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Spectrum Management and Telecommunications

Proposed Revisions to the Frequency Plan for Public Safety in the 700 MHz Band

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Canada 

Department of Industry

Radiocommunication Act

Notice No. SMSE-004-08 - Proposed Revisions to the Frequency Plan for Public Safety in the Band 700 MHz

Intent

The purpose of this notice is to announce the release of the above-mentioned document, which seeks comment on the designation of TV channels 64 and 69 for public safety; revisions to the narrowband public safety frequency plan; and transitional measures that support the migration of systems to the revised band plan.

Background

In the past, the Department consulted on designating the bands 764-776 MHz (TV channels 63 and 64) and 794-806 MHz (TV channels 68 and 69) for public safety applications in the land mobile service (DGTP-004-01). As a result of this consultation, the bands 764-770 MHz (TV channel 63) and 794-800 MHz (TV channel 68) were designated to public safety and the Department indicated that it would consult again on making the same designation in the bands 770-776 MHz (TV channel 64) and 800-806 MHz (TV channel 69).

In August 2007, the Federal Communications Commission (FCC) issued a Second Report and Order (FCC-07-132) to change its public safety frequency plan to accommodate a requirement for broadband systems. Previously, the Canadian and U.S. band plans were aligned and the technical rules governing the equipment characteristics were largely harmonized.

The Department is seeking comment on whether the 700 MHz frequency plan should be changed to align with the new band plan developed by the United States. Should Canada decide to remain harmonized with the United States, the bands 770-776 MHz (TV channel 64) and 800-806 MHz (TV channel 69) will be designated for public safety systems, and the transition from the current band plan to the new band plan will need to be considered.

Submitting Comments

Interested parties are invited to submit [comments](#) on the proposals outlined in the consultation no later than March 21, 2008, in electronic format (WordPerfect, Microsoft Word, Adobe PDF or ASCII TXT) to the following e-mail address: wireless@ic.gc.ca, along with a note specifying the software, version number and operating system used. Written submissions should be addressed to the Director General, Spectrum Engineering Branch, Industry Canada, 1943B, 300 Slater Street, Ottawa, Ontario, K1A 0C8. All submissions should cite the *Canada Gazette*, Part I, publication date, the title, and the notice reference number (SMSE-004-08).

Obtaining Copies

Copies of this notice and documents referred to herein are available electronically on the [Spectrum Management and Telecommunications website](http://ic.gc.ca/spectrum) at: <http://ic.gc.ca/spectrum>.

Official versions of Canada Gazette notices can be viewed on the [Canada Gazette website](http://canadagazette.gc.ca/partI/index-e.html) at: <http://canadagazette.gc.ca/partI/index-e.html>. Printed copies of the notices can be ordered by calling the sales counter of Canadian Government Publishing at (613) 941-5995 or 1 800 635-7943.

January 19, 2008

Robert W. McCaughern
Director General
Spectrum Engineering Branch

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1.0 Introduction

The objective of this paper is to obtain views on the designation of TV channels 64 and 69 for public safety; revision to the narrowband public safety frequency plan; and transitional measures that support moving systems to the revised band plan.

In the past, Industry Canada consulted on designating the bands 764-776 MHz (TV channels 63 and 64) and 794-806 MHz (TV channels 68 and 69) for public safety in the land mobile service. As a result of this consultation, the bands 764-770 MHz (TV channel 63) and 794-800 MHz (TV channel 68) were designated to public safety and the Department indicated that it would consult again in the future on making the same designation in the bands 770-776 MHz (TV channel 64) and 800-806 MHz (TV channel 69).

In August 2007, the Federal Communications Commission (FCC) issued a Second Report and Order (FCC-07-132) to change its public safety frequency plan to accommodate a requirement for broadband systems. Previously, the Canadian and U.S. band plans were aligned and the technical rules governing the equipment characteristics were largely harmonized.

Canada and the United States have adopted a cross-border frequency sharing arrangement for public safety systems in the 700 MHz band, which provides both countries with ready access to this spectrum and identified common mutual aid channels that could facilitate interoperability between public safety agencies in the border areas. The result of these changes means that Canada's current band plan is now completely out of alignment with the United States.

