SEASIDE WIRELESS COMMUNICATIONS INC.

Comments for

Canada Gazette, Part 1

Consultation on Revisions to the 3500 MHz Band to Accommodate Flexible Use and Preliminary Consultation on Changes to the 3800 MHz Band

SLPB-004-18
June 2018
Spectrum Management and Telecommunications

July 12, 2018

Introduction

Seaside Wireless Communications Inc. is a fixed wireless service provider operating across 30,000 square kilometers of rugged, sparsely populated terrain in rural Nova Scotia.

Seaside is now in the final months of a three-year ISED *Connecting Canadians* project that is making significantly higher internet speeds available to approximately 15,000 potential subscribers. This project relies on LTE technology in the 3475-3700 MHz spectrum band. Access to spectrum in the 3400-4200 MHz band is essential to its continued success in meeting future consumer demand for faster and faster internet speeds.

The outcome of this ISED Consultation on Revisions to the 3500 MHz Band to Accommodate Flexible Use and Preliminary Consultation on Changes to the 3800 MHz Band is critical to the future of our company and many others like us across Canada. At stake is the essential tool for achieving ISED's goal of universal coverage in rural and northern Canada at the service-level targets set by the CRTC.

If fixed wireless service providers such as Seaside are to remain competitive, we must have access to 3400-4200 MHz spectrum so that we can continue converting technological advances into higher speeds and innovative service offerings. Failure to ensure the viability of fixed wireless service providers will encourage the monopolistic and anti-competitive environment government policy has sought to eliminate. Competition in the rural marketplace is at stake in these 3500 MHz consultations.

Seaside acknowledges the growing demand for spectrum as a consequence of growth in mobile data transmission and upcoming deployment of 5G technologies. We recognize the benefits of international policy harmonization where feasible. We are not opposed to some form of equitable sharing of 3400-4200 MHz spectrum, provided it avoids serious negative impacts on internet service levels in rural and northern Canada. Such negative impacts will be inevitable if adequate spectrum isn't reserved for fixed wireless applications. In Nova Scotia, this policy decision will affect more than 35,000 rural households and businesses.

It is difficult to overstate the importance of assuring an adequate, effective, and affordable allocation of 3400-4200 MHz spectrum for fixed wireless operators like Seaside. It is essential. Without equitable and affordable access, there will be no prospect of achieving the goals currently set out by ISED and the CRTC.

The most effective way for ISED to serve and promote rural broadband connectivity, is to develop a policy and licensing framework that will encourage and facilitate access by small, independent rural, regional service providers to flexible use licenses in the 3500MHz band.

Response to ISED Questions

Q1 – ISED is seeking comments on its assessment of the timelines identified for the development of an equipment ecosystem for 5G technologies in the 3500 MHz and 3800 MHz bands, and whether the timelines will be the same in both bands.

Seaside agrees with ISED's assessment that non-standalone 5G equipment will be available as early as 2019. Deployments of 5G operations, including flagship consumer products for consumer use, will not take place until 2020. It should be noted that multiple mobile carriers are already testing non-standalone equipment from vendors such as Huawei and Ericsson.

Seaside also notes that the standalone NR 5G specification was finalized during the week of June 10th, 2018. This concluded the finalization of 3GPP's Release 15.

3GPP's Release 15 identifies the 3300–4200 MHz band for its 5G New Radio (NR) standards. Specifications were developed in late 2017 for two TDD NR bands: band n77 (3300–4200 MHz) and band n78 (3300-3800 MHz).

Fixed wireless 3GPP LTE equipment has existed for a number of years for bands 42 (3400-3600 MHz) and 43 (3600-3800 MHz). As such, this has allowed current TD-LTE manufacturers to get a head start on developing 5G equipment for those spectrum bands.

Seaside believes that a 5G-equipment ecosystem will be available for the 3500MHz band before availability in the 3800MHz band.

Q2 – ISED is seeking comments on the proposals for:
• adding a primary mobile allocation to the 3450–3475 MHz band
• removing the radiolocation allocation in the 3450–3500 MHz band
• making the corresponding changes to the Canadian Table of Frequency Allocations

Seaside supports the addition of a primary mobile allocation to the 3450-3475MHz band, as well as removing the radiolocation allocation in the 3450-3500MHz band.

Seaside believes that having a larger amount of spectrum with the same service allocations will not only positively impact mobile 5G deployments, it will also positively affect fixed wireless service providers such as Seaside as they transition from 4G LTE to 5G services over time.

Q3 – ISED is seeking comments on the proposal to allow flexible use in the 3450–3475 MHz band.

Seaside agrees with the Department's proposal that 3450-3475MHz should be designated as flexible use. This would allow for the entire 3500MHz band to be flexible use.

Seaside also recommends that ISED implement policies and a licensing framework that would facilitate smaller, regional providers gaining access to this spectrum.

Q4 – ISED is seeking comments regarding interest in sharing spectrum between radiolocation and other services in the 3400–3450 MHz band, and options for doing so.

