

Canada Gazette Notice No. SLPB-001-17

**CONSULTATION ON RELEASING MILLIMETRE WAVE
SPECTRUM TO SUPPORT 5G**

**PUBLISHED IN THE *CANADA GAZETTE, PART I*
ON 17 JUNE 2017**

**REPLY COMMENTS
OF
BELL MOBILITY INC.**

10 NOVEMBER 2017

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1.0 **INTRODUCTION**

1. In accordance with the procedure set out by Innovation, Science, and Economic Development Canada (the Department) in Canada Gazette Notice No. SLPB-001-17, *Consultation on Releasing Millimetre Wave Spectrum to Support 5G*, dated 5 June 2017 (the Consultation), we are pleased to present our Reply Comments to the Department's proposed policy and technical framework for releasing the millimetre wave (mmWave) spectrum in the 28 GHz, 37-40 GHz and 64-71 GHz frequency bands to support the deployment of 5th generation (5G) wireless networks and systems.

2. The Department's objectives for the Consultation are 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.¹

3. Respondents expressed broad support for these objectives. This is not simply an opportunity to ensure Canadians benefit from new services and applications, but also for the Canadian industry to take a leading role in the deployment of 5G. To capitalize on the economic and social benefits that 5G offers, many parties argued that prompt and decisive action from the Government is needed. We agree. As a result, we recommend that the Government should:

- Make these bands available prior to World Radio Conference 2019 (WRC-19) in a manner that is consistent with the approaches taken in the U.S. and undertake the necessary action to expeditiously auction the 28 GHz and available 38 GHz spectrum so Canadians can enjoy the benefits of 5G as soon as possible.
- Provide existing Tier 3 licensees in the 38 GHz band with comparable flexible use licences. Existing licensees should be permitted to retain 100% of the spectrum they won at auction to ensure the integrity of the Department's policies and regulations. Ensuring the integrity of these regulations is essential to supporting investment and innovation in 5G services, and indeed, for all spectrum and related services.

¹ The Consultation, paragraph 6.

4. The above recommendations support the Government's stated commitment to innovation, investment, adoption, competition and deployment. Quickly auctioning mmWave spectrum will allow carriers to deploy 5G as soon as possible. In the 38 GHz band, providing existing Tier 3 licensees with flexible licences with a high expectation of renewal will facilitate 5G deployment even before an auction can occur. In our view, this approach is an effective way to bring 5G services and applications to Canadians while still making ample spectrum available for auction.

5. For our part, we are ready to get to work deploying mmWave spectrum and introducing 5G services to Canadians. We urge the Department to position Canada to be among the early adopters of 5G and maximize the benefits that these new services and applications will bring.

6. There are a number of broadly shared views amongst respondents regarding several aspects of this Consultation, e.g., exclusive flexible use licensing for 28 GHz and 38 GHz and support for unlicensed operations at 64-71 GHz, etc. Consequently, the following comments address only those areas where there was not alignment.

2.0 SHARING CRITERIA

7. The Radio Advisory Board of Canada (RABC) noted that there was significant discussion among its members concerning the appropriate sharing criteria between satellite and terrestrial licensees. Although the RABC was unable to reach a consensus in time to submit a recommendation in the current Consultation, the group has offered to initiate a study to assist the Government in establishing sharing criteria.²

8. While we support further investigation into this issue on the part of the RABC, we are concerned that the competing viewpoints among the RABC's satellite and mobile members could lead to a sub-optimal "compromise" solution that limits Canada's participation in 5G. In the proposed footnote modifications to the Canadian Table of Frequency Allocations, the Department indicated that terrestrial services will take priority over satellite services.³ In their interventions, members of the satellite community attempted to weaken this policy by making recommendations that could effectively grant the same priority to terrestrial and satellite operations. We believe that this approach would be misguided.

² RABC Comments, paragraph 33.

³ See paragraphs 25 and 49 of the Consultation.

