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Spectrum Management and Telecommunications

# **Consultation on a Policy, Technical and Licensing Framework for Use of the Public Safety Broadband Spectrum in the Bands 758-763 MHz and 788-793 MHz (D Block) and 763-768 MHz and 793-798 MHz (PSBB Block)**

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## 1. Intent

1. Subsequent to the release in March 2012 of the document entitled SMSE-002-12, *Policy and Technical Framework: Mobile Broadband Services (MBS) — 700 MHz Band, Broadband Radio Service (BRS) — 2500 MHz Band*,<sup>1</sup> Industry Canada is now initiating a policy consultation on a framework for the bands 758-763 MHz and 788-793 MHz (hereinafter referred to as the D block). Comments are being sought specifically on the designation of use for the D block.

2. Industry Canada is also consulting on some preliminary technical and licensing issues for the bands 763-768 MHz and 793-798 MHz, hereinafter referred to as the Public Safety Broadband (PSBB) block, which has already been designated for public safety broadband use. If the D block is designated for public safety broadband use, the technical and licensing framework will apply to it as well.

3. A follow-up consultation to this paper will be initiated to establish the details of the technical and licensing framework for all 700 MHz spectrum that is designated for public safety broadband use.

## 2. Policy Objectives

4. The Minister of Industry, through the *Department of Industry Act*, the *Radiocommunication Act* and the *Radiocommunication Regulations*, with due regard to the objectives of the *Telecommunications Act*, is responsible for spectrum management in Canada. This responsibility includes developing national policies and goals for spectrum utilization and ensuring effective management of the radio frequency spectrum resource.

5. In developing a policy and licensing framework to make additional spectrum available, Industry Canada takes into consideration the need to provide spectrum access for new services and technologies, including broadband; the impact of such a framework on all stakeholders; and the *Spectrum Policy Framework for Canada* (SPFC). The SPFC objective is to maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum. As well, one of its enabling guidelines stipulates that spectrum should be made available to support Canadian sovereignty, security and public safety needs.

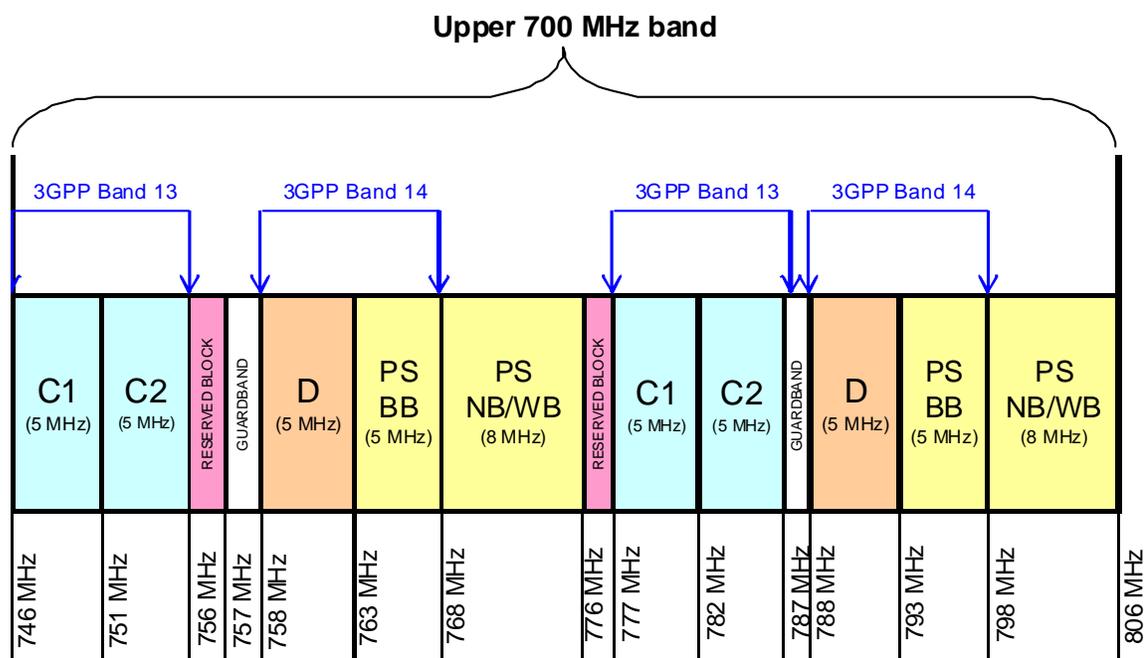
## 3. Background

6. In SMSE-002-12, Industry Canada announced that it would consult further on the future use of the D block, along with general considerations and licensing approaches for public safety broadband spectrum in the 700 MHz band.

