



Regulations and Policies

Chapter 1

References

- o This presentation is based on one prepared by VA3EMO (<http://www.emergencyradio.ca/course/>) but it has been reformatted and edited by YARS to enhance readability and to make use of PowerPoint 2010.
- o The statements in it are based on RIC-7 questions
- o Ultimate sources of information come from the *Radiocommunication Act* (Canada) and the *Radiocommunication Regulations* as well as Industry Canada policies.

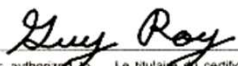
Radio Licences, Applicability, Eligibility of Licence Holder

- o Authority to make "*Radiocommunication Regulations*" is derived from the *Radiocommunication Act*.
- o Authority to make "*Standards for the Operation of Radio Stations in the Amateur Radio Service*" is derived from the *Radiocommunication Act*.
- o The Department that is responsible for the administration of the *Radiocommunication Act* is Industry Canada.
- o The "amateur radio service" is defined in the *Radiocommunication Regulations*.

Licence Fee, Term, Posting Requirements, Change of Address

- o The Amateur Radio Operator Certificate should be retained at the address notified to Industry Canada.
- o Whenever a change of address is made Industry Canada must be advised of any change in postal address.
- o An Amateur Radio Operator Certificate is valid for life.
- o The fee for an Amateur Radio Operator Certificate is free.
- o The holder of a radio authorization shall, at the request of a duly appointed radio inspector, show the radio authorization, or a copy thereof, to the inspector, within **48 hours** after the request.
- o Out of amateur band transmissions are prohibited - **penalties** could be assessed to the control operator.

Certificates of Proficiency

	Industry Canada	Industrie Canada	CERTIFICATE OF PROFICIENCY IN AMATEUR RADIO	CERTIFICAT DE COMPÉTENCE EN RADIO AMATEUR
Certificate Holder – Titulaire du certificat [Redacted]				
Qualifications – Compétences Basic Morse Code Advanced				
Call Signs – Indicateurs d'appel [Redacted]				
FOLD / PLIER				
Issued by – Émis par 				
The certificate holder is authorized to operate amateur radio apparatus in accordance with the regulations made pursuant to the <i>Radiocommunications Act</i>. Le titulaire du certificat est autorisé de faire fonctionner des appareils radio amateur conformément aux règlements établis en vertu de la <i>Loi sur la radiocommunication</i>.				
Number – Numéro [Redacted]		Issue Date – Date d'émission 05 November 2003		
IC 2755 (1999-12)				

	Industry Canada	Industrie Canada
<i>Certificate of Proficiency in Amateur Radio</i>		
This is to certify that [Redacted]		
has obtained the following qualifications:		
<i>Basic</i> <i>5 W.P.M. Morse Code</i>		
The certificate holder is authorized to operate amateur radio apparatus in accordance with the regulations made pursuant to the <i>Radiocommunication Act</i> , and to use the following call signs: [Redacted]		
Certificate Number: [Redacted] Issue date: 30 April 2002		 Issued by 

Amateur Radio Licence Plates

- With a certificate of proficiency, one can apply to the Government of the Northwest Territories Department of Transportation for an amateur radio licence plate for a nominal sum (not the rate for personalized plates).
- All other Canadian provinces and territories have a similar arrangement.
- NT Ham Radio Plate is a collector's item and highly sought after in North America for collections.



Licence Suspension or Revocation, Powers of radio Inspectors, Offences & Punishments

- o If an amateur pretends there is an emergency and transmits the word "MAYDAY," this is called **False or deceptive signals**
- o A person found guilty of transmitting a false or fraudulent distress signal, or interfering with, or obstructing any radio communication, without lawful cause, may be liable, on summary conviction, to a penalty of: **a fine, not exceeding \$25 000, or a prison term of one year, or both**
- o The Minister may suspend or revoke a radio authorization **WITHOUT NOTICE:** where the holder has failed to comply with a request to pay fees or interest due

Operators Certificates, Applicability, Eligibility, Equivalents, Reciprocal Recognition