9. For example, Telesat argued that the Department should not prevent the efficient deployment and operation of satellite facilities. To this end, they suggested that coordination should operate on a "first-come-first-served" basis, meaning newly licensed fixed satellite service (FSS) earth stations would not be required to accommodate subsequently deployed terrestrial flexible use stations.⁴ They also argued that the Department should impose limits on skyward transmissions from terrestrial base stations in the 28 GHz band to prevent harmful aggregate interference into satellite receivers.⁵

10. Similarly, although the BSO Coalition signaled its willingness to work with the Department and industry stakeholders to facilitate the coexistence of both the FSS and flexible terrestrial users in these bands, they made the same suggestion as Telesat to impose an emission mask on terrestrial stations in the 28 GHz band.⁶

11. Requests to manage coordination on a "first-come-first-served" basis and impose emission limits on terrestrial services undermine the Department's intent to prioritize terrestrial access to the band. While we understand the important role that satellite technology plays in modern communications, the Department must reaffirm that terrestrial services will have priority in both the 28 GHz and 38 GHz bands by adopting technical sharing criteria that do not constrain the deployment and growth of terrestrial networks in these bands. Otherwise, Canada could adopt uniquely Canadian technical rules that make it an outlier among the international community and out of step with the U.S. in particular. Given the small size of the Canadian market and our reliance on equipment designed to meet global technical standards, we cannot afford to follow a unique path in this regard.

3.0 TREATMENT OF EXISTING AUCTIONED LICENCES AT 38 GHZ

12. When the Department undertook a Consultation for the renewal of auctioned 38 GHz licences in 2014, the band was used for point-to-point and multipoint communications supporting backhaul and high speed connectivity. At that time, the Department decided that licences which were renewed would lose their high expectation of renewal, with a subsequent

⁴ Telesat Comments, paragraph 38.

⁵ Telesat Comments, paragraph 48.

⁶ BSO Coalition Comments, paragraph 34.

Consultation to take place that would ostensibly convert those licences to site-specific licences in the interest of band efficiency.⁷

13. Given that the Department is now proposing to convert the 38 GHz band to flexible use licences, it has proposed two options for how to treat existing Tier 3 licensees. The first option proposed by the Department suggests that licensees should give up an arbitrary percentage of their spectrum in exchange for "higher value" flexible use licences in 2024. Option 2 would offer Tier 3 licensees site-specific licences in replacement for their current licences at the end of the 2024 term. However, we recommended a third option in which existing 38 GHz Tier 3 licensees would be permitted to retain all of their spectrum with flexible use, long term licences as long as they align with the new band plan. Assuming they do so, these licensees should have a high expectation of licence renewal.

14. While we are not an impacted licensee, we believe that allowing current licensees to retain their licences is an effective way for Canada to participate in early 5G adoption efforts. In addition, this is an opportunity for the Department to support investment and innovation by creating a stable and predictable regulatory environment going forward.

15. Some respondents supported the Department's proposal to claw back a percentage of the spectrum that is already licensed, with proposals ranging from one-third⁸ to three-quarters⁹. In our view, proposals to appropriate a certain percentage of spectrum from Tier 3 licensees are arbitrary and not conducive to incenting investment and innovation. Moreover, they fail to acknowledge that current licensees such as TeraGo have existing businesses that require the continued use of the spectrum.¹⁰ Returning any spectrum will put their services in jeopardy; impacting customers negatively and effectively paralyzing their operations.

16. The stated rationale for the Department's first option is the expectation that the spectrum will increase in value with a flexible allocation.¹¹ This is problematic for several reasons. First, consideration of the value of the spectrum is irrelevant to the effective management of the spectrum resource. There are certainly situations where spectrum increased in value due to market evolution or Departmental decisions and this did not trigger a return of spectrum. Second, the value of many frequency bands has risen as technologies have advanced and

⁷ Notice No. SLPB-006-14, *New Licensing Framework for the 24, 28 and 38 GHz Bands and Decision on a Licence Renewal Process for the 24 and 38 GHz Bands*.

⁸ Rogers Comments, paragraph 77.

⁹ Telus Comments, paragraph 75.

¹⁰ TeraGo Comments, paragraph 34.

