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April 14, 2017 Via email: ic.spectrumengineering-genieduspectre.ic@canada.ca

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Re: Canada Gazette Notice No. SMSE-002-17 Consultation on the Technical and Policy Framework for Radio Local Area Network Devices Operating in the Band 5150-5250 MHz

Please find attached the reply comments of Rogers Communications Canada Inc. (Rogers) in response to *Canada Gazette*, Part I, January 2017, *Consultation on the Technical and Policy Framework for Radio Local Area Network Devices Operating in the Band 5150-5250 MHz* (SMSE-002-17).

Rogers thanks the Department for the opportunity to provide input on this important issue.

Yours very truly,

Howard Slawner
Vice President – Regulatory Telecom
HS/pg

Attach.

Consultation on the Technical and Policy Framework for Radio Local Area Network Devices Operating in the 5150-5250 MHz Frequency Band
SMSE-002-17

Reply Comments of
Rogers Communications Canada Inc.
April 14, 2017

Introduction

1. Rogers Communications Canada Inc. (Rogers) welcomes the opportunity to reply to the comments filed by other parties in response to Innovation, Science and Economic Development Canada's (the Department) *SMSE-002-17: Consultation on the Technical and Policy Framework for Radio Local Area Network Devices Operating in the 5150-5250 MHz Frequency Band*[1] (the Consultation).

2. Rogers stated its positions on all of the issues raised in the Consultation in its comments of March 29, 2017. This reply is limited to comments on proposals made by other parties. Failure to address any specific issue raised by other parties should not be taken by the Department as Rogers' acquiescence with the position.

Demand and Benefits of Allowing HPODs prior to WRC-19

3. In our comments, Rogers supported the Department moving to harmonize its rules with the U.S., to the maximum extent possible, on allowing use of both outdoor and increased transmitter power indoor devices in the 5150-5250 MHz band. A wide majority of parties shared this view and effectively demonstrated both the demand and benefit for allowing these devices prior to WRC-19.

4. Québecor Media states that the 2.4GHz band is the most used RLAN band in Canada, is congested, and does not have wide enough channels to allow for the high speeds of the latest Wi-Fi standard, IEEE 802.11ac.[2] Congestion in the 2.4GHz and other licence exempt bands is also observed by ABC Communications, Bell, CanWISP, Microsoft, Ruckus Wireless, and the Wi-Fi Alliance.[3] TELUS states they have validated the impact of increasing power levels on Wi-Fi performance through internal lab test testing, which will result "in a direct benefit to the customer experience through increased data rates and expanded coverage."[4]

5. Beyond the performance gains for Wi-Fi from harmonizing with U.S. rules and allowing outdoor and higher power indoor devices in the 5150-5250MHz band, a number of HPOD proponents highlight the economy of scale benefits that could also accrue to consumers.[5] The IEEE standards committee responsible for Wi-Fi states that there are many IEEE 802.11ac devices available and certified today, and next

[1] ISED, *SMSE-002-17: Consultation on the Technical and Policy Framework for Radio Local Area Network Devices Operating in the 5150-5250 MHz Frequency Band* (Consultation); http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11246.html.
[2] Québecor Media comments, paragraph 7-8.
[3] ABC Communications comments, paragraph 15; Bell comments, page 2; CanWISP comments, paragraph 11; Microsoft comments, page 4; Ruckus Wireless comments, page 3; Wi-Fi Alliance comments, paragraph 2.4.
[4] TELUS comments, paragraph 17.
[5] See: Intel Corporation comments, page 2; Nokia comments, paragraph 2.

generation 802.11ax devices are expected soon[6] – TELUS suggests as early as Q4 2017.[7] Further, as Bell states, "It is expected that harmonization will eventually occur in any case, and any delay will only create transitional discrepancies and severely hamper the ability of carriers to provide Canadian consumers with world class broadband access."[8]

6. In addition to Wi-Fi, other RLAN technologies would benefit from harmonizing with U.S. rules and allowing HPODs before WRC-19. Ericsson and Nokia state that LTE-U/LTE-LAA technology has recently been authorized.[9] TELUS, Shaw, and the Wi-Fi Alliance identify the nascent Internet of Things (IoT) industry as benefiting from both enhanced Wi-Fi and other connectivity occurring in unlicensed bands.[10] CanWISP and ABC Communications state that permitting HPOD operation will allow rural wireless Internet service providers to use the band for backhaul operations, which will help rural and remote Canadians receive recently increased CRTC broadband speed targets.[11]

