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Spectrum Management and Telecommunications

Consultation on Changes to the Canadian Table of Frequency Allocations and to RBR-4 to Allow for Amateur Radio Service Use in the 5 MHz Band

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1. Intent

Through the release of this paper, Industry Canada is hereby initiating a consultation on the addition of a footnote to the *Canadian Table of Frequency Allocations* to allow the amateur radio service (ARS) to operate on six frequencies in the 5 MHz range, on a no-protection, no-interference basis.

Industry Canada is also consulting on possible amendments to Regulation by Reference RBR-4, *Standards for the Operation of Radio Stations in the Amateur Radio Service*. These amendments specify emission designators, transmit power and occupied bandwidth for ARS transmissions on these frequencies.

Industry Canada is seeking comments on the issues raised in this paper, in accordance with *Canada Gazette* notice SMSE-010-12. Submissions must be received no later than June 12, 2012 to ensure consideration.

2. Policy Objectives

The Minister of Industry, through the *Department of Industry Act*, the *Radiocommunication Act* and the *Radiocommunication Regulations*, with due regard to the objectives of the *Telecommunications Act*, is responsible for spectrum management in Canada. As such, the Minister is responsible for developing national policies and goals for spectrum utilization and ensuring effective management of the radio frequency spectrum resource.

In developing a policy and licensing framework to make additional spectrum available, Industry Canada takes into consideration the need to provide spectrum access for new services and technologies, the impacts of such a framework on all stakeholders, and the *Spectrum Policy Framework for Canada* (SPFC) policy objective to maximize the social benefits that Canadians derive from the use of the radio frequency spectrum.

Industry Canada believes that amateur radio should be readily accessible to Canadians, in accordance with the SPFC guideline of making spectrum available for a range of services that are in the public interest.

3. Canadian Use of the Band 5250-5450 kHz

3.1 Canadian Table of Frequency Allocations

The band 5250-5450 kHz is allocated to the Fixed Service and the Mobile Service (except aeronautical mobile service), on a co-primary basis in Canada, as shown in Table 3.1. This band is also allocated to the Fixed and Mobile services (except aeronautical mobile service), on a co-primary basis in all three Regions of the International Telecommunication Union. Currently, there is no domestic or international allocation to the ARS in this range.

Table 3.1: Excerpt from the Canadian Table of Frequency Allocations, 2009 Edition

Frequency Band (kHz)	Primary and Secondary Services
5250-5450	FIXED MOBILE except aeronautical mobile

3.2 Domestic Use of the Band

A survey of the band 5250-5450 kHz revealed that there are numerous licensees. However, there have been no reported cases of interference to these licensees from ARS operations in other countries that have licensed ARS use of the band.

4. Summary of Proposal from the Radio Amateurs of Canada

In 2010, the Radio Amateurs of Canada (RAC) approached Industry Canada and requested the use of five centre frequencies in the 5 MHz band, namely 5332 kHz, 5348 kHz, 5358.5 kHz, 5373 kHz and 5405 kHz. The RAC stated that the use of these frequencies would allow for more reliable communications during emergency operations compared with other amateur bands at 3 and 7 MHz, which can be heavily impacted by ionospheric disturbances. The RAC indicated that the propagation characteristics in the 5 MHz frequency range allow for both local and interprovincial communications.

The RAC also highlighted that the U.S. amateur radio community has had access to these frequencies for several years. Harmonizing frequency use would allow Canadian radio amateurs to conduct regional emergency communications on a coordinated basis with U.S. radio amateurs. Finally, the RAC noted that many administrations around the world have authorized the use of the frequency 5405 kHz to radio amateurs.

The RAC also requested the use of two additional frequencies, namely 5319 kHz and 5329 kHz, for domestic use in Canada. The RAC underscored that access to these two frequencies would minimize the potential for interference from other users worldwide when Canadian amateurs are communicating in times of local and regional emergencies.

