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Compendium of Interoperability Voice/Data Channels That Can Be Used Nationwide in Canada and for Canada- United States Interoperability Operations

Contents

1.	Introduction and Purpose	1
2.	Public Safety and Mutual Aid Channels in the 220 MHz Band	1
3.	Public Safety Interoperability Channels in the 700 MHz Band	2
4.	Public Safety Interoperability Channels in the 800 MHz Band	3
4.1	Canadian Public Safety Interoperability Channels	3
4.2	Canada-US Public Safety Interoperability Channels	4

1. Introduction and Purpose

Public safety agencies rely heavily on the ability to communicate with each other by radio, that is, to be interoperable, in planned and unplanned situations and emergencies. In recent years, the need for radio interoperability has been identified by the public safety community. Radio Systems Policy RP-25, [Policy Principles for Public Safety Radio Interoperability](#), provides definitions of *radio interoperability*, *public safety* and other associated terms. It also describes Industry Canada's policy principles with respect to facilitating and enabling radio interoperability.

One of the tasks defined under the [Communications Interoperability Action Plan for Canada](#), which is derived from the [Communications Interoperability Strategy for Canada](#), is the identification of cross-border interoperability channels that are available nationwide and along the Canada-US border. Industry Canada was designated as the coordinator for this task.

Throughout the years, Industry Canada has identified interoperability channels in various frequency bands. This technical bulletin provides a detailed list of the interoperability channels identified in the bands 220 MHz, 700 MHz and 800 MHz. These interoperability channels¹ can be used nationwide in Canada and, where specified, for Canada-US interoperability operations.

2. Public Safety and Mutual Aid Channels in the 220 MHz Band

In the 220 MHz band, the 15 paired channels, which are 5 kHz wide, listed in Table 1 are available in both Canada and the United States on a shared basis for the purpose of public safety interoperability within 120 km of the Canada-US border. Furthermore, these channels are available on a non-restricted basis everywhere in Canada. Channels 161 to 170 and 181 to 185 are to be used only for the coordination of tactical communications between different public safety agencies, or for other similar emergency communications. The use of these channels in the border area may be locally coordinated in accordance with general sharing principles.

Table 1 - Public Safety and Mutual Aid Channels in the Band 220-222 MHz

Channel #	Centre Frequency (MHz)	
	Base Station	Mobile Station
161	220.8025	221.8025
162	220.8075	221.8075
163	220.8125	221.8125
164	220.8175	221.8175
165	220.8225	221.8225
166	220.8275	221.8275
167	220.8325	221.8325
168	220.8375	221.8375
169	220.8425	221.8425
170	220.8475	221.8475

¹ *Interoperability channels* are also sometimes referred to as *mutual aid channels*.

181	220.9025	221.9025
182	220.9075	221.9075
183	220.9125	221.9125
184	220.9175	221.9175
185	220.9225	221.9225

For additional information on the public safety and mutual aid channels of the 220 MHz band, see Standard Radio System Plan SRSP-512, [Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Band 220-222 MHz](#).

3. Public Safety Interoperability Channels in the 700 MHz Band

In the 700 MHz band, the 64 paired channels, which are 6.25 kHz wide, listed in Table 2 are available as public safety interoperability (I/O) channels. These channels are available for use in all areas and are to be used only for the coordination of tactical communications between different public safety agencies or for other similar emergency communications. The use of these channels in the border area may be locally coordinated in accordance with the interoperability requirements of Canadian and US licensees.

Table 2 – Public Safety Interoperability Channels in the Bands 768-776 MHz and 798-806 MHz

(Base/Mobile)		To	(Base/Mobile)		Designation
Channels #	Centre Frequencies (MHz)		Channels #	Centre Frequencies (MHz)	
23 / 983	769.140625/799.140625	to	24 / 984	769.146875/799.146875	I/O
39 / 999	769.240625/799.240625	to	40 / 1000	769.246875/799.246875	I/O Calling ^a
63 / 1023	769.390625/799.390625	to	64 / 1024	769.396875/799.396875	I/O
79 / 1039	769.490625/799.490625	to	80 / 1040	769.396875/799.396875	I/O
103 / 1063	769.640625/799.640625	to	104 / 1064	769.646875/799.646875	I/O
119 / 1079	769.740625/799.740625	to	120 / 1080	769.746875/799.746875	I/O
143 / 1103	769.890625/799.890625	to	144 / 1104	769.896875/799.896875	I/O
159 / 1119	769.990625/799.990625	to	160 / 1120	769.996875/799.996875	I/O
183 / 1143	770.140625/800.140625	to	184 / 1144	770.146875/800.146875	I/O
199 / 1159	770.240625/800.240625	to	200 / 1160	770.246875/800.246875	I/O
223 / 1183	770.390625/800.390625	to	224 / 1184	770.396875/800.396875	I/O
239 / 1199	770.490625/800.490625	to	240 / 1200	770.496875/800.496875	I/O
263 / 1223	770.640625/800.640625	to	264 / 1224	770.646875/800.646875	I/O
279 / 1239	770.740625/800.740625	to	280 / 1240	770.746875/800.746875	I/O Mobile Data ^b
303 / 1263	770.890625/800.890625	to	304 / 1264	770.896875/800.896875	I/O
319 / 1279	770.990625/800.990625	to	320 / 1280	770.996875/800.996875	I/O
641 / 1601	773.003125/803.003125	to	642 / 1602	773.009375/803.009375	I/O
657 / 1617	773.103125/803.103125	to	658 / 1618	773.109375/803.109375	I/O
681 / 1641	773.253125/803.253125	to	682 / 1642	773.259375/803.259375	I/O Calling
697 / 1657	773.353125/803.353125	to	698 / 1658	773.359375/803.359375	I/O