Seaside supports spectrum sharing between radiolocation and other broadband service providers in the 3400-3450MHz band.

Seaside supports multiple options to allow for sharing the 3400-3450MHz band.

- A lightly licensed option which is used in the 3650-3700MHz band would be the simplest approach. This could be used in conjunction with exclusion areas to protect current radiolocation systems.
- The implementation of a Spectrum Access System (SAS), similar to what is used with the Citizens Broadband Radio Service (CBRS) band in the US.
- Another solution would be the implementation of a geo-location database, currently developed for TV Whitespace spectrum sharing. This option has yet to be widely used in Canada, so operational results should be monitored before implementing this option.

Q5 – ISED is seeking comments on the expected impacts of the following options with regards to the continuation of existing services, competition in the Canadian marketplace and availability of new 5G services for Canadians.

Option 1 – *For each licence area, existing licensees would be issued flexible use licences for one third of their current spectrum holdings rounded to the nearest 10 MHz, with a minimum of 20 MHz.*

Option 2 – *For each licence area, existing licensees would be issued flexible use licences for a fixed amount of spectrum. Any licensee that holds 50 MHz of spectrum or more would be licensed for 50 MHz, and all other licensees would be licensed for 20 MHz.*

Seaside supports Option 2 as it would better allow service providers that currently hold licenses in this spectrum to continue to offer existing services.

Seaside also notes that many fixed wireless service providers currently hold subordinate licenses through primary licensees. ISED should take this into

consideration as many rural broadband customers across the country currently depend on these subordinate licenses held by fixed wireless service providers for broadband service.

Option 2 potentially allows incumbents to retain enough spectrum to enable them to offer subordinate licensing to smaller rural, and regional service providers.

Seaside strongly encourages ISED to allocate spectrum in rural areas in a manner that enables small, rural, regional broadband service providers to continue offering existing services, as well as new upgraded services offering faster speeds to keep pace with ever-growing consumer bandwidth demands.

Q6 – ISED is seeking comments on alternative options for licensees to return spectrum to the Department to make available for a future licensing process. Respondents are asked to provide a rationale for any alternative proposals, including how they would meet ISED's policy objectives as stated in section 3.

Seaside has no alternative options to suggest.

Q7 – ISED is seeking comments on a revised band plan using unpaired blocks of 10 MHz in the frequency range of 3450–3650 MHz.

Seaside agrees with revising the band plan to use unpaired blocks of 10MHz. The majority of the systems operating in this band today use TDD based technology.

ISED states in paragraph 51 that "The adoption of the proposed band plan does not preclude ISED from licensing aggregated packages of multiple 10MHz blocks to facilitate large bandwidth channels for 5G technologies". While it is true that multiple 10MHz blocks will be needed for 5G technologies, rural fixed wireless broadband providers such as Seaside who are currently operating LTE radios in bands 42 and 43 (3400-3600MHz, 3600-3800MHz) would also benefit from these aggregated packages.

Q8 – ISED is seeking comments on whether any additional measures should be taken to limit potential interference issues with the proposed TDD band plan.

In cases where two or more TDD systems are operating in adjacent frequencies or in close geographical proximity, the licensees should be responsible for working together to mitigate the interference, whether by TDD synchronization, frequency coordination planning, and/or using guard bands, etc.

Q9 – ISED is seeking comments on the proposal to align the timing of the issuance of flexible use licences to incumbents with the issuance of licences to those who acquire 3500 MHz flexible use licences in a future licensing process.

Seaside agrees with ISED's proposal that the issuance of all flexible licenses, to both incumbents and new licensees of the 3500MHz band, be issued at the same time.

Allowing incumbents access to flexible licenses in advance of a future licensing process would needlessly award a competitive advantage to the incumbents, and stifle any competition in that band in the future.

Q10 – ISED is seeking preliminary comments on the importance of price discovery in a licensing process for flexible use licences in the 3500 MHz band.

Seaside recommends that ISED implement a policy and license framework that will encourage and facilitate access by small, independent rural, regional service providers to flexible use licenses in the 3500MHz band.

Seaside also recommends ISED use set asides to reserve spectrum blocks in rural areas and make them available on a First Come First Served or lightly licensed basis. This option promotes competition and access by small, independent rural service providers to spectrum, to continue to provide and improve services to rural Canadian residents.

Complex auction formats, such as CCA, would be an unfair advantage for large top tier carriers, as most small, independent rural fixed wireless service providers do not have the capacity to participate and compete with current incumbents.

Q11 – ISED is seeking comments on the proposed protection and notification provisions for incumbent licensees as outlined below.