5. U.S. Rules for Amateur Radio Service Use of the Band 5250-5450 kHz

The U.S. Federal Communications Commission (FCC) recently released amendments to U.S. domestic rules governing ARS use of the band 5250-5450 kHz.¹ The U.S. ARS community has had access to the frequencies 5332 kHz, 5348 kHz, 5373 kHz and 5405 kHz since 2003, and was recently authorized to use the frequency 5358.5 kHz. As well, the FCC allowed an increase in the maximum authorized effective radiated power in the band from 50 W to 100 W peak envelope power (PEP) and authorized the following emission types and designators: telephony (2K80J3E), data (2K80J2D), Radio Teletype (RTTY) (60H0J2B), and Continuous Wave (CW) (150HA1A). Finally, the FCC required that amateur

¹ See the FCC's R&O, ET Docket No. 10-98, RM-11353, *Amendment of Parts 2 and 97 of the Commission's Rules to Facilitate Use by the Amateur Radio Service of the Allocation at 5 MHz*, released November 18, 2011.

radio operators ensure that their transmissions occupy only 2.8 kHz centred on each of the authorized frequencies. U.S. radio amateurs must not cause harmful interference to other authorized stations.

The band 5250-5450 kHz is heavily used by federal agencies in the United States. It should be noted that these frequencies and technical rules were carefully selected by both the National Telecommunications and Information Administration (NTIA) and the FCC after studying the interference potential to primary users in the band.² Therefore, harmonizing Canadian frequency use and technical rules with those of the United States would diminish the risk of interference to U.S. primary users.

6. Summary of Domestic and International Use of the Band 5250-5450 kHz

After conducting a review of domestic and international use of the seven frequencies requested by the RAC, Industry Canada determined that the frequency 5319 kHz is unavailable for use. However, the remaining six frequencies could be made available to the ARS on a no-protection, no-interference basis.

The Department invites comments on the following:

- (1) Should Industry Canada allow amateur radio operators to use the five frequencies 5332 kHz, 5348 kHz, 5358.5 kHz, 5373 kHz and 5405 kHz, which are harmonized with U.S. amateur use, on a no-protection, no-interference basis? Transmissions would be restricted to a 2.8 kHz bandwidth centred on each of these frequencies.**
- (2) Should Industry Canada harmonize emission modes and designators with those specified in the United States for these five frequencies – i.e. telephony (2K80J3E), data (2K80J2D), RTTY (60H0J2B) and CW (150HA1A)?**
- (3) Should Industry Canada specify a maximum effective radiated power of 100 W peak envelope power?**
- (4) Should Industry Canada allow Canadian amateurs access to the 5329 kHz frequency for domestic communications only? Transmissions would be restricted to a 2.8 kHz bandwidth centred on this frequency.**
- (5) Should Industry Canada specify emission designators and peak envelope power for this additional frequency? If so, what should these be?**

² See the FCC's Notice of Proposed Rulemaking, ET Docket No. 10-98, RM-11353, *Amendment of Parts 2 and 97 of the Commission's Rules to Facilitate Use by the Amateur Radio Service of the Allocation at 5 MHz*, adopted May 4, 2010.

7. Proposed Change to the Canadian Table of Frequency Allocations

Industry Canada is proposing to add a new footnote to the *Canadian Table of Frequency Allocations*, as follows, to allow for the use of the band by the ARS as shown in Table 7.1. This footnote would allow the ARS to operate on no-protection, no-interference basis on these frequencies and would require the ARS to protect incumbent services, both domestically and internationally.

Table 7.1: Proposed Change to the Canadian Table of Frequency Allocations

Frequency Band (kHz)	Primary and Secondary Services
5250-5450	FIXED MOBILE except aeronautical mobile CXX

CXX (CAN-12): In the band 5250-5450 kHz, the amateur service may transmit only on the six centre frequencies: 5329 kHz, 5332 kHz, 5348 kHz, 5358.5 kHz, 5373 kHz, and 5405 kHz. Amateur service operators may not occupy more than 2.8 kHz centred on these six frequencies. Such use is not in accordance with international frequency allocations. Canadian amateur operations shall not cause interference to fixed and mobile operations in Canada or in other administrations and, if such interference occurs, the amateur service may be required to cease operations. The amateur service in Canada may not claim protection from interference by the fixed and mobile operations of other administrations.

(6) Comments are invited on this proposal to update the *Canadian Table of Frequency Allocations*.

8. Proposed Changes to RBR-4

Industry Canada is also proposing consequential amendments to RBR-4, *Standards for the Operation of Radio Stations in the Amateur Radio Service*, as follows.

