

31 July 2018

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**Re: Gazette Notice SLPB-005-18 – Addendum to the ISED Consultation on
Releasing Millimetre Wave Spectrum to Support 5G
– Cogeco Reply Comments**

In accordance with the procedures set out in the above-noted consultation, please find attached the reply comments of Cogeco Communications Inc. (“Cogeco”).

Cogeco thanks ISED for the opportunity to participate in this consultation.

Yours very truly,

Michel Messier
Senior Director, Regulatory Affairs, Telecommunications

c.c.: Nathalie Dorval, VP Regulatory Affairs and Copyright, Cogeco Inc.
Luc Noiseux, Chief Technology and Strategy Officer, Cogeco Inc.

**Innovation, Science and Economic Development Canada
Spectrum Management and telecommunication**

**Addendum to the Consultation on Releasing
Millimetre Wave Spectrum to Support 5G**

**Canada Gazette: June 6, 2018,
Gazette Notice SLPB-005-18**

**Reply Comments of
Cogeco Communications Inc.**

31 July 2018

Introduction

1. Cogeco Communications Inc. (“Cogeco”) respectfully submits these reply comments on the proposal to release millimeter wave (“mmWave”) spectrum in the 26 GHz frequency band to support the deployment of 5G wireless networks and services, in accordance with the procedures set out by Innovation, Science and Economic Development Canada (ISED) in *Addendum to the Consultation on Releasing Millimetre Wave Spectrum to Support 5G*, SLPB-005-18, published 6 June 2018 (the “Addendum”).
2. Cogeco is pleased to note the strong consensus among commenters that ISED should develop a flexible use licensing model for the 26.5 – 27.5 GHz frequency range (“the 26 GHz band”) as well as support for ISED’s proposed changes to the Canadian Table of Frequency Allocations (“CTFA”) and to SP 3-30 GHz, *Revisions to Spectrum Utilization Policies in the 3-30 GHz Frequency Range and Further Consultation*. Cogeco considers, however, that ISED must also adopt measures to enhance competition in commercial mobile services. These measures include the design of a band plan that accommodates competition and other pro-competitive measures to prevent foreclosure by incumbents.
3. Cogeco addresses these points in the reply comments below. Failure to address any specific issue raised or position adopted by another party should not be considered by ISED or any other person as Cogeco’s agreement or disagreement with that issue or position.

Flexible Use Licensing of the 26 GHz Band

4. In its 5 July 2018 Comments submitted in response to the Addendum (par. 9), Cogeco agrees with ISED’s proposal to develop a flexible use licensing model for fixed and mobile services in the 26 GHz band. Cogeco had previously recommended this approach in the 2017 mmWave Consultation.¹
5. Cogeco is therefore pleased to observe a strong consensus in favour of ISED’s proposal among those who responded to the Addendum. While a few commenters

¹ Cogeco Comments on Consultation on *Releasing Millimeter Wave Spectrum to Support 5G*, SLPB-001-17 (“mmWave Consultation”), 15 September 2017, par. 23 and par. 36.

ask that ISED accommodate their specific interests,² most supported the proposal and none opposed it.

6. Cogeco therefore urges ISED to proceed to make the 26 GHz band available through flexible use licences as a priority. Cogeco recommends that the 26 GHz and 28 GHz bands be released under similar terms and at the same time (Cogeco Comments, par. 10). Cogeco notes that Bell Mobility makes a similar recommendation³ and that several other commenters recommend the two bands be considered as a whole.

7. Given that the 37-40 GHz band will likely be used for similar purposes as the 26 GHz and 28 GHz bands, Cogeco is in agreement with Telus' recommendation that all three bands be made available at the same time.⁴

Prioritize Fixed and Mobile Use

8. In its 5 July 2018 Comments (par. 11), Cogeco agrees with ISED's proposed changes to the CTFA Canadian footnotes and to the policy on the 26 GHz band contained in SP 3-30 GHz.

9. Cogeco notes there is broad support among commenters in this consultation in favour of ISED's proposed changes.⁵

10. A few commenters recommended changes to the text that ISED proposes to adopt.⁶ Cogeco disagrees with those recommendations to the extent that they would alter or lessen the requirement that deployment of fixed-satellite service ("FSS"), Earth-exploration satellite service ("EESS") or space research service ("SRS") systems "*pose minimal constraints upon the deployment of fixed service systems and mobile service systems.*"⁷ As Cogeco notes in its comments in the 2017

² See Northstar comments at page 2, Space-X letter at page 1, and Telesat comments at par. 9.

³ Bell Mobility comments at par. 10.

⁴ Telus comments, par. 60.

