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Spectrum Management and Telecommunications Policy

Standard Radio System Policy

Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Bands 806-821/851-866 MHz and 821-824/866-869 MHz

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1. Intent

- 1.1 This Standard Radio System Plan (SRSP) states the minimum technical requirements for the purpose of efficient spectrum utilization for land mobile and fixed point-to-point systems operating in the bands 806-821/851-866 MHz and in the public safety bands 821-824/866-869 MHz.
- 1.2 Radio systems conforming to the requirements contained in this SRSP will take priority in licensing and coordination over non-standard systems proposed for operation in these bands.

Systems, which employ spectrally efficient technologies¹, are strongly encouraged and may also be authorized on a standard basis.
- 1.3 The arrangements for non-standard systems are outlined in Spectrum Utilization Policies SP Gen (SP Gen), *General Information Related to Spectrum Utilization and Radio Systems Policies*.

2. General

- 2.1 Equipment used for land mobile or fixed systems operating in the bands 806-821/851-866 MHz and 821-824/866-869 MHz must normally comply with appropriate Technical Standards listed in Section 3. A TAC (Technical Acceptance Certificate) is required for the equipment if the applied Radio Standards Specification appears on the Category 1 Equipment List.
- 2.2 Although a radio system conforms to the requirements of this SRSP, the Department may require modifications to the system whenever harmful interference² is caused to other radio sites or systems, except when such interference is due to inadequate receiver selectivity as dealt with under 2.3 below.
- 2.3 The Department reserves the right to limit protection to licensed radio receivers only to the extent of bandwidth of the transmitters whose emissions they are licensed to receive. Licensees and/or applicants should use receiver selectivity characteristics or filters that provide rejection of harmful interference.

¹ Different channelization from what is described herein may be considered if it results in increased spectrum efficiency.

² For the purpose of this SRSP, “harmful interference” means interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with regulations and technical requirements laid down by the Minister of Industry under the *Radiocommunication Act*.

- 2.4 Systems that employ a base station as an automatic repeater station shall transmit on frequencies identified as base transmit frequencies. Dispatcher stations (often referred to as control stations) operating through an automatic repeater station shall transmit on frequencies identified as mobile transmit frequencies.
- 2.5 Single frequency operation utilizing the base/repeater transmit frequency (known as repeater talk around) may be permitted within the authorized service area at the discretion of the system operator and will be on a non-interference basis to the other users in the case of radio service provided by a radiocommunication service provider. Such operation may be licensed on a case-by-case basis beyond the service area of a paired frequency system as an adjunct to it. The public safety mutual aid channels are exempted from the restriction of this section.
- 2.6 Very low capacity fixed systems may be authorized in these bands on a secondary non-interference basis in accordance with Radio Systems Policies and should be in accordance with applicable technical provisions of Standard Radio System Plan 507 (SRSP-507).

3. Related Documents

- 3.1 The current issues of the following documents are applicable.
 - 3.1.1 **Standard Radio System Plan 507 (SRSP-507):** Technical Requirements for Line-of-Sight Radio Systems Operating in the Fixed Service in the Bands 932.5-935 MHz and 941.5-944 MHz.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf00055.html>
 - 3.1.2 **Radio Standards Procedure 100 (RSP-100):** Radio Equipment Certification Procedure.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01130.html>
 - 3.1.3 **Radio Standards Procedure 101 (RSP-101):** Application Procedure for Planned Radio Stations Operating on Frequencies below 960 MHz.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf00023.html>
 - 3.1.4 **Radio Standards Specification 119 (RSS-119):** Land Mobile and Fixed Radio Transmitters and Receivers, 27.41 to 960.0 MHz.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01063.html>
 - 3.1.5 **Radio Systems Policy 003 (RP-003):** Policy Guidelines for Mobile Radio Trunked Systems.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01058.html>

- 3.1.6 **Radio Systems Policy 004 (RP-004):** Policy for the Licensing of Very Low Capacity Point to Point Links in the Band 30-890 MHz.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01060.html>
- 3.17 **Spectrum Utilization Policies SP Gen (SP Gen):** General Information Related to Spectrum Utilization and Radio Systems Policies.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01049.html>
- 3.1.8 **Spectrum Utilization Policy SP 30-896 MHz (SP 30-896, Part I):** Spectrum Allocation and Utilization in Certain Bands in the Range 30.01-896 MHz, Part I.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01051.html>
- 3.1.9 **Radiocommunication Regulations:** The new Radiocommunication Regulations replace the General Radio Regulations, Parts I and II, the Interference Causing Equipment Regulations and the Radio Operator Regulations. They provide for the necessary regulatory framework in which to manage the radio frequency spectrum.
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01265.html>
- 3.1.10 **Terrestrial Radiocommunication Agreements and Arrangements**
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01361.html>

4. Band Plan

4.1 Sharing Arrangements Along the Canada/United States Border

- 4.1.1 In the interest of equitable sharing of spectrum along the border and to reduce coordination and administrative effort and time, the governments of Canada and the United States have entered into arrangements whereby certain portions of the bands 806-821/851-866 MHz and 821-824/866-869 MHz are set aside on a block allocation basis for the unrestricted geographic use of either country in border areas. The terms of these arrangements take into account the demographic differences that exist along the border between the two countries. Protection and sharing zones are illustrated in Annex B, Figure 2. The bands are shared on a block allotment basis within the sharing zones and the entire bands are available for assignment within the protection zones as illustrated in Annex A, Figure 1. There are, however, certain power and height restrictions applicable within both the sharing and protection zones.

Table A below shows the channels allocated for Canadian use according to the Canada/United States Arrangement concerning the use of the bands 806-821/851-866 MHz and 821-824/866-869 MHz.

Table A		
Area	Spectrum Availability	Restrictions
OUTSIDE SHARING AND PROTECTION ZONES	All channels	Unrestricted
PROTECTION ZONES (i.e., areas adjacent to sharing zones I and III and extending from 100 to 140 km within each country).	All channels	Annex B, Table A1
SHARING ZONE I (Outside Sectors 1 & 2) Within 100 km of the Canada/U.S. border area.	809.75-817.25/854.75-862.25 MHz 821.00-822.50/866.00-867.50 MHz, except public safety mutual aid channels, see section 4.2.4	Annex B, Table A1
-Within Sector 1 (81°W to 85°W) (Portion of Zone I)	811.25-815.75/856.25-860.75 MHz 821.00-821.45/866.00-866.45 MHz	Annex B, Table A1
-Within Sector 2 (71°W to 81°W) (Portion of Zone I)	808.25-818.75/853.25-863.75 MHz 821.00-823.10/866.00-868.10 MHz	Annex B, Table A1
SHARING ZONE II Within 140 km of the Canada/U.S. border area.	809.75-817.25/854.75-862.25 MHz 821.00-822.50/866.00-867.50 MHz, except public safety mutual aid channels, see section 4.2.4	Annex B, Table A2
SHARING ZONE III Within 100 km of the Canada/U.S. border area.	809.75-817.25/854.75-862.25 MHz 821.00-822.50/866.00-867.50 MHz, except public safety mutual aid channels, see section 4.2.4	Annex B, Table A1

4.1.2 Special Provisions for the Canada/United States Arrangement Concerning the Use of the Bands 821-824/866-869 MHz

4.1.2.1 The public safety mutual aid channels, listed in section 4.2.4, are available on a non restricted basis everywhere in Canada. Further, they are available to both the United States and Canada on a shared basis within the coordination zones. These channels are to be used only for coordination of tactical communications between different public safety agencies, or for other similar emergency communications.

