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Industry Canada

Canada Gazette Notice SMSE-018-10 (dated November 30, 2010)

“Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum”

Joint Response from Nokia¹ and Nokia Siemens Networks²

Introduction

1. Nokia and Nokia Siemens Networks are active participants in the Canadian communications market. For example, Nokia offers mobile devices and Nokia Siemens Networks and its solutions and services are helping to power current and next-generation mobile networks across the country. Jointly the companies respectfully respond below to questions that they are best suited to answer at this time. Omission of the remaining questions posed in the consultation, however, should not in any way be construed as judgments regarding their significance.

¹ About Nokia

Nokia is a world leader in mobile communications, driving the growth and sustainability of the broader mobility industry. Nokia connects people to each other and the information that matters to them with easy-to-use and innovative products like mobile phones, devices and solutions for imaging, games, media and businesses. Nokia provides equipment, solutions and services for network operators and corporations. www.nokia.com

² About Nokia Siemens Networks

Nokia Siemens Networks is a leading global enabler of communications services. The company provides a complete, well-balanced product portfolio of mobile and fixed network infrastructure solutions and addresses the growing demand for services with 20,000 service professionals worldwide. Nokia Siemens Networks is one of the largest telecommunications infrastructure companies with operations in 150 countries. The company is headquartered in Espoo, Finland. www.nokiasiemensnetworks.com

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Responses to Questions**4. Commercial Mobile Services**

4-1. *What is the general need for additional commercial mobile spectrum at this time and what do you anticipate the future needs to be?*

4.1 Globally, there is wide agreement that additional commercial spectrum is needed as demand for mobile broadband capacity continues to explode. For example, at the recent Mobile World Congress, a GSMA official predicted that by 2020 at least 15 billion devices with embedded SIM card-based mobile broadband connectivity will be operating, up from some 500 million in 2009. Other estimates that include all forms of connectivity can reach 50 billion. Within the region this trend certainly holds true. It is important for Canada to foster its competitiveness by enabling sufficient commercial access to spectrum, the fuel of the mobile broadband economy.

4.2 The Connectivity Scorecard is a global ICT index commissioned by Nokia Siemens Networks that uniquely ranks countries in terms of “useful connectivity” – meaning not only ICT infrastructure deployed but how businesses, governments and consumers utilize connectivity to enhance social and economic prosperity.³ The 2010 Scorecard ranked Canada 9th among innovation-driven economies. Canada by some measures ranks satisfactorily in terms of broadband deployment, although it trails countries such as Korea, Japan and Sweden. In the consumer side, however it does trail the U.S. and other countries in part because it continues to catch up in terms of 3G mobile penetration. While significant steps are being made as operators upgrade and in some cases deploy 3G and soon 4G networks, it is clear that complacency must be avoided in a fast-paced global market.

³ See www.connectivityscorecard.org/countries/canada.

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4.3 This topic of spectrum demand was studied prior to the World Radiocommunication Conference of 2007 (WRC-07) and the calculated demand was 1,280 MHz for a lower market development scenario and 1,720 MHz for a higher market development scenario.⁴ For the Americas, the additional spectrum needed would be 721 MHz in areas of low market and 1161 MHz in areas of high market.⁵

4.4 Recently, ITU-R Working Party 5D (WP5D) has started to study existing and new operational requirements for current and future developments of terrestrial IMT networks. This study will take into account new trends, market developments, traffic forecasts and user behaviors, particularly considering the impact of the increased usage of smart phones, mobile-to-mobile (M2M) communications and personal computing devices. The target for completion of this study is the end of 2011.

4.5 In January 2011, the UMTS Forum completed a new report on traffic forecasts for mobile broadband/IMT. It estimates extensive growth of mobile broadband traffic and penetration for the decade 2010-2020. Nokia and Nokia Siemens Networks have been active in the development of this report within the UMTS Forum.

4.6 Nokia and Nokia Siemens Networks also have made forecasts of their own. For example, see the below estimate from Nokia:

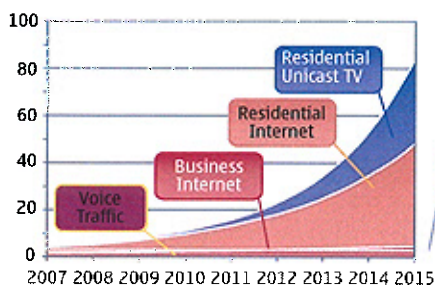
⁴ ITU-R Working Party 8F (WP8F) Report M.2078 [IMT.ESTIMATE] (2006).

⁵ The existing amount of IMT-2000 spectrum was 559 MHz as of PCCIII/Rec 70 (XXI-02).

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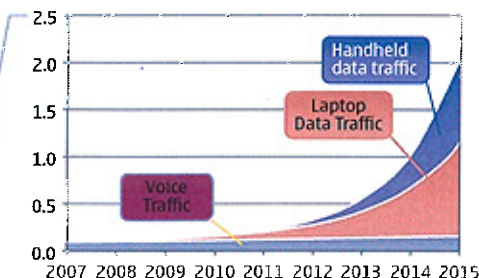
Estimates for mobile broadband

Global FIXED traffic (ExaByte/month)



Fixed broadband traffic is 40x mobile in 2015

Global MOBILE traffic (ExaByte/month)



Mobile data traffic grows 300 fold

Source: Nokia

ExaByte=1 billion gigabytes



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Source: analyst reports and internal research

Nokia Siemens Networks estimates that mobile data from smartphones and other smart devices is expected to increase 10,000% in the next five years. Mobile data from all sources will increase to 23 exabytes by 2015, the equivalent of 6.3 billion people each downloading a digital book every day.