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<sup>1</sup> For details, see *Canada Gazette* Notice No. SMSE-002-12, *Policy and Technical Framework: Mobile Broadband Services (MBS) — 700 MHz Band, Broadband Radio Service (BRS) — 2500 MHz Band*, at <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10121.html>.

7. The SMSE-002-12 policy document announced the following two decisions with regard to the 700 MHz public safety spectrum: the designation of the PSBB block for public safety broadband use and a further consultation on the use of the D block. The PSBB block and D block are shown in Figure 1.



**Figure 1 — Canadian Band Plan in the Band 746–806 MHz**

8. These decisions took into account comments submitted in response to *Canada Gazette* Notice No. SMSE-018-10, *Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum*<sup>2</sup> (hereinafter referred to as the 700 MHz consultation) in November 2010. Several respondents had suggested that Industry Canada consult further on the future use of the D block once the United States made a decision on its use. The U.S. decision was announced on February 22, 2012, when the United States enacted Bill H.R. 3630,<sup>3</sup> which contains provisions to designate the D block for public safety broadband use.

9. This consultation will enable Industry Canada to decide on the use of the D block and to select a licensing approach for the 700 MHz spectrum designated for public safety broadband use. In addition, it will initiate discussion on some key issues related to this spectrum.

10. Respondents should consider the interrelated nature of all the issues addressed in this consultation paper when they respond to questions in the following sections.

<sup>2</sup> For details, see *Canada Gazette* Notice No. SMSE-018-10, *Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum*, at <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09947.html>.

<sup>3</sup> Bill H.R. 3630, *Middle Class Tax Relief and Job Creation Act of 2012*. For further details, see <http://www.gpo.gov/fdsys/pkg/BILLS-112hr3630enr/pdf/BILLS-112hr3630enr.pdf>.

## Part A — Policy and Technical Framework for Use of the D Block

### 4. Designation of Use for the D Block

11. In the 700 MHz consultation, Industry Canada considered whether to designate the D block for public safety broadband use, or for commercial use with possible provisions for priority access for public safety systems.
12. The responses to the 700 MHz consultation paper were varied with regard to the use of the D block. Respondents from public safety organizations, Public Safety Canada, and provincial and territorial governments unanimously recommended that the D block be designated for public safety use. This recommendation was also supported by the Federation of Canadian Municipalities, la Ville de Québec, the City of Calgary, the Canadian Advanced Technology Alliance, the Utilities Telecom Council of Canada, Motorola Canada Limited and Harris Canada Systems Inc. Conversely, most small commercial wireless service providers were of the view that the D block should be auctioned for commercial use without any obligation to provide broadband service to public safety. Of the major national and regional commercial wireless service providers, only Saskatchewan Telecommunications (SaskTel) supported a public safety designation. Bell, TELUS, Rogers, MTS Allstream and several other respondents recommended that Industry Canada wait for the U.S. decision on the use of the D block before initiating a further consultation on whether to designate the D block for public safety broadband.
13. The vast majority of respondents to the 700 MHz consultation rejected the option of designating spectrum for commercial use with obligations to serve public safety. Commercial service providers were generally of the view that if spectrum was designated for commercial use, they should be left to reach suitable arrangements with public safety organizations without regulatory intervention. The public safety community argued that commercial systems cannot respond with immediacy to its needs and that commercial networks are not designed to meet its mission-critical requirements. The public safety community also pointed out that commercial networks tend to be unavailable when public safety users require them most.
14. Industry Canada is thus considering two options with respect to the designation of the D block in Canada: to designate the D block for public safety use or to designate the D block for commercial use. In addition, the possibility of allowing some commercial use of the 700 MHz spectrum designated for public safety broadband use is discussed in Section 6.
15. Since the U.S. auction and licensing of the 700 MHz broadband spectrum, U.S. operators in the 700 MHz band have announced plans to deploy, or have started deploying, systems based on 3rd Generation Partnership Project (3GPP)<sup>4</sup> and proprietary standards. The 3GPP has defined and developed requirements for various spectrum bands, including Band 14, which consists of both the PSBB block and the D block (see Figure 1). With the entire 3GPP Band 14 now designated for public safety broadband use in the United States, the equipment market is currently and is expected to continue to be specialized for public safety. Therefore, although designating the D block for commercial use would

<sup>4</sup> See 3rd Generation Partnership Project (3GPP) TS 36.104 v9.4.0 (2010-06): 3GPP Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception (Release 9) at [http://www.etsi.org/deliver/etsi\\_ts/136100\\_136199/136104/09.04.00\\_60/ts\\_136104v090400p.pdf](http://www.etsi.org/deliver/etsi_ts/136100_136199/136104/09.04.00_60/ts_136104v090400p.pdf).

provide another 5 + 5 MHz block of 700 MHz spectrum for such use, it is unlikely that consumer devices, such as tablets and smart phones, would be available for the D block in Canada.