⁵ See Bell Mobility comments at par. 7, Rogers comments at par. 12-13, Telus comments at par. 23, SaskTel comments at par. 24, Shaw comments at par. 14, Huawei comments at page 2, and Nokia comments at page 2.

⁶ See Northstar comments at pages 2-3, Telesat comments at par. 10, and Ericsson comments at page 8.

⁷ Addendum, par. 14.

Spectrum Outlook Consultation, and reiterated in its 5 July 2018 Comments (par. 22 and par. 30):

*... growth in spectrum demand for satellite uses may be important but should be considered secondary to the growth in demand for spectrum for mobile applications.*⁸

11. This principle is important to the future successful development of 5G services in Canada. The changes to footnote C47A in the CTFA and the new footnote CXX proposed by ISED support this principle and ISED should therefore adopt them as set out in the Addendum.

12. Those footnotes would require that the deployment of FSS, EESS and SRS systems pose minimal constraints on the deployment of terrestrial fixed and mobile systems in the 26 GHz band. There must therefore be restrictions on the geographic areas where new FSS, EESS and SRS earth stations can be located, as Cogeco submits in its 5 July 2018 Comments (par. 26 and par. 31), that is, earth stations cannot be located where they would constrain the deployment of fixed and mobile systems in the 26 GHz band.

13. The consensus among commenters is that such geographic restrictions are necessary. Huawei,⁹ Nokia,¹⁰ Rogers,¹¹ Telus¹² and SaskTel¹³ agree with Cogeco's position, and Telesat notes that some geographic restrictions may be necessary.¹⁴

14. Bell Mobility¹⁵ and Northstar¹⁶ suggest that geographic restrictions on deployment of FSS, EESS and SRS systems are not necessary on the grounds that the requirement in the footnotes to the CTFA – that they pose minimal constraints on the deployment of terrestrial systems – is sufficient to ensure those systems are appropriately located.

⁸ Cogeco Comments on *Consultation on the Spectrum Outlook 2018 to 2022*, Gazette Notice SLPB-006-17, dated 6 October 2017, modified in Gazette Notice SLPB-010-17, dated 20 December 2017 (“Spectrum Outlook Consultation”), par. 50.

⁹ Huawei comments at pages 4-5.

¹⁰ Nokia comments at pages 7 and 9.

¹¹ Rogers comments at par. 31 and 43.

¹² Telus comments at par. 43 and 48.

¹³ SaskTel comments at par. 40 and 46.

¹⁴ Telesat comments at par. 14 and 19.

¹⁵ Bell Mobility comments at par. 23-24 and 29-30.

¹⁶ Northstar comments at page 5.

15. Cogeco agrees that this requirement is necessary but disagrees that proposed footnotes C47A and CXX are sufficient. The Bell Mobility and Northstar approach would lead to disagreements between satellite earth station operators and terrestrial operators about where the earth stations could be located. These disagreements would need to be resolved by ISED and would consume the time and other resources of all parties involved. By establishing rules at the outset for the location of earth stations, ISED would promote transparency and regulatory certainty as parties would know in advance where earth stations could be located.

16. Among the parties who commented on the subject, there appears to be a consensus that earth stations should not be located in populated areas.¹⁷ Most of the comments make high-level recommendations but two commenters provide specific proposals. Rogers proposes that earth stations not be permitted in Census Metropolitan Areas (“CMAs”) with core populations in excess of 50,000, and that site shielding and other measure be required for earth stations located in Census Agglomerations (“CAs”) with core populations in excess of 10,000. Telus proposes a number of detailed rules and restrictions based on the concept of excluding earth stations from grid cells with a population density greater than 100 persons per square kilometre.

17. Cogeco agrees in general with Rogers’ proposed geographic restrictions, but considers that the specific proposed population thresholds are too high. Rogers’ proposal would not adequately protect 5G networks in smaller communities as it would allow earth stations to be located within those smaller communities, which would negatively affect the ability of Canadians outside the large urban areas to access 5G services. Cogeco’s proposal that earth stations only be licensed at sites outside of urban population centers (communities with a core population exceeding 10,000) and that additional restrictions be imposed on earth stations located in population centres of 2,000 to 10,000 persons (par. 27 and 32) would maximize access to 5G services. Cogeco does not support Telus’ proposal as it would be far more complex to administer.

