



January 23, 2019

Ms. Reema Hafez
Director, Space Services Planning
Engineering, Planning and Standards Branch
Innovation, Science and Economic Development Canada
Ottawa, Ontario
K1A 0H5

Sent by Email: ic.spectrumengineering-genieduspectre.ic@canada.ca

Dear Ms. Hafez,

Re: SMSE-016-18: 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

Iridium is pleased to respond to this spectrum consultation. Since the launch of our first-generation constellation in 1997, Iridium has utilized high-availability feeder links to serve fixed and mobile users globally with an unrivalled service. The completion in January 2019 of the replacement constellation (Iridium NEXT) signals our commitment to continued service to the mobile-satellite market, including critical safety services in the aeronautical and maritime markets. Our partner, Aireon LLC, has placed aircraft tracking payloads on all of our Iridium NEXT satellites to provide a real-time global aircraft tracking service. Such a service is of particular value in remote and oceanic airspace, and so it is no coincidence that NAV Canada is one of the founder members of this venture.

Thank you for your kind consideration of our comments. Please do not hesitate to contact me if you require any clarification.

Sincerely,



Tatiana Lawrence
Vice-President, International Regulatory
Iridium Satellite, LLC

Response to: *SMSE-016-18: 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*

Respondent: *Iridium Satellite LLC*

Iridium Satellite LLC (Iridium) is pleased to submit these comments in response to the questions raised in Innovation, Science and Economic Development Canada ("ISED") consultation SMSE-016-18.

As noted in Annex D of the Consultation, Iridium uses the 29.2-29.25 GHz band and part of the 19.3-19.7 GHz band, i.e. 19.4-19.6 GHz, for the feeder links on its non-geostationary satellite orbit ("NGSO") mobile-satellite service ("MSS") constellation. Iridium's satellite system provides reliable, low-latency communications services worldwide. Because of the unique capabilities of the Iridium network, commercial, military and civilian government users depend on Iridium for mission-critical communications needs. In addition to serving military customers, Iridium supports the core commercial operations of large and economically significant industrial sectors, and a diverse set of aeronautical functions (e.g., Aeronautical Mobile-Satellite Route Service) and other civilian public safety functions, including the efforts of our first responders.

Iridium is nearing completion of the upgrade of its satellite network to its second-generation constellation, Iridium NEXT. It's a state-of-the-art system that will very soon enable more bandwidth and higher speeds for the services relied on by many of Iridium's Canadian customers on the land, in the air and the sea. A spectrum licence most recently issued on March 28, 2018 granted Aireon Canada Ltd., authority to use the AireonSM payload onboard the Iridium NEXT satellite constellation in the provision of its MSS in Canada. Iridium has successfully launched 75 of its second-generation satellites to date, establishing its full constellation with a number of spare satellites. Backed by a \$3 billion investment, Iridium NEXT is capable of supporting generational improvements in the delivery of mission-critical services that depend on satellite connectivity, including real-time aeronautical Automatic Dependent Surveillance Broadcast (ADS-B) flight monitoring services signals.

The Iridium system architecture has unique elements that are particularly relevant to Canada. It has 11 satellites in six planes, and they all converge at the poles. This polar orbiting feature makes it the only mobile communications system that has global coverage—and therefore able to provide coverage throughout all of Canada. Iridium provides many services in areas of Canada in which the terrestrial infrastructure is nonexistent or sparse.

Iridium's customers include multiple Canadian government agencies that have the need for remote tracking and communication. Iridium also is relied on for critical voice and data safety services by the Canadian Department of Fisheries and Oceans, the Department of National Defence, Parks Canada, Environment and Climate Change Canada and others. Iridium supports the work of the Canadian government military and many non-government actors in providing search and rescue services.

FSS USE OF THE BANDS 18.8-19.3 GHZ AND 28.6-29.1 GHZ

Question 1: ISED is seeking comments on the proposal to give co-primary status to both GSO networks and NGSO systems in the FSS in the bands 18.8-19.3 Ghz and 28.6-29.1 GHz.

Question 2: ISED is seeking comments on the proposal to use the original date of authorization for domestic systems for domestic coordination purposes.

Question 3: Is there additional information on coordination practices for GSO networks

and NGSO systems in the FSS that should be considered? If so, please explain in detail.

Question 4: ISED seeks comments on its view that, at this time, the existing approach to addressing domestic coordination disputes is sufficient.

Question 5: ISED is seeking comments on the proposed changes to the CTFA. In providing responses, include supporting arguments for or against the proposed changes.

Iridium offers no comment on these parts of the Ka- frequency bands.

CHANGES TO THE SPECTRUM UTILIZATION POLICY FOR USE OF THE BANDS 17.3-17.7 GHz, 19.3-19.7 GHz AND 29.1-29.5 GHz

Question 6: ISED is seeking comments on the proposed changes to the CTFA. In providing responses, include supporting arguments for or against the proposed changes.

- (i) In respect of the frequency band 17.3-17.7 GHz, Iridium offers no comment.
- (ii) In respect of the frequency bands 19.3-19.7 GHz and 29.1-29.5 GHz, Iridium offers the following responses:
 - a) Iridium notes the responses of the Radio Advisory Board of Canada on this question, and supports the points made therein. Iridium supports the general intent of ISED's proposal to modify the CTFA allowing GSO FSS to use these bands for specialized Earth station applications such as gateways and feeder links. Iridium has well-established interference protection criteria that it has employed numerous times to coordinate its operations with GSO gateways. With low-density GSO gateway deployment, this type of coordination exercise is feasible.
 - b) Iridium has operated NGSO MSS feeder links in these bands since 1997, and has completed coordination with GSO networks under Radio Regulations No. 9.11A. The characterisation of the regulatory conditions in the consultation document, however, does not accurately reflect the intent and meaning of the applicable footnotes. Paragraph 56 of the consultation document states:

"In the 19.3-19.7 GHz (Earth-to-space) band, footnote 5.523B limits the use by the FSS to feeder links for NGSO satellite systems in the MSS, and coordination under No. 9.11A applies. No limitations apply to GSO networks in the 19.3-19.6 GHz band operating in the space-to-Earth direction."

In fact, GSO networks are subject to the provisions of No. 9.11A, and No. 22.2 does not apply to operation of assignments to NGSO MSS feeder links – meaning that GSO and qualifying NGSO satellite systems in this band must coordinate on an equal basis (i.e. first-come, first-served). This regulatory arrangement is unique to the bands 19.3-19.7 GHz and 29.1-29.5 GHz, and provides spectrum conditions for high-availability feeder link services for NGSO MSS satellite systems. We note that ISED makes no proposal in the current consultation to amend these footnotes in the CTFA, and we would oppose any proposal to do so.