The mutual aid channels are separated by 500 kHz. The use of these channels in the border area may be locally coordinated in accordance with general sharing principles. These channels are to be 25 kHz wide and adjacent channels will not be assigned closer than 25 kHz. These channels are available for assignment to operators eligible under

section 5.1.2 in the 821-824/866-869 MHz bands or the 806-821/851-866 MHz bands.

4.1.2.2 The Canada/U.S. arrangement contains special provisions whereby:

- (a) Areas of 30 km radius from the city center coordinates of Peterborough, Ontario [44° 18'N, 78° 19'W] and Kitchener-Waterloo, Ontario [43° 27' 30"N, 80° 30' 00"W] are considered to be within the protection zone.
- (b) Within an area of 30 km radius from the city center coordinates of London, Ontario [42° 59'N, 81° 14'W], Canada shall have the full use of the bands 821.00 to 823.10 MHz and 866.00 to 868.10 MHz on an uncoordinated basis.

4.1.3 Special Conditions for the Use of Certain Frequencies

Frequencies primarily allotted for unrestricted use by the United States may be assigned in Canada for use within the sharing zones under the following conditions:

- (a) The predicted maximum power flux density (pfd) of the signal at the border, calculated using free space propagation (taking into account any antenna discrimination in the direction of the border), does not exceed the limits specified in Annex B, Tables C1 and C2.
- (b) In Sharing Zone II, in recognition of special topographical conditions, the use of a point-to-point propagation model is permitted; in which case the limit for the predicted maximum pfd shall be -107 dBW/m^2 at or beyond the border.
- (c) In all three sharing zones, assignments for these stations are subject to the condition that in the event the actual signals exceed -107 dBW/m^2 at or beyond the border, the licensee will take immediate action to eliminate any interference.
- (d) Assignments on these frequencies will not be entitled to protection from U.S. stations.

4.2 Channelling Plans

4.2.1 Channelling Plan for the 806-821 MHz and 851-866 MHz Band

Channels start at 806.0125 MHz and are spaced 25 kHz apart, for a total of 600 channels. The frequency corresponding to the channel number can be determined by the following formula, where n is the channel number:

$$f_n = 806.0125 + (n-1) * (.0250) \text{ where } n = 1 \text{ to } 600$$

A channeling plan for these bands is outlined in Annex A, Table 1. The geographic availability and suballocation plan is shown in Annex A, Figure 1 and in Annex A Table 2 and Table 3. However, the use of interstitial frequencies is not recommended in the bands 806-821/851-866 MHz, unless systems make use of 12.5 or 6.25 kHz wide equipment, and the EMC show no harmful interference to nearby adjacent-channel stations. Spectrum availability and associated suballocation plan in the bands 806-824 MHz and 851-869 MHz are also shown in Annex A, Figure 1.

The standard channel spacing for this spectrum is 25 kHz and assignments begin 12.5 kHz from the band edge. Different channel spacings than specified above will be considered if they allow for the use of equipment which is more spectrally efficient, e.g. more voice channels or bits/s/hertz than would otherwise be obtained.

Furthermore, to improve spectrum efficiency, re-use in wide-area systems or networks, where many blocks of frequencies may be licensed to one holder, assignment of frequencies to each particular site does not have to follow the block allocation structure defined herein. Each frequency that may be used on a particular site must be approved by the District Office as it will impact on the geographic re-assignment of that particular frequency, unless an arrangement has been made for the use of the frequencies within a specified geographical area.³ The spacing between associated mobile and base station frequencies is 45 MHz.

The majority of the spectrum in the bands 806-821 MHz and 851-866 MHz is channelized in 5-channel groups. Within a given 5-channel group the separation between channels is 250 kHz. Groups are combined so as to form spectrum blocks of 1.25 MHz each; each block of spectrum is therefore made of 10 groups of channels or 50 channels. The spectrum channelized in such a fashion is intended for use mainly by trunked systems.

4.2.2 National and Wide Area Radio Systems in the Bands 806-821 MHz and 851-866 MHz

As outlined in Annex A, Table 2, twenty channels are suballocated for national land mobile radio systems and twenty channels are suballocated for wide area radio systems. Ten more channels may be assigned for local or wide area

³ While such arrangement may facilitate the reuse of a specific frequency, or set of frequencies within a specified geographical area, it does not waive the licensing requirements regulating this band.

systems and forty channels are held in reserve for future assignment.

A national land mobile frequency assignment will be considered if the operational function satisfies the following requirements: (1) operational necessity for the mobile and/or portable radio equipment to travel and be used on a regular basis, normally within all regions of the country, **AND** operational necessity for the mobile and/or portable radio equipment to operate on the same frequency(ies) at all operating locations; **OR** (2) to provide response to unpredictable emergencies of national geographic scope and concerns. National systems can be of conventional or trunked type.

A wide area land mobile radio system is a system that has common frequencies assigned for use under the following conditions: (1) operational necessity for the land mobile/portable radio equipment to travel and be used on a regular basis between two or more geographic areas (a geographic area is defined as the coverage area obtained from a base station in accordance with its effective radiated power (ERP) and effective antenna height); **AND** (2) operational necessity for the land mobile/portable equipment to operate on the same frequency(ies) at all operating locations.

In areas where there is spectrum congestion, national and reserve channels may be assigned for local use at the discretion of the Regional Office.

4.2.3 Channelling Plan for the Public Safety Bands 821-824 MHz and 866-869 MHz

The arrangement for these bands provides channels spaced 12.5 kHz apart except for mutual aid channels (see section 4.2.4). The use of narrowband or equivalent spectrum efficient equipment is encouraged to allow for greater spectrum utilization. The spacing between associated mobile and base station frequencies is 45 MHz. The detailed channel designation is given in Annex A, Table 5.

The 821-824/866-869 MHz spectrum is channelized in 6-channel groups with channel spacing for trunked systems within one group being 500 kHz. Expansion of trunked systems to more channels per group is to be from other trunked systems groups with 250 kHz separation higher in frequency except in Sector 1 of Sharing Zone I (i.e. between 81°W and 85°W longitude). In this Sector, the 450 kHz allotted for Canadian use is not sufficient to accommodate a trunking system with 250 kHz channel separation within one group of channels. Here, trunking schemes with much closer channel separation than 250 kHz using hybrid combiners are feasible and would be considered.

The geographic availability and suballocation plan for these bands is illustrated in Table A and Figure 1 in Annex A, and in Annex A, Table 4.

4.2.4 Public Service Mutual Aid Channels

The following channels are available to public safety organizations in both Canada and the United States on a shared basis for the purpose of mutual aid:

International Calling Channel	I-CALL	601	821.0125/866.0125 MHz
International Tactical Channels	ITAC-1	639	821.5125/866.5125 MHz
	ITAC-2	677	822.0125/867.0125 MHz
	ITAC-3	715	822.5125/867.5125 MHz
	ITAC-4	753	823.0125/868.0125 MHz

4.2.4.1 Continuous Tone-Coded Squelch System (CTCSS) Frequency

The CTCSS frequency 156.7 Hz will be used on the five mutual aid channels.

4.2.5 Trunked and Conventional Radio Systems

In accordance with RP-003, an applicant for a trunked radio system is usually assigned up to five pairs of channels at a time. However, where an application is made for other than five pairs of channels to be used on multiple sites, the application will be considered subject to adequate justification being provided. Minimum loading of the existing channels in accordance with Section 5.2 will be a condition for system expansion.

For the 806-821/851-866 MHz bands, the blocks will be normally used in sequence: block A initially, followed by block B, then C and so on according to the availability of the spectrum in the area concerned. The expansion of an existing system will be normally made in the next block available of the sequence in order to maintain a minimum spacing of 250 kHz. Conventional (i.e. non trunked) systems can be assigned frequencies from the available spectrum in a given area.