18. It also follows from the “*minimal constraints*” requirements in the proposed footnotes C47A and CXX to the CTFA that there must be coordination in the 26 GHz band between FSS, EESS and SRS earth stations, on the one hand, and fixed and

¹⁷ See Bell Mobility comments at par. 23, Huawei comments at pages 4-5, Rogers comments at par.34 and 44, and Telus comments at par. 43 and 52. In their comments, SaskTel (par. 41) and Telesat (par. 14 and 20) note that the issue requires further technical study.

mobile terrestrial stations, on the other. A number of commenters agree with Cogeco that this coordination is necessary.¹⁸

19. Due to the large number of terrestrial stations which is expected in 5G networks using the 26 GHz band, site-by-site coordination would be unduly onerous for terrestrial network operators (see par. 23 and par. 29 of Cogeco's Comments).¹⁹ Coordination between earth stations and terrestrial stations should therefore be conducted on a site-by-area basis. Cogeco notes that Rogers adopts a similar position.²⁰

Minimum Block Size

20. In its 5 July 2018 Comments, Cogeco submits that "*the choice of band plan and block size should be designed to promote competition*" (par. 16). Cogeco had previously commented in the mmWave consultation, in relation to the 28 GHz band, that "*ISED should ensure the band plan accommodates all operators, in particular alternative wireless service providers who may wish to offer innovative networks, applications and business plans.*"²¹

21. Cogeco therefore agrees with Shaw's view that "... *it is important that the Department set a band plan that facilitates equitable access to the band by strong competitors ...*"²²

22. Cogeco also agrees with Shaw that the band plan for the 26 GHz band should be "... *capable of supporting the capacity needs of 5G through large bandwidth*

¹⁸ See for example Rogers comments at par. 26 and 37, SaskTel comments at par. 37 and 43, Telesat comments at par. 11 and 15, and Telus comments at par. 36 and 52.

¹⁹ Bell Mobility also commented that "*The requirement for site-by-site analysis of every station would also be administratively burdensome with little to no benefit*" (Bell Mobility comments at par. 20). See also Bell Mobility's comments at par. 28

²⁰ Rogers comment's, par. 27.

²¹ Cogeco Comments in mmWave Consultation, 15 September 2017, par. 28.

²² Shaw comments, par. 20. See also footnote 7 of Shaw's comments: "... *whatever band plan the Department ultimately adopts must accommodate an alternative facilities-based provider to the incumbents in these bands ... the Department should not adopt a band plan that would do anything to jeopardize sustainable competition in these bands.*"

channels."²³ Holding a large block of spectrum allows an operator to offer higher speeds, for example.

23. The issue, however, is how to determine the appropriate minimum block size, not the desired spectrum holding. A very large minimum block size (e.g., 400 MHz) would allow only a few licensees to use the band. Indeed, if the minimum block size were 400 MHz, only the largest organizations would be able to acquire spectrum, which would foreclose the possibility of smaller alternative operators from entering the market. This would not help ISED achieve its stated objectives for the release of mmWave spectrum to:

- *foster innovation, investment and the evolution of wireless networks through the adoption of 5G technology, to support sustained competition, so that consumers and businesses benefit from greater choice; and*
- *facilitate deployment and timely availability of services across the country.*²⁴

24. Cogeco notes that there does not appear to be a clear consensus among commenters regarding the recommended minimum block size. Cogeco would point out, however, that smaller blocks can more easily be combined into larger holdings to support an operator's business plan than larger blocks can be divided into smaller blocks to accommodate entry by alternative operators. Further, if the auction format which is eventually adopted for this band incorporates package bidding, operators wanting to obtain larger holdings by aggregating several 100 MHz blocks will be able to do so by bidding accordingly and, through proper block allocation to create contiguous holdings (see paragraph 26 below), will be able to operate them as a single 200 MHz or 400 MHz block. However, if the band plan is designed with minimum block sizes of 400 MHz, smaller operators with more modest means and with business plans requiring smaller amounts of spectrum will be effectively excluded from the market, and the risk of foreclosure by incumbents will be correspondingly larger.

25. Cogeco therefore agrees with Rogers that "*the 26 GHz band should be divided into a sufficient number of sub-blocks to ensure that both national and regional facilities-based operators are able to secure a large, contiguous block of spectrum.*"²⁵

²³ Shaw comments, par. 20.

²⁴ mmWave Consultation, par. 6.

²⁵ Rogers comments, par. 54.

Cogeco does, however, disagree with Rogers regarding the appropriate minimum block size to achieve this goal. In Cogeco's view, the minimum block size which best supports ISED's objectives, facilitates equitable access to the 26 GHz band, and accommodates large bandwidth channels, is 100 MHz (see Cogeco Comments, par. 17).

