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Via email: ic.spectrumauctions-encheresduspectre.ic@canada.ca

Director
Spectrum Regulatory Best Practices
Innovation, Science and Economic Development Canada
235 Queen Street, 6th floor
Ottawa ON K1A 0H5

Re: Canada Gazette Notice No. SLPB-006-18 — Consultation on a Licence Renewal Process for Spectrum in the Bands 849-851 MHz and 894-896 MHz for Air-Ground Services

Attached, please find the comments of Rogers Communications Canada Inc. (Rogers) in response to *Canada Gazette*, Part I, September 1, 2018, *Consultation on a Licence Renewal Process for Spectrum in the Bands 849-851 MHz and 894-896 MHz for Air-Ground Services* (SLPB-006-18).

Rogers thanks the Department for the opportunity to provide input on this important issue.

Yours very truly,



Howard Slawner
Vice President – Regulatory Telecom
HS/pg

Attach.

Consultation on a Licence Renewal Process for
Spectrum in the Bands 849-851 MHz and 894-896 MHz
for Air-Ground Services
SLPB-006-18

Comments of
Rogers Communications Canada Inc.
September 19, 2018



Executive Summary

- E1. Spectrum is a critical input for satisfying the growth in demand for advanced connectivity services in Canada. Continued and growing access to interference free, exclusively licensed spectrum is needed in order to satisfy Canadians' growing demand for mobile data services. Indeed, additional spectrum is key for enabling the deployment of 5th generation wireless technology. As Canada's largest wireless provider and the leader in the Machine-to-Machine market, Rogers continues to invest heavily in advanced communication networks and requires access to additional spectrum.
- E2. Rogers supports Innovation, Science and Economic Development Canada's review of the spectrum in the bands in the bands 849-851 MHz and 894-896 MHz for Air-Ground Services in order to determine the most effective use of this spectrum. The Department should renew the spectrum licences under review for a shorter licence term and without a high expectation of renewal and begin coordinating immediately with the Federal Communications Commission on designating a new regional allocation for the spectrum. This should be combined with a review of other adjacent spectrum in the 800 MHz band that can be added to the commercial mobile Cellular band spectrum (824-849 / 869-894 MHz). Such regulatory reviews could result in public safety agencies being moved lower in the 800 MHz band to better align with the larger and more modern equipment ecosystem that exists in the U.S., a move that would benefit all Canadians both as citizens and consumers. Increasing and enhancing spectrum availability is vital to supporting the advanced network speeds, capacity, and wireless innovations that Canadians have come to enjoy and demand.
- E3. While all wireless services are facing increased pressure on spectrum resources, the Department should carefully weigh the size and importance of the mobile industry for the majority of Canadians and Canadian businesses when evaluating competing demands for spectrum, especially in urban and suburban areas. Rogers believes there will be significant demand in Canada for the services provided by 5th generation mobile services, and the potential benefits to Canadians and the economy are substantial. The Department has an important role to ensure that Canada continues to be at the forefront of 5th generation technology innovation and adoption by providing access to new spectrum, including by reallocating spectrum used by sun-setting technologies that can no longer effectively or efficiently serve Canadians.

Introduction

1. Rogers Communications Canada Inc. (Rogers) is pleased to provide Innovation, Science and Economic Development Canada (ISED or the Department) with the following comments in response to *SLPB-006-18: Consultation on a Licence Renewal Process for Spectrum in the Bands 849-851 MHz and 894-896 MHz for Air-Ground Services*¹ (the Consultation), published in the *Canada Gazette*, Part I, September 1, 2018.
2. As the Department states, the 849-851 and 894-896 MHz spectrum (the Air-Ground spectrum) is regionally harmonized in North America but the services currently being offered within the band are likely to be subsumed by other technologies in other bands.² While only a relatively small amount of bandwidth, its location adjacent to the current mobile Cellular band and the propagation characteristics of low band spectrum would result in a more efficient use of the spectrum by reallocating to terrestrial mobile service in the mid-term. The Department should renew Air-Ground spectrum licences for a shorter licence term without a high expectation of renewal and begin coordinating with the U.S. on designating a new regional allocation for the spectrum.
3. Effective spectrum policy frameworks will help Canadian network operators meet the increasing demand for data and innovative new services. Canada's mobile data traffic grew 41% in 2016, and is expected to grow five-fold from 2015 to 2020, a compound annual growth rate of 36%.³ This dramatic growth in demand for mobile data services will be fuelled, in part, by Canadian consumers and businesses embracing the Internet of Things (IoT), with Cisco predicting a Machine-to-Machine (M2M) compound annual growth rate of 77%.⁴ The introduction of 5th generation (5G) services and the massive machine type communications (mMTC) use-case will see 10-100 times more devices connected to the network, with some IoT/M2M devices having 10-year battery lives. IoT will empower a wide variety of sectors to increase their productivity and develop new business models. In the healthcare sector, medical and e-health services will be enabled along with a diverse range of wearables. In the transportation sector, Connected Cars will possess increasing self-driving capabilities as well as advanced logistics, robust mobility functions, and enhanced location services. For public services, sensor networks for Smart Cities