16. Should the D block be designated for commercial use, its licensing would be the same as for other commercial spectrum and would not include any obligations to serve public safety. Industry Canada would launch a consultation to seek comments on the appropriate auction format and rules (including opening bids) and on the applicable conditions of licence (term, deployment requirements, etc.). As with other auctioned spectrum, the payment of auction bids would be in lieu of fees for the duration of the initial licence term. Should the D block be designated for commercial use, it would not be included in the 700 MHz mobile broadband services auction scheduled for 2013, but would be auctioned in a subsequent process.

17. On the other hand, the public safety community has argued that designating the D block for public safety broadband use presents several advantages. This option would align the Canadian and U.S. broadband public safety spectrum in the 700 MHz band, facilitating economies of scale, interoperability and frequency coordination along the Canada–United States border. The public safety community has iterated on numerous occasions that its requirements are different than those of a commercial system. For example, it has indicated that there is a need for a higher level of service at the cell edges to ensure sufficient coverage and capacity should an incident or an emergency take place near a cell edge. In addition, the public safety community has argued that 20 MHz of 700 MHz spectrum would be required in order to deploy a robust public safety broadband network across Canada and meet the growing demand for mobile data communications.

18. Industry Canada is responsible for maximizing the social and economic benefits that Canadians derive from the use of the spectrum. The public safety community will benefit from the 700 MHz spectrum designated for public safety broadband use only if the spectrum is put into use in a timely manner. Moreover, any spectrum licence, irrespective of the designation of use for that spectrum, is subject to licence fees and conditions. The 700 MHz spectrum designated for public safety broadband use will therefore be subject to licence fees and deployment conditions, which will provide incentives for the public safety community to put its spectrum to use.

19. Taking into account the discussion and considerations raised above, Industry Canada is proposing to designate the D block for public safety broadband use.

- A-1 Comments are being sought on Industry Canada’s proposal to designate the D block (758-763 MHz and 788-793 MHz) for public safety broadband use.**
- A-2 Comments are being sought on Industry Canada’s assumptions concerning the commercial equipment availability for the D block (i.e. that consumer devices will not be readily available).**
- A-3 As stated above, responses to the 700 MHz consultation indicated that there was no support for the option of designating spectrum for commercial use with obligations to serve public safety. Does this view still apply for the D block?**
- Provide supporting rationale for responses to the above questions.**

20. For the time being, no comments are being sought on fees or on deployment conditions, given that these two issues will be addressed in detail in a future consultation.

## **Part B — Use of the 700 MHz Spectrum Designated for Public Safety Broadband**

21. Part B addresses key issues of relevance to spectrum designated for public safety broadband use. These issues currently apply to the PSBB block and will apply to the D block if, as a result of this consultation, Industry Canada decides to also designate the D block for public safety broadband use.

### **5. Access to the Spectrum Designated for Public Safety (Categories of Users)**

22. Radio Systems Policy RP-25, *Policy Principles for Public Safety Radio Interoperability*, defines the following categories of users or agencies that may be eligible for access to spectrum designated for public safety:

Category 1 — police, fire and emergency medical services;

Category 2 — forestry, public works, public transit, hazardous material clean-up, border protection and other agencies contributing to public safety; and

Category 3 — other government agencies and certain non-governmental organizations or entities.

23. Currently, in the 700 MHz and 800 MHz bands,<sup>5</sup> the spectrum designated for public safety narrowband use can be accessed by Category 1 and Category 2 users as long as Category 1 users are the main users of the system. Category 3 users (e.g. hydro and gas utilities) are allowed on these systems only during emergencies, and their access is controlled by the main users of those systems.

<sup>5</sup> See Section 5.1.1 of 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*, at <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf00050.html> and Section 4.4 of SRSP-511, *Technical Requirements for Land Mobile Radio Services Operating in the Bands 768-776 MHz and 798-806 MHz*, at <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09861.html>.

24. On the other hand, in the 4.9 GHz band,<sup>6</sup> the spectrum designated for public safety mobile broadband can be accessed by an entity exclusively serving Category 1 agencies or by an entity also serving Category 2 and Category 3 users as long as it does not hinder the development and use of systems dedicated to the higher priority categories.

