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15 September 2017

Innovation, Science and Economic Development Canada
c/o Senior Director, Spectrum Licensing and Auction Operations
235 Queen Street, 6th Floor
Ottawa, ON K1A 0H5

Dear Sir or Madam:

Re: Comments of Ciel Satellite Limited Partnership, SES S.A., and O3b Limited - *Consultation on Releasing Millimetre Wave Spectrum to Support 5G, Canada Gazette,* Part I, June 5, 2017, Notice No. SLPB-001-17

I. Introduction

1. Ciel Satellite Limited Partnership and its affiliates SES S.A. and O3b Limited (collectively, "SES") hereby submit these comments in response to Innovation, Science and Economic Development Canada's ("ISED") *Consultation on Releasing Millimetre Wave Spectrum to Support 5G* Canada Gazette, June 5, 2017, Notice No. SLPB-001-17 (the "Consultation").

2. SES, one of the world's largest commercial communications satellite operators, with both geostationary orbit ("GSO") and non-geostationary orbit ("NGSO") satellites providing telecommunications services, is uniquely positioned to address the matters raised in the Consultation. The SES fleet of more than 50 GSO satellites supplies C-, Ku-, and Ka-band data services to customers in Canada and around the globe. O3b uses its Ka-band NGSO system to provide low-latency, high throughput capacity to enterprise customers including mobile network operators, ISPs and governments. Many SES GSO satellites and the O3b satellite constellation have been approved by ISED to provide Fixed-

Satellite Service ("FSS") in Canada and the capacity on these systems is available for use by Canadian service providers.

3. SES commends ISED for initiating a proceeding to facilitate the development of innovative uses of millimeter spectrum, including the deployment of 5G services. As a GSO and NGSO operator that provides a wide range of services to mobile network operators around the world, SES will play a central role in the deployment of 5G. To fulfill its stated policy goals, ISED should carefully consider the critical contribution of satellite networks to the larger telecommunications ecosystem and recognize the need for flexibility and shared use of millimetre wave ("mmWave") spectrum as it strives to create policies beneficial to Canada and its citizens.

II. ISED's Proposed Spectrum Policy in the 28 GHz Band

Question 6-1: ISED is seeking comments on the changes proposed above to introduce flexible use licensing in the 28 GHz band, including consequential changes to the CTFA domestic footnotes and the policy on this band contained in SP 3-30 GHz, Revisions to Spectrum Utilization Policies in the 3-30 GHz Frequency Range and Further Consultation.

4. SES supports ISED's proposal to continue soft partitioning of the 28 GHz band between terrestrial and FSS services. ISED is wisely seeking to develop policies that will facilitate terrestrial deployment in the 27.5-28.35 GHz band ("28 GHz band") but still allow FSS operators meaningful access to the band. This effort to strike an appropriate balance between the two services appropriately reflects the physical properties of the 28 GHz band, as well as the varying needs of users over Canada's vast geography.

5. SES also supports ISED's proposal to allow airborne and maritime ESIMs to continue to be allowed to communicate with GSO satellites on a no-interference, no-protection basis in the 28 GHz band. However, SES believes that ISED should expand the proposal and also continue to allow ESIMs to communicate with NGSO satellite systems on a no-interference, no-protection basis. ISED does not articulate any reason in the Consultation for permitting communications with GSO satellites and not with NGSO satellites, nor any reason why NGSO ESIMs services might impair terrestrial deployment in the band. Allowing ESIMs

to communicate with NGSO systems will allow Canadians to benefit from innovative satellite services which are available today without causing any appreciable impact on the terrestrial use of the band.

III. Coexistence Between Flexible Use Terrestrial Stations and FSS Earth Stations in the 28 GHz Band

Question 6-4A: ISED seeks comments on its proposal to require site-by-site coordination between proposed flexible use terrestrial stations and FSS earth stations in the 28 GHz band when a pre-determined trigger threshold is exceeded.

6. SES agrees with ISED that coordination triggers such as a Power Flux Density ("PFD") limit or a separation distance may be useful for assessing circumstances in which coordination will be necessary for deployment. Such metrics are critical for creating regulatory certainty and giving potential operators clear guidance on how and where they can deploy in shared bands.

7. However, SES also believes that it is critical that ISED maintain its discretionary authority to approve applications for FSS earth stations operating in the 28 GHz band. As ISED points out in the Consultation, many Canadian teleport facilities are already deployed close to urban boundaries, near to existing fiber links. Establishing feeder links at these existing teleports is by far the most cost-effective business case to support new FSS earth station facilities in the 28 GHz band. The adoption by ISED of overly-prescriptive restrictions on the geographic areas in which new FSS earth stations can be deployed in the 28 GHz band runs the risk of inadvertently and unnecessarily ruling out the use of existing teleport facilities in sub-urban areas. While coordination triggers can provide useful guidance on how ISED can enable terrestrial deployment, the continuing evolution of mmWave communications technologies demands a more flexible regulatory system in order to efficiently utilize the 28 GHz band. Given the fact that many mmWave systems and use cases for both terrestrial and FSS in the 28 GHz band are still under development, an overly-rigid regulatory scheme could have unanticipated and detrimental effects on deployment in the band. ISED has the authority and expertise to determine whether a proposed earth station will in fact impose minimal constraints on a case-by-case basis and should reserve the

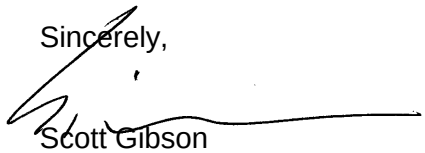
right to use its discretion where called for, so that it does not unnecessarily deprive the Canadian market of the benefits of FSS in the 28 GHz band.

IV. Conclusion

8. SES appreciates the opportunity to provide comments in the Consultation. By adopting balanced proposals that enable FSS operators to have meaningful access to the 28 GHz band without unduly constraining terrestrial deployment, ISED can ensure that Canadian users, including governments, enterprise and citizens, continue to receive the benefits of new telecommunications technologies in the mmWave bands and the proliferation of 5G services.

9. All of which is respectfully submitted.

Sincerely,



Scott Gibson
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Ciel Satellite Limited Partnership