Ottawa, March 29 2017

Mr. Martin Proulx  
Director General, Planning and Standards Branch  
Spectrum, Information Technologies and Telecommunications Sector,  
Innovation, Science and Economic Development Canada  
(Submitted by email: ic:spectrumengineering-genieduspectre.ic@canada.ca)

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

Dear Mr. Proulx,

CanWISP is pleased to provide a response in regards to the Consultation on the Technical and Policy Framework for Radio Local Area Networks Devices Operating in the 5150-5250 MHz Frequency Band

We thank ISED for this continuing opportunity to participate in the elaboration of the future of the Canadian telecommunications service.

Yours truly,

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CanWISP Response to ISED

RE: SMSE-002-17

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

Introduction and Executive Summary

1. CanWISP is an organization representing Canadian Wireless Internet Service Providers. Our members operate networks providing fixed wireless Internet access to households in rural areas throughout Canada – areas that the large telecom operators are not servicing. Our members’ business model allows them to serve areas of low density profitably and at low cost, unlike the large telecom service providers, whose business model is usually designed to optimize return to shareholders, and is not suited to provide service in these areas, even if they are close to large population centers.

2. Our members’ networks range in size from hundreds up to 20,000 subscribers, and supply high speed internet service as well as VoIP-based voice services, and video services. Overall, our 52 members provide service to around 150,000 subscribers in hard to reach rural areas. We estimate that the total number of subscribers serviced by similar wireless operators (more than 150 others) is around 115,000. The total subscriber base served by fixed wireless ISPs is thus well over 200,000; this represents a market of over 140M$ a year. More than 98% of the connections are fixed wireless.

3. Smaller operators have 5 or less employees and the larger ones have up to 30. But overall, our members are very small businesses to small businesses.

4. Our members have very detailed knowledge of the areas where they provide services. They are committed to and involved in their communities. They are also very resourceful, providing carrier grade service at an acceptable cost while consuming very little radio frequency spectrum – certainly very little to no licensed spectrum.

5. Being heavy users of unlicensed spectrum our members have become proficient at sharing with other users while preventing interference.

6. CanWISP understands that spectrum is a scarce public resource that should be used in the most efficient manner possible, including sharing, to deliver services to Canadians.

7. Consumer demand has skyrocketed and unlicensed spectrum is becoming almost polluted with the number of different industries that are trying to take advantage of the low-cost spectrum.
8. CanWISP appreciates the importance of protecting the incumbent satellite operators utilizing 5150-5250MHz as well as the adjacent bands.

9. CanWISP members, operating in a lightly licensed model, could benefit from HPOD’s while working with the Satellite Operators to mitigate interference concerns.

Specific Comments Regarding three points raised by the Department

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

10. CanWISP members currently operate with a severe shortage of radio spectrum. CanWISP members are too small to gain access to spectrum that is auctioned by ISED, and the business models of a small rural ISP do not support the cost of point-to-point microwave frequency licenses. Thus, most CanWISP members are limited to unlicensed and lightly-licensed frequency allocations for both backbone and last-mile radio networks.

11. Historically, WISP’s have used 900MHz (902-928) and 2400Mhz (2400-2483.5) for Point to Multipoint services. With the explosion of consumer devices using these bands for various applications, they have become crowded and virtually unusable in most areas.

12. A survey across our members led to the finding that there is one 5.8Ghz link per 27 subscribers. All our members are using 5.8Ghz to provide Point to Multipoint as well as Point to Point. Only 54% of the links installed are working at full modulation rate.

13. Most often, Point to Multipoint systems are timed for 75% download and 25% upload, while Point to Point systems are timed for 50% duty cycle. The difference in timing can lead to self interference on a tower deploying both scenarios.

14. The 100 MHz of spectrum between 5150 MHz and 5250 MHz represents an opportunity for CanWISP members to offer increased speeds to our broadband customers. The CRTC has recently announced a target of 50Mbps to every household in Canada, and rural customers served by WISPs will only gain access to these speeds if WISPs can gain access to more spectrum. Access to this band will help rural WISPs meet this challenge.

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 4W.

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.

15. Point to Point microwave systems operating in this band should not cause interference to satellite systems, provided the antennas used have limited beam widths in the vertical plane.

16. CanWISP recognizes the potential for interference to satellite systems from Point to Multipoint (last-mile) deployments. In deployment scenarios where indoor devices are used at the
customer premises, the service provider has negligible control over how these devices are positioned, and these devices may be positioned in a way that interferes with satellite systems.

17. In deployment scenarios where outdoor devices are used at the customer premises, the service provider is usually responsible for mounting the device to the exterior of a house or structure, and can control the elevation of the antenna boresight.

18. In authorizing equipment for use in this band, ISED would be justified in requiring that antennas meet mask requirements consistent with a 2' high-performance parabolic antenna in the vertical plane to avoid interference with satellite systems. This mask may be imposed together with a limit on antenna vertical elevation angle. By uploading technical station data, users and ISED may identify installations that may use antenna uptilt that exceeds the elevation mask limits.

19. Output power limits imposed on HPODs used for point-to-point links should be governed by the same rules that govern point-to-point links in the 5725-5850 MHz frequency band; that is, an e.i.r.p. above 4W is permitted where the higher e.i.r.p. is achieved by employing higher gain directional antennas and not higher transmitter output powers.

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 futures 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.

20. In authorizing the use of 5150-5250 MHz HPODs, CanWISP recommends the use of a lightly-licensed system like that which is currently in use for the 3650-3700 MHz (WBS) band. In this licensing mechanism, operators are granted a license to use the frequency band in a designated Tier-4 geographical area, and must upload technical data for all in-service stations. Through this type of system, operators have the opportunity to conduct frequency co-ordination, and operators of satellite systems would have the opportunity to identify potential sources of interference. In granting licenses to operators, ISED may also inform operators of satellite installations in the licensing area, so that licensees are aware of protected systems.

21. Where possible, regulations governing equipment for use in this band should be harmonized with FCC regulations, so that Canadian WISP's can access low-cost products.
Conclusion

22. Fixed Wireless allows WISP’s to build backhaul and last mile access infrastructure in difficult to reach remote or rural locations that do not have access to fixed line broadband.

23. Fixed Wireless is a proven solution for connecting the unconnected, and will help bridge the digital divide.

24. There is limited licensed spectrum available for Fixed Wireless.

25. Fixed Wireless in unlicensed bands is reliable and secure.

26. WISP’s want more certainty to be able to invest in Fixed Wireless Infrastructure.

27. Additional spectrum availability is transformative to the small businesses that provide internet service rural Canadian communities, and to the communities we operate in. Spectrum availability is crucial to our ability to meet consumers’ growing demands for higher bandwidth.

CanWISP thanks ISED for the opportunity to provide these comments.