The Department is seeking comment on whether the 700 MHz frequency plan should be changed to align with the new band plan developed by the United States. Secondly, if Canada decides to remain harmonized with the United States, the bands 770-776 MHz (TV channel 64) and 800-806 MHz (TV channel 69) must be designated for public safety, and the transition from the current band plan to the new band plan must be considered.

Industry Canada has recently discussed this matter with several public safety service providers and equipment manufacturers. The following observations can be made from these informal discussions:

1. Harmonization of the 700 MHz band with the United States is critical for radio equipment economies of scale and interoperability.
2. There is an immediate need to continue to deploy narrowband public safety systems.
3. Although broadband public safety systems are an important matter, the accommodation of narrowband systems should take priority, as a number of public safety organizations are making plans to deploy these systems in the 700 MHz band.
4. Deployment under the existing band plan has just begun and the number of existing systems is low; therefore, considering a new band plan is timely.

As a result, the Department has developed proposed options based the above four points. Interested parties are invited to examine this proposal carefully and to provide comments that will help the Department to formulate a way forward on this matter.

2.0 Background

In October 2004, Industry Canada issued a Spectrum Utilization Policy (SP-746 MHz)¹ that made mobile service allocations in the 700 MHz band and designated the bands 764-770 MHz and 794-800 MHz (TV channels 63 and 68 respectively) for public safety. As a result, the Department took measures to clear channels 63 and 68 of TV allotments, thus providing spectrum for immediate licensing of public safety systems. In SP-746 MHz, the Department also indicated the likelihood of identifying the bands 770-776 MHz (TV channel 64) and 800-806 MHz (TV channel 69) for public safety use pending the digital television (DTV) transition of existing television stations. At that time, no date had been set for the transition from analog to digital television.

On June 27, 2005, Industry Canada announced the signing of a new arrangement with the United States for the use of the radio spectrum in the bands 764-776 MHz (TV Channels 63, 64) and 794-806 MHz (TV Channels 68, 69) for public safety systems. This new arrangement, known as Arrangement G², was based on a common channelling plan that identified blocks of frequencies for narrowband and wideband voice and data applications, as well as mutual aid channels and channels for low-power use. This spectrum was harmonized with the United States in order to support interoperability requirements in the border area and to enable public safety users to benefit from radio equipment economies of scale.

In June 2006, the Department issued a Radio Systems Policy (RP-06)³ that set forth the general rules for licensing public safety systems in the 700 MHz spectrum. This document established that the frequencies be licensed on a first-come, first-served basis and that equipment must be capable of using the mutual aid channels under an interoperable standard set by the Department.

Following the release of RP-06, in consultation with the Radio Advisory Board of Canada, the Department developed the technical rules which were published in September 2006 in a Standard Radio System Plan (SRSP-511)⁴. In addition, the equipment certification rules were similarly developed and published in the Radio Standards Specification (RSS-119)⁵. SRSP-511 defined the channelling plan and established the spectrum sharing criteria for narrowband and wideband systems. These technical rules were generally harmonized with the United States.

¹ Spectrum Utilization Policy, SP-746 MHz -“Mobile Service Allocation Decision and Designation of Spectrum for Public Safety in the Frequency Band 746-806 MHz,” Issue 1, October 2004, available at <http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/sf08250e.html>

² Arrangement G “Sharing Arrangement Between the Department of Industry of Canada and the Federal Communications Commission of the United States of America Concerning the Use of the Frequency Bands 764 to 776 MHz and 794 to 806 MHz by the Land Mobile Service along the Canada-United States Border,” available at: <http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/sf05362e.html>