7. Other social benefits for consumers and Canadians were identified by a number of supporters of permitting HPOD devices prior to WRC-19. Shaw demonstrated a number of public safety emergencies where their outdoor network supported critical communications to citizens.[12] The Canadian Urban Transit Association states that allowing HPOD devices "should create new opportunities for transit agencies to collaborate with municipalities to create alternative communications infrastructure/options along transit routes".[13] The Public Interest Advocacy Centre also supports the position that a more flexible use of the 5150-5250 MHz band that allows for HPODs would benefit Canadian consumers.[14]

8. While moving to allow outdoor and higher power indoor devices in the 5150-5250 MHz band prior to WRC-19 would make Canada a leader and contribute to enhanced Canadian innovation and connectivity, it would not be alone in its decision. Similar regulatory positions have already been taken or are being actively explored by the U.S., U.K., Panama, Australia, and India.[15] Rogers supports the view that Canadians should also be able to take advantage of the latest connectivity standards to fully participate and compete in the digital economy.

[6] IEEE 802 LAN/WAN Standards Committee comments, paragraph 2.3.
[7] TELUS comments, paragraph 16.
[8] Bell comments, page 2.
[9] Ericsson comments, page 6; Nokia comments, paragraph 3.
[10] Wi-Fi Alliance comments, paragraph 2.2; Shaw comments, paragraph 7; TELUS comments, paragraph 20.
[11] CanWISP comments, paragraph 14; ABC Communications comments, paragraph 11-13.
[12] Shaw comments, paragraph 38.
[13] Canadian Urban Transit Association comments, page 1.
[14] PIAC comments, paragraph 7.
[15] Wireless Broadband Alliance comments, page 4; Wi-Fi Alliance comments, paragraph 4.5.

9. Although some parties were not in favour of allowing outdoor and higher power indoor devices prior to WRC-19, they did not provide any convincing evidence to support their position. For example, the Canadian Space Agency (CSA) states their belief that demand for RLAN is overstated based on "extrapolating the results of the studies and spectrum requirements".[16] However, as noted above, congestion of other licence exempt bands, necessitating more flexibility of the 5150-5250 MHz band, was demonstrated by a large number of users based on actual deployment challenges and documented increased Wi-Fi usage. In point of fact, it appears that it is satellite proponents arguing for an approach based on overstated potential interference concerns, addressed further below.

10. Transport Canada and NAV CANADA both offer that standards are being developed for Unmanned Aircraft Systems (UAS) to use the 5150-5250 MHz as a reason to not permit the operation of HPODs.[17] However, as both parties state, this is only one of the bands under consideration for use by UAS. Additionally, no evidence has been provided that suggests the technical operating criteria under development for UAS will not be able to incorporate spectrum sharing with HPODs in addition to already permitted RLAN devices operating in the band.

Potential Impacts on Satellite Systems in 5150-5250 MHz Band

11. Commenters in favour of outdoor and higher power indoor devices operating in the 5150-5250 MHz band agree with Rogers' view that harmonizing with U.S. rules will be successful in protecting satellite and other users from interference.[18] As TELUS comments, "While some respondents may have a lot to say about potential impacts, it seems to be a good starting point to recognize the lack of any material impact in the US after three years."[19]

12. The Wi-Fi Alliance highlights that regulatory constraints in the 5150-5250 MHz band were adopted at WRC-03 primarily to protect a single mobile satellite system network, Globalstar, and the U.S. 2014 rules for the band were crafted specifically to ensure that protection for satellite receivers from aggregate interference was maintained. Rogers agrees that the fact Globalstar supported the FCC's 2014 update to the U.S. RLAN framework as providing Globastar with "meaningful

[16] CSA comments, paragraph A1.
[17] Transport Canada comments, page 1; NAV CANADA, page 1-2.
[18] See: Bell comments, page 2-3; Canadian Electronics and Communications Association comments, page 2; Cogeco comments, paragraph 20; Wireless Broadband Alliance comments, page 5; etc.
[19] TELUS comments, paragraph 21.

protection", [20] means that it makes little sense to have a more restrictive policy in Canada.

13. Rogers understands that some participants that are opposed to allowing outdoor and higher power indoor devices in the 5150-5250 MHz band are concerned with a potential increase in absolute levels of Out-of-Band Emissions (OOBE) in 5250-5350 MHz[21] and 5091-5150 MHz[22] bands. Rogers would first note that the Consultation is dealing with the 5150-5250 MHz band, not other bands. Notwithstanding this point, it is Rogers' view that OOBE can be addressed in RSS-247 so that systems operating in adjacent bands are protected. In fact, RSS-247, Issue 2 already covers unwanted emissions from devices operating in 5150-5250 MHz in section 6.2.1.2. [23] Upon adoption of the use of outdoor and higher power indoor devices in the 5150-5250 MHz band, the Department should review and, if required, modify RSS-247 to ensure absolute levels of OOBE do not increase.