26. It is also important that the block allocation process which is ultimately adopted for this band favour large contiguous blocks if an operator should win more than one 100 MHz block. Cogeco agrees with Ericsson that:

It is recommended that operators be allowed to aggregate blocks in a similar manner suggested above. It is also desirable that regulation allow operators to rearrange allocations in a way that maximizes the utilization of spectrum for broadband services.²⁶

Pro-Competitive Measures

27. While ISED notes that it will consult further on a technical, policy and licensing framework for the 26 GHz band,²⁷ a number of commenters addressed the need for pro-competitive measures when ISED designs the process to assign the 26 GHz band to operators.

28. Telus suggests that pro-competitive measures for the 26 GHz, 28 GHz and 37-40 GHz bands are inappropriate because "... *all interested parties are starting from scratch in terms of flexible use mmWave spectrum in Canada, meaning that there are no parties that can be characterised as incumbents.*"²⁸ Telus would, however, "support a large non-band-specific aggregation limit that is operator neutral" if ISED were to deem competitive measures necessary.²⁹

29. On the other hand, Shaw submits a strong argument that "*the release of additional mmWave does not obviate the need for pro-competitive policy measures*"³⁰ and that "*the foreclosure incentives of the incumbent wireless providers*

²⁶ Ericsson comments, page 10.

²⁷ Addendum, par. 1.

²⁸ Telus comments, par. 68.

²⁹ Telus comments, par. 70.

³⁰ Shaw comments, par. 28.

are at an all-time high as the Big 3 seek to maintain their market power in the delivery of 5G services.”³¹

30. Quebecor submits that:

*la décision publiée à l’issue du présent exercice de consultation sur les ondes mm devra contenir un énoncé de principe de base voulant qu’une distribution équitable du spectre des ondes mm serve les intérêts de la concurrence et des consommateurs, ainsi qu’une feuille de route décrivant les étapes que le Ministère entend suivre pour garantir un accès équitable au spectre des ondes mm.*³²

31. Cogeco disagrees with Telus and agrees with Shaw and Quebecor that pro-competitive measures continue to be necessary. The 26 GHz band should not be viewed in isolation from all other spectrum held by the incumbent mobile network operators (“MNOs”). Following development by the 3rd Generation Partnership Project (“3GPP”), several bands currently licensed to the incumbent MNOs can be used for 5G network deployments. It is therefore not the case that “*the investment in new 5G networks carries equal market risk for all participants.*”³³ Incumbency in other bands and existing market power give the incumbent MNOs an advantage over smaller competitors and new entrants in the deployment of 5G networks. Not including pro-competitive measures in the assignment process for the 26 GHz band would only serve to further extend and entrench the market dominance of the incumbent MNOs in 5G.

32. Rogers also notes that the measures necessary to facilitate the deployment and competitiveness of 5G encompass more than just spectrum:

*... the Department should license mmWave flexible user spectrum on a Tier 4 basis.*³⁴

The other key to 5G deployments in urban areas is access to real estate (municipal and private sector) for new micro sites (poles, lamp posts, street furniture, etc.). The Department should also ensure that any access rights to facilities and rights-of-way held by local telephone companies are made available to all other competitors in order to

³¹ Shaw comments, par. 4.

³² Quebecor comments, par. 14.

³³ Telus comments, par. 68.

³⁴ Rogers comments, par. 51.

*increase competition for the benefit of all Canadian businesses and customers.*³⁵

33. Cogeco agrees with these views. Cogeco encourages ISED to consider measures to facilitate access to sites and rights-of-way in future consultations on 5G spectrum and recommends that mmWave spectrum be made available on the basis of Tier 4 service areas. Cogeco notes, however, that a few Tier 4 service areas are unusually large and should be modified in order to facilitate allocation of the 26 GHz band to operators who are willing and able to use it.³⁶

34. Cogeco recommends therefore that ISED ensure that any decisions it takes following this consultation do not prevent it from introducing appropriate pro-competitive measures at a later date. Other than its views on the minimum block size noted above, Cogeco does not currently have a position on what those specific pro-competitive measures ought to be. Cogeco looks forward to participating in ISED's future consultation on the technical, policy and licensing framework for the 26 GHz band.

Conclusion

35. Cogeco thanks ISED for the opportunity to comment on the proposal to release the 26 GHz band to support the deployment of 5G wireless networks. Developing a flexible use licensing model for this band will be one of the keys to the success of 5G in Canada. However, ISED must also adopt measures to enhance competition in commercial mobile services, including a band plan that accommodates competition and other pro-competitive measures to prevent foreclosure by incumbents.

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³⁵ Rogers comments, par. 58.

³⁶ Cogeco refers ISED to its 2 October 2017 Comments submitted in response to *Consultation on a Technical, Policy and Licensing Framework for Spectrum in the 600 MHz Band*, Gazette Notice SLPB-005-17, dated 19 August 2017, and to Annex A to those Comments in particular.