¹¹ The Consultation, paragraph 64.

licence holders have never been required to return a proportional amount of their spectrum to offset the increase in value. Third, licensees acquired the spectrum in question at auction and have invested in their networks in good faith. They willingly accepted the risk of making these investments and may now be in a position to benefit from their investments by deploying 5G. It would be punitive public policy – discouraging both innovation and investment – for the Department to now diminish or revoke these licences when a financial return on investment is within reach. A logical extension of such a misguided proposal would be that the Department will somehow augment a licence, or compensate a licensee, if the spectrum has not achieved or retained its anticipated value, e.g., if an equipment ecosystem did not develop as expected. This would seem unlikely.

17. Some respondents rejected outright the Department's proposal to convert existing licences to flexible use. Shaw, for instance, argued it would hinder competition "while doing nothing to advance innovation and investment", and complicate efforts to harmonize with the U.S.¹² These concerns are unfounded. In our initial submission, we demonstrated that it would be feasible to align the band to a 200 MHz band plan because existing licences are composed of 50+50 MHz. The only reason this conversion could be complicated, as Shaw pointed out, is if the Department elects to claw back some percentage of the spectrum from current licensees.

18. The biggest hindrance to competition, innovation and investment in this band would be the obstruction of existing licensees who are seeking to deploy 5G, as option two proposes. Not only are competition, innovation and investment best served by a stable licensing environment that rewards long term investments in deployment, but the existing licensees are well positioned to begin the rapid roll-out of 5G infrastructure on this band. As TeraGo argued:

[Existing Tier 3 licensees] are generally the operators that will be best equipped and most likely to succeed in implementing a 5G business strategy. Such licensees already have experience with usage of the spectrum, will likely have resources for further investment and development, and may provide the most efficient use of the spectrum since they (including TeraGo), could use the same spectrum for both fixed service systems and mobile service systems.¹³

19. Operators like TeraGo purchased these licenses at auction and deployed their networks at considerable financial expense. These investments were made in good faith with a strong expectation that the rights and privileges conferred by the licences would continue as long as the parties abided by their conditions of licence and there was no fundamental reallocation. As

¹² Shaw Comments, paragraph 71.

¹³ TeraGo Comments, paragraph 35.

we noted in our Comments, there are no grounds to consider the shift to flexible use a fundamental reallocation. Clearly, fixed services will continue to be delivered using this spectrum in a 5G environment, and the underlying network supporting both fixed and mobile applications will be the same.

20. Therefore, permitting existing licensees to retain 100% of their spectrum and deploy 5G with flexible use licences will support the investment, innovation and risk taking necessary to quickly bring 5G services to Canada. Further, this action would support the original rights and privileges that the Department provided to auction winners.

4.0 EQUITABLE SPECTRUM ACCESS

21. Some parties, such as Shaw¹⁴ and Videotron¹⁵, suggested that the Department invoke measures to ensure "equitable access" to spectrum. However, the principle of managed equitable spectrum allocation by Government is at odds with the philosophy and intention of a spectrum auction. The *Framework for Spectrum Auctions* is clear that auctions will be used where demand exceeds supply. This means that when total demand for spectrum cannot be met within the available supply, there will inevitably be those who desire spectrum but cannot obtain it. Even when spectrum caps or set asides are used, there is rarely certainty about the auction outcome and so-called equitable access cannot be achieved. SaskTel agreed that competitive measures like caps or set-asides are not appropriate, arguing that "imposing such measures in the mmWave spectrum auction would artificially distort the market and would be detrimental to consumers."¹⁶ It is also noteworthy that the *Spectrum Licence Transfer Policy* does not have an "equitable access" criterion. Across all holders of spectrum licences, there are divergent holdings from band to band and across all bands.

22. In the case of mmWave specifically, no carrier has a head start when it comes to building out 5G infrastructure. As Telus observed: "the 5G mmWave network business opportunity is completely green field and all interested parties are starting from scratch in terms of flexible use mmWave spectrum in Canada. The additional investment (beyond spectrum) in new 5G networks carries equal market risk for all participants."¹⁷ There can be no claim that one carrier or group of carriers has an initial advantage over the others.

