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Communications Interoperability Technical Report

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Canadian Public Safety Spectrum Study: Response to Canada Gazette Notice SMSE-004-08

April 2008

Prepared by:

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York Regional Police Service

For the:

**Communications Interoperability Technology Interest Group
Canadian Police Research Centre**

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Canada Gazette Notice SMSE-004-08, Proposed Revisions to the Frequency Plan for Public Safety in the Band 700 MHz.

Response of the Canadian Interoperability Technology Interest Group (CITIG)

The Canadian Interoperability Technology Interest Group is pleased to respond to Canada Gazette Notice SMSE-004, Proposed Revisions to the Frequency Plan for Public Safety in the Band 700 Mhz.

The Canadian Interoperability Technology Interest Group (CITIG) brings together representatives from public safety, industry, academia and government to help shape the direction of research and development activities related to interoperability amongst Canadian public safety providers. It provides a forum where aspects of the five elements of the interoperability continuum governance, standard operating procedures, technology, training & exercise and usage can be understood, designed, tested, negotiated, implemented, trained, exercised, standardized and shared. Launched in April 2007 by the Canadian Police Research Centre (CPRC) in conjunction with the Informatics Committee of the Canadian Association of the Chiefs of Police (CACP), the CITIG has been endorsed by the Canadian Association of Fire Chiefs (CAFC) and EMS Chiefs of Canada (EMSCC) which are active participants in CITIG initiatives and are members of the governance team. The CITIG aims to:

- (i) Address the challenges faced in finding funding for interoperability research;
- (ii) Encourage economies of scale and a more standardized approach to interoperability across the country;

- (iii) Reduce obstacles in bringing interoperability solutions to life (i.e., procurement by providing an arm's length testing ground) and
- (iv) Provide a unique and effective information-sharing forum for the benefit of the broad public safety community.

This response is based upon a study conducted by Planetnetworks Consulting Corporation which was commissioned by York Regional Police via a grant from the CITIG. The objective of the study was to provide an assessment of the:

- 1) Adequacy of the radio spectrum requirements currently available to public safety agencies in Canada; and
- 2) Future radio spectrum needs of Canadian public safety agencies.

Spectrum requirements were considered both from an intra-agency and inter-agency perspective in order to support public safety interoperability objectives. This CITIG funded study specifically included a mandate to analyze the situation brought about by the unilateral changes made to the 700 Mhz Band Plan by the Federal Communications Commission (FCC) in the United States of America for the purpose of conveying to Industry Canada the general concerns of a broad range of Canadian public safety agencies.

A combination of personal interviews and on-line surveys were conducted across a representative subset of public safety groups. The stakeholder requirements were collected through an on-line survey that was distributed to 84 selected participants across a variety of public safety agencies (Law Enforcement, Fire, EMS, Coast Guard, Military, Emergency Management, etc) across Canada to ensure full coverage. In addition to the on-line surveys, phone interviews were conducted with 6 participants and two vendors to benchmark the survey questionnaire. It should be noted that the experiences, concerns and comments voiced by the survey participants were extremely similar. This survey information,

together with in-house data, was used to formulate the recommendations and conclusions.

It is clear that effective and efficient development of the 700 Mhz Public Service Band is critical for public safety in Canada and is particularly important for the enablement of interoperability initiatives both national and international.

Although this Consultation is focused on narrowband and wideband communications, it is important to consider a few over-riding technology developments. First there is a trend to IP. Certainly in the foreseeable future, radio networks will be based on IP and with that, depending on the amount of spectrum allocated, networks will be capable of supporting a wide variety of services including voice or narrowband services. Secondly there is a trend to “open networks” where many different devices will be supported on an IP network and these devices/offers may not be proprietary to the network service provider. Thirdly there is a trend to “broadband networks” and certainly this trend already has attained critical mass on the wired side of the telecom business and will likely be extended in the future to wireless networks.

