

**STATEMENT OF INTENT OF THE FEDERAL COMMUNICATIONS COMMISSION OF THE UNITED STATES OF AMERICA AND THE DEPARTMENT OF INDUSTRY OF CANADA RELATED TO THE SHARING AND USE OF PORTIONS OF THE FREQUENCY BAND 220-222 MHZ FOR POSITIVE TRAIN CONTROL SYSTEMS ALONG THE UNITED STATES-CANADA BORDER**

Considering that the use of portions of the band 220-222 MHz is being considered for Positive Train Control (PTC) systems to prevent train-to-train collisions, over-speed derailments and casualties or injuries to the public and railway workers;

Considering that the current *Interim Sharing Arrangement between the Canadian Department of Industry, the National Telecommunications and Information Administration, and the Federal Communications Commission Concerning the Use of the Band 220 to 222 MHz along the United States-Canada Border* came into use on December 21, 1999 (hereafter the “1999 *Interim Sharing Arrangement*”), does not accommodate the use of PTC systems;

Considering that discussions have taken place between the Federal Communications Commission of the United States and the Department of Industry of Canada (Industry Canada) (hereafter the "Agencies") on the sharing and use of portions of the frequency band 220-222 MHz for PTC systems along the United States-Canada border;

Considering that there are existing Canadian and U.S. stations that need to be protected from harmful interference caused by new stations until an arrangement governing the frequency band 220-222 MHz for use by PTC systems is finalized;

The representatives of the Agencies have discussed their intentions with regard to the sharing and use of portions of the frequency band 220-222 MHz for PTC systems along the United States-Canada border;

Taking the above into account, the Agencies intend to administratively apply the operational provisions set out in this statement on a non-binding basis, in order to facilitate the sharing and coordination of the channels listed in Table 1 for land mobile and fixed systems, including PTC systems. Furthermore, taking into account the aforementioned intent of the Agencies to administratively apply the operational provisions set out in this statement on a non-binding basis, it is understood that the Agencies no longer intend to apply the 1999 *Interim Sharing Arrangement* for the use of the channels in Table 1. Meanwhile, the Agencies intend to continue applying the operational provisions of the 1999 *Interim Sharing Arrangement* for all other channels in the frequency band 220-222 MHz.

**1. Sharing Zone**

- 1.1. The *sharing zone* is defined as the area within 120 km of the United States-Canada border.
- 1.2. Sector 1 and Sector 2, as defined below, are recognized as special geographic areas within the *sharing zone*.

- 1.2.1. Sector 1 is defined to be the portion of the *sharing zone* in the United States and Canada bounded on the West by 85° W longitude and on the East in Canada by 81° W longitude and in the United States by 80° 30' W longitude.
- 1.2.2. Sector 2 is defined to be the portion of the *sharing zone* in the United States and Canada bounded on the East by 71° W longitude and on the West in Canada by 81° W longitude and in the United States by 80° 30' W longitude.

**2. Allotment and Use of the Bands in the Sharing Zone**

- 2.1. The 5 kHz channels described in Table 1 may be combined to form a single channel of up to 25 kHz for PTC or Remote Control Locomotive (RCL) use. Other uses are limited to operations within a 5 kHz channel.
- 2.2. The Agencies share the understanding that beyond 120 km from the border, they have primary use of the channels listed in Table 1.
- 2.3. The Agencies also share the understanding that within the *sharing zone*, the channels are available for primary use by either Canada or the U.S., in accordance with Table 1:

<b>Table 1</b>			
<b>Channel Numbers</b>	<b>Designation</b>		<b>Allotment</b>
	<b>220 MHz Band</b>	<b>221 MHz Band</b>	
21-25	PTC 101	PTC 141	Canada
26-30	PTC 102	PTC 142	U.S.
81-85	PTC 113	PTC 153	Canada
86-90	PTC 114	PTC 154	U.S.
141-145	PTC 125	PTC 165	Canada
146-150	PTC 126	PTC 166	U.S.
151-155	PTC 127	PTC 167	See footnote (1)
171-175	PTC 131	PTC 171	U.S.
176-180	PTC 132	PTC 172	Canada
196-200	RCL 136	RCL 176	Shared

(1) Channels 151-155 are available for primary use by the U.S. in Sector 1 and Sector 2 and by Canada in all other areas along the border.

- 2.4. The Agencies understand that the PTC and RCL channels may operate as time division duplexing channels (base and mobile on the same channel) with an authorized channel bandwidth of up to 25 kHz.
- 2.5. The Agencies intend to require their licensees who operate transmitting stations in the *sharing zone* on channels 196-200 to coordinate with licensees in the *sharing zone* on the other side of the border.
  - 2.5.1. In the absence of a licensee on the other side of the border, the Agencies intend to limit the power flux density (pfd) produced by the stations transmitting on

channels 196-200 located within one country's territory to  $-91 \text{ dBW/m}^2$  in any 25 kHz bandwidth in the other country's territory, unless both Agencies concur.

2.5.2. The pfd described in section 2.5.1. should be calculated using good engineering practice and generally accepted terrain-sensitive propagation models (with location and time variables of 10% and standard 3 arc-second digitized terrain data). Data and calculations for determining compliance with this provision should be provided upon request.

2.6. The Agencies' use of the channels listed in Table 1 should utilize good engineering practice to direct transmission away from the border when practicable.

### 3. Use of Channels Understood to Be for the Primary Use of One Administration by the Other Administration

3.1. The Agencies understand that channels for primary use of one Agency may be assigned by the other Agency for use within the *sharing zones* in its country under the following conditions:

3.1.1. The maximum pfd of the signal at and beyond the border of the primary user's country does not exceed  $-101 \text{ dBW/m}^2$  in any 25 kHz bandwidth.