- o There are **no age limit** on who can hold an Amateur Radio Operator Certificate with Basic Qualification.
- o A **basic examination** must be passed before an Amateur Radio Operator Certificate is issued.
- o The holder of an Amateur Digital Radio Operator's Certificate has **equivalency for the Basic and Advanced qualifications**.
- o After an Amateur Radio Operator Certificate with Basic qualifications is issued, the holder may be examined for additional qualifications **in any order**.
- o One Morse code qualification is available for the Amateur Radio Operator Certificate. It is: **5 w.p.m.**
- o The holder of an Amateur Radio Operator Certificate with Basic Qualification is authorized to operate the following stations: **a station authorized in the amateur service.**

Operation, Repair & Maintenance of Radio Apparatus On Behalf of Other Persons

- o Radio apparatus may be installed, placed in operation, repaired or maintained by the holder of an Amateur Radio Operator Certificate with Advanced Qualification on behalf of another person: **if the other person is the holder of a radio authorization to operate in the amateur radio service.**
- o The holder of an Amateur Radio Operator Certificate may build transmitting equipment for use in the amateur radio service provided that person has the: **Advanced qualification.**
- o Where a friend is not the holder of any type of radio operator certificate, you, as a holder of an Amateur Radio Operator Certificate with Basic Qualification, may, on behalf of your friend: **not install, place in operation, modify, repair, maintain, or permit the operation of the radio apparatus.**
- o A radio amateur with Basic and 5 w.p.m. Morse qualifications may install an amateur station for another person: **only if the other person is the holder of a valid Amateur Radio Operator Certificate.**

Operation of Radio Apparatus, Terms of Licence, Applicable Standards and Exempt Apparatus

- o An amateur station with a maximum input to the final stage of 2 watts: **must be licensed at all locations .**
- o An amateur station may be used to communicate with: **similarly licensed stations.**
- o A radio amateur may not transmit **superfluous signals** .(*su·per·flu·ous [soo-pur-floo-uhs]*)*
- o A radio amateur may not transmit **profane or obscene language or messages**
- o A radio amateur may not operate, or permit to be operated, a **radio apparatus which he knows is not performing to the Radiocommunication Regulations .**
- o No person shall possess or operate any device, for the purpose of amplifying the output power of a **licence-exempt radio apparatus .**
- o A person may operate or permit the operation of radio apparatus only where the apparatus is **maintained to the Radiocommunication Regulations tolerances.**

Content Restrictions – Non-Superfluous, Profanity, Secret Code, Music, Non- Commercial

- o Business planning CANNOT be discussed on an amateur club net.
- o A radio amateur is **Never** allowed to broadcast information to the general Public.
- o False or deceptive amateur signals or communications may **Never** be transmitted.
- o An amateur station in two-way communication may **Never** transmit a message in a secret code in order to obscure the meaning of the communication.

Echelon/Platform



- Under the 1948 UKUSA agreement, CSEC's intelligence is shared with the United States National Security Agency (NSA), the British Government Communications Headquarters (GCHQ), the Australian Defence Signals Directorate (DSD) and New Zealand's Government Communications Security Bureau (GCSB). Along with these services from the United States, the UK, New Zealand and Australia, CSEC is believed to form the ECHELON system. Its capabilities are suspected to include the ability to monitor a large proportion of the world's transmitted civilian telephone, fax and data traffic. The intercepted data, or "dictionaries" are "reported linked together through a high-powered array of computers known as 'Platform'.

[Wikipedia October 2012]

Installation and Operating Restrictions – Number of stations, Repeaters, Home-Built, Club Stations

- o The holder of an Amateur Radio Operator Certificate operate an amateur radio station **anywhere** in Canada.
- o A Beacon station **Only** may transmit one-way communications.
- o In order to install any radio apparatus, to be used specifically for receiving and automatically retransmitting radiotelephone communications within the same frequency band, a radio amateur must hold an Amateur Radio with a minimum of **Basic and Advanced qualifications**.
- o In order to install any radio apparatus, to be used specifically for an amateur radio club station, the radio amateur must hold an Amateur Radio Operator Certificate, with a minimum of the following qualifications: **Basic and Advanced** .
- o In order to install or operate a transmitter or RF amplifier that is not commercially manufactured for use in the amateur service, a radio amateur must hold an Amateur Operator's Certificate, with a minimum of **Basic and Advanced** .