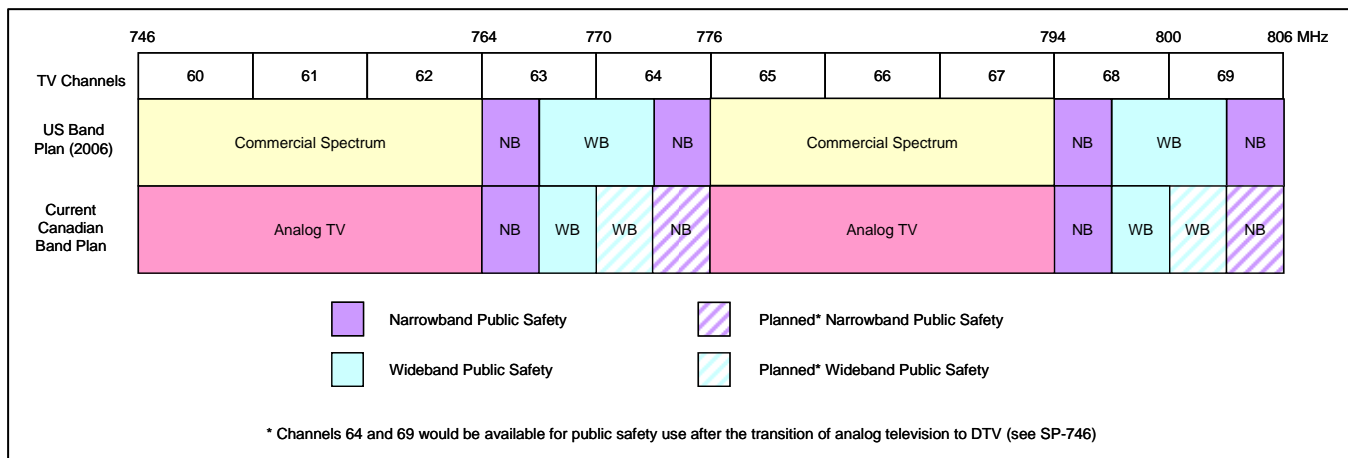
³ Radio Systems Policy, RP-06 -“Policy for the Use of 700 MHz Systems for Public Safety Applications and Other Limited Use of Broadcasting Spectrum,” Issue 1, June 2006, available at <http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/sf08664e.html>

⁴ Standard Radio System Plan, SRSP-511 -“Technical Requirements for Land Mobile Radio Services Operating in the Bands 764-770 MHz and 794-800 MHz,” Issue 1, September 2006, available at <http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/sf08697e.html>

⁵ Radio Standards Specification, RSS-119 -“Land Mobile and Fixed Radio Transmitters and Receivers Operating in the Frequency Range 27.41-960 MHz,” Issue 9, June 2007, available at <http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/sf01063e.html>

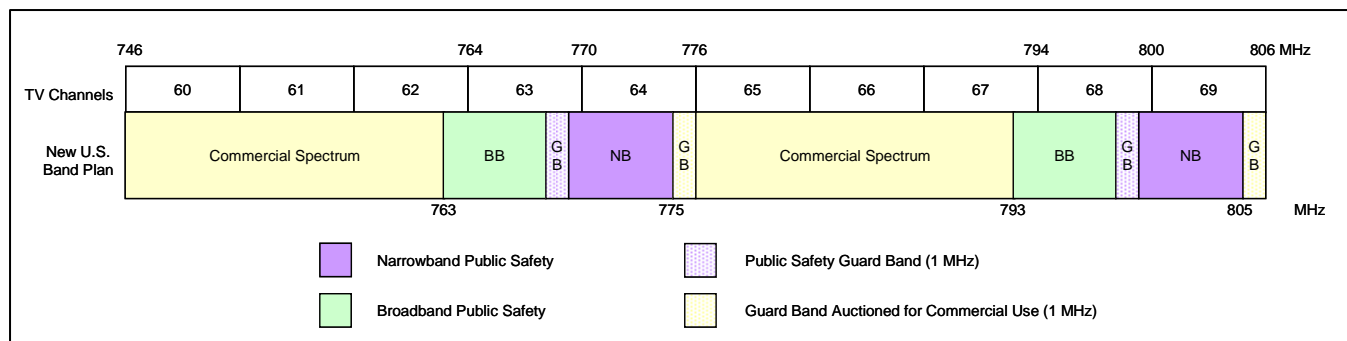
In September 2006, the Department opened the 700 MHz band for licensing public safety systems, see Figure 1. Several public safety organizations expressed interest in using the 700 MHz public safety spectrum for either replacing existing VHF/UHF facilities or adding to capacity in congested areas to current networks in the 800 MHz range where additional spectrum is not available. Consequently, systems are in the early stages of being planned or deployed in the 700 MHz band.

