

22 March 2018

**Ex Parte**

Marlene H. Dortch  
Secretary, Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

*Re: Amendment of Parts 2 and 25 of the Commission's Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to the Fixed Satellite Service; IB Docket No. 17-95*

Dear Ms. Dortch:

On 20 March 2018, Maureen C. McLaughlin, Vice President of Public Policy for Iridium Communications, Inc. ("Iridium"), Brandon Hinton of Wiley Rein LLP, Joe Godles of Goldberg, Godles, Weiner & Wright LLP, and I met Julius Knapp, Ron Repasi, Michael Ha, Nicholas Oros, and Bahman Badipour of the Office of Engineering and Technology.

In the meeting, Iridium expressed support for the proposal to facilitate the deployment of earth stations in motion ("ESIMs"), but suggested that the 29.25-29.3 GHz band be excluded from that proposal. We explained that allowing ESIMs in this band, which Iridium uses for feeder-link operations, risks creating harmful interference to Iridium's non-geostationary satellite orbit ("NGSO") network. We also explained that the satellite industry has been unable to develop a method for coordinating NGSO feeder-links and ESIMs.

We also explained that the risk to Iridium uplinks far outweighs the meager benefits of permitting ESIM operations in the 29.25-29.3 GHz band. The 50 megahertz available in the band represents only 2.5% of the 2,000 megahertz in new ESIM spectrum under consideration, and excluding it from the order would have no practical impact on ESIM deployment. Moreover, even under the best circumstances, the band would not be available for ESIMs in a substantial part of the country.

*Iridium also attempted to correct the misimpression that the number of ESIM terminals communicating with a GSO satellite is irrelevant to the interference analysis.* Most ESIMs use TDMA to allow multiple devices to access the same channel by communicating at different times. So, if three ESIMs are using the same channel, ESIM1 is only transmitting during the first of every three time slots, ESIM2 is only transmitting during the second of every three time slots, and ESIM3 is only transmitting on the third of every three time slots. Because of this TDMA technology, some have suggested that having multiple of ESIMs share a channel is no different than having a single ESIM operate on the channel continuously.

But this analysis is based on a misunderstanding of the interference risk that ESIMs pose to large NGSO networks, like Iridium's, that have many satellites in orbit. The concern is not that many

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ESIM terminals operating constantly will, with their combined power, overload the NGSO satellite receiver. It is that bursts of short-term interference, each resulting in the temporary unavailability of NGSO feeder links, will occur *too frequently*.

*Put simplistically, assume one ESIM operating constantly will interfere with an NGSO satellite ten times an hour* (each time one of the satellites in the NGSO constellation passes between the ESIM and the GSO satellite with which it is communicating). Three ESIMs in different locations, each operating one-third of the time because of TDMA, *will interfere with an NGSO satellite much more often*, because there will be many more times when an NGSO satellite will pass between at least one of the ESIMs and the GSO satellite with which the ESIMs are communicating.

It is these short-term interference events that, in the aggregate, can result in link unavailability for too high a percentage of time. And it is the frequency of these short-term interference events (i.e., the number of times they occur per unit of time) that Iridium and other operators must model in order to derive an exclusion zone. *Thus, the number of ESIMs operating in a given region, and their locations over time, is critical* and must be known (in addition to basic operating parameters) in order to define realistic exclusion zones.

We also discussed the PowerPoint previously entered into the record by Iridium on 25 September 2017.

Sincerely,

A handwritten signature in black ink that reads "SCOTT HARRIS". The signature is stylized with a large, sweeping "S" and a distinct "H".

Scott Blake Harris  
*Counsel to Iridium Communications, Inc.*

cc: Meeting Attendees