25. Industry Canada's current practice is to consult on the categories of users or agencies that may be eligible to access the spectrum and on their respective priority of use whenever new spectrum is designated for public safety use.

26. In response to the 700 MHz consultation, the public safety community indicated that the user base needs to be as broad as possible in order to maximize the use of the spectrum and to ensure the financial viability of the national network. Its view is that in addition to local, provincial and federal first responders, the user base should include all agencies that help to provide a coordinated response to any emergency or disaster. The Canadian Association of Community Television Users and Stations, the Canadian Media Guild and the Public Interest Advocacy Centre all indicated that spectrum should be set aside for public, non-commercial use, which could include, but should not be limited to, public safety use. The Canadian Electricity Association and the Utilities Telecom Council of Canada also indicated that they would like to be allowed to use and support the deployment of the public safety broadband network.

27. In March 2012, the PSBB block was designated for public safety broadband use in order to meet the first responders' spectrum broadband needs. As indicated in Section 4, Industry Canada also proposes to designate the D block for such use. Thus, it is expected that first responders, or Category 1 users, will have full access to the 700 MHz public safety broadband network on a day-to-day basis. It is recognized that allowing access to a broader scope of users on the 700 MHz public safety broadband network could enable a timelier deployment of the network. Consequently, Industry Canada is consulting on who should have access to the network and under what circumstances.

**B-1 Under what circumstances should Category 2 users have access to the 700 MHz public safety broadband network (e.g. for day-to-day operations, only in emergencies)?**

**B-2 In the context of the 700 MHz public safety broadband network, which entities/organizations should be covered under Category 3?**

**B-3 Under what circumstances should Category 3 users have access to that network (e.g. for day-to-day operations, only in emergencies)?**

**Provide supporting rationale for responses to the above questions.**

<sup>6</sup> See SP 4940 MHz, *Spectrum Utilization Policy, Technical and Licensing Requirements for Broadband Public Safety in the Band 4940-4990 MHz*, at <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08667.html>.

## **6. Commercial Use of Spectrum in the 700 MHz Band Designated for Public Safety**

28. The demand on a public safety broadband network is expected to vary, depending on the time of day and on the geographical location of stations and devices. Also, demand is likely to be higher in urban areas than in rural areas. Consequently, at certain times and in some areas, the public safety network is expected to have unused capacity.

29. In the past, it has been Industry Canada's standard practice to limit the access to spectrum designated for public safety use to the three categories described in Section 5. Although access to this spectrum was granted to very specific categories of users, it did not preclude public safety agencies from partnering with commercial operators to deploy, operate or maintain their networks.

30. In response to the 700 MHz consultation, some respondents suggested sharing public safety spectrum with commercial service providers under various scenarios. In particular, *CATAAlliance* described a "public safety oriented commercial" system in which an entity (public, private, or a mix of the two) would offer services on a subscription basis to public safety agencies. In its description, *CATAAlliance* explained that system management would be provided through a public-private partnership, whereas operational access would be under the control of provincial and national public safety agencies and first responders' organizations. Finally, it indicated that this type of system would make it possible to offer secondary access to other public organizations or businesses.

31. The primary use of the 700 MHz public safety broadband network will be public safety use. However, like any other network, there will be times when there is some unused capacity. Recognizing that allowing commercial use of any unused capacity of the 700 MHz public safety broadband network could benefit both the public safety community and commercial users, thus improving spectrum efficiency, Industry Canada is seeking comments on whether or not to allow such use.

**B-4 Should Industry Canada permit any commercial use of unused capacity in the 700 MHz spectrum designated for public safety broadband?**

**If so:**

**B-5 Whose needs must be met before 700 MHz spectrum designated for public safety broadband can be used for commercial services?**

**B-6 Should commercial services, i.e. services with purposes other than protection of life and property, be restricted to users that fall under the public safety categories described in Section 5?**

**B-7 Should the licensee or licensees be permitted to provide commercial services directly to the public?**

**B-8 Should the licensee or licensees be permitted to wholesale unused capacity to a commercial operator?**

**B-9 Should there be other limits to any commercial use (e.g. should such use be limited to particular amounts of time and throughput, or to specific geographic areas)?**

**Provide supporting rationale for responses to the above questions.**

## **7. Priority Access and Pre-emption**

32. In the context described in Section 6, in which the capacity could also be used for commercial services, priority access can be defined as a system capability that enables calls or data sessions with higher priority to be placed at the front of the traffic management queue for system resources. Various levels of priority can be established. In the event of congestion, the call or data session with the highest priority level must wait until radio system resources are freed, after which it is the first to be serviced while other, lower priority requests, even if placed earlier, continue to wait in the queue. Alternatively, the throughput of the lower priority sessions are reduced to free up resources and enable the higher priority session to go through.