14. Rogers maintains the view that the Department must strike the right balance between protecting incumbent users from interference while ensuring that any measures taken do not become overly restrictive. However, after reviewing the Consultation comments, Rogers supports the view that a 25 km exclusion zone protecting the single current satellite earth station may be too broad. As suggested by Ericsson, the IEEE 802 LAN/WAN Standards Committee, and Nokia, further investigation into more detailed technical studies that provide a more precise exclusion zone should be undertaken, along with exploring technical measures such as antenna masks that can limit the number of consumers impacted by any exclusion zone.[24] Rogers also supports the position of Microsoft and the Wi-Fi Alliance that even within the minimized exclusion zone, indoor devices with higher power should be permitted.[25]

HPOD Regulatory Approach prior to WRC-19

15. After reviewing the Consultation comments, Rogers remains of the belief that the Department should move ahead as quickly as possible with a fully licence-exempt regime for HPODs, including development of specific equipment standards and

[20] Wi-Fi Alliance comments, paragraph 3.1.
[21] CSA comments, paragraph B1; Environment and Climate Change Canada comments, page 1; Parscom Management comments, page 2.
[22] NAV Canada comments, page 2; Transport Canada comments, page 2.
[23] ISED, *RSS-247 – Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices*; http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10971.html.
[24] See: Ericsson comments, page 8; Nokia comments, paragraph 5; IEEE 802 LAN/WAN Standards Committee comments, paragraph 3.2.
[25] Microsoft comments, page 6; Wi-Fi Alliance comments, paragraph 3.2.

technical requirements that would apply to HPODs (including increased power indoor devices) in this band. Rogers agrees with TELUS where it states, "introducing a light licensing regime would be wholly inappropriate in its application as a national policy for the sake of protecting a very limited number of satellite earth station installations."[26]

16. However, Rogers understands that developing a licensing policy and conditions of licence can be more expeditious than enacting broader regulatory changes.[27] As such, Rogers also agrees with Cogeco's position and would not object if the Department concludes that the quickest means of authorizing outdoor and higher power indoor devices in the 5150-5250 MHz band is through the adoption of a licensing approach.[28] Rogers would similarly support the Ruckus Wireless position that to minimize the administrative burden for both the Department and users, only large scale outdoor device deployments should require a licence,[29] i.e. indoor devices should not require a licence.[30]

17. Satellite proponents claim that allowing outdoor and higher power indoor devices in the 5150-5250 MHz band risks pre-judging the outcome of WRC-19.[31] Rogers does not agree with this view. Rather, we believe that proceeding with a licensed regime for HPOD users as a temporary measure until amendments to domestic *Radiocommunication Regulations* have been completed would not only limit interference issues and protect incumbents, it would also allow the Department to incorporate any decisions made at WRC-19 into Canada's final domestic licence-exempt regime.

18. As TELUS states, "The US will bring 5 years of experience supporting HP&ODs to WRC-19. Canada would benefit by getting approximately 2 years of its own real world impact data prior to WRC-19 vs deferring to the US experience."[32] The Department could thus bring the knowledge it would gain from opening the 5150-5250 MHz band to new, innovative services and inform international spectrum policy discussions at WRC-19. Even were WRC-19 to result in more restrictive policies for the band, a Canada-specific assessment would continue to comply with Article 4.4 of the ITU *Radio Regulations*.[33] Further, Shaw and TELUS both note that should

[26] TELUS comments, paragraph 28.
[27] ISED, *Consultation*, paragraph 27.
[28] Cogeco comments, paragraph 25.
[29] Ruckus Wireless comments, page 4.
[30] Cogeco comments, paragraph 27.
[31] CSA comments, paragraph C1; Environment and Climate Change Canada comments, page 1; Parscom Management comments, page 2.
[32] TELUS comments, paragraph 22.
[33] Intel comments, page 4.

changes, in fact, be necessary post-WRC-19, there is little material risk because equipment can be reconfigured via firmware updates.[34]

19. Should such a temporary Canadian licensing policy be implemented by the Department, Rogers believes it should be sunsetted shortly after the completion of WRC-19 and the introduction of an updated, permanent licence-exempt regime for 5150-5250 MHz. Current or new users of the band operating under the current Canadian regulations should continue to be allowed on a fully unlicensed basis. Finally, as devices licensed under this temporary regime would still operate under a strict "no-interference, no-protection" basis in an unlicensed band – and there would be a limited number of licensees to administer – there should not be any licensing or administration fee, which would, in effect, penalize use of the band and would therefore be counter-productive to the Department's *Innovation Agenda*.

20. Rogers thanks the Department for the ongoing opportunity to share its views and participate in this process.

[34] Shaw comments, paragraph 75; TELUS comments, paragraph 4.