

September 18, 2018

VIA ELECTRONIC FILING

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Joint *Ex Parte* Response to Iridium, IB Docket No. 17-95

Viasat, Inc. (“Viasat”), Inmarsat, Inc. (“Inmarsat”), and SES Americom, Inc. (“SES,” and collectively with Viasat and Inmarsat, the “ESIM Operators”) respond to the notices of *ex parte* presentation filed by Iridium Communications, Inc. (“Iridium”) on September 12, 2018.¹

The Commission’s Draft Order² in this proceeding would allow ESIMs (including aeronautical ESIMs) to share the 29.25-29.3 GHz band segment on a co-primary basis with Iridium’s NGSO MSS feeder link stations and subject to the same requirements as fixed earth stations in that band.³ There is ample support in the record to adopt that decision, and the ESIM Operators urge the Commission to reject Iridium’s proposals to change the Draft Order, which would unnecessarily restrict aeronautical ESIMs in that band.

In its latest *ex partes*, Iridium continues to urge the Commission not to require Iridium to share the 29.25-29.3 GHz band segment with ESIMs. Iridium fails to provide any new arguments and continues to fail to provide any technical support for its repeated (and baseless)

¹ See Iridium Communications, Inc., Notice of *Ex Parte* Presentation to Commissioner O’Rielly’s Office, IB Docket No. 17-95 (filed Sept. 12, 2018) (“Iridium McGrath *Ex Parte*”); Iridium Communications, Inc., Notice of *Ex Parte* Presentation to OET, IB Docket No. 17-95 (filed Sept. 12, 2018) (“Iridium OET *Ex Parte*”).

² See FCC Fact Sheet, *Amendment of the Commission’s Rules Related to Earth Stations in Motion Communicating with Geostationary Orbit Satellites*, IB Docket No. 17-95, Draft Order, FCC CIRC1809-08, ¶¶ 52-59 (rel. Sept. 5, 2018) (“Draft Order”).

³ While Iridium vaguely suggests that the Commission has not proposed deeming ESIMs in the 29.25-29.3 GHz band an application of the FSS, Iridium does acknowledge that the “fundamental purpose of this proceeding” is to determine whether ESIMs in the Ka band should be recognized as an application of the FSS. Iridium McGrath *Ex Parte* at 3; Iridium OET *Ex Parte* at 3. Moreover, the Draft Order explains in detail that, with respect to the 29.25-29.3 GHz, there is no reason why ESIMs (including aeronautical ESIMs) should be treated any differently than co-primary fixed earth stations that have long been authorized in that band. See Draft Order at ¶ 66.

claims that it cannot coordinate with aeronautical ESIMs. Notably, although Iridium asserts that it “has provided detailed technical explanations of the interference problem generated by ESIMs,”⁴ it does not cite to any particular submission. That is because Iridium has not in fact provided any technical analysis.

Rather than conducting simulations using engineering software (as Viasat and Inmarsat have done in their respective analyses on the record⁵), Iridium presents a literal cartoon video of an out-of-scale depiction of purported in-line events between aeronautical ESIMs and Iridium satellites.⁶ Iridium provides no analytical discussion about how frequently any in-line events would occur and what the impact would be to its operations. Notably, true in-line events would occur only when (i) the Iridium earth station, (ii) the ESIM, (iii) the Iridium satellite, and (iv) the GSO satellite, are all in alignment—none of which are depicted in Iridium’s *ex parte*. This will be an extremely rare occurrence. Even near in-line events, such as that shown by Iridium whereby an Iridium spacecraft intersects a line between a GSO spacecraft and an airplane are very rare. In contrast to Iridium’s simplistic animation, Viasat’s and Inmarsat’s analyses are based on detailed technical simulations that reflect realistic operating parameters and Iridium’s actual system characteristics and show that such in-line events do not prevent compatible operation between ESIMs and Iridium feeder links. And, as Viasat and Inmarsat have explained, there is no appreciable difference between an earth station on the ground and one operating on an airplane flying at 35,000 feet when calculating distances toward an Iridium satellite that is hundreds of kilometers above the earth.⁷

Faced with the technical analyses that establish the record on this issue, Iridium is compelled to concede that its NGSO MSS feeder link operations can in fact coexist with ESIMs. First, Iridium concedes that it can coexist with land-based and maritime ESIMs in the 29.25-29.3 GHz band.⁸ And the un rebutted fact is that aeronautical ESIMs are pointed just as precisely, if not more so, than land-based or maritime ESIMs. All ESIMs are controlled through the same network management and control, and earth station self-monitoring, capabilities that the Commission requires of all ESIMs.⁹ In addition, land-based and maritime ESIMs could also operate while in-line with NGSO MSS feeder links. Any in-line events from aeronautical ESIMs would likely be shorter than those from land-based and maritime ESIMs because airplanes move faster than land-based vehicles or marine vessels.