33. Pre-emption, on the other hand, allows a higher priority call or data session to displace lower priority calls or data sessions. When congestion occurs, the system either terminates other lower priority calls or data sessions, or reduces their throughputs, freeing radio system resources immediately in order to service the higher priority request.

34. In the 700 MHz consultation, Industry Canada sought comments on priority access and pre-emption. The public safety community unanimously indicated that in times of emergency or disaster, first responders cannot depend on commercial carriers to make spectrum allocation decisions on its behalf. The public safety community also noted that priority access and pre-emption are difficult to implement, as they conflict with the business objective of commercial operators. Other respondents who commented on this issue indicated that (1) implementing priority access and pre-emption was feasible (Mobicity, Niagara Networks, Public Mobile and SSI Micro); (2) implementing priority access and pre-emption was feasible but should not be mandated (Bell, British Columbia Broadband Association and Globalive); or (3) it would be best for the public safety community to hold the licence for the spectrum without any commercial use (Daniels Electronics, Harris and TELUS).

**If Industry Canada decides to allow some commercial use in the 700 MHz spectrum designated for public safety broadband use, then:**

**B-10 Which mechanism or mechanisms (e.g. priority access, pre-emption, or others), if any, would have to be in place to ensure that the public safety community's communications requirements are met?**

**B-11 Should Industry Canada mandate such a mechanism or mechanisms?**

**Provide supporting rationale for responses to the above questions.**

## 8. Radio Interoperability

35. In June 2009, Industry Canada published Radio Systems Policy RP-25, *Policy Principles for Public Safety Radio Interoperability*, which describes radio interoperability as “the capability of a public safety agency to communicate by radio (either directly or via a network) with another public safety agency, on demand (planned and unplanned) and in real time.” RP-25 also discusses two characteristics of radio interoperability, multi-jurisdictional interoperability (domestic and international levels) and multidisciplinary interoperability, and identifies the following five means to facilitate radio interoperability: exchanging (swapping) radios; using gateways between independent systems; sharing channels; sharing proprietary systems; and sharing standards-based systems.

36. In RP-25, Industry Canada also indicated that it will establish, through future public consultation, specific radio interoperability requirements for the spectrum to be designated or made available for public safety.

37. Respondents to the 700 MHz consultation who provided comments on radio interoperability indicated that radio interoperability among first responders and other public safety agencies (both across Canada and with the United States) was critical not only during emergencies and disasters, but also during day-to-day operations. They stated that incidents requiring a response from more than one discipline were becoming more frequent, and that radio interoperability among various public safety agencies is currently difficult to achieve because of the use of different frequency bands and technologies. They also pointed out that in the past, the lack of interoperable communications led to inefficiencies and increased danger for the public and for public safety responders. Finally, they emphasized that the 700 MHz spectrum provides a unique opportunity to address and eliminate many challenges to achieving radio interoperability.

38. Recognizing that common spectrum for public safety systems is one of several means to facilitate radio interoperability, Industry Canada announced its decision to designate the PSBB block for public safety broadband use in March 2012. In addition to facilitating radio interoperability at the domestic level, this decision harmonizes the use of the PSBB block between Canada and the United States, which allows for cross-border interoperability.

39. Common spectrum alone will not ensure that public safety networks and devices are interoperable. The issue of radio interoperability can also be addressed through other technological means, including open equipment standards, sharing channels and the use of gateways between independent systems.

40. For example, in the bands 768-776 MHz and 798-806 MHz,<sup>7</sup> within the spectrum designated for public safety narrowband and wideband use, specific channels were identified for use by organizations in both Canada and the United States on a shared basis for the purpose of radio interoperability. In these bands, mobile and portable transmitters must be capable of operating on all the designated nationwide interoperability channels and must conform to certain Project 25 technical standards in order to be certified.

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<sup>7</sup> See SRSP-511, *Technical Requirements for Land Mobile Radio Services Operating in the Bands 768-776 MHz and 798-806 MHz*, at [http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/srsp511.pdf/\\$FILE/srsp511.pdf](http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/srsp511.pdf/$FILE/srsp511.pdf).

41. To further enable radio interoperability for the 700 MHz public safety broadband spectrum in the United States, the Federal Communications Commission (FCC) mandated the use of the Long Term Evolution (LTE) technology under Release 8 of the 3GPP standards.<sup>8</sup> This is one measure that Industry Canada could consider. However, this measure must be carefully weighed to take into account its technical, operational and financial consequences.