4.2.6 Use of the bands 809.75-813 MHz and 854.75-858 MHz in the Vancouver area

The following conditions supersede the restrictions stated in the public document *Implementation of the Mobile Service, in the Bands 406.1-410 MHz, 420-430 MHz, 806-821 MHz and 851-866 MHz* released by the Department in December 1982.

The band 809.75-813 MHz paired with the band 854.75-858 MHz is now available for use in the Vancouver area provided that base station sites are located so as to avoid the potential of image interference to the reception of TV channel 63. The applicants planning to use this part of the spectrum in the Vancouver area should contact the District Office prior to finalization of their sites for base stations.

5. Channel Sharing and Loading Guidelines

5.1 Channel Sharing

Section 40 of the *Radiocommunication Regulations* states: "The assignment of a frequency or frequencies to a holder of a radio authorization does not confer a monopoly on the use of the frequency or frequencies, nor shall a radio authorization be construed as conferring any right of continued tenure in respect of the frequency or frequencies".

5.1.1 Public Safety - Hierarchy of Safety Service Providers

The bands 821-824 MHz and 866-869 MHz are designated for use by public safety services. Public safety services (services involving safety of life and property) will continue, if possible, to have access to exclusive channels and any eventual sharing of channels by public safety services will be with other public safety services. The Department recognizes the following hierarchy of safety service providers:

- (a) **Category 1** - police, fire and emergency medical services.
- (b) **Category 2** - forestry, public works, public transit, dangerous chemical clean-up, customs and other agencies contributing to public safety.
- (c) **Category 3** - Other government agencies and certain non-government agencies.

Category 1 system operators are eligible for trunked or conventional systems. **Category 2** system operators are eligible to share trunked systems with **Category 1** users provided the latter remain the major users of the system. Major users are agencies which have priority over other types of users on the system. **Category 2** system users would not be eligible to operate their own systems within this band unless the local district director is satisfied that their operation would not preclude the future introduction of a **Category 1** system. **Category 3** system operators and selected supervisory personnel of non-government agencies (e.g. hydro and gas utilities) may be permitted access to public safety systems during emergency situations where their access will be controlled by the major users operating those systems.

5.2 Loading Guidelines

The Department is currently revising its loading guidelines. Until such time as the new guidelines will be issued, the Department will continue to apply the following guidelines in determining adequate loading of communications channels, and thus, of radio channels.

5.2.1 Mobiles per channel

For the purpose of designating the loading guidelines, users will be divided into two major categories: safety services and other applicants. Noting that trunked usage is to provide more efficient use of the spectrum than conventional usage, the basic loading guidelines in terms of number of mobiles per communication channel for radio systems follow:

User Category	Radio System Type	Mobiles per Communication Channel
safety services	conventional	30
	trunked	50
others	conventional	75
	trunked	90

5.2.2 Traffic model

Another approach that may be applied by the Department in some locations, is based on traffic theory and makes use of the Erlang C model. This model assumes that the system will queue a certain number of blocked calls.

The Grade of Service will be defined by a specified delay, in message lengths, such that calls delayed will not exceed the specified delay with a probability **P(t) of 0.03 (3%)**. That is, 97% of the calls placed will not be delayed by greater than the specified delay.

For Safety Services, the specified delay is **1** average message length;
For Other Services, the specified delay is **3** average message lengths.

The average length is defined by the average Push to Talk (PTT) duration.

5.2.3 Other considerations

The Department recognizes that the above approaches may not be appropriate for all systems and networks. The Department will give consideration to technologies, changing user behavior or pattern, introduction of new services, systems, and network deployment as a whole when assessing frequency requirements.

These guidelines are to be interpreted as minimum levels, recognizing that they represent a broad average over many different services with different message characteristics. In the frequency assignment process, these guidelines will be utilized in conjunction with current observed channel occupancy data (obtained with automatic occupancy measuring equipment) to determine whether additional mobiles may be added to a channel or whether additional channels are required. Such observations will also be used to assess the general loading criteria and the inherent trade-off between sound spectrum management and acceptable grades of service.

RP-003 provides a detailed description of the policy governing the implementation of trunked systems.

6. Technical criteria

6.1 Radiated power and antenna heights limits

Effective Radiated Power (ERP) shall be limited to that necessary to provide the required service as determined by the system requirements and will be subject to the limitations stipulated in Annex B.

6.2 Co-channel separation

Normally, the geographic separation between co-channel systems will be calculated based on a non-overlap of the 40 dB μ V/m service contour of the existing station and the 22 dB μ V/m interference contour of the proposed station.

The service contour of the existing station is usually calculated based on a probability of service of 50% of the time for 90% of the locations at edge of contour.

The interference contour is calculated using the probability that the signal level used is not exceeded more than 10% of the time, i.e. 90% of the time the signal is below the threshold, for 90% of the locations.

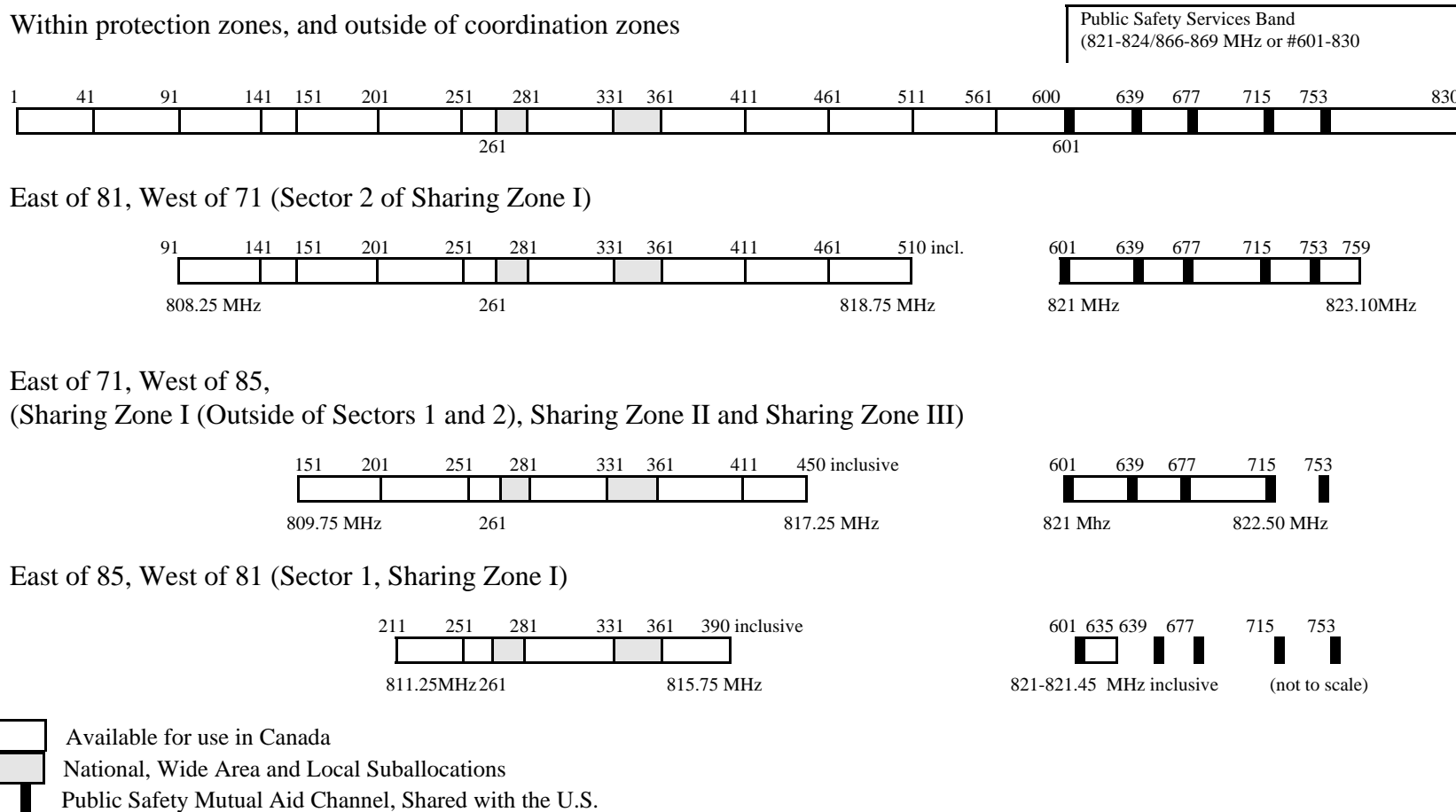
For the bands 821-824/866-869 MHz interference from the adjacent channel spaced 12.5 kHz apart will also be a consideration in base station siting. The normal geographic separation for base stations in this band will be 32 km between 12.5 kHz adjacent systems. This value, or an alternate method, is under investigation considering the development of the technology applicable to this band. Co-channel separation will be determined using the method described in the beginning of this section.

