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Consultation on the Technical and Policy Framework for Licence-Exempt Use in the 6 GHz Band (Notice No. SMSE-014-20) – Comments

Xplornet Communications Inc., on behalf of itself and Xplore Mobile Inc., is pleased to file its comments with respect to the above-noted consultation, as published in Canada Gazette, Part 1, Vol. 154, No. 49 on December 5, 2020.

Yours truly,

A handwritten signature in blue ink, appearing to read "Carl MacQuarrie", with a stylized flourish at the end.

Carl MacQuarrie

Attachment

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**Innovation, Science and
Economic Development Canada**

Spectrum Management and Telecommunications

**As published in
Canada Gazette, Part 1, Vol. 154, No. 49
on December 5, 2020**

Notice No. SMSE-014-20

***Consultation on the Technical and Policy Framework
for Licence-Exempt Use in the 6 GHz Band***

Comments

of

Xplornet Communications Inc.

January 19, 2021

INTRODUCTION AND EXECUTIVE SUMMARY

1. Xplornet Communications Inc., on behalf of itself and Xplore Mobile Inc. (collectively, “Xplornet”), welcomes the opportunity to provide its comments with respect to the *Consultation on the Technical and Policy Framework for Licence-Exempt Use in the 6 GHz Band* (“Consultation”) currently being undertaken by Innovation, Science and Economic Development Canada (“ISED”).
2. Xplornet supports ISED’s work to release the 6 GHz band to serve Canadians. As a champion for rural broadband in Canada, Xplornet believes that this spectrum will be a critical component to delivering rural broadband services that not only meet the Government of Canada’s Universal Service Objective (“USO”), but that exceed this objective in order to keep pace with the evolving future needs of rural Canadians.
3. Accordingly, Xplornet fully supports ISED’s proposal to allocate spectrum across the 5926-6875 MHz frequency range for standard-power access points under the control of automated frequency coordination (“AFC”). This approach would leverage the allocation of this spectrum in the United States and help position service providers to deliver the advanced broadband connectivity that rural Canadians require.
4. In this submission, we provide our initial comments on the specific questions that ISED has put forward in the Consultation, including modifications to ISED’s proposals that we believe would enable this spectrum to best serve the needs of rural Canadians. Specifically, we encourage ISED to consider raising the maximum permitted e.i.r.p. associated with standard-power outdoor use from 36 dBm to 42 dBm. A maximum e.i.r.p. of 42 dBm is currently being considered in the United States, and adopting this higher threshold would better position this spectrum for rural broadband applications by providing increased coverage and throughput capabilities.
5. Furthermore, we submit that, if ISED is to rely on a model whereby AFC systems are operated by third parties, then it is essential for a minimum of two AFC systems

with nationwide coverage to be in place at all times. Without competition between AFC system providers, there is significant risk that the pricing associated with use of the AFC system will become uncompetitive, hindering the use of the 6 GHz spectrum and limiting its ability to serve rural Canadians.

6. If ISED is not able to secure a minimum of two AFC system operators at all times, then Xplornet submits that ISED should establish a government-run AFC system operator in order to ensure that the 6 GHz spectrum can be efficiently deployed to serve Canadians.
7. We reserve our right to comment more specifically on the matters raised in the Consultation during the reply phase of this proceeding.

XPLORNET: CANADA'S RURAL BROADBAND SERVICE PROVIDER

8. Xplornet is a champion for rural connectivity in Canada. We proudly serve those Canadians who choose to live in traditionally underserved areas outside of the cities and urban areas. Bringing fast, affordable Internet to rural Canada is more than just our business: it's our purpose.
9. Over the last 15 years, we have become one of Canada's facilities-based success stories. From our beginnings in the small town of Woodstock, New Brunswick, we have rapidly grown our reach. With investments now totalling over \$1.5 billion, we have built a national network spanning the 2nd largest country in terms of land mass in the world. Today, we are proud to serve approximately one million rural Canadians located in every province and territory of Canada.
10. The communities we serve share a common element: they are rural areas of the country that have been underserved by the incumbent service providers, and needed better service. Xplornet shares the objectives of the Government of Canada to bring advanced broadband services to rural Canadians, and we have made it our mission to bring advanced new broadband services to rural Canadians using a mix of technologies, including fibre, fixed wireless and satellite infrastructure. We are now offering speeds of 50 Mbps with unlimited data on our

fixed wireless network. We are introducing fibre-to-the-home service in parts of the country. The launch of the next-generation Jupiter-3 satellite will enable download speeds of 100 Mbps and more for our satellite customers beginning in 2022. Through a mix of technologies, we are preparing to launch wireless 5G services in rural Canada on the same timeline as they will be launched in urban centres. We are building networks that will not only achieve the Government of Canada's USO, but that will deliver speeds multiple times faster than this benchmark in order to keep pace with the needs of rural Canadians into the future.