¹ ISED, *SLPB-006-18: Consultation on a Licence Renewal Process for Spectrum in the Bands 849-851 MHz and 894-896 MHz for Air-Ground Services* (Consultation); <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11430.html>.

² ISED, *Consultation*, para 13 and 17.

³ Cisco, *VNI Mobile Forecast Highlights, 2016-2021*.

http://www.cisco.com/c/dam/assets/sol/sp/vni/forecast_highlights_mobile/index.html#~Country

⁴ Ibid.

and remote sensing will enhance the abilities of governments of all levels to deliver services to citizens.

4. As Canada's largest wireless operator and the leader in the Machine-to-Machine market, Rogers knows that operators require additional capacity to keep pace with Canadians' demand for data services. Rogers was the first mobile wireless licensee in Canada and since originally launching services in the Cellular band has continued to deliver innovative services through the trialing and deployment of new mobile technologies. Such innovation is vital on the march to the 5th generation (5G) of wireless technology and new services, such as augmented and virtual reality and autonomous vehicles and manufacturing, while maximizing the efficient use of exclusively licensed, interference free spectrum. Rogers is currently working with our network infrastructure vendor, Ericsson, on 5G trials in Toronto and Ottawa, in addition to select cities over the next year.⁵ Access to new spectrum is critical, as it will help Canadian network operators meet the increasing demand for data and deliver innovative new services.
5. The Department should take a holistic view of spectrum management and the role of the Air-Ground spectrum in the broader 800 MHz frequency range. For instance, the U.S. embarked on an ambitious transition plan back in 2004, which involved rebanding the 800 MHz band and relocating public safety users to a new band. This process resulted in the creation of a new Band 26 standard for 4th generation (4G) Long Term Evolution (LTE) that is being used to deliver commercial mobile services.
6. In Canada, the Department is currently updating the Standard Radio System Plan (SRSP) and Radio Standards Specification (RSS) for the 824-849 / 869-894 MHz Cellular band.⁶ The intention is to align these standards with those of the Federal Communications Commission (FCC) and U.S. market, as well as to harmonize the Cellular band with modern mobile services authorized in other Canadian mobile bands. We believe that the increase in power that will better enable the deployment of advanced 4G LTE services to benefit Canadian wireless consumers – and future 5G services – could potentially have some impact on services in the Air-Ground spectrum. This could especially be true if the legacy equipment deployed in the Air-Ground spectrum band is technically deficient in co-existing with services in adjacent bands.

⁵ Rogers, *Rogers and Ericsson partner to bring 5G to Canadians*, April 2018; <https://about.rogers.com/2018/04/16/rogers-ericsson-partner-bring-5g-canadians/>.

⁶ ISED, *SRSP-503 — Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz and RSS-132 Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz*.

7. The renewal of the Air-Ground spectrum and updating of standards for the adjacent Cellular band, along with progress of the Public Safety Broadband Network,⁷ provides an opportunity for the Department to begin work on modernizing public safety narrowband spectrum and looking to harmonize with the U.S. Moving the public safety users lower in the 800 MHz band and combining the vacated frequencies with the Air-Ground spectrum could provide additional low band spectrum to commercial mobile operators in the future. ISED should start working with the FCC to address this potential benefit for public safety users, commercial mobile consumers, and Canadian citizens.
8. As a result, the Department should renew the current Air-Ground spectrum licences for a 3-year term with the possibility an additional 3-year term in order to provide Canadian and U.S. regulators with the time to develop a plan and engage their respective stakeholders to evaluate the potential new or extended bands.
9. The remainder of Rogers' comments will respond to the specific issues raised in the Consultation.