(Base/Mobile)		To	(Base/Mobile)		Designation
Channels #	Centre Frequencies (MHz)		Channels #	Centre Frequencies (MHz)	
721 / 1681	773.503125/803.503125	to	722 / 1682	773.509375/803.509375	I/O
737 / 1697	773.603125/803.603125	to	738 / 1698	773.609375/803.609375	I/O
761 / 1721	773.753125/803.753125	to	762 / 1722	773.759375/803.759375	I/O
777 / 1737	773.853125/803.853125	to	778 / 1738	773.859375/803.859375	I/O
801 / 1761	774.003125/804.003125	to	802 / 1762	774.009375/804.009375	I/O
817 / 1777	774.103125/804.103125	to	818 / 1778	774.109375/804.109375	I/O
841 / 1801	774.253125/804.253125	to	842 / 1802	774.259375/804.259375	I/O
857 / 1817	774.353125/804.353125	to	858 / 1818	774.359375/804.359375	I/O
881 / 1841	774.503125/804.503125	to	882 / 1842	774.509375/804.509375	I/O
897 / 1857	774.603125/804.603125	to	898 / 1858	774.609375/804.609375	I/O
921 / 1881	774.753125/804.753125	to	922 / 1882	774.759375/804.759375	I/O Mobile Data
937 / 1897	774.853125/804.853125	to	938 / 1898	774.859375/804.859375	I/O

Notes:

- a) Calling channels are used to establish contact between public safety entities in order for the parties to move to an interoperability channel. These channels are not used as traffic channels.
- b) Mobile data channels are generally intended for transmitting data.

For additional information on the interoperability channels of the 700 MHz band, see SRSP-511, [Technical Requirements for Land Mobile Radio Services Operating in the Bands 768-776 MHz and 798-806 MHz](#).

4. Public Safety Interoperability Channels in the 800 MHz Band

4.1 Canadian Public Safety Interoperability Channels

In the 800 MHz band, the 25 kHz wide channels listed in Table 3 are available to public safety agencies as public safety interoperability channels within Canada. These channels are available for use in all areas and are to be used only for the coordination of tactical communications between public safety agencies or within the same public safety agency, or for other similar emergency communications associated with Canadian operations for the preservation of life and protection of property. The channels are separated by 500 kHz. Adjacent channels in the 800 MHz band (*i.e.*, the next centre frequency) will not be assigned closer than 25 kHz to these interoperability channels. Calling and tactical channels will be assigned together. These channels are not available for shared Canada-US use.

Table 3 - Public Safety Interoperability Channels in the Bands 821-824 MHz and 866-869 MHz Within Canada

	Designation	Channel Number	Centre Frequency (MHz)
Calling Channel and Calling Direct ^a	I-CALL	BA1 (601)	821.0125 paired with 866.0125
	I-CALL 1D	BA1	821.0125 paired with 866.0125
Tactical Channels and Tactical Direct ^b	ITAC-1	BA39 (639)	821.5125 paired with 866.5125
	ITAC-1D	BA39	866.5125 paired with 866.5125
	ITAC-2	BA77 (677)	822.0125 paired with 867.0125
	ITAC-2D	BA77	867.0125 paired with 867.0125
	ITAC-3	BA115 (715)	822.5125 paired with 867.5125
	ITAC-3D	BA115	867.5125 paired with 867.5125
	ITAC-4	BA153 (753)	823.0125 paired with 868.0125
ITAC-4D	BA153	868.0125 paired with 868.0125	

Notes:

- a) Calling channels are used to establish contact between public safety entities in order for the parties to move to an interoperability channel. These channels are not used as traffic channels.
- b) Tactical channels are used as traffic channels.

4.2 Canada-US Public Safety Interoperability Channels

The 25 kHz wide channels listed in Table 4 are available as public safety interoperability channels. These channels are available for use within 30 km of the Canada-US border in all areas. Interoperability channels are to be used only for the coordination of tactical communications between public safety agencies or within the same public safety agency, or for other similar emergency communications associated with Canada-US operations for the preservation of life and protection of property. The use of these channels in the border area may be locally coordinated in accordance with the interoperability requirements of the Canadian and US public safety licensees. Within 30 km of the Canada-US border, adjacent channels in the 800 MHz band (*i.e.*, the next centre frequency) will not be assigned closer than 25 kHz to these interoperability channels. Calling and tactical channels will be assigned together. Beyond 30 km of the Canada-US border, these channels are not identified for Canadian interoperability use.

**Table 4 – Canada-US Public Safety Interoperability Channels
 in the Bands 806-821 MHz and 851-866 MHz**

	Designation	Channel Number	Centre Frequency (MHz)
Calling Channel and Calling Direct	8CALL90	AA1	806.0125 paired with 851.0125
	8CALL90D	AA1	851.0125 paired with 851.0125
Tactical Channels and Tactical Direct	8TAC-91	AA21	806.5125 paired with 851.5125
	8TAC-91D	AA21	851.5125 paired with 851.5125
	8TAC-92	AA41	807.0125 paired with 852.0125
	8TAC-92D	AA41	852.0125 paired with 852.0125
	8TAC-93	AA61	807.5125 paired with 852.5125
	8TAC-93D	AA61	852.5125 paired with 852.5125
	8TAC-94	AA81	808.0125 paired with 853.0125
	8TAC-94D	AA81	853.0125 paired with 853.0125

For additional information on the interoperable channels of the 800 MHz band, see SRSP-502, [*Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Bands 806-821/851-866 MHz and 821-824/866-869 MHz.*](#)