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By email: [Spectrum.Engineering@ic.gc.ca](mailto:Spectrum.Engineering@ic.gc.ca)

Subject: Comments of Motorola Mobility Canada Ltd. in the Matter of *Canada Gazette*, Part I, December 04, 2010, 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

Motorola Mobility is pleased that Industry Canada is moving forward with proposals for the 700 MHz band and respectfully submits these comments to the Industry Canada's Gazette Notice No. SMSE-018-10 "Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects to Commercial Mobile Spectrum".

Motorola Mobility recognizes the value of the 700 MHz band for mobile broadband and therefore also the importance of the decision for a band plan for the 698-806 MHz spectrum. After reviewing the proposed band plan options in the consultation document, we are of the opinion that a combination of Option 1 and Option 2b would be the best outcome for Canada. For the lower 700 MHz band (698-746 MHz) Option 1 should be adopted and for the upper 700 MHz (746-806 MHz) Option 2b should be implemented. Such a band plan would be harmonized with the United States and also allows due to the recent decision of 3GPP on band class 12 for a 1 MHz guard band to mitigate interference in geographical areas where TV channel 51 is used. Additionally, with adopting Option 2b for the upper 700 MHz, due to a more flexible license regime, competition in the award process would be promoted.



Further, it is our view that due to the increased demand of mobile broadband at a maximum 2x5 MHz in the upper 700 MHz band should be assigned for public safety broadband operation.

On the following pages of this document Motorola Mobility presents its detailed comments to several questions of the consultation paper.

Sincerely,

J. Sean Miller

President  
Motorola Mobility Canada Ltd.



## Detailed Questions

**5-1. Based on the criteria listed above, which of the four band plan options should be adopted in Canada? Why is this option preferred over the other options? If Option 3 (APT band plan) is selected, what should the block sizes be?**

1. Motorola Mobility appreciates the opportunity to comment on the possible band plan for Canada. As we were involved in the development of the APT band plan, Motorola Mobility is a supporter of the APT band plan for Region 3 countries for various reasons, in particular due to the spectrum efficiency of this band plan. However, we do not see Option 3 as the preferred option for Canada, due to the Public Safety Narrowband deployment and potential interference issues at the Canadian - United States border.
2. We are in favor of a band plan which is harmonized with the United States. Due to the size of the US market, Motorola Mobility would not see a drawback for Canada from an economy of scale perspective. Sufficient handsets will be available supporting the 3GPP bands defined for the US 700 MHz band plan.
3. Options 2a and 2b have the advantage over Option 1 that these band plans would allow for guard bands. This is particular important at the 698 MHz border, where interference from TV channel 51 may occur. In geographical areas, where TV channel 51 is deployed a 3 MHz guard band could be used to mitigate the interference problem. Option 2b would further have the benefit of a more flexible licenses regime as paired spectrum is structured in units of 2x5 MHz. This flexibility would promote competition during the licensing process.
4. After the publication of the consultation document, 3GPP has modified its band class 12 to allow for a 1 MHz guard band from 698-699 MHz. The UL band for the new defined 3GPP band class 12 is now defined from 699-716 MHz and the DL band from 729-746 MHz (see TS 36.104v9.6.0). With this new modified band class 12, only a 1.4 MHz LTE carrier would fit next to 5 MHz channel, if Option 2a or 2b would be adopted. Therefore, we also do not see these options as optimal.
5. Based on our comments in the previous paragraphs and considering the currently defined 3GPP band classes 12, 17, 13 and 14, Motorola Mobility proposes a combination of Option 1 and Option 2b for the 700 MHz band plan for Canada. The lower 700 MHz band (698-746 MHz) should be implemented according to Option 1 and therefore be identical with the US band plan. For the upper 700 MHz (746-806 MHz) the band plan with the 2x5 MHz blocks as illustrated in Option 2b should be adopted.
6. We also want to note that for the 6+6 MHz unpaired spectrum in the lower 700 MHz band (716-728 MHz), 3GPP did not define a band class yet. However, due to the recent activities around



this spectrum, we would anticipate that this might be happen sometime in the future. Therefore, it is important that Canadian regulation will take into account any future activities within 3GPP around this unpaired spectrum in the lower 700 MHz band, including allowing for carrier aggregation. Otherwise it might be necessary to build unique equipment for the Canadian market, which will properly increase the costs of such equipment and also limit the availability.