Issued under the authority of the
Minister of Industry

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Annex A

Figure 1: Spectrum Availability and Associated Channeling Plan in the Bands 806-821/851-866 MHz and 821-824/866-869 MHz



Annex A

Table 1: Channel Designation for 806-821/851-866 MHz Bands

Note: Only mobile station frequencies are listed, the paired base station frequency is 45 MHz higher

Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)
1	806.0125	51	807.2625	101	808.5125	151	809.7625	201	811.0125	251	812.2625
2	806.0375	52	807.2875	102	808.5375	152	809.7875	202	811.0375	252	812.2875
3	806.0625	53	807.3125	103	808.5625	153	809.8125	203	811.0625	253	812.3125
4	806.0875	54	807.3375	104	808.5875	154	809.8375	204	811.0875	254	812.3375
5	806.1125	55	807.3625	105	808.6125	155	809.8625	205	811.1125	255	812.3625
6	806.1375	56	807.3875	106	808.6375	156	809.8875	206	811.1375	256	812.3875
7	806.1625	57	807.4125	107	808.6625	157	809.9125	207	811.1625	257	812.4125
8	806.1875	58	807.4375	108	808.6875	158	809.9375	208	811.1875	258	812.4375
9	806.2125	59	807.4625	109	808.7125	159	809.9625	209	811.2125	259	812.4625
10	806.2375	60	807.4875	110	808.7375	160	809.9875	210	811.2375	260	812.4875
11	806.2625	61	807.5125	111	808.7625	161	810.0125	211	811.2625	261	812.5125
12	806.2875	62	807.5375	112	808.7875	162	810.0375	212	811.2875	262	812.5375
13	806.3125	63	807.5625	113	808.8125	163	810.0625	213	811.3125	263	812.5625
14	806.3375	64	807.5875	114	808.8375	164	810.0875	214	811.3375	264	812.5875
15	806.3625	65	807.6125	115	808.8625	165	810.1125	215	811.3625	265	812.6125
16	806.3875	66	807.6375	116	808.8875	166	810.1375	216	811.3875	266	812.6375
17	806.4125	67	807.6625	117	808.9125	167	810.1625	217	811.4125	267	812.6625
18	806.4375	68	807.6875	118	808.9375	168	810.1875	218	811.4375	268	812.6875
19	806.4625	69	807.7125	119	808.9625	169	810.2125	219	811.4625	269	812.7125
20	806.4875	70	807.7375	120	808.9875	170	810.2375	220	811.4875	270	812.7375
21	806.5125	71	807.7625	121	809.0125	171	810.2625	221	811.5125	271	812.7625
22	806.5375	72	807.7875	122	809.0375	172	810.2875	222	811.5375	272	812.7875
23	806.5625	73	807.8125	123	809.0625	173	810.3125	223	811.5625	273	812.8125
24	806.5875	74	807.8375	124	809.0875	174	810.3375	224	811.5875	274	812.8375
25	806.6125	75	807.8625	125	809.1125	175	810.3625	225	811.6125	275	812.8625
26	806.6375	76	807.8875	126	809.1375	176	810.3875	226	811.6375	276	812.8875
27	806.6625	77	807.9125	127	809.1625	177	810.4125	227	811.6625	277	812.9125
28	806.6875	78	807.9375	128	809.1875	178	810.4375	228	811.6875	278	812.9375
29	806.7125	79	807.9625	129	809.2125	179	810.4625	229	811.7125	279	812.9625
30	806.7375	80	807.9875	130	809.2375	180	810.4875	230	811.7375	280	812.9875
31	806.7625	81	808.0125	131	809.2625	181	810.5125	231	811.7625	281	813.0125
32	806.7875	82	808.0375	132	809.2875	182	810.5375	232	811.7875	282	813.0375
33	806.8125	83	808.0625	133	809.3125	183	810.5625	233	811.8125	283	813.0625
34	806.8375	84	808.0875	134	809.3375	184	810.5875	234	811.8375	284	813.0875
35	806.8625	85	808.1125	135	809.3625	185	810.6125	235	811.8625	285	813.1125
36	806.8875	86	808.1375	136	809.3875	186	810.6375	236	811.8875	286	813.1375
37	806.9125	87	808.1625	137	809.4125	187	810.6625	237	811.9125	287	813.1625
38	806.9375	88	808.1875	138	809.4375	188	810.6875	238	811.9375	288	813.1875
39	806.9625	89	808.2125	139	809.4625	189	810.7125	239	811.9625	289	813.2125
40	806.9875	90	808.2375	140	809.4875	190	810.7375	240	811.9875	290	813.2375
41	807.0125	91	808.2625	141	809.5125	191	810.7625	241	812.0125	291	813.2625
42	807.0375	92	808.2875	142	809.5375	192	810.7875	242	812.0375	292	813.2875
43	807.0625	93	808.3125	143	809.5625	193	810.8125	243	812.0625	293	813.3125
44	807.0875	94	808.3375	144	809.5875	194	810.8375	244	812.0875	294	813.3375
45	807.1125	95	808.3625	145	809.6125	195	810.8625	245	812.1125	295	813.3625
46	807.1375	96	808.3875	146	809.6375	196	810.8875	246	812.1375	296	813.3875
47	807.1625	97	808.4125	147	809.6625	197	810.9125	247	812.1625	297	813.4125
48	807.1875	98	808.4375	148	809.6875	198	810.9375	248	812.1875	298	813.4375
49	807.2125	99	808.4625	149	809.7125	199	810.9625	249	812.2125	299	813.4625
50	807.2375	100	808.4875	150	809.7375	200	810.9875	250	812.2375	300	813.4875

Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)
301	813.5125	351	814.7625	401	816.0125	451	817.2625	501	818.5125	551	819.7625
302	813.5375	352	814.7875	402	816.0375	452	817.2875	502	818.5375	552	819.7875
303	813.5625	353	814.8125	403	816.0625	453	817.3125	503	818.5625	553	819.8125
304	813.5875	354	814.8375	404	816.0875	454	817.3375	504	818.5875	554	819.8375
305	813.6125	355	814.8625	405	816.1125	455	817.3625	505	818.6125	555	819.8625
306	813.6375	356	814.8875	406	816.1375	456	817.3875	506	818.6375	556	819.8875
307	813.6625	357	814.9125	407	816.1625	457	817.4125	507	818.6625	557	819.9125
308	813.6875	358	814.9375	408	816.1875	458	817.4375	508	818.6875	558	819.9375
309	813.7125	359	814.9625	409	816.2125	459	817.4625	509	818.7125	559	819.9625
310	813.7375	360	814.9875	410	816.2375	460	817.4875	510	818.7375	560	819.9875
311	813.7625	361	815.0125	411	816.2625	461	817.5125	511	818.7625	561	820.0125
312	813.7875	362	815.0375	412	816.2875	462	817.5375	512	818.7875	562	820.0375
313	813.8125	363	815.0625	413	816.3125	463	817.5625	513	818.8125	563	820.0625
314	813.8375	364	815.0875	414	816.3375	464	817.5875	514	818.8375	564	820.0875
315	813.8625	365	815.1125	415	816.3625	465	817.6125	515	818.8625	565	820.1125
316	813.8875	366	815.1375	416	816.3875	466	817.6375	516	818.8875	566	820.1375
317	813.9125	367	815.1625	417	816.4125	467	817.6625	517	818.9125	567	820.1625
318	813.9375	368	815.1875	418	816.4375	468	817.6875	518	818.9375	568	820.1875
319	813.9625	369	815.2125	419	816.4625	469	817.7125	519	818.9625	569	820.2125
320	813.9875	370	815.2375	420	816.4875	470	817.7375	520	818.9875	570	820.2375
321	814.0125	371	815.2625	421	816.5125	471	817.7625	521	819.0125	571	820.2625
322	814.0375	372	815.2875	422	816.5375	472	817.7875	522	819.0375	572	820.2875
323	814.0625	373	815.3125	423	816.5625	473	817.8125	523	819.0625	573	820.3125
324	814.0875	374	815.3375	424	816.5875	474	817.8375	524	819.0875	574	820.3375
325	814.1125	375	815.3625	425	816.6125	475	817.8625	525	819.1125	575	820.3625
326	814.1375	376	815.3875	426	816.6375	476	817.8875	526	819.1375	576	820.3875
327	814.1625	377	815.4125	427	816.6625	477	817.9125	527	819.1625	577	820.4125
328	814.1875	378	815.4375	428	816.6875	478	817.9375	528	819.1875	578	820.4375
329	814.2125	379	815.4625	429	816.7125	479	817.9625	529	819.2125	579	820.4625
330	814.2375	380	815.4875	430	816.7375	480	817.9875	530	819.2375	580	820.4875
331	814.2625	381	815.5125	431	816.7625	481	818.0125	531	819.2625	581	820.5125
332	814.2875	382	815.5375	432	816.7875	482	818.0375	532	819.2875	582	820.5375
333	814.3125	383	815.5625	433	816.8125	483	818.0625	533	819.3125	583	820.5625
334	814.3375	384	815.5875	434	816.8375	484	818.0875	534	819.3375	584	820.5875
335	814.3625	385	815.6125	435	816.8625	485	818.1125	535	819.3625	585	820.6125
336	814.3875	386	815.6375	436	816.8875	486	818.1375	536	819.3875	586	820.6375
337	814.4125	387	815.6625	437	816.9125	487	818.1625	537	819.4125	587	820.6625
338	814.4375	388	815.6875	438	816.9375	488	818.1875	538	819.4375	588	820.6875
339	814.4625	389	815.7125	439	816.9625	489	818.2125	539	819.4625	589	820.7125
340	814.4875	390	815.7375	440	816.9875	490	818.2375	540	819.4875	590	820.7375
341	814.5125	391	815.7625	441	817.0125	491	818.2625	541	819.5125	591	820.7625
342	814.5375	392	815.7875	442	817.0375	492	818.2875	542	819.5375	592	820.7875
343	814.5625	393	815.8125	443	817.0625	493	818.3125	543	819.5625	593	820.8125
344	814.5875	394	815.8375	444	817.0875	494	818.3375	544	819.5875	594	820.8375
345	814.6125	395	815.8625	445	817.1125	495	818.3625	545	819.6125	595	820.8625
346	814.6375	396	815.8875	446	817.1375	496	818.3875	546	819.6375	596	820.8875
347	814.6625	397	815.9125	447	817.1625	497	818.4125	547	819.6625	597	820.9125
348	814.6875	398	815.9375	448	817.1875	498	818.4375	548	819.6875	598	820.9375
349	814.7125	399	815.9625	449	817.2125	499	818.4625	549	819.7125	599	820.9625
350	814.7375	400	815.9875	450	817.2375	500	818.4875	550	819.7375	600	820.9875

Table 2: Channelling Plan for 806-821/851-866 MHz Bands

1. General

Within the Sharing Zones shown in Figure 1, Canadian use of the 806-821/851-866 MHz bands is restricted as follows:

Area	Channels
Between 71°W and 81°W	91 to 510
Between 81°W and 85°W	211 to 390
West of 85°W and East of 71°W	151 to 450

Outside of the sharing zones, channels 1 to 600 are available for Canadian use.

2. National, Wide Area and Local Area Suballocations

National, wide area, and wide or local area suballocations are shown in Block E and are as follows:

System Type	Channels
National	261-264, 266, 271-276, 331-332, 336, 341-342, 346, 351-352, 356
Wide Area	267-270, 277-280, 337-340, 347-350, 357-360
Wide or Local Area	265, 333-335, 343-345, 353-355

For future assignments the following channels are held in reserve:

Area	Reserve Channels
Between 71°W and 81°W	241-260
Between 81°W and 85°W - Inside Sharing Zone - Outside Sharing Zone	No reserve channels 191-210
West of 85°W and East of 71°W - Inside Sharing Zone - Outside Sharing Zone	251-260 141-150, 251-260

Note: In areas where there is spectrum congestion, national and reserve channels may be assigned for local use at the discretion of the Regional Office.

Table 3: Trunked Suballocations

3. Trunked Suballocations (The group number is given by the first channel of the group)

Block A:	
Group	Channels
281	281, 291, 301, 311, 321
282	282, 292, 302, 312, 322
283	283, 293, 303, 313, 323
284	284, 294, 304, 314, 324
285	285, 295, 305, 315, 325
286	286, 296, 306, 316, 326
287	287, 297, 307, 317, 327
288	288, 298, 308, 318, 328
289	289, 299, 309, 319, 329
290	290, 300, 310, 320, 330

Block B: Between 71°W and 81°W	
Group	Channels
191	191, 201, 211, 221, 231
192	192, 202, 212, 222, 232
193	193, 203, 213, 223, 233
194	194, 204, 214, 224, 234
195	195, 205, 215, 225, 235
196	196, 206, 216, 226, 236
197	197, 207, 217, 227, 237
198	198, 208, 218, 228, 238
199	199, 209, 219, 229, 239
200	200, 210, 220, 230, 240

Block B: Between 81°W and 85°W	
Group	Channels
211	211, 221, 231, 241, 251
212	212, 222, 232, 242, 252
213	213, 223, 233, 243, 253
214	214, 224, 234, 244, 254
215	215, 225, 235, 245, 255
216	216, 226, 236, 246, 256
217	217, 227, 237, 247, 257
218	218, 228, 238, 248, 258
219	219, 229, 239, 249, 259
220	220, 230, 240, 250, 260

Block B: West of 85°W & East of 71°W	
Group	Channels
201	201, 211, 221, 231, 241
202	202, 212, 222, 232, 242
203	203, 213, 223, 233, 243
204	204, 214, 224, 234, 244
205	205, 215, 225, 235, 245
206	206, 216, 226, 236, 246
207	207, 217, 227, 237, 247
208	208, 218, 228, 238, 248
209	209, 219, 229, 239, 249
210	210, 220, 230, 240, 250

