

21 January 2018

Ms. Chantal Beaumier  
Director Space Services Planning  
Innovation, Science and Economic Development Canada  
235 Queen Street  
Ottawa, Ontario K1A 0H5  
Canada

**Re: Consultation on the Utilization of the Bands 18.8-19.3 GHz and 28.6-29.1 GHz, and the Bands 17.3-17.7 GHz, 19.3-19.7 GHz and 29.1-29.25 GHz by the Fixed-Satellite Service (SMSE-016-18)**

Dear Ms. Beaumier:

Space Exploration Technologies Corp (SpaceX) appreciates the opportunity to offer comments to the Innovation, Science and Economic Development Canada (ISED) on the “Consultation on the Utilization of the Bands 18.8-19.3 GHz and 28.6-29.1 GHz, and the Bands 17.3-17.7 GHz, 19.3-19.7 GHz and 29.1-29.25 GHz by the Fixed-Satellite Service“(the Consultation), as published in the Canada Gazette, Part I on October 25, 2018. SpaceX supports ISED’s proposed utilization policies for several Ku- and Ka-band frequencies, but has concerns at the prospect of market distortion and delay stemming from the proposed requirement that all satellite operators fully complete coordination with Canadian operators prior to providing services to Canadian consumers.

### Background

SpaceX is working to design, develop, and deploy a non-Geostationary Satellite Orbit (NGSO) constellation to deliver broadband service directly to consumers around the world. In March 2018, the United States Federal Communications Commission (FCC) authorized SpaceX to construct, launch, and operate a constellation of 4,425 NGSO satellites operating in low Earth orbit in Ku-, Ka-band frequencies. In November 2018, the FCC authorized SpaceX to operate V-band on the same constellation and on an additional 7,500 satellites operating in very-low Earth orbits. These FCC licenses mark significant steps toward SpaceX’s goal of deploying an innovative and spectrum-efficient satellite system to improve broadband connectivity to consumers globally.

Pertinent to the Consultation, the FCC authorized SpaceX to operate in the following Fixed-Satellite Service (FSS) frequencies:

- 10.7 – 12.7 GHz Downlink
- 14.0 – 14.5 GHz Uplink
- 17.8 – 18.55 GHz Downlink
- 18.8 – 19.3 GHz Downlink
- 27.5 – 29.1 GHz Uplink
- 29.5 – 30.0 GHz Uplink

The SpaceX constellation will utilize Ku-band frequencies to communicate between the satellites and end-users, and Ka-band between the satellites and our gateways. SpaceX believes that employing a forward-looking policy enabling appropriate FSS access to these bands, including the 28 GHz band, is an important step toward ensuring access to broadband for Canadians.

SpaceX intends to seek approval to use these bands within Canada as well to support the deployment of broadband services throughout Canada.

### **New spectrum utilization policy for 18.8-19.3 GHz and 28.6-29.1 GHz**

As ISED notes, there is increasing demand for ubiquitous, low-latency broadband connectivity worldwide, and next-generation NGSO satellites are expected to play a key role in meeting this need. To best enable such developments, SpaceX supports ISED's intent to develop a spectrum utilization policy for the 18.8 - 19.3 GHz and 28.6 - 29.1 GHz bands that will provide regulatory certainty to both existing and future licensees.

In particular, SpaceX agrees with ISED's proposal to give co-primary status to both geostationary orbit (GSO) and NGSO Fixed Satellite Systems (FSS) networks. As noted in the Consultation, such an approach is in line with global developments, including the emergence of NGSO FSS systems, the international regulatory framework, recent FCC decisions, and current Canadian authorizations for GSO and NGSO systems. Similarly, SpaceX supports maintaining the current moratorium on new terrestrial Fixed Service systems in these bands, as well as the proposed changes to the Canadian Table of Frequency Allocations (CTFA) intended to enable the revised allocations noted above. Together, these policies will allow multiple new technologies to flourish, and will ultimately lead to more broadband choices for Canadian consumers.

### **Coordination requirements**

While these positive developments will benefit Canadians, these advantages may be dampened or delayed by the ISED requirement that non-Canadian satellite operators fully complete coordination agreements with Canadian systems prior to the provision of services within Canada. As written, the proposed requirements could lead to the unintended scenario in which the failure of an existing Canadian licensee to diligently and expeditiously complete the coordination process with non-Canadian satellite could prevent approval of the non-Canadian NGSO operator. This unnecessary requirement would not only harm the non-Canadian operator, but it could encourage anti-competitive behavior that would ultimately delay the provision of new services for Canadians.

SpaceX instead recommends that ISED clarify that foreign-licensed NGSOs may be approved for use in Canada prior to full completion of coordination with all Canadian satellite systems networks. Incumbents can take a number of actions to thwart successful coordination, such as failing to respond to the request, levying of unreasonable terms, or delaying completing the coordination within a reasonable period of time. To prevent this type of gaming, ISED should approve non-Canadian operators if that operator can demonstrate efforts to negotiate in good faith and the absence of harmful interference to Canadian systems. Otherwise, consumers could be denied the benefit of new entrants to the market because of an incumbent's anti-competitive refusal to engage in coordination.

SpaceX in particular has gone to great lengths and invested in a system that can operate without causing interference to Canadian operators. For instance, SpaceX is using technologies and operating techniques that maximize the ability to operate its NGSO constellation without harmful

interference to existing and planned GSO and NGSO satellite systems. SpaceX has already begun to undertake coordination. Still, such international frequency coordinations can be complex, and can only be completed if both parties act in good faith.

Even if incumbent operators do not reciprocate SpaceX's efforts to negotiate in good faith and a coordination agreement is not completed, existing systems will still be protected. Specifically, regulatory safeguards are in place to allow for frequency assignments, with certain protective caveats – namely non-interference and no claim to protection. SpaceX believes this approach will lead to better and faster service for Canadians. In particular, SpaceX encourages ISED to consider in its national authorization process the good-faith efforts non-Canadian NGSO operators take to coordinate with all Canadian users of the bands. Canadian consumers would be best served by a policy that ensures that non-Canadian NGSO operators are eligible for authorization to offer Canadians service, even can only be on a non-interference basis.

### **Changes to the spectrum utilization policy for the use of the bands 17.3-17.7 GHz, 19.3-19.7 GHz and 29.1-29.25 GHz**

SpaceX supports ISED's proposed changes to the spectrum utilization policy for the 17.3-17.7 GHz, 19.3-19.7 GHz, and 29.1-29.25 GHz bands in order to permit additional FSS use in these frequency ranges. As noted in the Consultation, the services and applications delivered by FSS, Broadcasting Satellite Service and Mobile Satellite Service in these bands have seen convergence since ISED last revised the spectrum policy in 2004. Given the evolution of service offerings in these bands, ISED should update both the spectrum policy and the CTFA to enable FSS downlink in the 17.3-17.7 GHz band within appropriate parameters, as well as to enable the use of 19.3-19.7 GHz and 29.1-29.25 GHz for low-density FSS applications.

SpaceX appreciates the opportunity to provide comments in response to the Consultation and to participate in the development and review of updated spectrum utilization policies for next-generation satellite technologies. Sensible and forward-thinking spectrum policies provide regulatory certainty that is crucial to encouraging investment and innovation in the satellite sector overall.

Please do not hesitate to contact me with any questions. We look forward to working with ISED as we both strive toward a goal of connecting all of Canada's citizens to high-speed Internet services.

Very best regards,



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