Participation in Communications by Visitors, Use of Station by Others

- o Both the control operator and the station licensee are responsible for the proper operation of an amateur station.
- o The owner of an amateur station may: permit any person to operate the station under the supervision and in the presence of the holder of the amateur operator certificate.

Interference, Determination, Protection from Interference

- o You may **Never** deliberately interfere with another station's communications.
- o If the regulations say that the amateur service is a secondary user of a frequency band, and another service is a primary user, **Amateurs are allowed to use the frequency band only if they do not cause interference to primary users .**
- o What rule applies if two amateur stations want to use the same frequency? **Both station operators have an equal right to operate on the frequency .**
- o Where interference to the reception of radiocommunications is caused by the operation of an amateur station: **the Minister may require that the necessary steps for the prevention of the interference be taken by the radio amateur .**
- o Radio amateur operations are not protected from interference caused by another service operating in the following frequency bands **902 to 928 MHz .**

Emergency Communications (Real or Simulated), Communications with Non-Amateur Stations

- o Amateur radio stations may communicate: with any station involved in a real or simulated emergency .
- o In the amateur radio service, business communications: are not permitted under any circumstance .
- o If you hear an unanswered distress signal on a amateur band where you do not have privileges to communicate: you should offer assistance.
- o In the amateur radio service, it is permissible to broadcast: radio communications required for the immediate safety of life of individuals or the immediate protection of property.
- o An amateur radio station in distress may use: any means of radiocommunication.

Emergency Communications (Real or Simulated), Communications with Non-Amateur Stations

- During a disaster, when may an amateur station make transmissions necessary to meet essential communication needs and assist relief operations? **When normal communication systems are overloaded, damaged or disrupted.**
- There are no power limitations during an emergency.
- During a disaster: most communications are handled by nets using predetermined frequencies in amateur bands. Operators not directly involved with disaster communications are requested to avoid making unnecessary transmissions on or near frequencies being used for disaster communications.
- Messages from recognized public service agencies may be handled by amateur radio stations: **during peace time and civil emergencies and exercises.**
- It is permissible to interfere with the working of another station if: **your station is directly involved with a distress situation .**

Non-remuneration and Privacy of Communications

- o No payment of any kind is allowed for third-party messages sent by an Amateur Station.
- o Radiocommunications transmitted by stations other than a broadcasting station may be divulged or used: if it is transmitted by an amateur station.
- o The operator of an amateur station: shall not demand or accept remuneration in any form, in respect of a radiocommunication that the person transmits or receives.

