

**Before the
Federal Communications Commission
Washington, D.C. 20554**

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| In the Matter of |) | |
| |) | |
| Iridium Satellite LLC |) | File Nos. SES-MOD-20170413-00388 |
| |) | SES-AMD-20170726-00812 |
| Application for Modification of License to Add |) | Call Sign E960132 |
| Iridium Certus Earth Stations |) | |
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| Iridium Carrier Services LLC |) | File Nos. SES-MOD-20170413-00389 |
| |) | SES-AMD-20170726-00813 |
| Application for Modification of License to Add |) | Call Sign E960622 |
| Iridium Certus Earth Stations |) | |

ORDER AND AUTHORIZATION

Adopted: March 5, 2018

Released: March 6, 2018

By the Chief, Satellite Division, International Bureau:

I. INTRODUCTION

1. In this Order and Authorization, we modify two earth station licenses to enable the deployment of a new generation of user terminals with the Iridium second-generation satellite system.

II. BACKGROUND

2. The Iridium satellite constellation is a system of 66 satellites and in-orbit spares operating in low-Earth orbit to provide mobile voice and data services to customers across the world. It operates in the mobile-satellite service, including the aeronautical-mobile satellite (route) service (AMS(R)S).¹ User devices are authorized under blanket licenses held by Iridium Carrier Services LLC and Iridium Satellite LLC (collectively, Iridium).² In 2016, the Satellite Division authorized the operation of a second generation of Iridium satellites with enhanced capabilities and data speeds.³ The following year, Iridium filed the present applications to operate a new generation of user terminals that take advantage of the enhanced capabilities of its second-generation satellites.⁴ The applications drew comments from four

¹ See 47 CFR § 25.103 (Definitions).

² *Iridium Carrier Services LLC*, File No. SES-MOD-20130416-00323 as amended by SES-AMD-20150923-00620 (granted Mar. 2, 2016); *Iridium Satellite LLC*, File No. SES-MOD-20130416-00322 as amended by SES-AMD-20150923-00612 (granted Mar. 2, 2016). Iridium Carrier Services LLC holds a common-carrier blanket earth station license, while Iridium Satellite LLC holds a non-common carrier blanket earth station license.

³ *Iridium Constellation LLC, Application for Modification of License to Authorize a Second-Generation NGSO MSS Constellation*, Order and Authorization, 31 FCC Rcd 8675 (IB, Sat. Div. 2016).

⁴ *Iridium Satellite LLC, Application for Modification of License to Add Iridium Certus Earth Stations*, SES-MOD-20170413-00388 (filed April 13, 2017), as amended by SES-AMD-20170726-00812 (filed July 26, 2018); *Iridium Carrier Services LLC, Application for Modification of License to Add Iridium Certus Earth Stations*, SES-MOD-20170413-00389 (filed April 13, 2017), as amended by SES-AMD-20170726-00813 (filed July 26, 2018).

parties, which raised concerns related to out-of-band emissions generated by the proposed Iridium user terminals, as well as out-of-band emissions generated by users of adjacent bands into the 1618.725-1626.5 MHz band used by the Iridium user terminals.

III. DISCUSSION

3. The Commission has authorized Iridium satellites and earth stations to operate in the 1617.725-1626.5 MHz frequency band.⁵ Iridium is also authorized to provide AMS(R)S in the 1618.725-1626.5 MHz band, limited to oceanic, polar, and remote regions.⁶ Inmarsat operates MSS terminals in the 1626.5-1660.5 MHz (Earth-to-space) and 1525-1559 MHz (space-to-Earth) frequency bands. Inmarsat comments that, because the new Iridium terminals have not completed the international technical standardization and Federal Aviation Administration (FAA) approval processes, Iridium should provide a demonstration that its new AMS(R)S earth station terminals are compatible with operations in adjacent bands.⁷ Since FAA approval is a precondition to use these terminals in U.S. aircraft, we will require FAA approval prior to AMS(R)S operations with the new terminals.⁸ Combined with Iridium's statements that it will continue to operate consistent with its existing conditions on its AMS(R)S operations, we believe this condition addresses the concern raised by Inmarsat.⁹ Likewise, Globalstar¹⁰ requests that we impose a condition on these earth station licenses concerning AMS(R)S operations similar to the conditions imposed on the Iridium space station license: specifically, that Iridium may seek additional interference protection for its Certus terminals only through new or modified inter-operator agreements with Globalstar or other MSS systems.¹¹ We note that Iridium has not sought, and this Order does not afford, any additional interference protection. Regardless, we condition this authorization generally on compliance with the terms and conditions of the underlying Iridium space station authorization, which addresses Globalstar's concern.¹²