**B-12 Which technical measure or measures, if any, should Industry Canada consider mandating to address radio interoperability requirements?**

**B-13 Should Industry Canada mandate a specific technology? If so, under which standard or standards?**

**Provide supporting rationale for responses to the above questions.**

### **Part C — Licensing Options for the 700 MHz Spectrum Designated for Public Safety Broadband Use (PSBB block and D block)**

42. Part C discusses licensing options and eligibility criteria to hold a licence for spectrum designated for public safety use. These licensing options and eligibility criteria would apply to the D block if it is designated for public safety use, and to the PSBB block, which has already been designated for public safety use.

43. For mobile broadband spectrum, Industry Canada typically assigns spectrum licences. Spectrum licences are for a specific frequency block covering a specified area. It is likely that Industry Canada will issue spectrum licences for the 700 MHz broadband spectrum designated for public safety use. The *Radiocommunication Act*<sup>9</sup> sets out the requirement to hold a licence. Subsection 4(1) states that “No person shall, except under and in accordance with a radio authorization, install, operate or possess radio apparatus ...” In other words, entities that own (possess) and/or operate (control the day-to-day operations of) a radio apparatus (e.g. a radio access network) are required to hold a licence (radio authorization).

44. The designation of use and factors such as the governance structure, operation of the network and commercial use of spectrum designated for public safety will affect which entity is required to hold the licence or licences. These factors could be equally influenced by the manner in which the spectrum is licensed. The following sections provide more detail on these factors and their implications for the licensing model.

<sup>8</sup> For details, see the Federal Communications Commission’s FCC No. 11-6, *Third Report and Order*, paragraph 9, at <http://www.alaskalandmobileradio.org/FCC%20OEC/NPRM%20012511%20FCC-11-6A1.pdf>.

<sup>9</sup> For details, see the *Radiocommunication Act* at <http://laws-lois.justice.gc.ca/eng/acts/R-2/index.html>.

## 9. Licensing of 700 MHz Spectrum Designated for Public Safety Broadband Use

45. Where the 700 MHz spectrum is designated for public safety use (the PSBB block and potentially the D block), spectrum licence or licences could be assigned directly to an eligible public safety network entity, or assigned via auction, with obligations to serve public safety.

### 9.1 Assigned Directly to a Public Safety Network Entity

46. With this option, the licence could be assigned directly to one or more eligible public safety network entities (PSNEs), which represent the broadband public safety network users. Various licensing options are available; however, the requirements of the *Radiocommunication Act* must be met — namely, that the entity that owns and/or operates the radio apparatus, i.e. radio access network, and controls its day-to-day operations must be licensed. A PSNE can be a corporation, partnership, or governmental agency<sup>10</sup> acting as the decision-making body with the authority over the deployment, operations and maintenance of the 700 MHz public safety broadband network.

47. If a commercial service provider operates the radio access network on behalf of a PSNE, the operator may be required to hold a subordinate licence, depending on the level of control that it has over the network operations. A PSNE may use a process within its authority (such as a Request for Proposals) to select that commercial service provider, and Industry Canada would not be involved in that selection process. Once Industry Canada has determined that the PSNE is both required and eligible to hold a licence or licences under the *Radiocommunication Act* and *Radiocommunication Regulations*, a subordinate licence or licences would then be issued to the operator. This scenario could allow an operator with existing infrastructure to leverage it, thus reducing the public safety network deployment costs.

48. This licensing approach allows an eligible PSNE to decide how best to deploy the network (either on its own or through one or more commercial service providers). This licensing approach also allows a PSNE more flexibility and autonomy in developing its requirements and specifications, and it provides the PSNE with full responsibility to manage any contracts and service level agreements.

49. Industry Canada's authority to set spectrum licence fees is pursuant to the powers granted to the Minister of Industry in section 19 of the *Department of Industry Act*. If licences for the PSBB block and the D block are not assigned via an auction, they would be subject to fees. Industry Canada's approach is to charge licence fees that are reflective of some measure of market value in order to promote efficiency and to provide a fair return to the public for the use of this scarce resource. If the licence is assigned directly to one or more PSNEs, Industry Canada will consult at a later date on proposed fees which would factor in the value of the permitted uses of the spectrum.

50. Spectrum licences also typically include deployment requirements, such as coverage to a percentage of the population within a specific time frame, to encourage the timely use of the spectrum. It is expected that spectrum licences assigned directly to a PSNE would be subject to deployment requirements. These requirements would be the responsibility of the primary licence holder. A separate

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<sup>10</sup> See sections 9 and 10 of the *Radiocommunication Regulations* at <http://laws-lois.justice.gc.ca/eng/regulations/SOR-96-484/>.

consultation, to be conducted at a later date, would address these requirements as well as other applicable conditions of licence.