Q1: ISED invites comments on the proposal to renew spectrum licences in 849-851 MHz and 894-896 MHz for which licensees have met their conditions of licence.

10. Rogers believes, long term, that there is more value to Canadians for the 849-851 and 894-896 MHz spectrum if it is repurposed. The voice services these systems were initially intended to provide are now being made available via satellite systems, which can offer far more capacity in addition to data services with greater throughput and speed. The initial Air-Ground spectrum system, in fact, was based on very old technology that has since been replaced by Internet Protocol-based services. This view is shared by the Department itself, which notes the evolving nature of the industry and that satellite solutions and new direct air-ground approaches are being used more widely.⁸
11. The spectrum, however, cannot be transitioned immediately. Even using the full 2x2 MHz bandwidth, this spectrum cannot be repurposed to support broadband services that are demanded by consumers today. As such, we propose that the spectrum be reallocated in the mid-term to ensure that Canadians can more effectively use the spectrum to its full potential. To allow all stakeholders sufficient

⁷ Public Works and Government Services Canada, *Request for Information - Public Safety Broadband Network (ISED 401700)*; <https://buyandsell.gc.ca/procurement-data/tender-notice/PW-17-00802374>.

⁸ ISED, *Consultation*, para 17.

time to plan for the repurposing, the licence renewal term should be shortened to 3 years.

12. As we recently stated in the *Consultation on the Spectrum Outlook 2018 to 2022*, modernization of the Department's Standard Radio System Plans (SRSP) and Radio Standards Specifications (RSS) for current commercial mobile bands was needed to assist in addressing traffic pressure and spectrum demand, thus improving service to Canadian consumers.⁹ As the Department is aware of, a review of *SRSP-503: Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz* is currently underway through the Radio Advisory Board of Canada. A likely outcome of the revised SRSP will be to increase power levels for Cellular spectrum and allowing the use of multiple-input and multiple-output (MIMO) technology. However, it is possible that allowing for urgently needed newer technology within the Cellular band may result in interference into adjacent 800 MHz systems with legacy equipment, including the Air-Ground spectrum, which may require additional protection or re-farming.
13. Adjacent to the bottom of the Cellular band, the U.S. has already re-farmed the SMR 800 MHz band and moved U.S. public safety users lower down in the band. This allowed for the FCC to create a guard band for additional protection of public safety users, while also providing additional spectrum access for commercial mobile operators that resulted in the creation of 3GPP Band 26. If such actions are undertaken in Canada in both SMR bands and the Air-Ground spectrum, this could provide potentially up to an additional 2x12 MHz to an expanded Cellular band while also enhancing protection for public safety users.
14. It should be highlighted again that several technologies operating in the broader 800 MHz frequency range by public safety services, commercial mobile operators and other services are coming to an end of operational life. In addition, the Department has already stated that it is reviewing the SMR 800 MHz band with a view to developing a plan to allow for commercial mobile services and a potential release between 2018 and 2022.¹⁰
15. As such, this renewal process provides the perfect opportunity to revamp the Cellular bands and also put the Air-Ground spectrum on the Department's reallocation roadmap. We recommend that the Department start a dialogue with the FCC on repurposing the 849-851 and 894-896 MHz band, as well as launch a

⁹ Rogers Comments, *Consultation on the Spectrum Outlook 2018 to 2022*, para 52.

¹⁰ ISED, *Spectrum Outlook 2018 to 2022*, para 124.

Canadian consultation with stakeholders on re-farming the SMR spectrum and Air-Ground Services for commercial mobile use.

16. As discussed further below, the Department should move forward with a 3-year renewal licence term, followed by additional 3-year renewals, if required. Once ISED and the FCC reach agreement on how to repurpose the Air-Ground spectrum in both of their respective countries, the then-current licence renewal term should be the final licence term. This will provide stakeholders sufficient time to trial and test solutions prior to the U.S. licensing period ending and for the current Canadian Air-Ground spectrum licensees to finalize their end-of-service plans.¹¹

Q2: ISED invites comments on the proposal that licences issued through this renewal process will not have a high expectation of renewal. Respondents are asked to provide a rationale for their response.