Schedule I - Frequency Bands and Bandwidths for Use by Amateur Stations Operating in Canada and in Region 2

Item	Column I Frequency Band/Centre Frequency	Column II Maximum Bandwidth	Column III Operating Provisions	Column IV Operator Qualifications
1	1.800 - 2.000 MHz	6 kHz		B and 5, B/H, B&A
2	3.500 - 4.000 MHz	6 kHz		B and 5, B/H, B&A
3	5.329 MHz	2.8 kHz	1, 2	B and 5, B/H, B&A
4	5.332 MHz	2.8 kHz	1, 2	B and 5, B/H, B&A
5	5.348 MHz	2.8 kHz	1, 2	B and 5, B/H, B&A
6	5.3585 MHz	2.8 kHz	1, 2	B and 5, B/H, B&A

Item	Column I Frequency Band/Centre Frequency	Column II Maximum Bandwidth	Column III Operating Provisions	Column IV Operator Qualifications
7	5.373 MHz	2.8 kHz	1, 2	B and 5, B/H, B&A
8	5.405 MHz	2.8 kHz	1, 2	B and 5, B/H, B&A
9	7.000 - 7.300 MHz	6 kHz		B and 5, B/H, B&A
10	10.100 - 10.150 MHz	1 kHz		B and 5, B/H, B&A
11	14.000 - 14.350 MHz	6 kHz		B and 5, B/H, B&A
12	18.068 - 18.168 MHz	6 kHz		B and 5, B/H, B&A
13	21.000 - 21.450 MHz	6 kHz		B and 5, B/H, B&A
14	24.890 - 24.990 MHz	6 kHz		B and 5, B/H, B&A
15	28.000 - 29.700 MHz	20 kHz		B and 5, B/H, B&A
16	50.000 - 54.000 MHz	30 kHz		B
17	144.000 - 148.000 MHz	30 kHz		B
18	220.000 - 225.000 MHz	100 kHz		B
19	430.000 - 450.000MHz	12 MHz	1	B
20	902.000 - 928.000 MHz	12 MHz	1	B
21	1.240 - 1.300 GHz	Not specified	1	B
22	2.300 - 2.450 GHz	Not specified	1	B
23	3.300 - 3.500 GHz	Not specified	1	B
24	5.650 - 5.925 GHz	Not specified	1	B
25	10.000 - 10.500 GHz	Not specified	1	B
26	24.000 - 24.050 GHz	Not specified		B
27	24.050 - 24.250 GHz	Not specified	1	B
28	47.000 - 47.200 GHz	Not specified		B
29	75.500 - 76.000 GHz	Not specified		B
30	76.000 - 81.000 GHz	Not specified	1	B
31	142.000 - 144.000 GHz	Not specified		B
32	144.000 - 149.000 GHz	Not specified	1	B
33	241.000 - 248.000 GHz	Not specified	1	B
34	248.000 - 250.000 GHz	Not specified		B

Note: In Column III, reference “1” means that transmissions may not cause interference nor will they be protected from interference from stations licensed in other services operating in that band. Reference “2” means that these frequencies are made available for use in Canada subject to the following additional conditions: transmissions must not exceed an effective radiated power of 100 W PEP and are restricted to the following emission modes and designations: telephony (2K80J3E), data (2K80J2D), RTTY (60H0J2B) and CW (150HA1A). Transmissions shall not occupy more than 2.8 kHz centred on this frequency.

(7) Comments are invited on this proposal to update the RBR-4 with these technical and operating parameters.

9. Submitting Comments

Respondents are requested to provide their comments in electronic format (WordPerfect, Microsoft Word or Adobe PDF) to the following e-mail address: Spectrum.Engineering@ic.gc.ca, along with a note specifying the software, version number and operating system used.

Written submissions should be addressed to the Manager, Mobile Systems, Industry Canada, 300 Slater Street, 19th Floor, Ottawa, Ontario K1A 0C8.

All submissions should cite the *Canada Gazette*, Part I, the publication date, the title and the notice reference number (SMSE-010-12). To ensure consideration, parties should submit their comments no later than (June 12, 2012). Soon after the close of the comment period, all comments received will be posted on Industry Canada's [Spectrum Management and Telecommunications Web site](http://www.ic.gc.ca/spectrum) at <http://www.ic.gc.ca/spectrum>.

10. Obtaining Copies

All spectrum-related documents referred to in this paper are available on the [Spectrum Management and Telecommunications Web site](http://www.ic.gc.ca/spectrum) at <http://www.ic.gc.ca/spectrum>.

Original signed on May 4, 2012

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