51. If Industry Canada assigns licences directly to one or more eligible PSNEs, the public safety community benefits in terms of its autonomy and flexibility in establishing its requirements for spectrum designated for public safety use in the 700 MHz band. Section 10 provides details on eligibility.

## **9.2 Assigned via Auction with Obligation to Serve Public Safety**

52. Although there are clear benefits to assigning the licence or licences directly to one or more eligible PSNEs, another licensing mechanism, is via auction (discussed below).

53. With this option, the licences could be assigned via auction, with obligations to serve the public safety community. Any organization or individual that meets the requirements of a carrier under the *Radiocommunication Act*<sup>11</sup> would be eligible to bid on the spectrum. The obligations to serve public safety could include requirements with respect to coverage, quality of service, reliability, etc.

54. If Industry Canada decides to allow commercial use of unused capacity, there may be more interest from operators seeking access to spectrum to support their commercial operations. This would increase the demand making this licensing approach more viable.

55. In the United States, the FCC originally auctioned the D block with the obligation to build and operate the broadband public safety network in the PSBB block while allowing public safety users to use the D block in times of emergency. However, the licences were not sold. Many factors may have contributed to this outcome,<sup>12</sup> namely:

- stringent requirements with respect to coverage and quality of service;
- high default penalty if the auction winner failed to conclude a Network Sharing Agreement with public safety users;
- uncertainty with respect to the financial aspects of the Network Sharing Agreement;
- uncertainty with respect to the negotiation framework with the newly established Public Safety Spectrum Trust;
- risk to the commercial operator due to a lack of obligations or guarantees that the public safety users would subscribe to the service; and
- failure to receive a bid in excess of the reserve bid amount, which was set higher than the opening bid.

56. Although the option that Industry Canada is describing could differ from the U.S. auction, the factors listed above could hamper the auctioning of the 700 MHz broadband public safety spectrum in Canada.

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<sup>11</sup> For details on carrier's requirements, see the *Radiocommunication Act* at <http://laws-lois.justice.gc.ca/eng/acts/R-2/index.html>.

<sup>12</sup> For details, see the April 25, 2008, FCC Office of Inspector General's report on the D Block Investigation at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-281791A1.doc](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-281791A1.doc).

57. The specific obligations to serve public safety are very complex to establish and must be well defined before the auction. A delicate balance exists between setting the requirements for a robust network while maintaining a viable business case. In addition, the requirements must be clearly defined, while providing sufficient flexibility to allow for evolution over time.

58. The above-mentioned obligations would be implemented through conditions of licence,<sup>13</sup> which are set as part of the licensing process and generally do not change significantly during the licence term. Changes are usually preceded by a consultation process. To date, detailed performance requirements have not been included as conditions of licence. Definition and enforcement of service level agreements between the service provider and the PSNE through conditions of licence are expected to be challenging, as the reaction time to apply changes may not be practical.

59. In addition to the requirement to provide a clearly stated level of service to public safety, typical spectrum licence conditions would also apply and would likely include deployment requirements. The conditions of licence would be the subject of a separate consultation. Compliance with conditions of licence would be the responsibility of the licence holder — in this case, the auction winner.

60. Given the experience in the United States, the complexity of establishing clear yet flexible requirements, and the lengthy process required to make changes to conditions of licence, Industry Canada is not recommending an auction as the licensing mechanism for spectrum designated for public safety use.

### **9.3 Proposal**

61. As a result of the discussion in sections 9.1 and 9.2, for spectrum designated for public safety use in the 700 MHz band, Industry Canada proposes to assign licences directly to one or more eligible PSNEs.

**C-1 Comments are being sought on Industry Canada’s proposal to assign the 700 MHz broadband public safety licences (the PSBB block and potentially the D block) directly to one or more PSNEs, rather than via an auction with obligation to serve public safety.**

**C-2 If capacity for commercial use were allowed, would this change the response to Question C-1?**

**C-3 If assigned via auction, given the U.S. experience with the auction of the D block, what considerations are critical to increase the likelihood of timely deployment of a public safety network?**

**Provide a supporting rationale for responses to the above questions, as well as any other considerations.**

<sup>13</sup> Subject to further consultation.

## 10. Eligibility

62. In their comments on the 700 MHz consultation, some members of the Canadian public safety community indicated that they envision a national broadband public safety network, which would be composed of individual systems that are interconnected to form a larger national system. The public safety community members also indicated that they foresee a national governance structure to ensure interoperability through open standards and common user requirements, whereas municipal, regional and provincial organizations would be responsible for the build-out, operation and maintenance of their respective individual systems.