Figure 1 – Upper 700 MHz Band Plan in 2006



After Hurricane Katrina in 2005, the U.S. government decided that there was a clear need for a national public safety network capable of broadband communications. As a result, the United States started to consider restructuring its public safety 700 MHz spectrum to accommodate emerging broadband applications and address the need for improved interoperability at the national level. Throughout late 2006 and until summer 2007, the FCC undertook major consultations to deal with both the commercial and public requirements in the 700 MHz spectrum. In August 2007, the FCC issued a Second Report and Order (FCC-07-132) that restructured the 700 MHz band, which included the following decisions:

1. The identification of 10+10 MHz of spectrum for a national broadband public safety network.
2. The consolidation of the existing narrowband spectrum in upper part of the 700 MHz band and the elimination of the 6+6 MHz of wideband spectrum.
3. The licensing basis to create public/private sector entity to develop and manage the 700 MHz broadband public safety network.

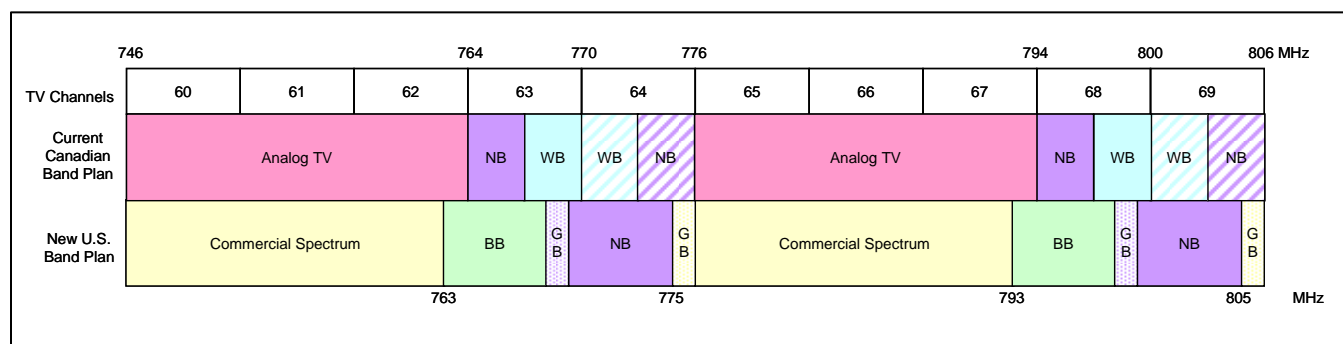


1. Consider restructuring the narrowband spectrum. This would include the issue of future wideband applications.
2. Consider the public safety broadband requirements in Canada and the possibility of identifying spectrum for this use.

3.0 Proposed Designation of the Bands 770-776 MHz and 800-806 MHz for Public Safety and Revisions to the Band Plan

Consequently, the Department has developed a proposal to harmonize the Canadian 700 MHz band plan with the new U.S. plan.

Figure 3 – Comparison of the New U.S. and the Current Canadian Band Plans



Access to TV channels 64 and 69 would be required if Canada were to harmonize our narrowband public safety spectrum with the United States. On May 17, 2007, the CRTC published Broadcasting Public Notice CRTC 2007-53, which adopted August 31, 2011 as the shut-down date for analog television transmission. Consequentially, Industry Canada has assessed the impact of accessing TV channels 64 and 69, and noted the following:

1. Currently, there are seven television stations operating in channels 64 and 69 (see Table A1). There are also four DTV allotments in channel 64 and seven in channel 69 (see Table A2). Southern Ontario is the most affected having four on-air TV stations and three DTV allotments.
2. The stations that currently occupy channels 64 and 69 may be on-air until 2011 and the DTV allotments can be used until 2011.

It is clear that, for most of Canada, channels 64 and 69 could be used immediately for narrowband public safety with no impact on television broadcasting.

In order to achieve harmonization of narrowband public safety systems, the Department proposes the following:

1. In addition to the bands 764-770 MHz (TV channel 63) and 794-800 MHz (TV channel 68), to designate the bands 770-776 MHz (TV channel 64) and 800-806 MHz (TV channel 69) for public safety in the land mobile service.
2. To adopt the band plan as follows in Figure 4 and Figure 5 that accommodates licensing of narrowband systems in the bands 769-775 MHz and 799-805 MHz.