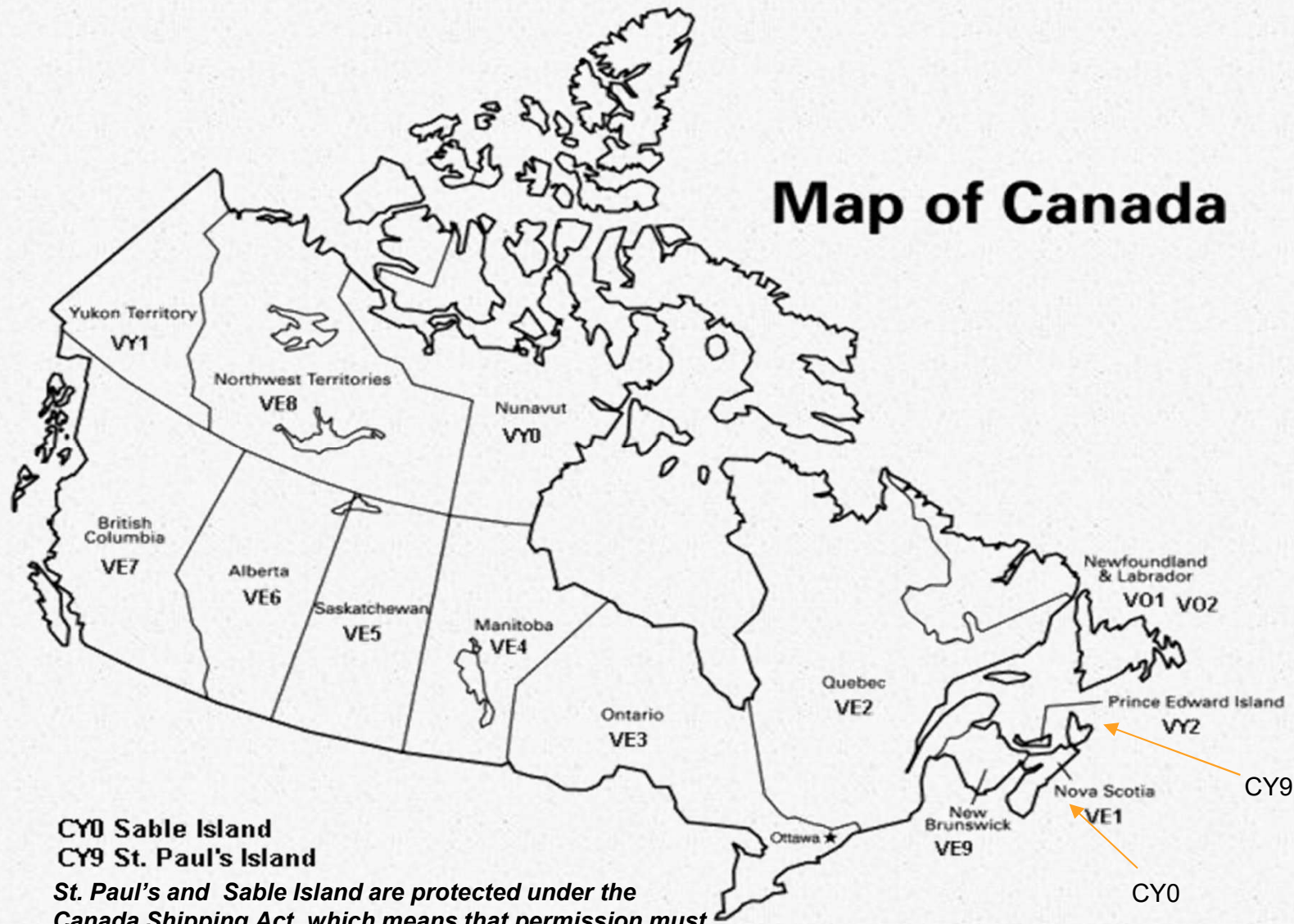
Station Identification, Callsigns, Prefixes

- o An amateur station must identify: **At least every thirty minutes, and at the beginning and at the end of a contact.**
- o You must transmit **your call sign** to identify your amateur station.
- o When may an amateur transmit unidentified communications? **Never, except to control a model craft.**
- o What language may you use when identifying your station?
English or French
- o The call sign of a Canadian amateur radio station would normally start with the letters: **VA, VE, VO or VY**

Station Identification, Call signs, Prefixes

Call Sign Prefix	Province or Territory
CY0	Sable Island (Nova Scotia)
CY9	St-Paul Island (Nova Scotia)
VA1, VE1	Nova Scotia
VA2, VE2	Quebec
VA3, VE3	Ontario
VA4, VE4	Manitoba
VA5, VE5	Saskatchewan
VA6, VE6	Alberta
VA7, VE7	British Columbia
VE8	North West Territories
VE9	New Brunswick
VO1	Newfoundland
VO2	Labrador
VY0	Nunavut
VY1	Yukon
VY2	Prince Edward Island

Map of Canada



CY0 Sable Island
CY9 St. Paul's Island

St. Paul's and Sable Island are protected under the Canada Shipping Act, which means that permission must be obtained from the Canadian Coast Guard to visit the islands, hence why they have special call signs.