¹⁴ Shaw Comments, paragraph 10.

¹⁵ Videotron Comments, paragraph 27.

¹⁶ SaskTel Comments, paragraph 93.

¹⁷ Telus Comments, paragraph 87.

23. Shaw justified their request for "equitable access" by making unfounded claims about its inability to acquire spectrum in an open auction and contending that national licensees will foreclose on them.¹⁸ As stated above, it is true that an auction will have winners and losers – that is the basis of the auction. However, winning does not equate to foreclosure. In addition, as Telus points out, all of Canada's mobile operators are "well capitalised, deliver quad plays in their incumbent territory, have similar net debt to EBITDA ratios (i.e., have similarly levered balance sheets) and drive roughly the same normalised operating cashflow."¹⁹

24. As discussed in our Comments²⁰, the regional providers are as capable of competing in an open auction as the national carriers. QMI's market capitalization is almost \$6 billion while Shaw's is more than double that amount – over \$14 billion.²¹ Since these corporations became wireless service providers their market value has soared. In Shaw's case, its market capitalization has increased by more than \$2 billion in only two years, while QMI, which first won its subsidized spectrum in 2008, has seen its market capitalization increase by about \$2.5 billion.²² There is simply no need for the regional providers to continue receiving taxpayer-funded Government subsidies in the name of "equitable access" or "pro-competitive measures" or any other market distorting intervention.

25. We ask the Department, in this proceeding as well as others, to reject claims about foreclosure risk unless there is credible evidence of its occurrence or likelihood. Without such evidence, the Department has no basis on which to intervene in the normal functioning of the marketplace. We recommend that the Department reject the concept of equitable access and conduct an open auction for the available spectrum.

5.0 AFFILIATED AND ASSOCIATED ENTITIES

26. The issue of affiliated and associated entities was not raised in the Consultation but that did not prevent Rogers from arguing that Bell Mobility and Telus are associated entities as a result of our network reciprocity arrangement and the Department should implement 5G auction rules that reflect Rogers' position.²³ We continue to support the existing Affiliated and

¹⁸ Shaw Comments, paragraph 98.

¹⁹ Telus Comments, paragraph 89.

²⁰ Bell Mobility Comments, paragraphs 90 to 96.

²¹ As of 22 August 2017.

²² Shaw purchased WIND Mobile in March 2016. Shaw's market capitalization increased from about \$11.5 billion at the end of 2015 to \$14.4 billion as of 31 October 2017. QMI first won auctioned spectrum in 2008. QMI's market capitalization increased from about \$2.4 billion at the end of 2007 to more than \$5.8 billion as of 31 October 2017.

²³ Rogers Comments, paragraphs 94 to 97.

Associated rules. The Department has reviewed these rules on numerous occasions and every time has concluded that they are sufficient to maintain auction integrity. Providing entities with an opportunity to bid separately if there is no harm to the integrity of the auction is entirely consistent with regulating to the minimum extent necessary to achieve the underlying policy objective. Entities that have demonstrated a clear intention to compete against each other in the downstream retail market are motivated to independently source and control their critical network inputs. This leads them to seek access to their own spectrum in order to meet their own subscribers' needs.

27. In addition, Rogers' claim is clearly at odds with its own network arrangement with Videotron in Quebec and there is nothing stopping Rogers from entering into similar network arrangements now or in the future.

28. In consideration of the above, the Department should reject proposals which seek to change the rules regarding affiliated and associated entities.

6.0 LICENSING AND TECHNICAL CONSIDERATIONS

29. While the vast majority of commenters opposed the proposal to offer licence-exempt dynamic access using a database in the 28 GHz and 37.6-40 GHz bands, a handful of commenters, namely Microsoft²⁴, Starry²⁵ and the Dynamic Spectrum Alliance²⁶, indicated their support. We reiterate that licence-exempt dynamic access using a database is not appropriate for these bands and should not be adopted by the Department.

