



THE RAILWAY ASSOCIATION OF CANADA
L'ASSOCIATION DES CHEMINS DE FER DU CANADA



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RAC Circular 10:

Guidelines for the Submission of Radio Authorization Requests to the Railway Association of Canada.

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IMPORTANT NOTE

According to the Radiocommunication Act, the RAC and its members own one single licence for every base and mobile radio stations in Canada. It is therefore grammatically incorrect to use the word “licence” when talking about the authorization to operate a radio station in the railway band, base or mobile. However, since the procedure to obtain an authorization to own and operate a radios station in the railway band is similar to the one required to obtain a single-site radio licence, the RAC will continue to prescribe the use of “licence” application forms.

SUMMARY

This document provides applicants with guidelines for the submission of application to operate radio Station in the railway frequency band to the Railway Association of Canada (RAC).

The federal budget legislation of 1996 amended the *Radiocommunication Act* and introduced a new class of radiocommunication authorization, the spectrum licence, in order to accommodate the concept and process of area licensing. Common to all spectrum licences is authorization by geographical area(s) and frequencies or frequency block(s), and the responsibility of licensees to ensure that their networks are properly planned and coordinated.

In March 2000, a spectrum licence was issued to the Railway Association of Canada (RAC) under subparagraph 5(1)(a)(i.1) of the *Radiocommunication Act*. It replaced approximately 4,900 radio licences that were issued to its members. The RAC's spectrum licence was issued under the following guidelines:

1. The spectrum licence authorizes the use of the frequencies listed in Appendix A.
2. The geographical area covered by the spectrum licence would consist of a corridor bounded 70 km on each side of existing railway lines.
3. The spectrum licence is subject to the conditions listed in Appendix B.
4. Members of the Railway Association of Canada would continue to be issued individual radio licences for radio apparatus operating outside the frequency bands listed in Appendix A.
5. As the spectrum licensee, the Railway Association of Canada would be the Industry Canada contact point for all transactions involving the frequencies listed in Appendix A.
6. Companies who are recognized as being railway operators and not members of the Railway Association of Canada would continue to be issued individual radio licences in respect of radio apparatus for all the frequencies currently assigned to them.
7. Companies who are not recognized as being railway operators, but are assigned frequencies inside the frequency bands listed in Appendix A, would continue to be issued individual licences in respect of radio apparatus. However, should the future deployment of a radiocommunication network require it, the Railway Association of Canada may initiate negotiations with the affected companies for the purpose of amending the licensed frequency.

8. No new licensee would be authorized on the frequencies listed in Appendix A (with the exception of the 902-928 MHz band), within the geographical area covered by the spectrum licence.

LEGISLATIVE CONSIDERATIONS

The *Radiocommunication Act* governs the use of the radio frequency spectrum in Canada. The main purpose of the Act is to ensure the development and efficient operation of radiocommunication in Canada by managing the allocation of radio frequency spectrum.

Industry Canada manages the use and development of the radio frequency spectrum and the RAC, as a spectrum management partner, is responsible for managing railway spectrum in Canada. However, law enforcement remains the sole responsibility of Industry Canada.

What are our obligations?

Our first and foremost obligation is to ensure that every new or modified base station is listed in Industry Canada's database in order to ensure that technical and administrative parameters are in adherence with Industry Canada's standards. It is also to our advantage to register mobile-to-mobile systems in the database (systems without a base stations) so they can be protected against interference. Main line mobile stations do not have to be registered in the database, as the fleet is authorized with all AAR VHF channels.

Installation of illegal stations, IE stations that were installed or modified without prior analysis an authorization from the Manager, Radio Spectrum and Industry Canada puts the RAC and its members in breach of its licence condition. The *Radiocommunication Act* states that:

- 4.** (1) *No person shall, except under and in accordance with a radio authorization, install, operate or possess radio apparatus, other than*
- (a) *Radio apparatus exempted by or under regulations made under paragraph 6(1)(m);*
 - or
 - (b) *Radio apparatus that is capable only of the reception of broadcasting and that is not a distribution undertaking.*

10. (1) *Every person who*

- (a) *contravenes section 4 or paragraph 9(1)(a) or (b),*

is guilty of an offence punishable on summary conviction and is liable, in the case of an individual, to a fine not exceeding five thousand dollars or to imprisonment for a term not exceeding one year, or to both, or, in the case of a corporation, to a fine not exceeding twenty-five thousand dollars.