Foreign Amateur Operation in Canada, Banned Countries, Third-Party Messages

- o If a non-amateur friend is using your station to talk to someone in Canada, and a foreign station breaks in to talk to your friend, what should you do? **Have your friend wait until you find out if Canada has a third-party agreement with the foreign station's Government.**
- o If you let an unqualified third party use your amateur station, what must you do at your station's control point? **You must continuously monitor and supervise the third party's participation.**
- o A person operating a Canadian amateur station is forbidden to communicate with amateur stations of another country: **when that country has notified the International Telecommunication Union that it objects to such communications.**
- o Third-party traffic is: **a message sent to a non- amateur via an amateur station**

Frequency Bands & Qualification Requirements

- o If you are the control operator at the station of another amateur who has additional qualifications to yours, what operating privileges are you allowed? **Only the privileges allowed by your qualifications.**
- o In addition to passing the Basic written examination, what must you do before you are allowed to use amateur frequencies below 30 MHz? **Advanced test or attain a mark of 80% on the Basic exam.**
- o The licensee of an amateur station may operate radio controlled models: **on all frequencies above 30 MHz**

Frequency Bands & Qualification Requirements

- o In Canada, the 160 metre amateur band corresponds in frequency to: 1.8 to 2.0 MHz
- o In Canada, the 75/80 metre amateur band corresponds in frequency to: 3.5 to 4.0 MHz
- o In Canada, the 40 metre amateur band corresponds in frequency to: 7.0 to 7.3 MHz
- o In Canada, the 20 metre amateur band corresponds in frequency to: 14.000 to 14.350 MHz
- o In Canada, the 15 metre amateur band corresponds in frequency to: 21.000 to 21.450 MHz
- o In Canada, the 10 metre amateur band corresponds in frequency to: 28.000 to 29.700 MHz

Frequencies and Bands

o What is the band for 146.670 MHz?

o $c = \lambda f$

o $\lambda = \frac{c}{f} = \frac{3 \times 10^8 \text{ m/s}}{146.670 \times 10^6 / \text{s}} = 2.043 \text{ m}$

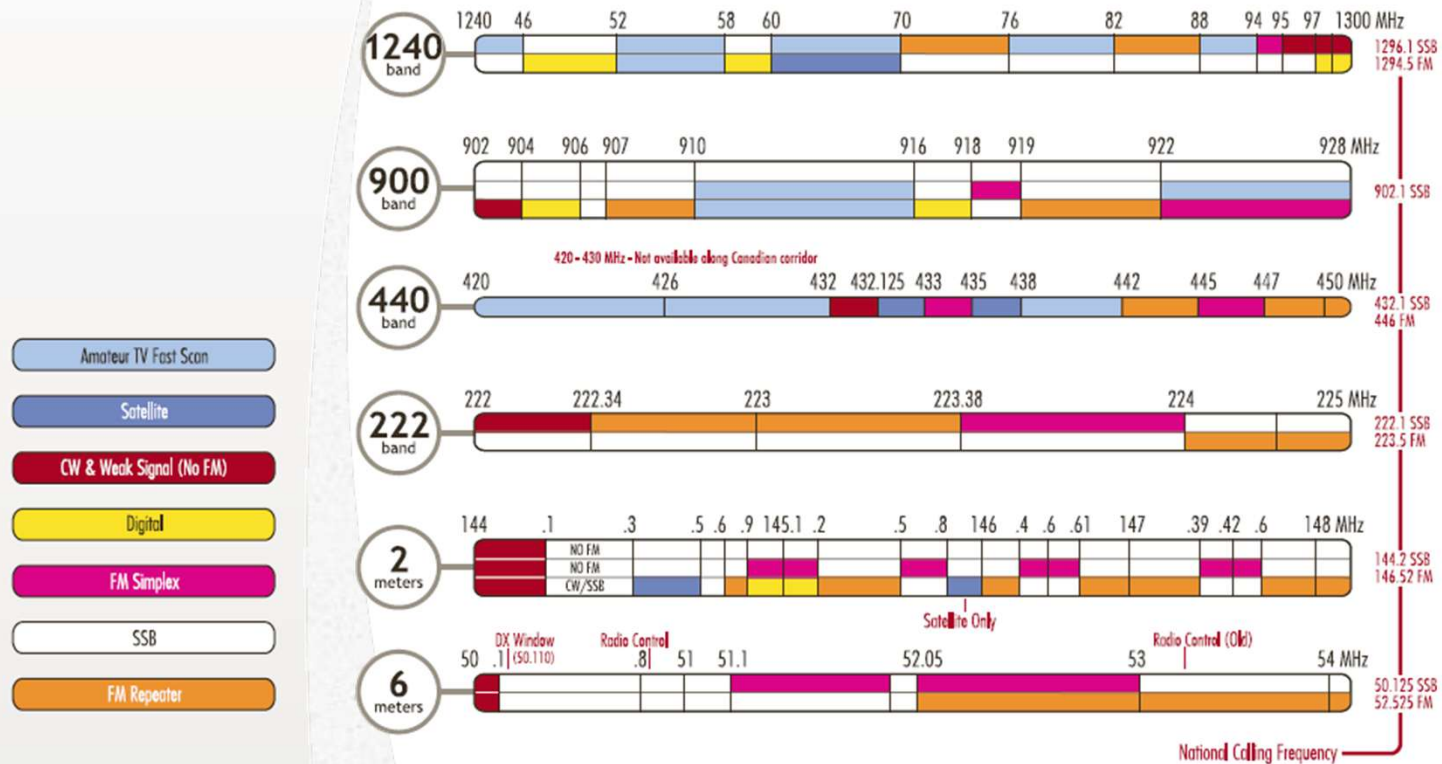
o What is the frequency for 40 metres?