6 GHz IS CRITICAL FOR THE FUTURE OF RURAL BROADBAND

11. While we have a clear roadmap to provide rural Canadians with the services they require now and in the years to come, access to mid-band spectrum will be critical to its success.
12. In rural areas of the country, there is significant and immediate demand for mid-band spectrum to support wireless broadband services. Rural wireless providers are currently facing extreme shortages of spectrum, as no spectrum allocations have been made to support rural wireless services for more than six years. This is despite the fact that residential Internet use has increased by over 600%¹ over that same period.
13. ISED is currently taking important steps to allocate new mid-band spectrum for flexible use, including the release of spectrum in the 3500 MHz band and the 3800 MHz band. However, these processes are largely focused on allocating new spectrum licences to individual licensees.
14. While it is essential for ISED to allocate licensed spectrum to rural broadband, the importance of access to unlicensed spectrum for rural Canadians cannot be lost. As was discussed in the 3800 MHz Consultation², rural wireless providers are

¹ According to the CRTC's 2013 Communications Monitoring Report, average residential monthly Internet usage was 33.8 GB in 2012. See page 143. According to the CRTC's 2019 Communications Monitoring Report, average residential monthly Internet usage in 2018 was 209.5 GB. See Infographic 8.8.

² *Consultation on the Technical and Policy Framework for the 3650-4200 MHz Band and Changes to the Frequency Allocation of the 3500-3650 MHz Band* ["3800 MHz Consultation"].

currently limited to only 50 MHz of shared wireless broadband service (“WBS”) spectrum. In many areas of the country today, demand within the current WBS band greatly exceeds the 50 MHz of capacity provided by this spectrum. Indeed, in that process, the BCBA³, CanWISP⁴, the CCSA⁵, Iristel⁶, Quebecor⁷, Sasktel⁸, TekSavvy⁹, Telus¹⁰ and Xplornet¹¹ all encouraged ISED to allocate an increased amount of spectrum to WBS in order to support parties in achieving the USO across rural Canada.

15. While an expanded WBS band, if adopted, would provide wireless providers with additional shared spectrum to support achieving the USO across rural Canada, ISED needs to look forward to serving the future needs of rural Canadians. To this end, access to new unlicensed 6 GHz spectrum will be extremely important to not only meeting the USO, but to achieving future service capabilities that continue to meet the evolving needs of rural Canadians.
16. Accordingly, Xplornet fully supports ISED’s proposal to allocate spectrum across the 5926-6875 MHz frequency range for standard-power access points under the control of automated frequency coordination (“AFC”). This approach would leverage the allocation of this spectrum in the United States and foster the ability for rural broadband services to keep pace with the needs of rural Canadians.
17. In the remainder of this submission, we provide our initial comments on the specific questions that ISED has put forward in the Consultation. We reserve our right to comment more specifically on these matters during the reply phase of the proceeding.

³ 3800 MHz Consultation, BCBA Reply Comments, page 1.

⁴ 3800 MHz Consultation, CanWISP Reply Comments, paragraph E17.

⁵ 3800 MHz Consultation, CCSA Comments, paragraph 12.

⁶ 3800 MHz Consultation, Iristel Reply Comments, paragraph 6.

⁷ 3800 MHz Consultation, Quebecor Reply Comments, paragraph 81.

⁸ 3800 MHz Consultation, SaskTel Comments, paragraph 14.

⁹ 3800 MHz Consultation, TekSavvy Reply Comments, paragraph 4.

¹⁰ 3800 MHz Consultation, Telus Reply Comments, paragraph 9.

¹¹ 3800 MHz Consultation, Xplornet Reply Comments, paragraph 39.

RESPONSES TO CONSULTATION QUESTIONS

5 INTERNATIONAL CONTEXT

5.3 Development of the 6 GHz licence-exempt ecosystem

Q1: ISED is seeking comments on the timelines for the availability of:

- a. low-power equipment ecosystems, both Wi-Fi 6E and 5G NR-U***
- b. standard-power equipment ecosystems, both Wi-Fi 6E and 5G NR-U, under the control of an AFC***
- c. AFC***

18. We understand from our vendors that the ecosystem in the United States, inclusive of a, b and c, above, is anticipated to be available in the second half of 2021.

7 CHANGES TO THE SPECTRUM UTILIZATION FOR THE 6 GHz BAND

Q2: ISED is seeking comments on its proposals to allow licence-exempt RLAN use in the 5925-7125 MHz band.