Protection period: *For Tier 4 service areas that include a population centre of 30,000 people or more:*

- *a minimum protection period of 6 months for sites within large urban population centres and the 10 km buffer zone surrounding those centres*
- *a minimum protection period of 2 years for all other sites*

For all Tier 4 service areas that include a population centre of less than 30,000 people, a minimum protection period of 3 years

Notification period:

- *a minimum notification period of 6 months in large urban population centres and in the 10 km buffer zone surrounding those centres*

- *a minimum notification period of 1 year in all other areas*

Seaside commends ISED on its transition plan objectives; to allow for the deployment of 5G technologies, as well as accommodate the continued provision of existing fixed wireless broadband services to Canadians who rely on them.

Seaside agrees with the Department's transition plan principle that the transition policy be based on a "where and when necessary" principle. This principle would allow the ongoing offering of services by existing service providers without preventing deployment by new licensees.

Seaside does not agree with the proposed protection time period for incumbent licensees in large urban population centres.

Seaside proposes that the protection time period be increased to one year, to allow time for existing service providers to change to a different technology or spectrum band.

Q12 – ISED is seeking comments on alternative transition plans, or variations to the times proposed. Respondents are asked to provide a rationale for any alternative proposals.

As mentioned above in the response to Q11, Seaside proposes that the protection time period be increased to one year, to allow existing service providers time to change to a different technology or spectrum band.

Q13 – ISED is seeking comments on whether the fixed and mobile equipment for LTE and 5G technologies will be able to operate with intermittent interference from radars, including crossborder interference, within the 3450–3650 MHz band and in adjacent bands.

Seaside agrees with ISED that LTE and 5G technologies will be more resilient to interference when compared to pre- and non-LTE technologies previously used for fixed wireless deployments.

Seaside's network is near two of the mentioned cities (Halifax and Dartmouth). License value in areas such as these would be much lower than other populated areas, allowing small, rural providers the opportunity to access licensed spectrum for providing fixed wireless services to rural customers.

Q14 – ISED is seeking preliminary comments on how to optimize the use of the 3650–3700 MHz band, including the potential use of a database access model.

Seaside has extensively deployed equipment in the 3650-3700MHz band over the last nine years while connecting thousands of rural broadband customers in Nova Scotia.

Seaside deployed WiMAX equipment operating in 3650-3700 MHz in 2010, and in 2015 with our Connecting Canadians project award, Seaside began deploying LTE equipment operating in the same spectrum band, which enabled the offering of a more robust connection, along with faster speeds to our rural broadband customers.

Seaside agrees with ISED in considering the potential use of a SAS model, provided it does not impede independent fixed wireless providers from continuing to offer and improve services to rural households. Small independent fixed wireless providers like Seaside have invested heavily in infrastructure and equipment that operates in the 3650-3700MHz band.

Q15 – ISED is seeking comments on the importance of the 3700–4200 MHz band to future FSS operations.

Seaside supports the idea of liberating spectrum in the 3700-4200 MHz band for flexible use for 5G technologies as well as fixed wireless rural broadband systems.

With declining demand for C-band satellite telecommunications, Seaside believes that consolidating current usage to a portion of the band would free up spectrum that could be used in currently spectrum poor rural areas to provide broadband access via fixed wireless service providers.

Q16 – ISED is seeking comments on whether unlicensed operators in the 3700–4200 MHz band should be required to submit their technical parameters to ISED to assist in frequency management.

Seaside supports the idea of requiring unlicensed operators in the 3700-4200MHz band to register their locations and submit their technical parameters to ISED.

Having unlicensed operator locations and parameters documented will allow ISED to better understand and manage current spectrum usage, as well as positioning ISED to develop a policy framework to maximize the use of the spectrum moving forward.

Q17 – ISED is seeking comments on which steps Canada should take to optimize the use of the 3700–4200 MHz band in consideration of the current services being provided and the developing technologies that would permit the use of new services in this band (e.g. exclusion zones).

As mentioned in the above Q16 answer, Seaside believes that the first step ISED should take to optimize the use of the 3700-4200 MHz band is to identify its current

amount of use via operators being required to submit their technical parameters to the Department.

Seeing the impact that the 3650-3700 MHz band has made with fixed wireless service providers like Seaside, we would recommend that ISED explore all possible new services, including making additional spectrum such as this, available to small, rural, regional service providers.

Q18 – ISED is seeking comments on the challenges and considerations related to the coexistence of other services, such as mobile and/or fixed wireless access, in the 3700–4200 MHz band.

Seaside sees absolutely no reason why mobile 5G deployments would not be able to co-exist with fixed wireless providers in the 3700-4200 MHz band under a mandated cooperation policy. Seaside and many other fixed wireless providers are currently operating 4G LTE equipment that is capable of co-existing with 5G technologies.

Mandated cooperation would include interference mitigation techniques such as GPS timing and synchronization, Dynamic Spectrum Allocation, Remote electrical down tilt (RET) which is required for LTE Self Organizing Network (SON) optimization, etc.

Another consideration to enable the coexistence of multiple services is for ISED to mandate spectrum sharing in the policy and licensing framework, whether it is through the use of technologies such as Dynamic Spectrum Access, Cognitive Radios, and In-band Full-Duplex communication.