17. The Department's proposal that licences issued through this renewal process should not have a high expectation of renewal is the correct course of action, as a fundamental reallocation of the Air-Ground spectrum is highly likely in the mid-term.
18. Although the licences should not have a high expectation of renewal, the licences should be renewed for another 3-year term without another consultation if no agreement between the FCC and ISED has been concluded on rebanding the Air-Ground spectrum. The licences should be eligible for a final 3-year term without a licence renewal consultation, should there still be no agreement on rebanding the spectrum. Once an agreement between the regulators on rebanding the Air-Ground spectrum is complete, the Department should launch a new consultation addressing both the end-of-life timelines for the current service and reallocating the spectrum. Such a licence renewal process will reduce the administrative burden on the current licensee, the Department, and other stakeholders while still providing the Department with the flexibility to making the spectrum available for other services.

¹¹ ISED, *Consultation*, para 19.

Q3: ISED invites comments on the appropriate licence term for licences issued through this renewal process. Respondents are asked to provide a rationale for their response.

19. As discussed in detail above, Rogers believes a 3-year licence term, with the potential for up to two additional 3-year renewal terms, is the appropriate length to provide some regulatory certainty to the current licensees operating a service near the end of its useful life while giving the Department enough flexibility to reallocate the spectrum for more efficient use.

Q4: ISED is seeking comments on its proposed deployment requirements for licences issued through this renewal process. Respondents are asked to provide a rationale for their response.

20. Rogers is generally of the belief that spectrum licences that have met initial deployment requirements and are being renewed should have any deployment requirements removed. Further, we see no reason to impose deployment obligations on a licence that does not have a high expectation of renewal.

21. Any ongoing or future deployments should purely be driven by the licensees' business case and not by a condition of licence to maintain or expand coverage. Otherwise, it could result in significant investments in new equipment by the licensees that cannot be recovered before the end of the short licence term.

Q5: ISED is seeking comments on its proposed annual reporting requirements for licences issued through the renewal process. Respondents are asked to provide a rationale for their response.

22. As the Air-Ground spectrum licences issued through this renewal process will not have a high expectation of renewal, the Department should modify the annual reporting requirements in order to help reduce administrative burdens for both the Department and licence holders. Annual reports consume significant regulatory and engineering resources within wireless operators to generate and they appear to provide uncertain value for ISED at such a high frequency, more so in a band that is likely to be reallocated in the near to mid term.

23. Alternative models for reporting requirements could involve moving to an “as-requested” model, where licensees are only obligated to provide only those documents specifically requested by ISED each year or increasing the length of time between the provision of certain reports. If the Department accepts Rogers’ proposal for a 3-year licence term, the licensees should provide the requested information only in the final year to assist the Department in determining whether another 3-year term is in order. Such a move would reduce the administrative burden on operators, as well as for the Department, while still ensuring ISED can adequately monitor spectrum licensees to fulfill its mandate.

Q6: ISED is seeking comments on the proposed conditions of licence for licences issued through this renewal process as set out in annex A.

24. Rogers generally supports the Department’s proposed conditions of licence as outlined in annex A and that would apply to Air-Ground spectrum licences issued through this renewal process, notwithstanding our alternative proposals for licence term length and annual reporting, as discussed above.

25. With respect to lawful interception, Rogers continues to strongly believe that any lawful interception obligations, imposed as a condition of licence or pursuant to legislation, should be limited to capabilities that are provided for in industry standards and incorporated in commercially available equipment. Licensees should not be required to fund intercept capabilities that are not provided for in industry standards and commercially available equipment.

26. The research and development (“R&D”) condition of licence has served its purpose and should be phased out. At a minimum, the 2% requirement should be reduced to a much lower percentage. A lower percentage would make it less difficult for licensees to meet the requirement despite recent Canada Revenue Agency (CRA) rule changes as to what qualifies as SR&ED spending.

27. Rogers thanks the Department for the opportunity to share its views and participate in this consultation process.