These three trends provide the foundation for interoperable, multi-service public safety networks in Canada if spectrum planning moves hand-in-hand with inter-agency planning. Given our mandate, we do support the FCC in their attempt to create an environment conducive to interoperability among public safety groups. Furthermore we also support Industry Canada’s move in this consultation to realign the Canadian spectrum to more closely match that of the USA. Certainly the economies of scale that the US market represents, will help accelerate the development / sales of interoperable products to facilitate interoperability in Canada. The sooner that we can move to the new 700 Mhz Band Plan the better.

We do have a few concerns; some of which we recognize may be outside the control of Industry Canada.

- 1) The amount of spectrum allocated for future public safety broadband applications is minimal compared to that in the USA and there is at present no mechanism to enable an organization similar to the Public Safety Spectrum Trust in the U.S.A. We understand that broadband spectrum will be the subject of a future Industry Canada Consultation.
- 2) DTV operators currently in channels 64 and 69 are not scheduled to vacate until August 2011. We strongly recommend that the DTV operators be enabled to vacate the spectrum now and that Industry Canada act quickly to provide the necessary channel allocations. We understand that this issue is also in the jurisdiction of the CRTC and while we ask Industry Canada to take note of this concern, we will formally register our concerns with the CRTC by separate cover.
- 3) Who will pay to relocate those Canadian public safety operators who have already, or are in the final throes of deploying a system, in the existing band plan to the new plan? Certainly this issue needs to be addressed in the Industry Canada decisions.

For ease of reference, this response uses the section numbering system contained in the Consultation Paper.

Section 1.0

The Department highlights a number of observations stemming from informal discussions with service providers and equipment manufacturers. These are:

- 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.

Comments:

In general, we agree with Industry Canada and the harmonization of the public safety band with that of the USA. We also agree that there is an immediate need to deploy narrowband systems immediately as member groups within CITIG have expressed an urgent requirement for narrowband communications. CITIG also supports the 6.25kHz channelization equivalency mandated by the FCC but asks that Industry Canada permits consolidation to allow licenses of 12.5 kHz and 25kHz channels where required to support P25 Phase 2 or legacy equipment.

2.0 Background

The department highlights their decision to take a two-step approach as follows:

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.

Comments: Given the urgency of members' narrowband requirements, we support Industry Canada's two phased approach however, we request that the discussion and definition of broadband band plans is conducted as soon as possible.

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

The Department is proposing the following and is seeking comments on the approach:

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.

Comments: We support the designation of the 770-776 MHz and 800-806 MHz bands for use by public safety agencies for land mobile communications and to realign the Canadian spectrum to more closely match that of the USA. Ideally we encourage Industry Canada to more fully harmonize with the US plan by extending the A Block to include 763-764 MHz and 793-794 Mhz.

2. To adopt the band plan as follows in Figure 4 and Figure 5 that accommodates licensing of the narrowband systems in the bands 769-775 MHz and 799-805 MHz.