63. From the comments to the 700 MHz consultation, as well as from discussions that have taken place in various public safety forums, it is likely that the governance model of the 700 MHz public safety broadband network would fall under a two-tiered national and regional structure. It is the responsibility of the public safety community to finalize its plan for a governance structure.

64. For public safety's traditional narrowband voice systems, the licensing mechanism used is a first-come, first-served process. This mechanism is practical given that there are many narrowband channels available, and multiple public safety agencies can therefore be assigned distinct and/or shared channels in the same geographic area. Industry Canada assesses the eligibility of the applicant based on categories of users permitted, which is set out in the policy and/or standard for the band in question.

65. However, for broadband use, it is proposed that a large single block of spectrum be shared among the entire public safety community. Therefore, a PSNE, which represents the broadband public safety network users, could manage the access to that network, based on the eligibility criteria established. For example, Industry Canada could either issue a single licence to a national PSNE or issue multiple licences to a definitive list of eligible PSNEs with the endorsement from the public safety community.

66. Industry Canada is consulting on the PSNEs that would be eligible to hold a licence for the PSBB block and possibly the D Block.

**C-4 Based on the proposal in Section 9.3, should Industry Canada assign a single licence to a national PSNE or multiple licences to provincial, territorial and/or regional (e.g. multiple provinces) PSNEs?**

**C-5 Which criteria should be used to assess whether a PSNE is eligible to hold a licence?**

**(A) Should the PSNE be required to represent the permitted categories of users, taking into consideration that the categories include municipal, provincial, territorial and national agencies? (See Section 5 for discussion on categories of users.) Specifically, should the PSNE represent:**

- Category 1 users only?
- Category 1 and 2 users only?
- Category 1, 2 and 3 users?

**(B) Should the PSNE be required to demonstrate how it will represent the permitted categories of users?**

**(C) Must the PSNE be endorsed by certain national, federal, provincial and territorial organizations responsible for public safety and emergency management (e.g. Public Safety Canada, Senior Officials Responsible for Emergency Management [SOREM], provincial and territorial emergency management organizations [EMOs], the Federation of Canadian Municipalities)? If so, which ones?**

**Provide supporting rationale for each response to the above questions.**

## **11. Next Steps**

67. After making a decision on this consultation, Industry Canada will initiate a further consultation to enable a more in-depth analysis of the operational and technical requirements that should apply to the 700 MHz broadband spectrum designated for public safety use. This consultation would possibly include, but would not be limited to, the following:

- (1) proposed licensing process;
- (2) proposed licence fees; and
- (3) conditions of licence (including licence term and deployment requirements).

## **12. Submitting Comments**

68. Respondents are requested to provide their comments in electronic format (WordPerfect, Microsoft Word or Adobe PDF) to the following e-mail address: [Spectrum.Engineering@ic.gc.ca](mailto:Spectrum.Engineering@ic.gc.ca).

69. In addition, respondents are asked to specify question numbers for ease of referencing.

70. Written submissions should be addressed to the Manager, Mobile Systems, Engineering, Planning and Standards Branch, Industry Canada, 300 Slater Street, Ottawa, Ontario K1A 0C8.

71. All submissions should cite the *Canada Gazette*, Part I, the publication date, the title and the notice reference number (SMSE-007-12). Parties should submit their comments no later than October 24, 2012, to ensure consideration. Soon after the close of the comment period, all comments received will be posted on Industry Canada's Spectrum Management and Telecommunications website at <http://www.ic.gc.ca/spectrum>.

72. The Department will also provide interested parties with the opportunity to reply to comments from other parties. Reply comments will be accepted until November 26, 2012.

73. Following the initial comment period, the Department may, at its discretion, request additional information if needed to clarify significant positions or new proposals. In such a case, the reply comment deadline would be extended.

### **13. Obtaining Copies**

74. All spectrum-related documents referred to in this paper are available on the Spectrum Management and Telecommunications website at [www.ic.gc.ca/spectrum](http://www.ic.gc.ca/spectrum).

75. For further information concerning the process outlined in this document or related matters, contact:

Manager, Mobile Systems  
Engineering, Planning and Standard Branch  
Industry Canada  
300 Slater Street  
Ottawa, Ontario K1A 0C8  
Telephone: 613-990-4773  
Fax: 613-952-5108  
E-mail: [Spectrum.Engineering@ic.gc.ca](mailto:Spectrum.Engineering@ic.gc.ca)