3.1.1.1. The pfd described in section 3.1.1. should be calculated using good engineering practice and generally accepted terrain-sensitive propagation models (with location and time variables of 10% and standard 3 arc-second digitized terrain data). Data and calculations for determining compliance with this provision should be provided upon request.

3.1.1.2. In the event that the measured pfd at or beyond the border exceeds the value described in section 3.1.1., it is the responsibility of the licensee to bring the station's pfd into compliance with section 3.1.1.

3.1.2. Stations authorized under this provision are considered as secondary and it is understood that they are neither granted protection against harmful interference from stations that have primary use of their authorized frequency, nor may they cause harmful interference to stations having primary use of their authorized frequency, regardless of whether they meet the pfd values specified in section 3.1.1. above.

3.1.3. Mobile stations exceeding 5 W transmitter power output (TPO) should not be operated in frequencies for primary use of the other Agency within 30 km of the common border.

3.1.4. The Agencies intend to include a clause in the documentation authorizing such stations to use these frequencies stating that such authorization is subject to the following conditions:

- 3.1.4.1. In the event that the measured signal at or beyond the border is found to exceed  $-101 \text{ dBW/m}^2$  in any 25 kHz, the signal level is to be reduced accordingly;
- 3.1.4.2. In the event that harmful interference is experienced by any station that has primary use of the authorized frequency, regardless of signal strength, the licensee is expected to take immediate action to eliminate such interference. The Agency granting the authorization for secondary use is expected to ensure that remedial action is taken to resolve the harmful interference, up to and including revocation of the authorization.

#### 4. New Stations

- 4.1. Each Agency intends to authorize new stations within the *sharing zone* consistent with the following parameters:
  - 4.1.1. For the PTC and RCL systems in the band 220-222 MHz, the maximum effective radiated power (ERP), except as noted below in section 4.1.2, is to be determined by Table 2:

<b>Table 2</b>	
<b>Antenna Height Above Average Terrain (Meters)</b>	<b>ERP (Watts)</b>
Up to 150	500
Above 150 to 225	250
Above 225 to 300	125
Above 300 to 450	60
Above 450 to 600	30
Above 600 to 750	20
Above 750 to 900	15
Above 900 to 1,050	10
Above 1,050	5

- 4.1.2. For the PTC and RCL channels in the band 220-222 MHz, the maximum ERP allowable for mobile units is 50 W. Portable units are considered mobile units.

**5. Existing Stations**

5.1. The Agencies share the understanding that existing stations authorized by the Agencies prior to March 15, 2015, and operating within the *sharing zone*, may continue to operate at their indicated parameters, as listed in Appendix 1. Any modification to these authorized existing stations should only be made if it will not increase their interference potential in the direction of the United States-Canada border.

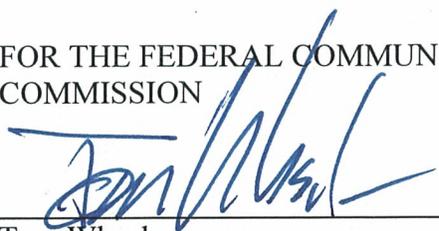
**6. Modification**

6.1. The Agencies may modify the provisions in this statement jointly in writing at any time.

**7. Discontinuation**

7.1. Either Agency should give to the other Agency at least 90 days' written notice if it intends to cease applying the operational provisions outlined in this statement. It is intended that, even after discontinuation, existing stations would continue operating at their current parameters in accordance with the authorizations granted by the Agencies.

FOR THE FEDERAL COMMUNICATIONS  
COMMISSION



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Tom Wheeler  
Chairman  
Federal Communications Commission  
Washington, D.C., U.S.A.

Date: **APR 17 2015**

FOR INDUSTRY CANADA



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Corinne Charette  
Senior Assistant Deputy Minister  
Spectrum, Information Technologies and  
Telecommunications  
Industry Canada  
Ottawa, Ontario

Date: **MAY 13 2015**

**Attachment**

Appendix 1 Existing Canadian stations in the frequency band 220-222 MHz

**Appendix 1**  
**Existing Canadian stations in the frequency band**  
**220-222 MHz**

Record ID	Call Sign	Licensee Name	Latitude (DDMMSS)	Longitude (DDMMSS)	TX Freq. (MHz)	RX Freq. (MHz)	ERP (dBW)	Antenna Height AGL (m)	Distance to Border (km)
13040811001	XKK545	University of Victoria	485615	1253316	220.9975	220.9975	2	13	85
53056820001	VX9GSS	Canadian Pacific Railway Company	452755	0734031	220.1375	220.1375	6.7	6	50
530568219001	VX9GSR	Canadian Pacific Railway Company	452755	0734031	220.1375	220.1375	8	15	50
53056820003	VX9GSS	Canadian Pacific Railway Company	452755	0734031	220.4375	220.4375	6.7	6	50
53056819006	VX9GSR	Canadian Pacific Railway Company	452755	0734031	220.4375	220.4375	8	15	50
53056820006	VX9GSS	Canadian Pacific Railway Company	452755	0734031	220.7375	220.7375	6.7	6	50
53056819005	VX9GSR	Canadian Pacific Railway Company	452755	0734031	220.7375	220.7375	8	15	50
53056820005	VX9GSS	Canadian Pacific Railway Company	452755	0734031	220.7625	220.7625	6.7	6	50
53056819003	VX9GSR	Canadian Pacific Railway Company	452755	0734031	220.7625	220.7625	8	15	50