The Department is seeking comments on the above proposals.

Figure 4 – Proposed Canadian Band Plan

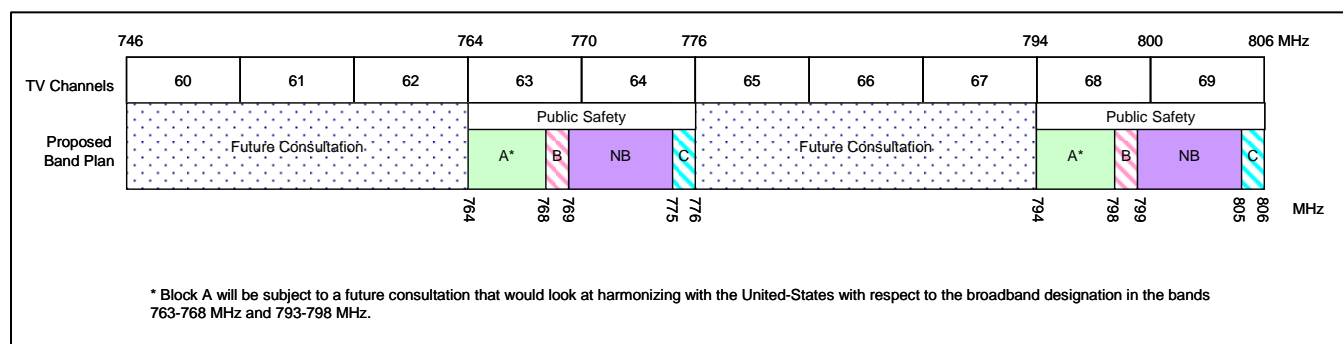
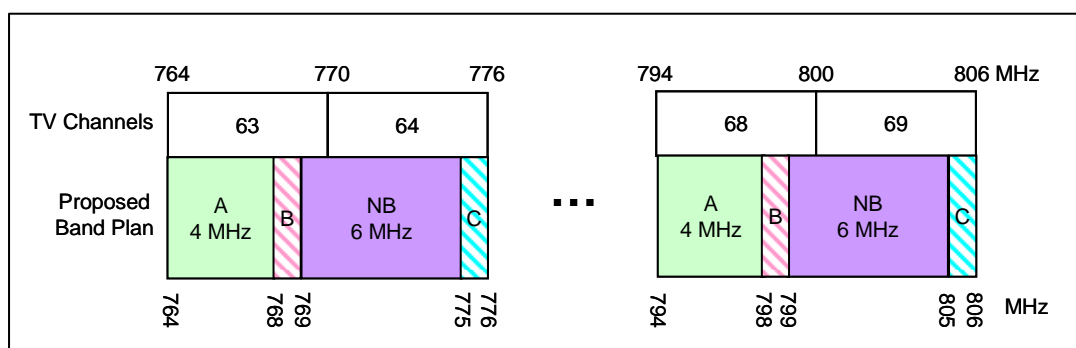


Figure 5 - Proposed Public Safety Spectrum in the 700 MHz Band



Under this proposal, it is possible to maintain the current technical rules for the use of the narrowband channels found in the present SRSP-511. The channelling plan, power levels, protection to television in the adjacent channels, definitions of low power and interoperability channels would not need to be changed. In fact, the first 3+3 MHz (769-772 MHz/799-802 MHz) will have the same channelling structure as is set in SRSP-511 for the bands 764-767 MHz and 794-797 MHz. For the next 3+3 MHz (772-775 MHz/802-805 MHz) the intent would be to implement the channelling that is currently set out in Arrangement G and to apply the same technical requirements that are set out in SRSP-511. The revisions to SRSP-511 will also need to include co-channel protection for television operating on TV channels 64 and 69 from public safety.

It should be noted that Blocks C (775-776 MHz/805-806 MHz) are used in the United States as a guard band to protect public safety from the commercial operations in the adjacent bands and have been auctioned for commercial use with rules to mitigate interference to public safety. Similarly, Blocks B (768-769 MHz/798-799 MHz) are used in the United States as a guard band between narrowband and broadband public safety.