Figure 4 – Proposed Canadian Band Plan

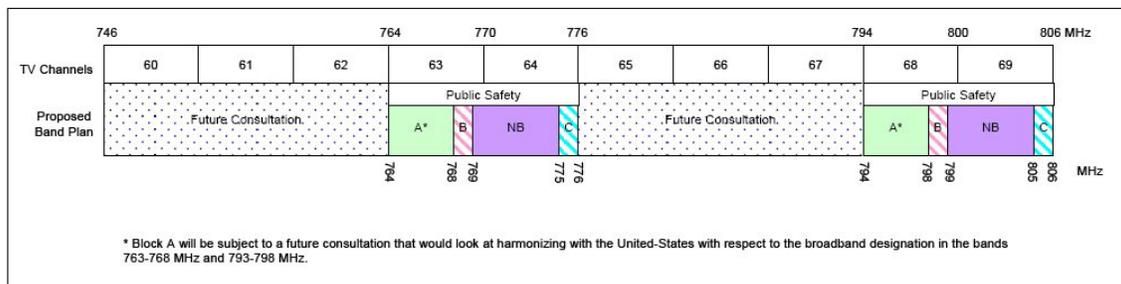
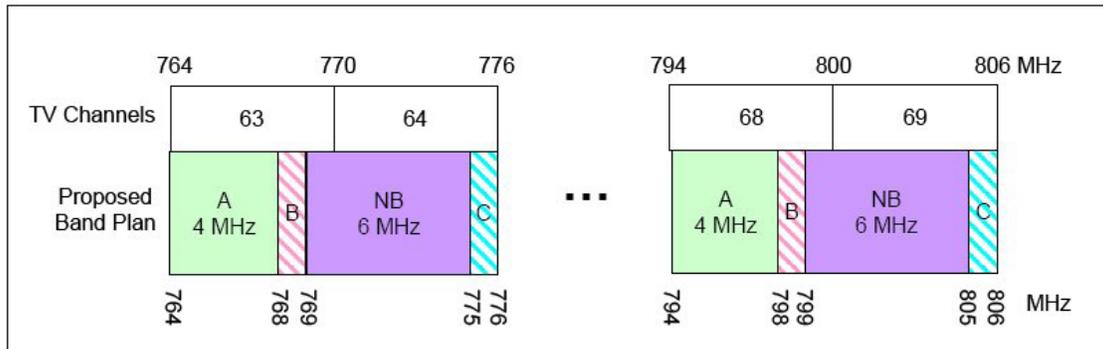


Figure 5 - Proposed Public Safety Spectrum in the 700 MHz Band



Comments: We support and encourage Industry Canada's proposal to allow the immediate use of these bands for public safety where they are currently unused by broadcast stations. We also encourage Industry Canada to make these channels available to public safety well in advance of 2011 relocating existing broadcast stations. The August 31, 2011 date referred to in CRTC Public Notice 2007-53, for the shut-down of analog television stations, significantly impacts the availability of spectrum for public safety, especially in Southern Ontario and it is unclear whether this is a firm date. We encourage Industry Canada to adopt a firm date for the reassignment of radio spectrum regardless of any date proposed by the CRTC. To this end it is crucial that the Department finalize post-transition DTV Allotment Plan as quickly as is possible.

4.0 Proposed Continued Accommodation of Wideband Operations

The Department indicates its intent to continue to allow limited wideband operation under the proposed band plan and proposes for consideration the following options:

Option 1: Allow aggregation of the narrowband channels in the bands 769-775 MHz and 799-805 MHz

Option 2: Allow wideband operations in Blocks B and/or C as identified in Figures 4 and 5.

Comments. Voice communications should take priority in the Narrowband Block. It is requested that licensing of wideband communications in this block only be permitted in regions where it has been determined that channel consolidation will not impact the ability to support public safety voice services.

It is recognized that circumstances may arise where wideband deployments are necessary or desirable, particularly in lower population density areas and a number of public safety agencies may consider such systems. For these situations, operators should be allowed to aggregate narrowband channels into wideband ones in the 769-775 MHz and 799-805 MHz blocks. These systems, however, should be licensed on an exception and only in regions where the channel aggregation will not cause a spectrum shortage for public safety voice deployments.

Option 1: Supported. Wideband systems should, however, be licensed where channel aggregation will not cause a spectrum shortage for public safety voice deployments.

Option 2: We do not support operation of wideband solutions within blocks B and or C in areas where there will be the potential for interference. In areas where there is not expected to be deployment of broadband it would be acceptable.

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

The Department is proposing a number of measures as a means of transition between the current band plan to the proposed band plan. These are:

- 1. Existing public safety radiocommunication systems may remain in operation as licensed under the current band plan. However, they will have to be returned 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 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 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 (772-775 MHz and 802-805 MHz).

Comments: We support the relocation of operators to the new band plan for future interoperability considerations and to take advantage of economies of scale. However, we do not support the Public safety operators having to pay for the relocation. It is important that the DTV allotments be vacated as soon as possible and we strongly urge Industry Canada to make the new channel assignments available as quickly as is possible.

Every effort should be made to minimize transition times and it is also crucial that public safety retuning, which will require considerable resources and the potential for considerable risk, be kept to a minimum.