

**Notice No. SMSE-002-17 — Consultation on the Technical and Policy Framework for Radio Local Area Network Devices Operating in the 5150-5250 MHz Frequency Band**

**Gazette Notice SMSE-002-17**

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## **Introduction**

Herewith, the Wireless Broadband Alliance would like the opportunity to respond to the “Notice No. SMSE-002-17— Consultation on the Technical and Policy Framework for Radio Local Area Network Devices Operating in the 5150-5250 MHz Frequency Band” on whether to modify the current technical and policy framework for radio local area network (RLAN) devices operating in the 5150-5250 MHz frequency band.

### *Background of the Wireless Broadband Alliance:*

Founded in 2003, the mission of the Wireless Broadband Alliance (WBA) is to champion the development of the converged wireless broadband ecosystem through seamless, secure and interoperable wireless broadband services for delivering outstanding user experience.

Building on our heritage of Next Generation Hotspot (NGH) and carrier Wi-Fi programs, the WBA continues to drive and support the adoption of Next Generation Wi-Fi and other unlicensed wireless services across the entire public Wi-Fi ecosystem, including Internet of Things, Big Data, Converged Services, Smart Cities, 5G, etc.

Today, our membership includes major fixed operators; seven of the top ten mobile operator groups (by revenue), who are reliant primarily upon licensed spectrum, but also with interests in unlicensed. Members also include leading technology companies.

WBA member operators collectively serve more than 2 billion subscribers and operate more than 25 million hotspots globally.

For a complete list of current WBA members, please <http://www.wballiance.site/join-us/current-members/>

**A. The demand for and benefit, if any, of allowing HPODs in the 5150-5250 MHz frequency band before WRC-19.**

**Wi-Fi Growth Forecasts**

As the Department published, public and home Wi-Fi hotspots in Canada alone will grow from 0.8 million to 10.2 million between 2015 and 2020, representing a 13-fold increase.<sup>1</sup> Wi-Fi continues to be one of the fastest growing elements of the wireless market.<sup>2</sup>

Wi-Fi represented 57.6% of total Internet traffic in Canada in 2015 and will rise to 64.9% of total Internet traffic in 2020 (which will be 2.6X the amount of fixed/wireline Internet).

Globally, Wi-Fi represented 55.2% of total Internet traffic in 2015, growing to 59.1% of total Internet traffic in 2020.<sup>3</sup> In addition, despite the growing availability of 4G/LTE, the same research forecasts that mobile offload onto Wi-Fi will continue to increase from 60 percent (10.7 exabytes/month) in 2016 to 63 percent (83.6 exabytes/month) by 2021.

Also of note is the recent standardization of the License Assisted Access (LAA) standard in Release 13 of the 3GPP, and approval by the FCC of prior generation LTE-U devices for immediate service provider deployments. As these devices begin to penetrate the market, this will further increase the spectrum demands generally on 5 GHz license exempt bands, in effect competing with Wi-Fi for scarce spectrum resources.

Moving even further into the future, WBA research indicates that, with a response rate of 80%, Wi-Fi - by far - is the preferred unlicensed spectrum technology that companies see as the main candidate to play a relevant role in 5G, indicating that the usage of Wi-Fi and unlicensed spectrum is likely to increase over time.

**IoT as a Driver for Additional Growth**

Additional use of unlicensed spectrum is anticipated with the Internet of Things. In 2016, the number of “connected things” was estimated to be 6.4 billion, which was up 30% from 2015, and by 2020, this number is estimated to increase exponentially to 20.8 billion.<sup>4</sup>

Recent research highlighted that the development of Wi-Fi IoT applications, e.g. the emergence of 802.11ax, will push the market for short-range wireless connectivity even further and 802.11ax devices alone are expected to hit 10 billion shipments by 2021.