4. Section 25.216 of the Commission's rules contains limits on out-of-band power emitted by mobile earth stations into the 1559-1610 MHz band. Section 25.202(f) contains general limits on out-of-band emissions. Iridium states that it will comply with the limits in both these sections. Nonetheless, the GPS Innovation Alliance states that, if it is not able to reach an agreement with Iridium concerning emissions in the 1559-1610 MHz band, the Commission should impose on Iridium out-of-band emission requirements at a level of -95 dBW/MHz, which is equivalent to what some operators of terrestrial services have agreed to for terminals operating in other frequency ranges.¹³ The use cases of MSS terminals and terrestrial operations are significantly different, based in part on the fact that terrestrial use can be expected to be denser than MSS use. Furthermore, we do not consider an agreement among private parties involving distinct technical operations as providing a standard that must be applied in all

⁵ See *supra* note 3.

⁶ *Iridium Constellation LLC, Application to Modify License for a Low Earth Orbit Mobile Satellite System*, Memorandum Opinion and Order, DA 13-141 (IB, Feb. 4, 2013).

⁷ Comments of Inmarsat at 3-4 (filed Sept. 8, 2017) (Inmarsat Comments).

⁸ Because FAA approval processes already incorporate the international standardization process through the International Civil Aviation Organization (ICAO), the United Nations standards body to which United States is a contracting body, no further condition is necessary regarding compliance with international standards processes.

⁹ This condition addresses similar concerns expressed by Ligado. See Ligado Comments at 10-13 (filed Sept. 8, 2017).

¹⁰ Globalstar is authorized to operate an NGSO MSS network in the 1610-1618.725 (Earth-to-space) and 2483.5-2500 MHz (space-to Earth) frequency bands.

¹¹ Comments of Globalstar, Inc. at 3 (filed Sept. 8, 2017).

¹² See *supra* note 3.

¹³ Comments of GPS Innovation Alliance at 4-5 (filed Sept. 8, 2017).

cases, without regard to the Commission's rules. We conclude that compliance with the Commission's rules is sufficient concerning emissions in the 1559-1610 MHz band in this instance.

5. Ligado argues that, in its application, Iridium has not demonstrated how its earth stations will operate successfully given the levels of out-of-band emissions permitted under Section 25.202(f) into the Iridium service band.¹⁴ Iridium states that its new terminals will be no more sensitive to interfering emissions than its existing earth stations, which have been operating successfully for years.¹⁵ We therefore see no reason to inquire further on this point.

6. Inmarsat comments that the proposed uplink e.i.r.p. density levels for the new Iridium terminals are up to 10 dB higher than the levels included in the International Telecommunication Union (ITU) filing for the Iridium satellite system, "HIBLEO-2."¹⁶ The license holder for the Iridium satellite system, Iridium Constellation LLC, is under a continuing obligation to provide the Commission with information concerning the international coordination of its system, including any updated filings.¹⁷ We expect Iridium to continue to provide to the Commission any necessary materials for submission to the ITU and see no reason to include a more specific condition in connection with this authorization.

IV. CONCLUSION AND ORDERING CLAUSES

7. We find that grant of the Iridium earth station modification applications will serve the public interest, convenience, and necessity by enabling the deployment of a new generation of user terminals with the Iridium second-generation satellite system.

8. Accordingly, IT IS ORDERED, pursuant to 47 U.S.C. § 301 and 47 CFR § 0.261(a)(4), that the Iridium Applications ARE GRANTED.

9. IT IS FURTHER ORDERED that Iridium may not operate its newly authorized earth stations in the AMS(R)S until receiving necessary approvals by the Federal Aviation Administration.

10. IT IS FURTHER ORDERED that the Iridium blanket-licensed earth stations must operate in conformance with the terms and conditions of the Iridium satellite system authorizations under call sign S2110.

FEDERAL COMMUNICATIONS COMMISSION

José P. Albuquerque
Chief, Satellite Division
International Bureau

¹⁴ Ligado Comments at 10-14.

¹⁵ Iridium Consolidated Response at 12-13 (filed Sept. 18, 2017).

¹⁶ Inmarsat Comments at 2-3.

¹⁷ 47 CFR § 25.111(b).