CANADA GAZETTE NOTICE SMSE-018-10: CONSULTATION ON A POLICY AND TECHNICAL FRAMEWORK FOR THE 700 MHZ BAND AND ASPECTS RELATED TO COMMERCIAL MOBILE SPECTRUM

COMMENTS OF RESEARCH IN MOTION LIMITED

February 28, 2011

A. INTRODUCTION

1. Research In Motion Limited ("RIM") is pleased to offer the following comments in response to 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.

2. RIM is Canada's leading designer, manufacturer and marketer of innovative wireless solutions for the worldwide mobile communications market. Through the development of integrated hardware, software and services that support multiple wireless network standards, RIM provides platforms and solutions for seamless access to time-sensitive information including email, phone, text messaging (SMS and MMS), Internet and intranet-based applications. RIM technology also enables a broad array of third party developers and manufacturers to enhance their products and services with wireless connectivity to data. RIM's portfolio of award-winning products, services and embedded technologies are used by thousands of organizations around the world and include the BlackBerry wireless platform, the RIM Wireless Handheld product line, software development tools, radio-modems and other hardware and software. RIM's flagship BlackBerry platform of wireless devices, software and services is available in over 175 countries, and serves approximately 55 million subscribers worldwide.

3. RIM notes that it participated in the development of the response filed by the Radio Advisory Board of Canada (RABC). RIM would, however, like to highlight a few key issues.

4. RIM's approach to this consultation is guided by the following perspectives:

    a. The need to harmonize and consolidate the Canadian 700 MHz band plan with large markets in order to reduce mobile hardware complexity and to improve performance;
    b. The need to provide for the most efficient use of this new spectrum for next generation broadband services; and
    c. The need for additional spectrum to meet the growing demand for mobile services and applications.

B. INTENT, POLICY OBJECTIVES, BACKGROUND AND OVERVIEW OF THE CANADIAN COMMERCIAL MOBILE SERVICES MARKET (SECTIONS 1-4 OF NOTICE)

5. RIM is generally supportive of Industry Canada's stated objective to make the 700 MHz band available for commercial mobile systems. We agree that the availability of new, advanced and affordable telecommunications services in all regions of the country will enhance the competitiveness and productivity of the Canadian economy.

6. RIM agrees with Industry Canada's prediction that the next generation of mobile broadband networks will support higher data throughput rates, lower latencies and more consistent quality of service. We also agree that this will increase the range of applications and devices that can benefit from mobile broadband connectivity, generating a corresponding increase in demand for mobile broadband service by consumers, businesses, public safety agencies, health-care facilities, education institutions, energy associations and other public sector users.

7. There are a number of forecasts and research projects looking at mobile broadband demand. One such study which includes an analysis on demand was done in 2010 by Rysavy Research "Mobile Broadband Capacity Constraints And the Need for Optimization" Rysavy Research 2010 www.rysavyresearch.com. This analysis supports Industry Canada's continuing efforts to make available additional spectrum for mobile services.

C. 700 MHZ BAND PLAN ARCHITECTURE

8. RIM supports the view, along with the RABC, that the use of broadband and multicarrier radio interface technologies is a general trend in high-throughput mobile telecommunications systems. As is discussed in the RABC submission, these technologies provide a significant increase in spectral efficiency, particularly when operated in wide bandwidth assignments.

9. RIM recommends that new spectrum being released by Industry Canada should be arranged in a manner that will enable its most efficient use. Therefore, every effort should be made to promote operation in wide channel bandwidths. This can be accomplished through the fundamental band/channel design or through rules which will promote channel aggregation during assignment and after assignment.

10. Furthermore, RIM recommends that Industry Canada's continuing policies should include future plans for redeployment of spectrum that will allow for additional contiguous spectrum and even larger channel bandwidths.

11. Equipment design and manufacturing must also be taken into account. As a global mobile device manufacturer, RIM must build products that are compatible with multiple bands (not just the band under consideration) to ensure portability throughout the world. In other words, RIM's products must be compatible with multiple national spectrum configurations across the globe. Mobile devices, must also work across all the channels in each of the bands as the device may become attached to various networks using any part of the band. As some network operators may have licenses in different parts of the band in different places, even a device dedicated to one operator must accommodate multiple parts of the band. Hence, spectrum assignments are best to have compatibility with services in adjacent bands that are consistent nationally and internationally.

12. RIM notes that, in Question 5-1, Industry Canada is requesting comments on four band plan options for the 700 MHz band. After carefully reviewing these options, RIM has concluded that Option 3 would provide the most spectral efficiency based on the availability of OFDM technology and the continuing trends toward multi-carrier, broadband technology for future wireless generations. The current LTE and WiMAX technology, for example, exhibits significant gains in spectral efficiency as RF spectral bandwidth increases, making efficient use of spectrum

as a scarce and non-renewable resource. Currently, researchers are experimenting with modulation and coding schemes that occupy more than 20 MHz to achieve even greater spectral usage efficiency. Generally speaking, future band plans should provide as much contiguous spectrum as possible, and do so in a most flexible manner that reflects the technology trends for more RF spectrum occupation over time. The 3GPP specifications, for example, support flexibility for 1.4 MHz to 20 MHz (times two) channel bandwidths, and our analysis shows that significant gains in trunking efficiency occur when the OFDM channel is 10 MHz or greater. This suggests that block sizes of 10 + 10 MHz would be the minimum reasonable choice based solely on technology (efficiency) impact.

13. However, due to a number of important non-technical factors including cross-border roaming, availability of equipment and public safety assignments, RIM recognizes that fully harmonizing with the US band plan (Option 1) may be the most practical short term solution. Accordingly, RIM recommends that, if Option 1 is chosen, it must be implemented in a manner that ensures the maximum width of contiguous assignments and, eventually, how to migrate to new wider channeling arrangements.

14. In Question 5-2, Industry Canada also asks for comments on guard bands. In particular, the Notice asks whether the guard bands should be auctioned or held in reserve for future use such that they are technically compatible with services in the adjacent bands. In RIM's view, given the objectives of wireless research to increase spectral efficiency by using techniques that occupy greater RF spectrum blocks, it would be reasonable to hold the guard bands in reserve for future use in the event that the adjacent bands are able to be re-deployed. If guard bands were locally occupied by another service, it would likely be difficult for the adjacent band to be used as contiguous spectrum, e.g. in the event that 3GPP should develop a specification to flexibly extend the number of OFDM subcarriers and therefore spectral occupation beyond the current specification limit of 20 MHz.

D. CONCLUSION

15. RIM supports Industry Canada's stated objective to make the 700 MHz band available for commercial mobile systems. In RIM's view, Industry Canada must do so in a manner that harmonizes the Canadian 700 MHz band plan with other neighbouring jurisdictions while ensuring the widest possible contiguous spectrum blocks to enable the operation of next generation broadband services.

16. RIM also recommends that Industry Canada develop a long term plan that will take advantage of the efficiencies of channel bandwidths of 20+20MHz and larger and for redeployed spectrum contiguous with the 700 MHz band.