30. As the RABC argued, the main purpose of such a system is to protect incumbents that have variable usage conditions, but there are no such incumbents in these bands.²⁷ Several respondents also noted that dynamic access databases are still an "untested concept", and there is no evidence proving they can be successful.²⁸ Given that this proposal is largely theoretical and serves an unnecessary purpose, the Department cannot justify the additional costs, complexity and uncertainty that would be applied to carriers who invest in these bands.

²⁴ Microsoft Comments, page 6.

²⁵ Starry Comments, page 4.

²⁶ Dynamic Spectrum Alliance, page 2.

²⁷ RABC Comments, paragraph 71.

²⁸ Cogeco Comments, paragraph 59. See also BCBA, Shaw, 5G Americas, BSO Coalition.

31. The cost and complexity introduced by license-exempt dynamic access makes exclusive access to both the 28 and 38 GHz bands highly preferable. Due to the evolutionary nature of 5G deployments, in which operators will build on existing network capabilities and spectrum deployments, it is not practical or desirable to mix access types within a single network. In practice, subscribers can switch from band to band in real time depending on coverage and the application, and the complexities of mixing access modes is a significant operational constraint and highly susceptible to service quality degradation. Network operators also need certainty regarding access to the spectrum in order to justify the costs of investment.

32. In addition, with mission critical applications, including services associated with safety, opportunistic access using a database lookup is simply not appropriate for the potential broad uses of 5G spectrum.

33. Several interveners also raised the issue of appropriate service areas and recommended changes to the proposal in the Consultation. For example, Cogeco suggested using licensing areas smaller than Tier 4²⁹, while the British Columbia Broadband Association (BCBA) suggested different licensing approaches in rural and urban areas.³⁰ We believe it is inappropriate to use service areas that are smaller than Tier 4 for a few reasons. For example, while the coverage of any one radio station in these bands will be small, there is a somewhat larger interference area that needs to be managed by the network operator. In addition, 5G licensees will need to be able to manage their growth on sites with the certainty that the licence offers a large enough area to provide an economic return. The tier areas used for competitive licensing are based on such economic zones and provide these benefits.

34. With regard to BCBA's suggestion to use a different licensing approach in urban areas versus rural areas, there is a risk that under such a scheme those living in rural areas will receive a lower quality of service than their urban counterparts. This would clearly be an undesirable outcome. In addition, BCBA reasoned that they would use the band for backhaul only.³¹ While fixed services will most certainly figure in 5G deployments, there are many other suitable bands for backhaul that a carrier can consider.

²⁹ Cogeco Comments, paragraph 50.

³⁰ BCBA Comments, paragraphs 7 to 10.

³¹ BCBA Comments, paragraph 44.

35. Finally, some commenters supported aligning the 28 GHz band with the approach in the U.S. to licence two 425 MHz blocks³², while others suggested adopting smaller block sizes for competitive reasons.³³ We agree that larger block sizes are preferred in order to provide the most effective and efficient 5G deployments. Specifically, anything less than 100 MHz would be unsuitable and 200 MHz or 400 MHz would be preferred. However, we believe it is premature to determine the block sizes at this time. 3rd Generation Partnership Project (3GPP) will soon complete their deliberations on bandwidths and it would be prudent for the Department to wait for this guidance before taking a final decision.

7.0 CONCLUSION

36. We support the Department's objectives to facilitate the deployment and early adoption of 5G wireless networks and systems, and we urge it to act as quickly as possible to provide access to mmWave spectrum. Specifically, the Department should make these bands available prior to WRC-19, and provide existing Tier 3 licensees in the 38 GHz band with comparable flexible use licences. The Department must also affirm the prioritization of terrestrial services by establishing sharing criteria that do not constrain their deployment or operation. Using mmWave spectrum for 5G is a new opportunity, and all network operators will compete on equal footing to deploy this technology. As a result, the Department should ignore calls for "equitable access" and hold an open, competitive auction that ensures Canadians get a fair return for this valuable resource.

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³² For example: Telus, SaskTel, Xplornet.

³³ For example: Shaw, Cogeco, BCBA, Rogers.