o $f = \frac{c}{\lambda} = \frac{3 \times 10^8 \text{ m/s}}{40 \text{ m}} = 7,494 \text{ kHz or } 7.5 \text{ MHz}$

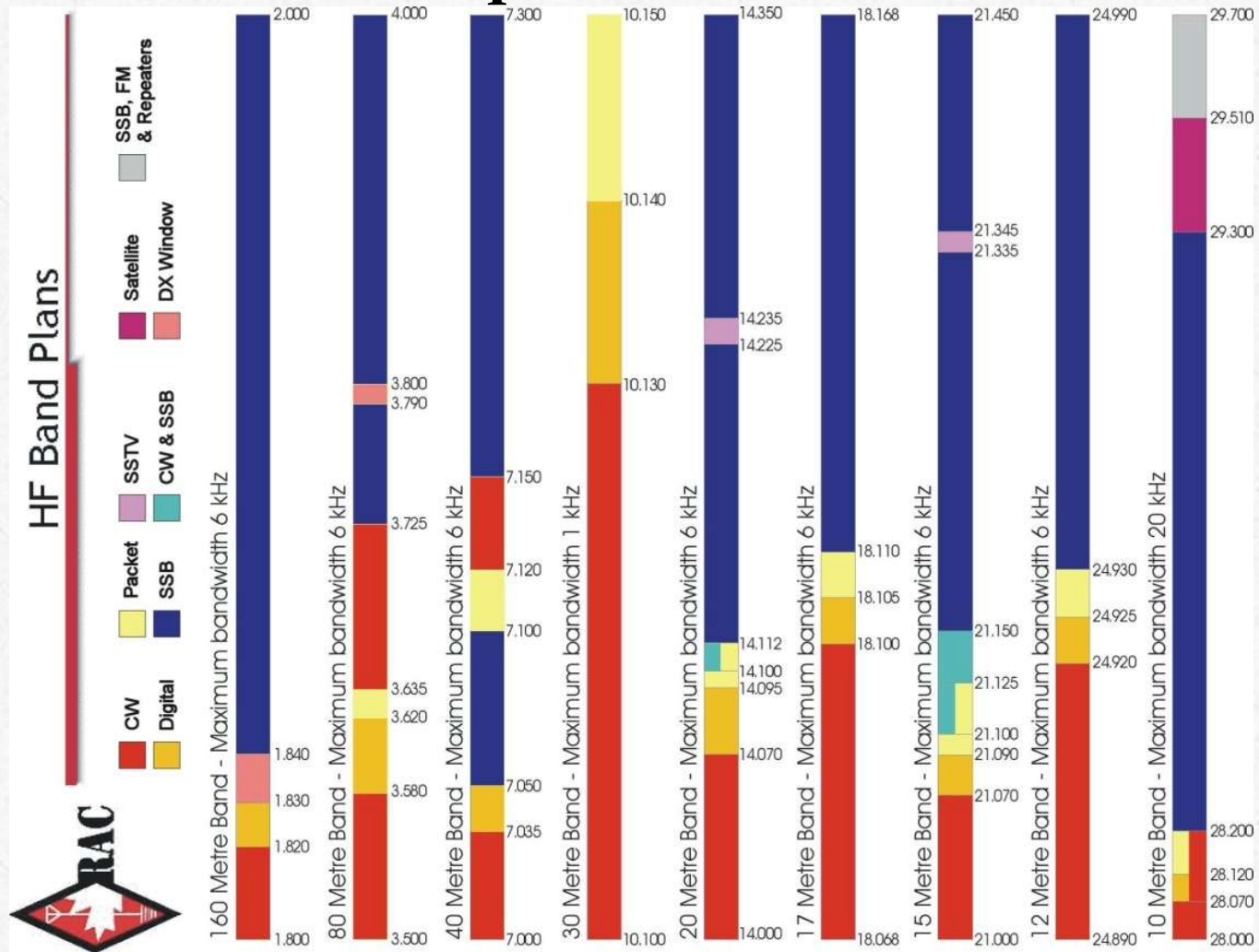
Frequency Bands & Qualification Requirements