Block C:	
Group	Channels
91	91, 101, 111, 121, 131
92	92, 102, 112, 122, 132
93	93, 103, 113, 123, 133
94	94, 104, 114, 124, 134
95	95, 105, 115, 125, 135
96	96, 106, 116, 126, 136
97	97, 107, 117, 127, 137
98	98, 108, 118, 128, 138
99	99, 109, 119, 129, 139
100	100, 110, 120, 130, 140

Block D: Between 71°W and 85°W	
Group	Channels
141	141, 151, 161, 171, 181
142	142, 152, 162, 172, 182
143	143, 153, 163, 173, 183
144	144, 154, 164, 174, 184
145	145, 155, 165, 175, 185
146	146, 156, 166, 176, 186
147	147, 157, 167, 177, 187
148	148, 158, 168, 178, 188
149	149, 159, 169, 179, 189
150	150, 160, 170, 180, 190

Block D: West of 85°W and East of 71°W	
Group	Channels
151	151, 161, 171, 181, 191
152	152, 162, 172, 182, 192
153	153, 163, 173, 183, 193
154	154, 164, 174, 184, 194
155	155, 165, 175, 185, 195
156	156, 166, 176, 186, 196
157	157, 167, 177, 187, 197
158	158, 168, 178, 188, 198
159	159, 169, 179, 189, 199
160	160, 170, 180, 190, 200

Block E: Between 71°W and 81°W							
Channels							
241	251	261	271	331	341	351	
242	252	262	272	332	342	352	
243	253	263	273	333	343	353	
244	254	264	274	334	344	354	
245	255	265	275	335	345	355	
246	256	266	276	336	346	356	
247	257	267	277	337	347	357	
248	258	268	278	338	348	358	
249	259	269	279	339	349	359	
250	260	270	280	340	350	360	

Block E: Between 81°W and 85°W							
Channels							
191	201	261	271	331	341	351	
192	202	262	272	332	342	352	
193	203	263	273	333	343	353	
194	204	264	274	334	344	354	
195	205	265	275	335	345	355	
196	206	266	276	336	346	356	
197	207	267	277	337	347	357	
198	208	268	278	338	348	358	
199	209	269	279	339	349	359	
200	210	270	280	340	350	360	

Block E: West of 85°W & East of 71°W							
Channels							
141	251	261	271	331	341	351	
142	252	262	272	332	342	352	
143	253	263	273	333	343	353	
144	254	264	274	334	344	354	
145	255	265	275	335	345	355	
146	256	266	276	336	346	356	
147	257	267	277	337	347	357	
148	258	268	278	338	348	358	
149	259	269	279	339	349	359	
150	260	270	280	340	350	360	

Block F:	
Group	Channels
361	361, 371, 381, 391, 401
362	362, 372, 382, 392, 402
363	363, 373, 383, 393, 403
364	364, 374, 384, 394, 404
365	365, 375, 385, 395, 405
366	366, 376, 386, 396, 406
367	367, 377, 387, 397, 407
368	368, 378, 388, 398, 408
369	369, 379, 389, 399, 409
370	370, 380, 390, 400, 410

Block G:	
Group	Channels
411	411, 421, 431, 441, 451
412	412, 422, 432, 442, 452
413	413, 423, 433, 443, 453
414	414, 424, 434, 444, 454
415	415, 425, 435, 445, 455
416	416, 426, 436, 446, 456
417	417, 427, 437, 447, 457
418	418, 428, 438, 448, 458
419	419, 429, 439, 449, 459
420	420, 430, 440, 450, 460

Block H:	
Group	Channels
461	461, 471, 481, 491, 501
462	462, 472, 482, 492, 502
463	463, 473, 483, 493, 503
464	464, 474, 484, 494, 504
465	465, 475, 485, 495, 505
466	466, 476, 486, 496, 506
467	467, 477, 487, 497, 507
468	468, 478, 488, 498, 508
469	469, 479, 489, 499, 509
470	470, 480, 490, 500, 510

Block I:	
Group	Channels
511	511, 521, 531, 541, 551
512	512, 522, 532, 542, 552
513	513, 523, 533, 543, 553
514	514, 524, 534, 544, 554
515	515, 525, 535, 545, 555
516	516, 526, 536, 546, 556
517	517, 527, 537, 547, 557
518	518, 528, 538, 548, 558
519	519, 529, 539, 549, 559
520	520, 530, 540, 550, 560

Block J:	
Group	Channels
561	561, 571, 581, 591
562	562, 572, 582, 592
563	563, 573, 583, 593
564	564, 574, 584, 594
565	565, 575, 585, 595
566	566, 576, 586, 596
567	567, 577, 587, 597
568	568, 578, 588, 598
569	569, 579, 589, 599
570	570, 580, 590, 600

Block K:	
Group	Channels
41	41, 51, 61, 71, 81
42	42, 52, 62, 72, 82
43	43, 53, 63, 73, 83
44	44, 54, 64, 74, 84
45	45, 55, 65, 75, 85
46	46, 56, 66, 76, 86
47	47, 57, 67, 77, 87
48	48, 58, 68, 78, 88
49	49, 59, 69, 79, 89
50	50, 60, 70, 80, 90

Block L:	
Group	Channels
1	1, 11, 21, 31
2	2, 12, 22, 32
3	3, 13, 23, 33
4	4, 14, 24, 34
5	5, 15, 25, 35
6	6, 16, 26, 36
7	7, 17, 27, 37
8	8, 18, 28, 38
9	9, 19, 29, 39
10	10, 20, 30, 40

Table 4: Channelling Plans for the Bands 821-824/866-869 MHz

1. General

1. Channels 601, 639, 677, 715, and 753 are allocated for public service mutual aid. It should be noted that the public safety mutual aid channels have a 25 kHz guard band. Channels 791, 792 and 793 are to be allocated for conventional assignments.
2. The mobile transmit frequencies corresponding to the channel numbers can be determined by the following formulas, base station frequencies are 45 MHz higher:

$$f = 821.0125 + .500 * \text{int}[(\text{channel \#} - 601)/38] \text{ for PSMA channels,}$$

$$f = 821.0375 + .0125 * \text{int}(\text{channel \#} - 602) + .025 * \text{int}[(\text{channel \#} - 601)/38] \\ \text{for } n = 602 \text{ to } 790 \text{ but not } 601, 639, 677, 715, 753,$$

$$f = 823.5375 + 0.0125 * (\text{channel \#} - 794) \\ \text{for } n = 794 \text{ to } 830.$$

Channels 791 to 793 are not public service mutual aid channels, their frequencies correspond to 823.500, 823.5125 and 823.5250 MHz respectively.

3. Trunking groups are made up of six channels or less and are identified by the first channel number, i.e.: group 602, 603, 604, etc. up to channel 638. The other channels of a same group are separated by 500 kHz or 38 channels in channel number. Channel usage is subject to the Canada/United States Sharing Arrangement outlined in section 4.
4. Expansion of trunked systems to more channels per group (i.e., groups 602 to 618) is to be made from other trunked systems groups with 250 kHz separation higher in frequency, i.e., trunked group 602 can be expanded from group 622 (e.g., 250 kHz separation), group 603 can be expanded from group 623, etc. Groups 619, 620, and 621 are not expandable (e.g., no more higher groups with 250 kHz separation).

Table 5: Channel Designation for 821-824/866-869 MHz Bands

Notes: 1. Only the mobile transmit frequencies are listed. Base transmit frequencies are 45 MHz higher.
2. * Denotes 25 kHz protection for the Public Service Mutual Aid Channels.