**More spectrum is required.**

More spectrum is needed in the 5 GHz band to meet this demand. In the 2.4 GHz band, the most popular Wi-Fi band, has become over congested and usage is growing rapidly in the 5 GHz band. Moreover, the latest Wi-Fi technology – 802.11ac, which is designed to support gigabit speeds, is not capable of operating in the 2.4 GHz band, further accelerating the demand for usable spectrum in the 5 GHz band.

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<sup>1</sup> SMSE-022-17.

<sup>2</sup> ABI Research: <https://www.abiresearch.com/market-research/product/1026732-wi-fi/>

<sup>3</sup> [http://www.cisco.com/c/m/en\\_us/solutions/service-provider/vni-forecast-highlights.html](http://www.cisco.com/c/m/en_us/solutions/service-provider/vni-forecast-highlights.html)

<sup>4</sup> <http://www.gartner.com/newsroom/id/3165317>

Just recently, the W-Fi Alliance issued their 'Spectrum Needs' study demonstrating the future requirements for more spectrum, outlining that between 500 MHz and 1 GHz of additional spectrum in various world regions may be needed to support expected growth in Wi-Fi by 2020.

### **Improving Time to Market.**

Canadians are likely to face a slower time to market for new equipment due to additional certification requirements compared with the American and other international markets. This might also result in higher equipment costs for Canadian Service providers as they might not have access to all equipment offerings compared to the US counterparts..

### **International developments**

Also at an international level, it appears that regulators are ready to move in the same direction as FCC.

- Just recently, the United Kingdom's Ofcom launched a consultation regarding their decision to proceed with proposals to extend Wi-Fi access in the 5 GHz band to an additional 125 MHz (5725 to 5850, the '5.8GHz band').
- Likewise, in December, 2016, Panama modified its national frequency allocation plan (Plan Nacional Atribucion de Frecuencias) to reflect the same reforms undertaken by the U.S.<sup>5</sup>

### **Conclusion.**

Harmonization of Canada's rules with the United States' would address this problem and make available another 100 MHz of contiguous spectrum, increasing the amount of usable spectrum in the band by almost 20%, helping carriers to reliably deliver gigabit speeds to their customers. Increasing the power limit would also improve the transmit reach of this channel (and all 20, 40 and 80 MHz channels in the band) by up to 4.5x.

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<sup>5</sup> Resolucion AN No. 10789-Telco, Panama, 21 de diciembre de 2016.

**B. The potential impacts on domestic and foreign satellite systems in the 5150-5250 MHz frequency band of authorizing HPODs use prior to WRC-19 on the basis of a maximum e.i.r.p. of 4 W. Requirements for an elevation mask towards satellites and an exclusion zone of 25 km around receiving earth stations to protect all satellite systems would likely also apply.**

#### **Absence of Interference Complaints**

Since the FCC liberalized its rules, there have been no interference-related complaints in the U.S. despite the deployment of devices. It seems that FCC's rules have been effective in protecting the satellite incumbents, and it would be fair to conclude that the limited number of earth station operations located in Canada would not be adversely affected by RLANs if they operate in compliance with similar technical rules.

**C. Should the Department proceed to authorize HPODs use prior to WRC-19, what regulatory approach would best ensure a balance of timely deployment and the protection of other existing and future services in the 5150-5250 MHz frequency band? Also, indicate any and all considerations that should be given to equipment standards, technical requirements, eligibility criteria and/or conditions of licence depending on the relevant approach.**

**Recommendation**

Harmonization of Canada’s technical rules for RLANs in the 5150-5250 MHz band with those of the United States’ is extremely important for Canadian consumers and Canada’s digital future. Meeting the substantial, growing demand for Wi-Fi and other unlicensed spectrum services in Canada, ensuring that Canadians have access to the same connectivity experiences than available in the U.S., and conforming Canadian and American equipment ecosystems are essential to reduce costs and improve performance.

We encourage ISED to adopt, as closely and as expeditiously as possible, the FCC’s rule changes to enable indoor and outdoor RLAN use cases at higher-power.

This approach appropriately balances timely deployment with the protection of other services in the band.