7. Further, Motorola Mobility wants to highlight that the band plan as adopted in June 2009 for spectrum designated for public safety in the upper 700 MHz band (768-776MHz/798-806 MHz), is not 100% aligned with the US band plan for public safety narrowband. Consequently only a 1 MHz guard band (776-777 MHz) would be available to protect public safety operation. An alignment of the public safety allocation with the PS NB allocation in the United States would provide an additional 1 MHz of guard band and therefore the same protection as in the Unites States from 3GPP band 13 operation.

**5-9. If band plan Option 1, 2a, or 2b in Section 5.1 is chosen, which one of the three options described above should be adopted and why is this option preferred over the other options? Provide supporting rationale.**

8. We appreciate the need of Public Safety agencies for broadband spectrum. In the United States 2x5 MHz is dedicated for PS broadband (763-768 MHz/793-798 MHz) and there are currently ongoing discussions on whether the spectrum 758-763 MHz/788-793 MHz (“D-Block discussion”) should be auctioned or attributed to public safety as well.
9. However, Motorola Mobility is of the view that at a maximum 2x5 MHz of spectrum should be designated to PS broadband. With the increased demand of spectrum for mobile broadband, in particular since the introduction of smartphones, we would see a great benefit in maximizing the usable spectrum for commercial operators, as this would give the most advantage to customers and the economy. Additionally, priority access should be granted to public safety agencies to access the 2x10 MHz of spectrum in emergency cases. In the case that the entire 2x10 MHz spectrum would be designated to commercial operators, priority access for public safety agencies should be granted to have access to 2x10 MHz of broadband spectrum in emergency cases.
10. Further, a single common technology standard, in particular LTE as in the United States should be mandated to avoid any potential interference scenarios and to guarantee interoperability also in the case, priority access would be granted to public safety agencies to have access to commercial networks.

**5-11. If the APT band plan (See Option 3 in Section 5.1) is adopted:**

**(a) Given that the APT band plan requires a 55 MHz duplexing separation, can Canadian public safety services operate their current narrowband systems in this band plan configuration? If not, what are possible alternatives to address public safety needs?**

**(b) Should spectrum be designated for dedicated public safety broadband systems, and how much?**

11. As described in our response to question 5-1, Motorola Mobility is not in favor to adopt the APT band plan for Canada. However, should Industry Canada decide to implement the APT band plan for Canada, PS narrowband operation would have probably to be relocated outside the 698-806 MHz band, as the current PS NB allocation within the 700 MHz does not fit within the APT channel arrangement. Any spectrum for public safety broadband should be preferable assigned at either the lower or the upper edge of the band.

**Effective immediately, no new broadcasting certificates will be issued for LPTV stations in TV channels 52-59 (698-746 MHz).**

**The Department proposes that the displacement of the incumbent LPTV stations be subject to a notification period of one year for LPTV stations located in urban areas or in specific geographic areas, such as along highway corridors; and a period of two years for LPTV stations in all other areas. A displacement notification can be issued only after technical determination is made concluding that continued operation of the incumbent LPTV station would impede the deployment of new licensed systems in the 700 MHz band.**

**5-14. The Department seeks comments on the transition policy proposed above.**

12. Motorola Mobility supports the proposed way forward by Industry Canada in this matter. It is important that once commercial network operator launch service in the 700 MHz spectrum, no harmful interference occurs. A one year notification period is a reasonable timeframe for urban areas and other important geographical areas.

**5-15. The Department seeks comments regarding its proposal to permit low-power licensed devices, including wireless microphones, to operate in the band 698-764 MHz and 776-794 MHz only until March 31, 2012.**

13. We support the view of Industry Canada that low-power devices, including wireless microphones should be prohibited after a certain date as already done in the United States to ensure that commercial operators as well as public safety entities operate interference-free in the 700 MHz band. A proposed date of March 31, 2012 is reasonable. If the auction of the 700 MHz band occurs later in 2012, we would see no major problem if low-power devices would operate until



the auction takes place. However, once the spectrum is assigned to the new license holders all 700 MHz low-power device operation should be discontinued.

**6-1. The Department seeks comments on its proposed changes to the *Canadian Table of Frequency Allocations* for the band 698-806 MHz.**

14. Industry Canada should take the appropriate action to align the Canadian Table of Frequency Allocations with the decision made to use the 700 MHz band for mobile commercial operation in Canada. Therefore, Motorola Mobility agrees with the proposed changes as outlined in the consultation document.