September 9
Place: Ottawa (Carp), ON; Carp Agricultural Fairgrounds in the W. Erskine Johnston Arena, 3882 Carp Road.
Time: Commercial Vendors 7:30 am; Private vendors: 8 am; Public: 9 am to noon.
Cost: Vendor tables: $17 per 8-foot table. Please book tables early to reserve your preferred table location. Admission: $6. Children 12 and under are free.
Talk-in: VE2CRA, 146.94-, 100 Hz.
Info: Ed, VE3WGO, hamfest@oarc.net. Please see our ad on page 29.
W: https://oarc.net/hamfest2023

Simcoe County Fall Hamfest
Simcoe County Amateur Radio Enthusiasts
Date: Saturday, September 16
Place: Barrie, ON; Grenfel Community Centre, 1989 County Road 40 Sunnidale Road.
Time: Vendors 8 am; Public 9 am to noon.
Cost: Vendors $5; Admission is free but donations are welcome.
Talk-in: 146.55 MHz simplex no tone.
Info: Brant Smith, ve3ume@scare-radio.com or 289-802-1480.
W: http://scare-radio.com/Scare-Radio.com/Home.html

100 Years of Amateur Radio in Alberta
Sponsor: Northern Alberta Radio Club
Date: September 16, 2023
Place: Southwood Community Hall, 1880 37 St NW, Edmonton, AB T6L 2R2
Time: 8 am to 4 pm, Dinner 5 to 8 pm.
Cost: Free Admission, Exhibits, Demos and Seminars, Vendors in attendance, Free Tailgate Flea Market reserve a spot, Free lunch and refreshments, Ticketed Dinner, Special Event Station Call VE6AR100, VA6AR100, Basic and Advanced Examiner on site.
Talkin: VE6HM 2m FM 147.600 Offset -0.6 CTCSS 100.0, 70cm FM 444.100 Offset +5.0 CTCSS 100.0
Info: Contact ar100@narc.net
W: https://www.ar100.ca/

Vancouver Island Ham Happenings
Sponsor: Nanaimo Amateur Radio Association
Date: Sunday, September 17, 2023
Place: Nanaimo, BC; Cedar Community Hall, 2388 Cedar Road
Time: Vendors 8:30 am; Public 10 am. Grand Prize draw at noon
Cost: Tables $20. Helper $5. Admission $5. For tables contact Rod at tables@hamhappenings.ca
Talkin: VE7ISC 146.640 - 0.600 141.3 Hz tone.
W: http://hamhappenings.ca/

Hamilton ARC Hamfest
Sponsor: Hamilton Amateur Radio Club
Date: Saturday, September 30
Place: Ancaster, ON; Ancaster Agricultural Fairgounds, 630 Trinity Road.
Time: Vendors 7:30 am; Public 9 am. Note: There will be no tailgating.
Cost: Tables $10 includes free admission. Admission $5 each.
Talkin: Simplex 146.52 MHz; HARC Repeater VE3NCF 146.760/146.160 -600 Tone 131.8 Hz.
Info: Contact Barry, VE3ISX, at ve3isx@gmail.com
W: https://hamiltonarc.com/Ancaster/index.html

Kingston Amateur Radio Club Hamfest
Sponsor: Kingston Amateur Radio Club
Date: Saturday, October 14.
Place: Kingston, ON; Royal Canadian Legion (Branch 560), 734 Montreal Street.
Time: Vendors 7:30 am; Public 8:30 am.
Cost: Vendors $10/table; Public $5/person.
Talk-in: VE3KBR 146.94(-) Tone 151.4
Info: Tim, VA3TIC, va3tic@gmail.com or Greg, VE3PJ, greg.foster@sympatico.ca
W: https://www.ve3kbr.com/main.html

Montreal South Shore Hamfest
Sponsor: Club Radio Amateur Rive-Sud de Montreal
Date: Saturday, October 21
Place: Longueuil, QC; Bingo Longeuil, 1591, blvd Roland-Therrien Longueuil (10 minutes from downtown Montreal).
Time: Vendors 6 am; Public 8:30 to 11:30.
Cost: Public $10; Tables $10 plus admission.
Talk-in: VE2RSM 145,39 MHz, CTCSS 103,5 Hz
Info: Francois Drien, VE2FDA, 450-672-9994, hamfest@ve2clm.ca
W: http://www.ve2clm.ca

FISCAL YEAR-END SPECIALS

Trylon and Wade Towers:
New & Used

Cushcraft A50-5S 6m beam $595
124WB 4-el 2m boomer $229
ARX-2B Ringo Ranger $249
RG-8X mini 50 ohm coax .65/ft
RG-213 50ohm coax 1.39/ft
LMR-400 low loss coax $1.69/ft
Sked "40" 1.9-in OD Gal pipe $9.75/ft

Yaesu and Hy-Gain Rotors:
New & Refurbished

H.C. MacFarlane Electronics Ltd.
5683 Battersea Road, ON K0H 1H0
Call Harold, VE3BPM, or Tom, VE3UXP,
or Victor (B.Eng and MSc)
Phone 613-353-2800
Email: macfltd@kos.net
www.macfarlaneelectronics.on.ca

Stay Safe and Stay Healthy!