U.S.A. Amateur Radio UHF/VHF Band Plan

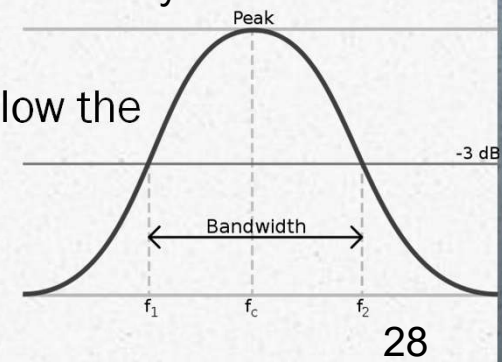


Frequency Bands & Qualification Requirements



Maximum Bandwidth by Frequency Bands

- The maximum authorized bandwidth within the frequency range of 50 to 148 MHz shall not exceed 10 times that of a CW emission 30 kHz
- The maximum bandwidth of an amateur station's transmission allowed in the band 28 to 29.7 MHz is: 20 kHz
- Only one band of amateur frequencies has a maximum allowed bandwidth of less than 6kHz. That band is: 10.1 to 10.15 MHz
- Single sideband is not permitted in the band: 10.1 to 10.15 MHz.
- The bandwidth of an amateur station shall be determined by measuring the frequency
- band occupied by that signal at a level of 26 dB below the maximum amplitude of that Signal.



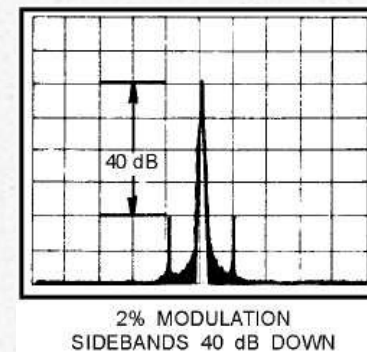
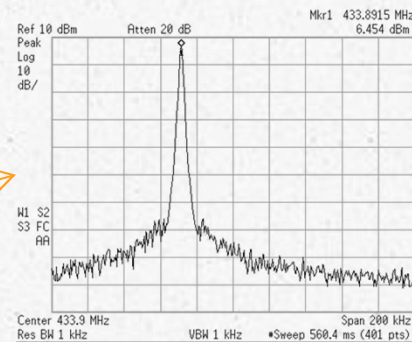
Restrictions on Capacity & Power Output by Qualifications

- o What amount of transmitter power must radio amateurs use at all times? **The minimum legal power necessary to communicate.**
- o What is the most FM transmitter power a holder of only **Basic Qualification** may use on 147 MHz? **250 W DC input .**
- o At what point in your station is transceiver power measured? **At the antenna terminals of the transmitter or amplifier.**
- o What is the maximum transmitting power an amateur station may use for SSB operation on 7055 kHz, if the operator has **Basic+** qualifications: **560 watts PEP output.**
- o The DC power input to the anode or collector circuit of the final RF stage of a transmitter,
- o used by a holder of an **Amateur Radio Operator Certificate with Advanced Qualification** shall not exceed: **1000 watts.**

