

August 4, 2017

To: Senior Director  
Spectrum Licensing and Auction Operations  
Innovation, Science and Economic Development Canada  
235 Queen Street, 6<sup>th</sup> Street  
Ottawa, Ontario K1A 0H5 Canada

**Via e-mail:** [ic.spectrumengineering-genieduspectre.ic@canada.ca](mailto:ic.spectrumengineering-genieduspectre.ic@canada.ca)

**Subject:** Comments to Canada Gazette, Part I, Consultation on Releasing Millimetre Wave Spectrum to Support 5G; **SLPB-001-17, June 2017**

### **COMMENTS OF IEEE 802**

1. IEEE 802<sup>1</sup> respectfully submits these responses to the Innovation, Science and Economic Development Canada (ISED) Consultation on Releasing Millimetre Wave Spectrum to Support 5G <<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11298.html>>.
2. IEEE 802, as a leading consensus-based industry standards body, produces standards for wireless networking devices, including wireless local area networks (“WLANs”), wireless specialty networks (“WSNs”), wireless metropolitan area networks (“Wireless MANs”), and wireless regional area networks (“WRANS”). We appreciate the opportunity to provide these comments to the ISED.

### **RESPONSE**

---

<sup>1</sup> The IEEE Local and Metropolitan Area Networks Standards Committee (“IEEE 802” or the “LMSC”).

3. IEEE 802 has determined that a response to Question 8-1 is warranted.

4. In the following, please see comments and responses to question relevant to frequency band 64 GHz to 71 GHz for licence-exempt use:

Question 8-1: ISED is seeking comments on its proposal to designate the band 64-71 GHz for licence-exempt operations on a no-protection, no-interference basis.

5. As ISED acknowledged there is strong interest for new licence-exempt (LE) wireless devices for various applications. A large number of applications and use cases have been identified for licence-exempt operation in that band. More specifically, IEEE 802.11 standards committee has extensively discussed various use cases and related requirements within the framework of development of IEEE Std 802.11ad and the IEEE P802.11ay specification. A summary list of key use cases [1] are provided in the following table for your references.

UC #	Use Case	Applications and Characteristics
1	Ultra -Short Range (USR) Communications	<ul style="list-style-type: none"> <li>• Static, Device-to-Device (D2D),</li> <li>• Streaming/Downloading</li> </ul>
2	8k Ultra-High Definition (UHD) Wireless Transfer at Smart Home	<ul style="list-style-type: none"> <li>• Uncompressed 8k UHD</li> <li>• Streaming</li> </ul>
3	Augmented Reality/Virtual Reality Headsets and Other High-End Wearables	<ul style="list-style-type: none"> <li>• Low Mobility, D2D</li> <li>• 3D UHD streaming</li> </ul>
4	Data Center P802.11ay Inter-Rack Connectivity	<ul style="list-style-type: none"> <li>• Indoor Backhaul with multi-hop</li> </ul>
5	Video/Mass-Data Distribution/Video on Demand System	<ul style="list-style-type: none"> <li>• Multicast</li> <li>• Streaming/Downloading</li> <li>• Dense Hotspot</li> </ul>
6	Mobile Offloading and Multi-band Operation (MBO)	<ul style="list-style-type: none"> <li>• Multi-band</li> <li>• Multi-RAT operation</li> <li>• Hotspot</li> </ul>

UC #	Use Case	Applications and Characteristics
7	Mobile Fronthauling	<ul style="list-style-type: none"> <li>• Fronthauling</li> </ul>
8	Wireless Backhauling	<ul style="list-style-type: none"> <li>• Small Cell Backhauling</li> <li>• Single hop or multiple hop</li> </ul>
9	Office docking	

6. In addition, the FCC is currently studying<sup>2</sup> usage of the 60 GHz bands within aircraft.
7. The need for higher peak data rates, more bandwidth (especially during the busiest hour, which is growing faster than the average hour), reduced latency, and higher sustained throughput are some of the key drivers for the next generation wireless access networks in millimetre wave bands.
8. Following FCC authorization of licence-exempt operation in the extended 64 GHz to 71 GHz band in July 2016, IEEE 802.11 formally revised its specification to add the 64-71 GHz extension band by defining the new channels and operating classes in IEEE Std 802.11<sup>TM</sup>-2016 [2]. In addition, Wi-Fi Alliance certifies products in the 60 GHz band (57 to 64 GHz) under the name Wi-Fi Certified WiGig<sup>TM</sup> that are now available. The certification is expected to be extended to cover the entire 57 GHz to 71 GHz range.
9. As ISED recognizes the value of harmonizing spectrum use with other countries and as there are no existing users of this band by any service in Canada, IEEE 802 recommends to allow licence-exempt operations in the frequency band 64 GHz to 71 GHz on a no-protection, no-interference basis.

---

<sup>2</sup> FCC 16-89 REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING

## CONCLUSION

10. IEEE 802 supports ISED's efforts to release Millimetre Wave Spectrum to support 5G. As detailed in the responses above, we believe that 64 GHz to 71 GHz is a valuable extension to existing licence-exempt access in the millimetre wave bands.

Respectfully submitted

By: /ss/.

Paul Nikolich

IEEE 802 LAN/MAN Standards Committee Chairman

em: p.nikolich@ieee.org

### **References:**

1. "IEEE 802.11-2015/0625r3, IEEE 802.11 TGay Use Cases", September 2015
2. IEEE Std 802.11™-2016, Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, Approved 7 December 2016