RAQI Announces Awards for Contacts with Francophone DXCC entities

The Federation of Amateur Radio Clubs of Quebec (RAQI) has announced new operating awards intended to promote Amateur Radio activity in the global Francophonie. This project has received the support of the International Organization of La Francophonie, which authorizes us to use its logo and the Federation is grateful to it.

Amateurs who have made verified contacts with 10, 15 or 25 DXCC entities in the countries of "La Francophonie" can earn Bronze, Silver and Gold-level certificates. No need to live in a member country of the International Organization of La Francophonie to participate. This program will end on March 1, 2025.

We wish to spark the interest of French-speaking and Francophile Radio Amateurs around the world for these communications. "Remember that the foremost purpose of our hobby is, and always should be, to create global human bridges of friendship that transcend all ethnic, social and political barriers." Antoine, 3D2AG

For any questions related to this certificate, please contact RAQI's offices at the following email address: "francophonie@raqi.ca"

TCA

RAC OFFERS BOTH BASIC QUALIFICATION STUDY GUIDES

The Hamstudy Basic Study Guide 2021/2022

Hamstudy Basic 2021/2022 is the 4th edition of a Study Guide that is published by Radio Amateurs of Canada. The content mirrors the subscription-based self-study course offered at http://www.hamstudy.com.

This is the perfect reference for new Radio Amateur enthusiasts. It provides everything needed to qualify for the Basic Exam.

- √ Innovation, Science and Economic Development's complete examination Question Bank
- √ Based on the popular Internet self-study course Hamstudy
- √ Low price of $41.54 (plus shipping and taxes)

Key information:

- √ Basic qualification is required to obtain your call sign
- √ Exams are multiple choice – 70% to pass
- √ 80% or higher marks gives you access to the HF bands

For more information visit http://www.hamstudy.com/



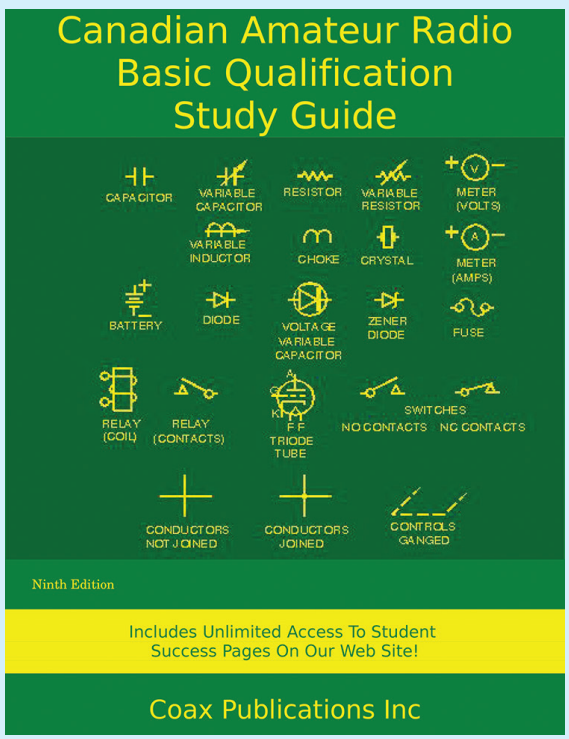
The Canadian Amateur Radio Basic Qualification Study Guide, 9th Edition – 5th Printing

This Study Guide includes all information required to pass the current Innovation, Science and Economic Development's examination. Please see the ad on page 7 for information on the new 5th printing.

Coax Publications Study Guides are revised bi-annually or whenever changes occur in the Question Bank.

- √ Matched to the Question Bank update in 2020 with more context for the new and revised questions
- √ Still includes unlimited time access to the acclaimed online Student Success Pages support
- √ Our *Ask The Professor* help is added for some questions
- √ Current stock: $49.95 plus shipping and taxes

For more information visit https://www.rac.ca/study-guides-2/



For more information about getting started in Amateur Radio visit: https://www.rac.ca/how-to-begin/

Radioworld.ca

4335 Steeles Ave. West, Toronto, ON M3N 1V7
Phone 416-667-1000 Fax 416-667-9995
email: sales@radioworld.ca

Canada's largest selection of Amateur Radio brands and products!

YAESU

FTM-500DR

144/430MHz Dual Band
Digital Mobile Transceiver



- 144MHz, 430MHz C4FM Digital / FM / AM (Air Band Receive)
- True Dual Band Operation, C4FM/C4FM Digital D-D Dual Receive
- Advanced C4FM Digital Mode with AMS (Automatic Mode Select), DG-ID feature and Smart Navigation
- 2.4-inch High-Resolution Full-Color Touch-panel Display and Demountable Front Panel Controller
- Swing-Head adaptable Front Panel improves display visibility
- Single-Touch Spectrum Scope function
- High speed Band Scope function
- Built-in 66ch High precision GPS receiver and External GPS device connectivity
- Wireless Operation Capability with the Bluetooth® Headset

Providing Canadian customers competitive prices for over 2 decades!

central

Radioworld

8, 711 48th Ave., S.E., Calgary, AB. T2G4X2
Phone 403-239-1400 Fax 403-239-1408
email: sales@radioworldcentral.ca