There are no fees involved with any addition or modification of a radio station, but members requesting it **MUST** submit an application to the Manager, Radio Spectrum of the RAC in order for him to conduct frequency selection, electromagnetic compatibility studies as well as U.S. coordination with the AAR, when necessary. Once approved, the new or modified station is then entered in Industry Canada's database to keep the Canadian radio environment up to date.

OTHER CONSIDERATIONS

- The RAC will authorize the use of railway spectrum to its Members and Limited Service Members provided they are freight or passenger companies carrying on railway operations, provided they are railway companies as defined in the Canada Transportation Act (CTA), or railways or commuter authorities as defined in the applicable provincial or local legislation. Any such freight and passenger company is hereafter referred to as a "railway company".
- The RAC will also authorize the use of railway spectrum to a company that holds a valid contract or contracts to perform work for a railway company. In order to do so, the contractor must obtain a written authorization from its client and submit it to the manager, radio spectrum, along with an application to become an Associate Member of the RAC. Applicable annual fees will be charged to the contractor by the RAC while no licence application or annual fees will need to be filled with Industry Canada.
- Railway companies that operate, by virtue of assigned running rights, on tracks that are owned by a member railway company may operate their radios under the umbrella of the host radio authorization.

ACCEPTABLE RADIO APPLICATION FORMATS

Spectrum Direct® application form

The RAC encourages its members, especially heavy spectrum users, to take advantage of Industry Canada's Spectrum Direct (SD) web site and its Licence Applications section. Most members already have an account in SD and can submit their application on-line, view the status of previously submitted applications or get information on their spectrum holding. The guidelines on how to submit a new or amended licence application using Spectrum Direct are available in the Members section of the Railway Association of Canada's web site at www.railcan.ca.

Industry Canada's prescribed application form

Industry Canada prescribes radio application forms for both bases and mobiles that can be used to submit an application to the RAC. An electronic format of this application can be found in the Members section of the RAC's web site at www.railcan.ca, as well as in Industry Canada's Strategis web site at www.strategis.ic.gc.ca.

Other form of application

Radio applications may be submitted in any common electronic or hard copy format to the RAC Manager, Radio Spectrum, as long as it includes the following details.

Applicant information:

- Company name
- Address
- Phone number
- Name of contact

Station location information

- Licence number to be modified (if it's a modification)
- Name of location (municipality, province, civic address or mileage information)
- Ground elevation above sea level (base stations only)
- Geographic coordinates (specify origin (map, GPS) and format (NAD 27 or NAD 83)). In case of a mobile-to-mobile system, center of area of operation.

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- Tower height (base stations only)

For each requested frequency:

- Frequency requested (for tx and rx; leave blank if frequency selection is required)
- Frequency used to communicate with...(mobiles, fixed stations)
- Radio make and model
- Radio certification number
- Bandwidth, type of emission (ex: 16F3, 11F3) and output RF power
- Transmission line losses for tx and rx (base stations only)
- Antenna make and model (base stations only)
- Antenna gain (base stations only)
- Antenna radiation pattern (base stations only)
- Antenna azimuth (0 if omnidirectional pattern) (base stations only)
- Antenna height
- Filter details (tx, rx or txrx, function, make and model, insertion loss) (base stations only)
- Calculated Effective Radiated Power (ERP) (base stations only)
- Number of mobile (mobile-to-mobile systems only)

Other information

Date, name in print and signature (electronic accepted)

Application submission

Radio application must be submitted, preferably electronically, to the Manager, Radio Spectrum:

Daniel Lafrenière

Manager, Radio Spectrum/ *Directeur du spectre*

The Railway Association of Canada/ *L'Association des chemins de fer du Canada*

99 Bank Street, Suite 1401

Ottawa, ON K1P 6B9

Tel (1): (613) 564.8102

Tel (2): (819) 671.9442

Cell.: (613) 296.0858

Fax: (613) 567.6726

E-mail: daniell@railcan.ca

APPENDIX A

Frequencies (MHz)	Frequency Conditions
From 160.170 to 161.580 (band edges)	Except where noted below, this spectrum is reserved for the exclusive use of railway companies in Canada for core railway radiocommunications only. Please note Channels 161.550 MHz (16 kHz BW) and 161.565 MHz (16 kHz BW) are shared on a secondary basis with maritime stations.
From 452.8875 to 452.9625 paired with 457.8875 to 457.9625	Frequencies reserved for the exclusive use of railway companies in Canada for core railway radiocommunications.
Channel 262: 812.5375 / 857.5375	Frequencies reserved for the exclusive use of railway companies in Canada for core railway radiocommunications only. The use of these frequencies must conform to the Standard Radio System Plan 502 (SRSP-502).
Channel 272: 812.7875 / 857.7875	Frequencies reserved for the exclusive use of railway companies in Canada for core railway radiocommunications only. The use of these frequencies must conform to the Standard Radio System Plan 502 (SRSP-502).
Channel 331: 814.2625 / 859.2625	Frequencies reserved for the exclusive use of railway companies in Canada for core railway radiocommunications only. The use of these frequencies must conform to the Standard Radio System Plan 502 (SRSP-502).
902.000 to 928.000	Shared frequency band. Location and monitoring devices must conform to the Radio Standards Specification 137 (RSS-137).
Channel 71: 935.8875 / 896.8875 Channel 75: 935.9375 / 896.9375 Channel 79: 935.9875 / 896.9875 Channel 151: 936.8875 / 897.8875 Channel 155: 936.9375 / 897.9375 Channel 159: 936.9875 / 897.9875	Frequencies reserved for the exclusive use of railway companies in Canada for core railway radiocommunications only. The use of these frequencies must conform to the Standard Radio System Plan 506 (SRSP-506).

APPENDIX B

THE RAILWAY ASSOCIATION OF CANADA DEFINITION AND TERMS AND CONDITIONS FOR THE SPECTRUM LICENCE

1. DEFINITION

The Railway Association of Canada: An industry association incorporated by the laws of Canada in 1953 and whose members use radiocommunication networks to support their operation of freight and passenger railways in Canada (hereinafter known as "the Licensee").

2. Pursuant to the Minister's powers set out in Section 5 of the *Radiocommunication Act*, this spectrum licence is issued to the Licensee for it and its members to utilize the radio frequencies listed on the licence, within the geographical area described per the map in Appendix B, to operate radio apparatus on those radio frequencies.

3. The Licensee must provide its members with an up-to-date copy of the spectrum licence.

4. The Licensee is responsible for ensuring and will undertake all reasonable measures to ensure that all its members and all personnel who plan, manage or operate radiocommunication networks respect the terms and conditions of the licence.

5. The Licensee will undertake all reasonable measures required to ensure that no harmful interference is caused to any radio apparatus installed on frequencies not identified on the licence. Such measures may include the use of spectrum management tools, such as electromagnetic compatibility (EMC) studies, site monitoring, review of existing technical and administrative frequency lists or any other measure deemed necessary by Industry Canada.

6. Frequencies listed on the licence shall be used solely for communications related to railway services.

7. The Licensee's head office will act as the single point of contact between its members and Industry Canada for all transactions involving the frequencies listed on the licence.

8. While site-specific radio authorizations will not be issued by Industry Canada, the Licensee must take all reasonable steps to ensure that:

- Radio installations are installed and operated in a manner that complies with Health Canada's limits of exposure to radiofrequency fields;
- Where applicable, antenna structures are marked in accordance with the recommendations of Transport Canada; and

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- Prior to installation of significant antenna structures, consultation with the appropriate land-use authorities has taken place. Installation of any significant antenna structure must be delayed for a period of time sufficient for departmental review where, after considering reasonable alternatives and consultation options, land-use consultation negotiations remain at an impasse. Radio installations are installed and operate in a manner that complies with technical boundary and out-of-band emission conditions, as specified by the Department.

9. The Licensee must comply with existing and future international coordination requirements and procedures. This includes coordination with the United States as new requirements are introduced.

10. The Licensee must provide, upon request, technical information on a particular station or network in the format prescribed by Industry Canada.

11. The transfer of this authorization to another party will not be allowed without full review of the application by Industry Canada and approval by the Minister.

12. This spectrum licence is issued for a period of one (1) year and will be renewed on March 31 of each year upon payment of the appropriate licence fee by the Licensee.