4.0 Proposed Continued Accommodation of Wideband Operations

The current Canadian band plan allows wideband operation in the bands 767-770 MHz and 797-800 MHz. It is the Department's intent to continue allowing limited wideband operation under the proposed band plan (Figure 4 and 5) and the Department proposes the following two options:

Option 1:

Allow aggregation of the narrowband channels in the bands 769-775 MHz and 799-805 MHz.

Option 1 will allow limited wideband operations without having to deal with the issues of interference from the adjacent bands, but this could reduce the number of narrowband channels available. The issues of coexistence with narrowband operations in the same spectrum and spectrum efficiency would need to be addressed.

Option 2:

Allow wideband operations in Blocks B and/or Blocks C as identified in Figures 4 and 5.

Option 2 will allow wideband operations without taking away the much needed narrowband channels. With this option, issues regarding interference from the adjacent bands should be addressed as they will be consulted on in the future.

Comments are requested on continuing to allow wideband operation in the 700 MHz band. If so, which of the two options is best suited to meet the requirements of the public safety community? If option 1 is preferred, what should be done with Blocks B and C? Other options to address this issue are welcome.

5.0 Proposed Transition from the Current Band Plan to the Proposed Band Plan

Some radiocommunication systems, both narrowband and wideband, have already been licensed according to the current band plan in the bands 764-770 MHz and 794-800 MHz. The Department proposes that these radiocommunication systems continue to be deployed as planned and that licensees be given time to transition to the proposed new band plan.

Also, there are some areas where TV channels 64 and 69 are not available and may not be available for public safety radiocommunication systems until after August 2011.

Given that there are several existing public safety radiocommunication systems licensed under the current band plan in the bands 764-770 MHz and 794-800 MHz and in some areas of the country the new spectrum in TV channels 64 and 69 is not available, the Department proposes the following:

1. Existing public safety radiocommunication systems may remain in operation as licensed under the current band plan. However, they will have to be retuned to the new band plan **no later than two years** after the new band plan comes into effect.

2. New public safety radiocommunication systems may continue to be licensed under the current band plan if the spectrum in the new band plan is not available due to television use or DTV allotments in TV channels 64 and 69. However, the public safety licensee will have **up to one year** to move to the new band plan after the television spectrum becomes available.
3. Replacement channels will be held in reserve in the new band plan for these licensees in the lower portion of the band (i.e. 769-772 MHz and 799-802 MHz). The licensing of new radiocommunication systems according to the new band plan will begin at the upper portion of the band (i.e. 772-775 MHz and 802-805 MHz).

Until the new band plan has been finalized, any licensing will be subject to the condition that the equipment be frequency agile in order that it can be retuned to the final band plan.

The Department is seeking comments on the above proposed transition plan.

Issued under the authority
of the Radiocommunication Act

Robert W. McCaughern
Director General
Spectrum Engineering Branch

Annex A

Table A1 - TV Stations On-Air in TV Channels 64 and 69

Channel	Location	Station Call Sign	Notes
64	Fort St. James, BC	CH6499	Low power
69	Spillimacheen, BC	CBUBT-6	
64	Chatham, ON	CBLN-TV-3	
69	London, ON	CFMT-TV-1	
64	Toronto, ON	CFMT-DT(1)	
69	Toronto, ON	CJMT-TV	
64	Wallace, NS	CH2759	Low Power

Table A2 – DTV Allotments in TV Channels 64 and 69

Station Call Sign	Location	NTSC Channel	DTV Allotment
CIVO-TV	Gatineau, QC	30	64
CBLT-8	Kearns, ON	2	64
CFGC-TV-2	North Bay, ON	2	64
CICO-TV-38	Kingston, ON	38	64
CJNT-TV	Montréal, QC	62	69
CBEFT	Windsor, ON	54	69
CICA-TV-6	North Bay, ON	6	69
CKWS-TV	Kingston, ON	11	69
CIHF-TV-2	Saint John, NB	12	69
CBAFT-7	Campbellton, NB	9	69
CBHFT-2	Mulgrave, NS	7	69