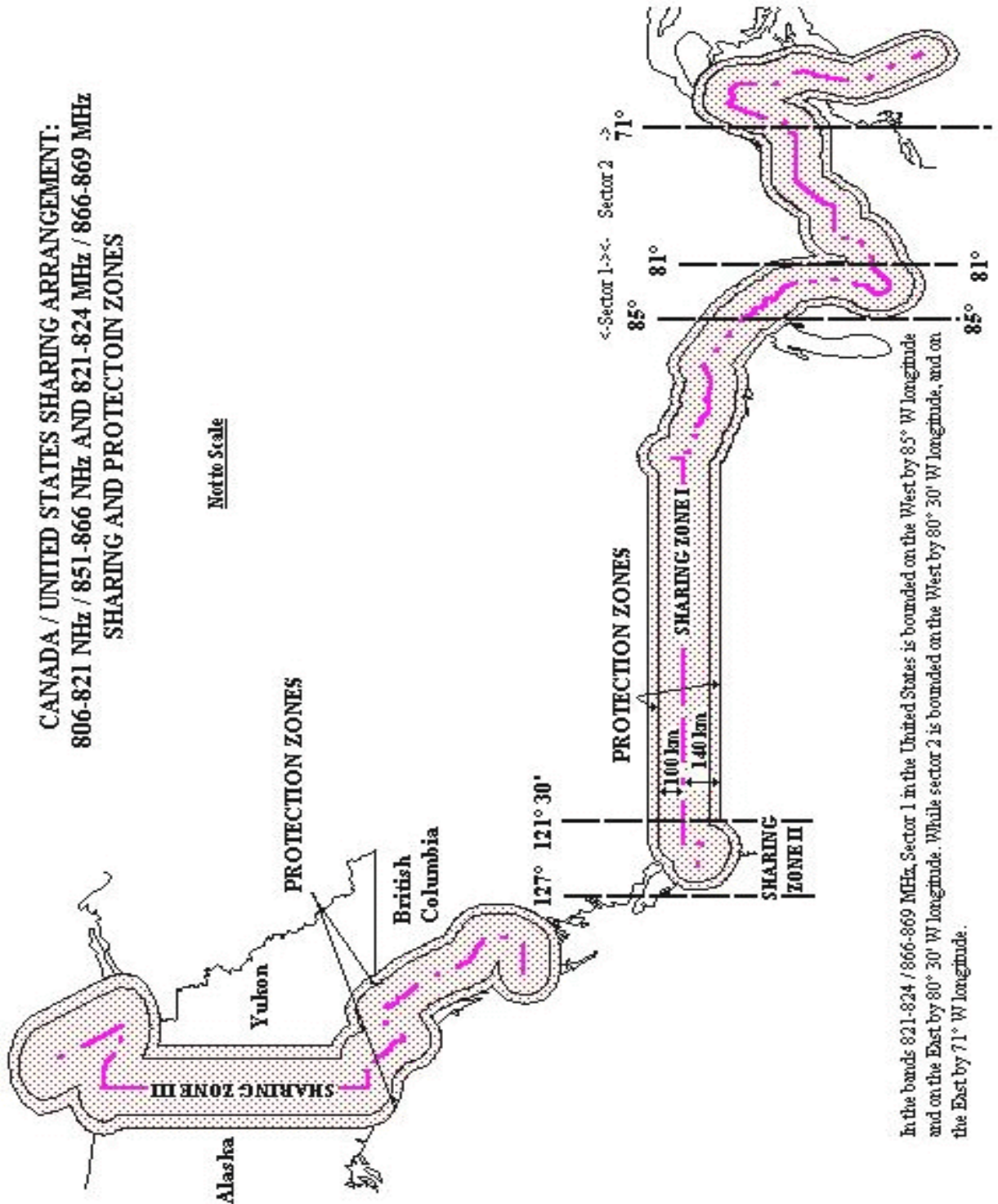
Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)	Ch	F(MHz)
*	*	*	*	*	*	*	*	*	*	791	823.5000
601	821.0125	639	821.5125	677	822.0125	715	822.5125	753	823.0125	792	823.5125
*	*	*	*	*	*	*	*	*	*	793	823.5250
602	821.0375	640	821.5375	678	822.0375	716	822.5375	754	823.0375	794	823.5375
603	821.0500	641	821.5500	679	822.0500	717	822.5500	755	823.0500	795	823.5500
604	821.0625	642	821.5625	680	822.0625	718	822.5625	756	823.0625	796	823.5625
605	821.0750	643	821.5750	681	822.0750	719	822.5750	757	823.0750	797	823.5750
606	821.0875	644	821.5875	682	822.0875	720	822.5875	758	823.0875	798	823.5875
607	821.1000	645	821.6000	683	822.1000	721	822.6000	759	823.1000	799	823.6000
608	821.1125	646	821.6125	684	822.1125	722	822.6125	760	823.1125	800	823.6125
609	821.1250	647	821.6250	685	822.1250	723	822.6250	761	823.1250	801	823.6250
610	821.1375	648	821.6375	686	822.1375	724	822.6375	762	823.1375	802	823.6375
611	821.1500	649	821.6500	687	822.1500	725	822.6500	763	823.1500	803	823.6500
612	821.1625	650	821.6625	688	822.1625	726	822.6625	764	823.1625	804	823.6625
613	821.1750	651	821.6750	689	822.1750	727	822.6750	765	823.1750	805	823.6750
614	821.1875	652	821.6875	690	822.1875	728	822.6875	766	823.1875	806	823.6875
615	821.2000	653	821.7000	691	822.2000	729	822.7000	767	823.2000	807	823.7000
616	821.2125	654	821.7125	692	822.2125	730	822.7125	768	823.2125	808	823.7125
617	821.2250	655	821.7250	693	822.2250	731	822.7250	769	823.2250	809	823.7250
618	821.2375	656	821.7375	694	822.2375	732	822.7375	770	823.2375	810	823.7375
619	821.2500	657	821.7500	695	822.2500	733	822.7500	771	823.2500	811	823.7500
620	821.2625	658	821.7625	696	822.2625	734	822.7625	772	823.2625	812	823.7625
621	821.2750	659	821.7750	697	822.2750	735	822.7750	773	823.2750	813	823.7750
622	821.2875	660	821.7875	698	822.2875	736	822.7875	774	823.2875	814	823.7875
623	821.3000	661	821.8000	699	822.3000	737	822.8000	775	823.3000	815	823.8000
624	821.3125	662	821.8125	700	822.3125	738	822.8125	776	823.3125	816	823.8125
625	821.3250	663	821.8250	701	822.3250	739	822.8250	777	823.3250	817	823.8250
626	821.3375	664	821.8375	702	822.3375	740	822.8375	778	823.3375	818	823.8375
627	821.3500	665	821.8500	703	822.3500	741	822.8500	779	823.3500	819	823.8500
628	821.3625	666	821.8625	704	822.3625	742	822.8625	780	823.3625	820	823.8625
629	821.3750	667	821.8750	705	822.3750	743	822.8750	781	823.3750	821	823.8750
630	821.3875	668	821.8875	706	822.3875	744	822.8875	782	823.3875	822	823.8875
631	821.4000	669	821.9000	707	822.4000	745	822.9000	783	823.4000	823	823.9000
632	821.4125	670	821.9125	708	822.4125	746	822.9125	784	823.4125	824	823.9125
633	821.4250	671	821.9250	709	822.4250	747	822.9250	785	823.4250	825	823.9250
634	821.4375	672	821.9375	710	822.4375	748	822.9375	786	823.4375	826	823.9375
635	821.4500	673	821.9500	711	822.4500	749	822.9500	787	823.4500	827	823.9500
636	821.4625	674	821.9625	712	822.4625	750	822.9625	788	823.4625	828	823.9625
637	821.4750	675	821.9750	713	822.4750	751	822.9750	789	823.4750	829	823.9750
638	821.4875	676	821.9875	714	822.4875	752	822.9875	790	823.4875	830	823.9875