⁴ Iridium McGrath *Ex Parte* at 3; Iridium OET *Ex Parte* at 3.

⁵ See Viasat, Inc. *Ex Parte* Submission Responding to Iridium, IB Docket No. 17-95 (filed Aug. 29, 2018) (“Viasat August 29th *Ex Parte*”); Viasat, Inc., *Ex Parte* Submission, IB Docket No. 17-95 (filed Mar. 26, 2018); Notice of *Ex Parte* Presentation of Viasat, Inc. and Inmarsat, Inc., IB Docket No. 17-95 (filed Nov. 6, 2017); Inmarsat *Ex Parte* submissions IB Docket No. 17-95 (filed June 28, 2018, Feb. 17, 2018 and Nov. 6, 2017).

⁶ See Iridium McGrath *Ex Parte* at 1, Attachment A.

⁷ See, e.g., Viasat August 29th *Ex Parte* at 4, Technical Statement at 1-2.

⁸ See Iridium McGrath *Ex Parte* at 1; Iridium OET *Ex Parte* at 2.

⁹ The Commission’s Draft Order would retain these requirements and would apply these rules to ESIMs operating in the Ka band. See Draft Order at ¶¶ 28, 29.

More importantly, as discussed above, there is effectively no material difference in the potential impact of aeronautical ESIMs and other ESIMs on the ground, as the difference in altitude has no material effect on the sharing scenario. The bottom line is that since Iridium has concluded that it can coexist with land and maritime ESIMs, there is no reason it cannot coexist with aeronautical ESIMs as well.

Second, Iridium acknowledges that it can coexist with aeronautical ESIMs through the coordination mechanisms presented as examples in the Draft Order.¹⁰ Specifically, the Draft Order proposes a number of ways to facilitate coexistence. Paragraph 56 of the Draft Order explains how an ESIM operator could establish a protection zone around an Iridium feeder link earth station in which it would temporarily cease transmissions if necessary.¹¹ Significantly, that section of the Draft Order emphasizes that an ESIM would only need to avoid transmitting in the 29.25-29.3 GHz band when its transmitted signal would exceed the Iridium satellite interference protection criteria at the actual location of any Iridium satellite. Therefore, if an ESIM transmission at an Iridium satellite is below this level, it would not need to cease operating even when it is in close proximity to the Iridium earth station.¹² In addition, ESIM transmissions that fall below the interference protection threshold would not need to be considered in any “time aggregation” of short-term in-line events.¹³ These are the precise coordination scenarios that Viasat and Inmarsat have illustrated in their analyses. While Iridium previously argued that it was impossible for Iridium to share spectrum with aeronautical ESIMs and that the altitude of a plane makes the interference analysis prohibitively complex, Iridium now recognizes that these approaches actually would facilitate coexistence with aeronautical ESIMs.

Iridium’s proposal to make any particular coordination mechanism mandatory is misplaced. There are ways to facilitate coordination beyond those the Commission has identified by way of example. The ESIM Operators urge the Commission to maintain flexibility to allow the use of other coordination mechanisms that ESIM network operators may propose for sharing with Iridium through other means (as the Draft Order currently does).

Finally, Iridium takes issue with the Commission’s characterization in the Draft Order of Iridium’s pattern of intransigence as a “refusal to engage in coordination” and asserts that there is no basis in the record for this characterization.¹⁴ However, Iridium’s contentions throughout this year-long proceeding that it is impossible to coordinate with ESIMs were made without any attempt to put technical information on the record or to provide support for its claims that it will suffer harmful interference. Thus, the ESIM Operators agree with the statement in the Draft Order that Iridium’s refusal to engage in coordination on the grounds that it is difficult, is

¹⁰ See *Iridium McGrath Ex Parte* at 2; *Iridium OET Ex Parte* at 2.

¹¹ See Draft Order at ¶ 56.

¹² See *id.*

¹³ See *id.* at n.146. Because Iridium acknowledges that coordination mechanisms exist and are feasible to implement, its continued assertions that short-term interference events “will require strategies for coordination that are not yet developed or understood” are unavailing. See *Iridium McGrath Ex Parte* at 2; *Iridium OET Ex Parte* at 2.

¹⁴ *Iridium McGrath Ex Parte* at 3; *Iridium OET Ex Parte* at 3.

inconsistent with co-primary status of GSO FSS and NGSO MSS feeder links in the 29.25-29.3 GHz band segment.¹⁵

In summary, the ESIM Operators support the Commission's Draft Order that would allow ESIMs (including aeronautical ESIMs) to share the 29.25-29.3 GHz band segment on a co-primary basis with Iridium's NGSO MSS feeder link stations. The technical record supports this conclusion, and even Iridium has now acknowledged that the sharing environment is not as dire as they have repeatedly claimed during the course of this proceeding.

Respectfully submitted,

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¹⁵ See Draft Order at ¶ 55.