

APPLICATION FOR SPECIAL TEMPORARY AUTHORITY

Iridium Constellation LLC (“Iridium”) hereby requests special temporary authority (“STA”) for thirty (30) days,¹ commencing upon grant, to maintain five (5) on-orbit spare satellites² associated with its “Big LEO” band non-geostationary satellite orbit (“NGSO”) Mobile-Satellite Service constellation (Call Sign S2110) within a wider range of altitudes than previously identified. Specifically, Iridium seeks STA to maintain five on-orbit spares in storage orbits at altitudes outside the 700-750 km range originally indicated by Iridium³ and to reposition these spare satellites at altitudes between 615 km and mission altitude as circumstances warrant.

Maintaining these second-generation spare satellites in the currently requested storage orbits will serve the public interest by conserving fuel and optimizing spare satellite configuration, thereby ensuring continuity of service for Iridium’s end users and enabling the replacement process in a manner that coordinates satellite movements safely and efficiently.⁴

¹ See 47 C.F.R. § 25.120(b)(4). Iridium intends to file a modification application seeking permanent authority to operate these five on-orbit spares at the altitudes discussed herein.

² Iridium separately sought and received special temporary authority to maintain at a wider range of altitudes five ground spares that were launched on May 20, 2023. See *Iridium Constellation LLC, Application for Special Temporary Authority*, Stamp Grant, File No. SAT-STA-20230516-00110 (May 18, 2023).

³ See Engineering Statement, File No. SAT-MOD-20131227-00148, at 37 (filed Dec. 27, 2013) (“Iridium NEXT Engineering Statement”). The Commission’s authorization of the Iridium NEXT Constellation did not specify an altitude range for the second-generation spare satellites. See *Iridium Constellation LLC, Application for Modification of License to Authorize a Second-Generation NGSO MSS Constellation*, Order and Authorization, 31 FCC Rcd. 8675, ¶ 47 (Aug. 1, 2016) (“Iridium NEXT Order”).

⁴ See *Issues Related to Allegations of Warehousing and Vertical Foreclosure in the Satellite Space Segment*, Notice of Inquiry, IB Docket No.13-147, ¶ 11 (2013) (“[W]e recognize the importance of affording operators some flexibility in managing their satellite fleets in a manner that best serves their business and customer needs.”).

I. REQUEST FOR SPECIAL TEMPORARY AUTHORITY

On August 1, 2016, the Commission authorized Iridium to construct, deploy and operate its second-generation satellite constellation, commonly known as Iridium NEXT, with 66 space stations and up to 15 “second-generation in-orbit satellites.”⁵ Between 2017 and 2019, Iridium successfully replaced all 66 first-generation satellites with Iridium NEXT second-generation satellites. Iridium also launched 9 second-generation on-orbit spares and retained 6 ground spares, all of which could serve as replacements on an as-needed basis.

Iridium had anticipated that it would launch second-generation spares to an insertion orbit of 625 km, and that following in-orbit check-out at an initial storage orbit above 625 km the spares would proceed to destinations within an altitude range of 700-750 km.⁶ However, five of these spares were placed in storage orbits outside this altitude range in response to evolving fuel considerations and mission requirements. Accordingly, and to the extent necessary, this STA seeks authority to maintain the five spares at approximately the altitudes listed below and to reposition these spare satellites at altitudes between 615 km and mission altitude as circumstances warrant.

Spare Vehicle	Altitude (km)
Spare 1	774
Spare 2	760
Spare 3	650
Spare 4	650
Spare 5	650

Iridium has determined that the altitudes of these spacecraft are those that are best suited to meet the needs of the mission and ensure flexibility, safety, and efficiency of operations.

⁵ See generally Iridium Next Order ¶¶ 45-47.

⁶ Iridium NEXT Engineering Statement at 37.

While positioned in storage orbit, the Iridium NEXT spares have not operated and will not operate as part of Iridium's mission constellation.⁷

II. PUBLIC INTEREST STATEMENT

Grant of this STA request will serve the public interest. As the Commission has acknowledged, Iridium NEXT "provide[s] mobile voice and data services to end users on a network with improved voice quality and enhanced data transmission speeds."⁸ Granting Iridium flexibility to maintain five of the on-orbit spares at the requested altitudes allows Iridium to maintain a robust supply of readily deployable replacement satellites and will ensure continuity of service for Iridium's customers.

The Iridium NEXT constellation is arranged in six orbital planes, each of which require varying amounts of fuel to reach during drift from insertion. By maintaining some spares at these additional altitudes, Iridium will be able to consume less fuel when deploying replacements among these six planes. Similarly, use of these storage orbits will facilitate the availability of engineering resources needed to coordinate the safe movement of multiple satellites.

The altitudes of the five spare satellites pose a low conjunction risk because they are not populated with other large commercial NGSO systems. Iridium, moreover, will continue to take all practicable steps to ensure safe operation of its spacecraft and maintain space situational awareness. Notably, Iridium will continue to coordinate with and provide operational information to other operators and the 19th Space Defense Squadron to further ensure space safety.

⁷ Cf. Iridium Constellation LLC, Application to Modify Authorization, Call Sign S2110, File No. SAT-MOD-20120813-00128 (filed Aug. 13, 2012).

⁸ Iridium NEXT Order ¶ 1.

III. CONCLUSION

Iridium respectfully requests that the Commission grant this STA request to permit Iridium to maintain five of its on-orbit spares at altitudes of approximately 760 km, 774.6 km, and 650.8 km, and to permit it to reposition these spare satellites at altitudes between 615 km and mission altitude as circumstances warrant.

Respectfully submitted,

By: /s/ Kara Leibin Azocar

Kara Leibin Azocar
Vice President, Regulatory
Iridium Satellite LLC
1750 Tysons Boulevard
Suite 1400
McLean, VA 22102

May 30, 2023