Table 5 (continued): Channelling Plan for 821-824/866-869 MHz Bands

*	*	*	*	*	791
601	639	677	715	753	792
*	*	*	*	*	793
602	640	678	716	754	794
603	641	679	717	755	795
604	642	680	718	756	796
605	643	681	719	757	797
606	644	682	720	758	798
607	645	683	721	759	799
608	646	684	722	760	800
609	647	685	723	761	801
610	648	686	724	762	802
611	649	687	725	763	803
612	650	688	726	764	804
613	651	689	727	765	805
614	652	690	728	766	806
615	653	691	729	767	807
616	654	692	730	768	808
617	655	693	731	769	809
618	656	694	732	770	810
619	657	695	733	771	811
620	658	696	734	772	812
621	659	697	735	773	813
622	660	698	736	774	814
623	661	699	737	775	815
624	662	700	738	776	816
625	663	701	739	777	817
626	664	702	740	778	818
627	665	703	741	779	819
628	666	704	742	780	820
629	667	705	743	781	821
630	668	706	744	782	822
631	669	707	745	783	823
632	670	708	746	784	824
633	671	709	747	785	825
634	672	710	748	786	826
635	673	711	749	787	827
636	674	712	750	788	828
637	675	713	751	789	829
638	676	714	752	790	830

Annex B

Figure 2: Map



Annex B

1. General

- 1.1 The text and tables of Annex B reflect the annex of the applicable Canada/United States arrangement. Table numbering differs from the rest of this document for easier reference to the original text of the arrangement.

2. Limits of Effective Radiated Power and Antenna Height

- 2.1 Effective Radiated Power (ERP) is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.
- 2.2 For base stations in the Protection Zones and Sharing Zones I and III, Table A1 lists the limits of Effective Radiated Power (ERP) corresponding to the Effective Antenna Height (EAH) ranges shown. In this case, Effective Antenna Height is calculated by subtracting the Assumed Average Terrain Elevation given in Table A3 from the Antenna Height Above Mean Sea Level.

Table A1

Effective Antenna Height (EAH)		ERP
Meters	Feet	Watts (Maximum)
0 - 152	0 - 500	500
153 - 305	501 - 1000	125
306 - 457	1001 - 1500	40
458 - 609	1501 - 2000	20
610 - 762	2001 - 2500	10
763 - 914	2501 - 3000	10
915 - 1066	3001 - 3500	6
1067 - 1219	3501 - 4000	5
Above 1219	Above 4000	5

Limits of Effective Radiated Power (ERP) Corresponding to Effective Antenna Heights of Base Stations in the Protection Zones and Sharing Zones I and III.

- 2.3 For base stations in Sharing Zone II, Table A2 lists the limits of Effective Radiated

Power (ERP) corresponding to the Antenna Height Above Mean Sea Level ranges shown.

Table A2

Antenna Height Above Mean Sea Level		ERP Watts (Maximum)
Meters	Feet	
0 - 503	0 - 1650	500
504 - 609	1651 - 2000	350
610 - 762	2001 - 2500	200
763 - 914	2501 - 3000	140
915 -1066	3001 - 3500	100
1067 -1219	3501 - 4000	75
1220 -1371	4001 - 4500	70
1372 -1523	4501 - 5000	65
Above 1523	Above 5000	05

Limits of Effective Radiated Power (ERP) Corresponding to Antenna Heights Above Mean Sea Level of Base Stations in Sharing Zone II.

2.4 Table A3 lists the values of Assumed Average Terrain Elevations (AATE) within the Sharing and Protection Zones on both sides of the United States-Canada border.
where: EAH = (Antenna Height Above Mean Sea Level - AATE)

Table A3

Longitude (Φ) ($^{\circ}$ West)	Latitude (Ω) ($^{\circ}$ North)	Assumed Average Terrain Elevation			
		United States		Canada	
		Feet	Meters	Feet	Meters
$65 \leq \Phi < 69$	$\Omega < 45$	0	0	0	0
$65 \leq \Phi < 69$	$45 \leq \Omega < 46$	300	91	300	91
$65 \leq \Phi < 69$	$\Omega \geq 46$	1000	305	1000	305
$69 \leq \Phi < 73$	all	2000	609	1000	305
$73 \leq \Phi < 74$	all	500	152	500	152
$74 \leq \Phi < 78$	all	250	76	250	76
$78 \leq \Phi < 80$	$\Omega < 43$	250	76	250	76
$78 \leq \Phi < 80$	$\Omega \geq 43$	500	152	500	152
$80 \leq \Phi < 90$	all	600	183	600	183
$90 \leq \Phi < 98$	all	1000	305	1000	305
$98 \leq \Phi < 102$	all	1500	457	1500	457
$102 \leq \Phi < 108$	all	2500	762	2500	762
$108 \leq \Phi < 111$	all	3500	1066	3500	1066
$111 \leq \Phi < 113$	all	4000	1219	3500	1066
$113 \leq \Phi < 114$	all	5000	1524	4000	1219
$114 \leq \Phi < 121.5$	all	3000	914	3000	914
$121.5 \leq \Phi < 127$	all	0	0	0	0
$\Phi \geq 127$	$54 \leq \Omega < 56$	0	0	0	0
$\Phi \geq 127$	$56 \leq \Omega < 58$	500	152	1500	457
$\Phi \geq 127$	$58 \leq \Omega < 60$	0	0	2000	609
$\Phi \geq 127$	$60 \leq \Omega < 62$	4000	1219	2500	762
$\Phi \geq 127$	$62 \leq \Omega < 64$	1600	488	1600	488
$\Phi \geq 127$	$64 \leq \Omega < 66$	1000	305	2000	609
$\Phi \geq 127$	$66 \leq \Omega < 68$	750	228	750	228
$\Phi \geq 127$	$68 \leq \Omega < 69.5$	1500	457	500	152
$\Phi \geq 127$	$\Omega \geq 69.5$	0	0	0	0

Table B

Location	Latitude	Longitude
Akron, Ohio	41° 05' 00" N	81° 30' 40" W
Youngstown, Ohio	41° 05' 57" N	80° 39' 02" W
Syracuse, New York	43° 03' 04" N	76° 09' 14" W
Kitchener-Waterloo, Ont.	43° 27' 30" N	80° 30' 00" W
Peterborough, Ontario	44° 18' 00" N	78° 19' 00" W

Center coordinates of cities in the United States and Canada that for purposes of this agreement shall be considered as falling outside of Sharing Zone I.

Table C1

Effective Antenna Height (EAH)		PFD dBW/m² (Maximum)
Meters	Feet	
0 - 152	0 - 500	-84
153 - 305	501 - 1000	-90
306 - 457	1001 - 1500	-95
458 - 609	1501 - 2000	-98
610 - 762	2001 - 2500	-101
763 - 914	2501 - 3000	-101
915 - 1066	3001 - 3500	-103
1067 - 1219	3501 - 4000	-104
Above - 1219	Above - 4000	-104

Limits of Power Flux Density (PFD) Corresponding to Effective Antenna Heights of Base Stations in Sharing Zones I and III.

Table C2

Antenna Height (AMSL)		PFD dBW/m² (Maximum)
Meters	Feet	
0 - 503	0 - 1650	-87
504 - 609	1651 - 2000	-88.5
610 - 762	2001 - 2500	-91
763 - 914	2501 - 3000	-92.5
915 - 1066	3001 - 3500	-94
1067 - 1219	3501 - 4000	-95
1220 - 1371	4001 - 4500	-95.5
1372 - 1523	4501 - 5000	-96
Above - 1523	Above - 5000	-107

Limits of Power Flux Density (PFD) Corresponding to Antenna Heights Above Mean Sea Level of Base Stations in Sharing Zone II.