Unmodulated Carriers, Re-Transmission

- What kind of amateur station automatically retransmits the signals of other stations? **Repeater station.**
- An unmodulated carrier may be transmitted only: for brief tests on frequencies below 30 MHz .
- Radiotelephone signals in a frequency band below 29.5 MHz cannot be automatically retransmitted, unless these signals are received from a station operated by a person qualified to transmit on frequencies below the above frequency.

unmodulated



Amplitude Modulation, Frequency Stability, Measurements

- When operating on frequencies below 148 MHz: the frequency stability must be comparable to crystal control .
- An amateur station using radiotelephony must install a device for indicating or preventing: **overmodulation** .
- The maximum percentage of modulation permitted in the use of radiotelephony by an amateur station is: **100 percent** .
- All amateur stations, regardless of the mode of transmission used, must be equipped with: **a reliable means of determining the operating radio frequency** .



International Telecommunication Union (ITU) Radio Regulations, Applicability



- o What type of messages may be transmitted to an amateur station in a foreign country? **Messages of a technical nature or personal remarks of relative unimportance.**
- o The operator of an amateur station shall ensure that: communications are limited to: **messages of a technical or personal nature.**
- o In addition to complying with the Act and Radiocommunication Regulations, Canadian radio amateurs must also comply with the regulations of the: **International Telecommunication Union .**
- o In which International Telecommunication Union Region is Canada? **Region 2**

Operation Outside Canada, ITU Regions, Reciprocal Privileges, International Licences

- o A Canadian radio amateur, operating his station 7 kilometers (4 miles) offshore from the coast of Florida, is subject to which frequency band limits? **Those applicable to US radio amateurs .**
- o Australia, Japan, and Southeast Asia are in which ITU Region? **Region 3.**
- o Canada is located in ITU Region: **Region 2 .**



IARU Regions



Examinations, Department's Fees, Delegated Examinations, Fees, Disabled Accommodation

- o The fee for taking examinations for amateur radio operator certificates by an accredited volunteer examiner is: to be negotiated between examiner and candidate
- o The fee for taking amateur radio certificate examinations at an Industry Canada offices: \$20 per qualification



Antenna Structure Approval, Neighbour and Land-Use Authority Consultation

- Before erecting an antenna structure, for which community concerns could be raised, a radio amateur must consult with: the land-use authority, and possibly the neighbours.

RF EM Field Limits

- o What organization has published safety guidelines for the maximum limits of RF energy near the human body?
Health Canada.
- o What is the purpose of the Safety Code 6? It gives RF exposure limits for the human body .
- o According to Safety Code 6, what frequencies cause us the greatest risk from RF energy? **30 to 300 MHz .**
- o Why is the limit of exposure to RF the lowest in the frequency range of 30 MHz to 300 MHz, according to Safety Code 6? The human body absorbs RF energy the most in this range.

Radiofrequency Electromagnetic Field Limits

- The permissible exposure levels of RF fields: increases, as frequency is increased above 300 MHz



Don't touch tower!
Serious RF burn hazard!
Maintain adequate clearance.
Failure to obey all posted signs and site guidelines for working in radio frequency environments could result in serious injury.

Criteria for Resolution of Radio Frequency Interference Complaints

- o In the event of interference to a neighbor's FM receiver and stereo system, if the field strength of the amateur station signal is below **1.83** volts per meter, it will be deemed that the affected equipment's lack of immunity is the cause.
- o Which of the following is defined as "any device, machinery or equipment, other than radio apparatus, the use or functioning of which is, or can be, adversely affected by radio communication emissions"? **radio-sensitive equipment** .
- o Which of the following types of equipment is NOT included in the list of field strength criteria for resolution of immunity complaints? **broadcast transmitters** .

Conclusion

- o Regulations Review (based on RIC-7 type questions)
- o Safety
- o RFI