19. Xplornet supports ISED's proposal to maximize the availability of 6 GHz spectrum for outdoor standard-power operation. This spectrum will be critical to the future development of rural broadband services. Access to this spectrum will facilitate speeds that meet and exceed the Government of Canada's USO. Access to 6 GHz spectrum for outdoor standard-power operation will be particularly important in areas of the country where shared mid-band spectrum is in high demand and subject to very limited to availability.

20. Access to this spectrum for low-power indoor WiFi equipment will also enable an improved broadband experience for Canadians.

Q3: ISED is seeking comments on the proposed footnote Cxx and the changes to the CTFA as shown in table 2.

21. Xplornet supports the footnote that ISED proposes be added to the CTFA.

8 PROPOSALS FOR THE INTRODUCTION OF LICENCE-EXEMPT OPERATION IN THE 6 GHz BAND

8.1 Proposals related to standard-power RLAN operation

Q4: ISED is seeking comments on the proposed rules for standard-power RLANs:

- a. indoor and outdoor operation would be permitted**
- b. RLAN access points would only be permitted to operate under the control of an AFC system in the 5925-6875 MHz frequency range**
- c. maximum permitted e.i.r.p. would be 36 dBm**
- d. maximum permitted power spectral density would be limited to 23 dBm/MHz**
- e. use of a vertical elevation mask, with a maximum e.i.r.p. of 125 mW at elevation angles above 30 degrees over the horizon, would be required**

22. Xplornet generally supports ISED's proposed rules for standard-power RLANs. However, with respect to part c) of this question, we recommend that ISED consider raising the maximum permitted e.i.r.p. from 36 dBm to 42 dBm. A maximum e.i.r.p. of 42 dBm is currently being considered in the United States, and adopting this higher threshold would better position this spectrum for rural broadband applications by providing increased coverage and throughput capabilities. As use of an AFC is already being proposed, no additional frequency coordination measures would be required to facilitate this modification.

Q5: ISED is seeking comments on allowing access to the additional 100 MHz of spectrum in the 6425-6525 MHz sub-band for standard-power operation.

Q6: ISED is seeking comments on the equipment availability of standard-power RLANs in the 6425-6525 MHz band and the impact on the development of AFC systems for Canada due to a potential lack of international harmonization for that sub-band.

23. Xplornet supports ISED's proposal to allow standard-power operation in the 6425-6525 MHz frequency range. It is possible that a Canada-specific equipment solution will be required to utilize this spectrum, as equipment from the United States will not be designed to operate on these frequencies. However, we do not anticipate that equipment considerations will represent a significant roadblock to the deployment of this spectrum in Canada. Similarly, AFC controls should be able to adapt to manage these frequencies.

8.2 Proposals related to low-power indoor-only RLAN operation

Q7: ISED is seeking comments on the proposed rules for low-power indoor-only RLANs:

- a. operation would be permitted indoor only across the 5925-7125 MHz band***
- b. the use of a contention-based protocol (e.g. listen-before-talk) would be required***
- c. maximum permitted e.i.r.p. would be 30 dBm***
- d. maximum permitted power spectral density would be limited to 5 dBm/MHz***

24. Xplornet supports ISED's proposed rules for low-power indoor-only RLANs. These are consistent with those being adopted in the United States.

8.3 Proposals related to very low-power RLAN operation

Q8: ISED is seeking comments on the proposed rules to allow very low-power RLAN devices:

- a. operation would be permitted indoors and outdoors across the frequency range 5925-7125 MHz band***
- b. the use of a contention-based protocol (e.g. listen-before-talk) would be required***
- c. maximum permitted e.i.r.p. would be 14 dBm***
- d. maximum permitted power spectral density would be limited to -8 dBm/MHz***

25. Xplornet supports ISED's proposed rules for very low-power RLAN devices. These are consistent with those being adopted in the United States.

9 PROPOSALS RELATED TO THE AUTOMATED FREQUENCY COORDINATION SYSTEM

Designating AFC systems

Q9: ISED is seeking comments on potential business models for AFC administrators to operate their AFC systems in Canada.

26. Xplornet has no comments at this time.

Q10: ISED is seeking comments on its proposal to permit the approval of multiple, third party AFC systems, taking into account the potential for the development of a sustainable market for AFC systems in Canada.

27. Xplornet submits that, if ISED is to rely on a model whereby AFC systems are operated by third parties, then it is essential for a minimum of two AFC systems with nationwide coverage to be in place at all times. Without competition between

AFC systems providers, there is significant risk that the pricing associated with use of the AFC system will become uncompetitive, hindering the use of the 6 GHz spectrum and limiting its ability to serve rural Canadians.

28. If ISED is not able to secure a minimum of two AFC system operators at all times, then Xplornet submits that ISED should establish a government-run AFC system operator in order to ensure that 6 GHz spectrum can be efficiently deployed to serve Canadians.