4.7 Within the region, the U.S. has made access to spectrum for mobile broadband a priority all the way up to the Presidential level. Moreover, the FCC's historical National Broadband Plan last year called for an additional 500 megahertz of spectrum to be allocated by 2020, with 300 megahertz being made available by 2015.⁶ This follows a request by CTIA, the U.S. wireless trade association, that, based on the ITU and other demand estimates, at least an additional 800 MHz of spectrum be allocated for commercial wireless broadband in order to meet the anticipated level of demand in 2015. The drivers of this demand for spectrum exist just

⁶ National Broadband Plan – Connecting America (2010), <http://www.broadband.gov/plan>.

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as much in Canada as they do below its border. Nokia and Nokia Siemens Networks believe it follows then that Canada should proceed under comparable targets.

4.8 In terms of the “Digital Dividend” spectrum in the UHF band, the subject of this consultation, Nokia and NSN strongly support its use for IMT/mobile broadband for several reasons. An important one is the economic impact: for example, based on the SVP study, Europe’s economy would receive a €95 billion boost if the TV spectrum made available is used for mobile broadband services.⁷

5. 700 MHz Issues and Considerations

5.1 700 MHz Band Plan Architecture for Commercial Mobile Systems

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?*

5.1 In general, Nokia and Nokia Siemens Networks believe that spectrum should be released in a harmonized fashion for mobile broadband solutions and services. National spectrum solutions in particular should be avoided. Spectrum bands and band plans should be common and harmonized as much as possible in order to:

- provide economies of scale,
- afford consumers wider choice of service providers and brands of devices,
- avoid fragmented markets,

⁷ <http://www.gsmworld.com/documents/Spectrum-Getting-the-most-out-of-the-digital-dividend-2008.pdf>.

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- decrease potential for radio interference,
- facilitate global roaming, and
- maximize the total economic value.

5.2 Of the options offered in this consultation, Option 3 (APT band plan) would align very well with most of the above mentioned objectives. However, in considering the situation in its entirety, Option 1 (conforming to the US band plan) appears to be the most appropriate choice for Canada. Already specified and taken into use, Option 1 has the obvious benefit of facilitating easy cross-border coordination with the US. It is not without trade-offs however, as Option 3, would provide wider continuous operator blocks, which allow for easier support of higher data rates. On the other hand, Option 3 could pose cross-border interference potential and have an impact on roaming to and from the U.S. Options 2a and 2b should not be adopted as they would lead to a national band plan applied to Canada only and almost all of the above mentioned objectives could not be achieved or would be in serious jeopardy, especially the timely availability of user devices.

5.3 Should Option 1 become the choice, in order to achieve the economies of scale from alignment with the U.S. use of the band, the corresponding 3GPP band variants (bands 12, 13, 14 and 17) need to be followed, including any future changes pursuant to U.S. market developments. Otherwise, the benefits behind the decision to align with the US could be lost, and could result in unique equipment requirements for the Canadian market, an outcome that is important to avoid.

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5.2 Options for use of 758-768 MHz Paired with 788-798 MHz for Public Safety and/or Commercial Systems

5.4 In light of the continuing uncertainty surrounding the ultimate disposition of the “D Block” (758-763 MHz/788-793 MHz) in the U.S., Nokia and Nokia Siemens Networks support deferring a detailed consideration of how to decide the issue in Canada until clarity is evident in the U.S. To do otherwise would mean having a discussion and potentially making a critically important decision without the ability to fully consider such a significant factor. On the other hand, there is no reason to wait to follow the lead of the FCC in the U.S. in determining that public safety use of the 700 MHz spectrum should be LTE-based to take full advantage of the growing ecosystem and to promote interoperability.

5.4 Treatment of Existing Spectrum Users

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.*

5.5 Nokia and Nokia Siemens Networks agree that the proposed date of March 31, 2012 is reasonable. In consideration of the number of unlicensed devices that appear to operate in the band currently, Industry Canada should initiate a public awareness effort to inform all users about the upcoming date. It also should act immediately to prohibit the manufacture, importation, distribution, leasing, and sale of any such equipment that is capable of operating in the 698-806 MHz band.

8. Promoting Service Deployment in Rural Areas

8.1 Nokia and Nokia Siemens Networks at a corporate mission level are committed to connecting everybody, including of course in rural areas. This is a truly important objective in

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Canada when one considers the country's geographic and population characteristics. It is very possible that rural and low-density areas will have unique requirements in terms of geographic licensing areas and potentially even spectrum blocks or tiers. Nokia and Nokia Siemens Networks believe that mobile service providers either serving these markets today or with intentions of doing so in the future are likely best positioned to provide greater detail on what concrete steps the Department can take to help facilitate the roll out of robust mobile networks and services across these areas.

Conclusion

Nokia and Nokia Siemens Networks respectfully request that the Department take into consideration their joint views expressed above. As the mobile communications market continues to grow and evolve, effective management of scarce radio spectrum resources is critical. To help meet the ever-expanding capacity needs of the mobile sector and foster innovation across the economy, the companies support allocation of the 700 MHz band for IMT and IMT-Advanced services. Further, Canada should dynamically harmonize its allocation of this spectrum with the U.S.

Respectfully submitted,

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