Q11: ISED is seeking comments on potential exit strategies if the AFC administrator decides to cease operation in Canada.

29. As noted in our response to Q10, above, if ISED is not able to secure a minimum of two AFC systems operators at all times, then Xplornet submits that ISED should establish a government-run AFC system operator in order to ensure that 6 GHz spectrum can be efficiently deployed to serve Canadians.

Harmonization with the U.S.

Q12: ISED is seeking comments on adopting an AFC system model that is harmonized to the maximum extent possible with the AFC system model being implemented in the U.S. and other international markets.

30. Xplornet agrees that ISED should seek to adopt an AFC system model that is harmonized to the maximum extent possible with those being implemented in the United States and in other markets. Harmonization of AFC models will encourage AFC system operators serving other markets to offer services in Canada, bringing necessary competition to the provision of AFC systems. If ISED is not able to secure a minimum of two AFC system operators at all times, then Xplornet submits that ISED should establish a government-run AFC system operator in order to ensure that 6 GHz spectrum can be efficiently deployed to serve Canadians.

Implementation considerations

Q13: ISED is seeking comments on the implementation considerations for the operation of an AFC system, specifically:

- a. information required from licensed users***
- b. interference protection criteria for computation of exclusion zones***
- c. information required from standard-power APs***
- d. frequency of AFC update of licensee information***
- e. security and privacy requirements***

31. Regardless of the role that AFC system operators may play in other jurisdictions, Xplornet submits that the focus of Canadian AFC system operators should be to simply maintain a live record of spectrum deployed using standard power. No further information beyond what is necessary to perform this function should be required by AFC system operators. Service providers can use this information to manage their own frequency use.

Q14: ISED is seeking comments on any additional considerations, limits or general concerns that should be taken into account in setting detailed standards and procedures for AFC operation.

32. Xplornet reserves its right to provide further comments with respect to this question.

9.1 Coexistence by standard-power access points with automated frequency coordination

Q15: ISED is seeking comments on its proposal to require AFC systems to protect the following types of licensed stations from standard-power APs:

- a. fixed microwave stations***
- b. fixed point-to-point television auxiliary stations***
- c. radio astronomy stations***

33. Xplornet supports ISED's proposals for the protection of the types of licenced stations noted above from standard-power APs.

9.2 General matters related to automated frequency coordination implementation

Exploiting synergies

Q16: ISED is seeking comments on the sample agreement related to the designation and operation of an AFC system in Canada.

34. Xplornet reserves its right to provide further comments with respect to this question.

Q17: ISED is seeking comments on the proposed approach to incremental implementation of an AFC system in Canada.

35. As noted in our response to Q10, it is essential for a minimum of two AFC systems with nationwide coverage to be in place at all times. ISED should have these two systems available from launch. AFC systems operators beyond these first two may launch in an incremental manner.

36. If ISED is not able to secure a minimum of two AFC system operators at all times, then Xplornet submits that ISED should establish a government-run AFC system operator in order to ensure that 6 GHz spectrum can be efficiently deployed to serve Canadians.

Q18: ISED is seeking comments on the objective to maximize the potential for synergies, where possible, in defining the technical and administrative requirements for the respective databases addressing different bands under different technical regimes.

37. Xplornet agrees that ISED should leverage synergies of the nature discussed wherever possible.

CONCLUSION

38. Xplornet supports ISED's work to release the 6 GHz band to serve Canadians, as this spectrum will be a critical component to delivering rural broadband services that keep pace with the evolving needs of rural Canadians.

39. To this end, Xplornet fully supports ISED's proposal to allocate spectrum across the 5926-6875 MHz frequency range for standard-power access points under the

control of an AFC. We encourage ISED to consider raising the maximum permitted e.i.r.p. associated with standard-power outdoor use from 36 dBm to 42 dBm. A maximum e.i.r.p. of 42 dBm is currently being considered in the United States, and adopting this higher threshold would better position this spectrum for rural broadband applications by providing increased coverage and throughput capabilities.

40. Furthermore, we submit that, if ISED is to rely on a model whereby AFC systems are operated by third parties, then it is essential for a minimum of two AFC systems with nationwide coverage to be in place at all times. Without competition between AFC system providers, there is significant risk that the pricing associated with use of the AFC system will become uncompetitive, hindering the use of the 6 GHz spectrum and limiting its ability to serve rural Canadians.
41. If ISED is not able to secure a minimum of two AFC system operators at all times, then Xplornet submits that ISED should establish a government-run AFC system operator in order to ensure that 6 GHz spectrum can be efficiently deployed to serve Canadians.
42. We thank ISED for the opportunity to provide these comments and look forward to participating in the remaining stages of this consultation.

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