

S2110 SAT-STA-20131203-00141 IB2013002755
Iridium Constellation LLC
Iridium



File # SAT-STA-20131203-00141

Call Sign S2110 Grant Date 12/12/13
(or other identifier)

From 12/10/13 Term Dates period of To: 60 days

Approved by OMB
3060-0678

Approved:

Stephen J. Duall
Stephen J. Duall
Chief, Satellite Policy Branch

Date & Time Filed: Dec 3 2013 11:31:25:583AM
File Number: SAT-STA-20131203-00141
Callsign:

FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY
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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:

Iridium 8th STA SV023 positioning


1. Applicant

| | | | |
|-------------------|---------------------------|----------------------|---------------------------------|
| Name: | Iridium Constellation LLC | Phone Number: | 703-287-7400 |
| DBA Name: | | Fax Number: | 703-287-7450 |
| Street: | 1750 Tysons Boulevard | E-Mail: | donna.bethea-murphy@iridium.com |
| | Suite 1400 | | |
| City: | McLean | State: | VA |
| Country: | USA | Zipcode: | 22102 - |
| Attention: | Donna Bethea-Murphy | | |

Attachment to Grant
Iridium Constellation LLC
IBFS File No. SAT-STA-20131203-00141
Call Sign S2110

The application of Iridium Constellation LLC (Iridium), IBFS File No. SAT-STA-20131203-00141, for special temporary authority for a period of 60 days is granted, commencing on December 10, 2013, subject to the following conditions:

1. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at Iridium's own risk.
2. Grant of this special temporary authority is without prejudice to any action on IBFS File No. SAT-MOD-20080701-00140.
3. This action is issued pursuant to Section 0.261 of the Commission's rules on designated authority, 47 C.F.R. § 0.261, and is effective immediately.

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|---|--|
|  GRANTED* International Bureau *with conditions | File # <u>SAT-STA-20131203-00141</u> |
| | Call Sign <u>S2110</u> Grant Date <u>12/12/13</u> (or other identifier) |
| | Term Dates period of From <u>12/10/13</u> To: <u>60 days</u> |
| | Approved: <u><i>Stephen J. Duall</i></u> Stephen J. Duall Chief, Satellite Policy Branch |
| | |

| | |
|---|---------------------------------------|
| 2. Contact | |
| Name: Jennifer D. Hindin | Phone Number: 202-719-4975 |
| Company: Wiley Rein LLP | Fax Number: 202-719-7049 |
| Street: 1776 K Street, NW | E-Mail: jhindin@wileyrein.com |
| City: Washington | State: DC |
| Country: USA | Zipcode: 20006 - |
| Attention: | Relationship: Legal Counsel |
| (If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.) | |
| 3. Reference File Number or Submission ID | |
| 4a. Is a fee submitted with this application? | |
| <input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114). | |
| <input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee | |
| <input type="radio"/> Other (please explain): | |
| 4b. Fee Classification CXW – Space Station (Non-Geostationary) | |
| 5. Type Request | |
| <input type="radio"/> Change Station Location <input type="radio"/> Extend Expiration Date <input checked="" type="radio"/> Other | |
| 6. Temporary Orbit Location | 7. Requested Extended Expiration Date |

8. Description (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

Iridium Constellation LLC requests special temporary authority for sixty (60) days -- from December 8, 2013 through February 5, 2014 -- to continue to keep spare satellite SV023 positioned in a parking orbit.

9. By checking Yes, the undersigned certifies that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes. Yes No

10. Name of Person Signing
Donna Bethea Murphy

11. Title of Person Signing
Vice President, Regulatory Engineering

12. Please supply any need attachments.

Attachment 1: Narrative

Attachment 2:

Attachment 3:

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

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**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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| _____ |) | |
| |) | |
| Iridium Constellation LLC |) | Call Sign: S2110 |
| |) | |
| For Special Temporary Authority |) | File No. SAT-STA-2013 _____ |
| _____ |) | |

APPLICATION FOR SPECIAL TEMPORARY AUTHORITY

On July 18, 2012, the International Bureau granted Iridium Constellation LLC (“Iridium”) special temporary authority (“STA”) for 30 days to increase its total number of space stations operating in its mission constellation by co-locating two satellites.¹ Since then, the International Bureau granted Iridium STA for eight additional 60-day periods—the most recent through December 9, 2013—to continue to operate an additional, co-located satellite in its mission constellation.² Iridium hereby requests STA for an additional sixty (60) days—from

¹ See File No. SAT-STA-20120716-00116 (filed July 16, 2012). On July 19, 2012, Iridium brought in-orbit spare satellite SV051 into operation in its mission constellation and filed a notice with the FCC. See Letter from Donna Bethea-Murphy, Iridium Constellation LLC, to Marlene H. Dortch, Federal Communications Commission (filed July 26, 2012).

² See File No. SAT-STA-20130730-00100 (filed July 30, 2013); File No. SAT-STA-20130522-00073 (filed May 22, 2013); File No. SAT-STA-20130401-00056 (filed Apr. 1, 2013); File No. SAT-STA-20130131-00013 (filed Jan. 31, 2013); File No. SAT-STA-20121210-00213 (filed Dec. 10, 2012); SAT-STA-20120813-00129 (filed Aug. 13, 2012); See File No. SAT-STA-20120927-00157 (filed Sept. 27, 2012). Along with the August 13, 2012 STA application, Iridium filed a modification application seeking regular authority, which remains pending. See Iridium Constellation LLC, Application of Iridium Constellation LLC for Modification of Authorization, File No. SAT-MOD-20120813-00128 (filed Aug. 13, 2012) (“Iridium Modification Application”). The Commission put the application on public notice on September 28, 2012, and the pleading cycle on this public notice completed November 15, 2012. See Reply to Opposition, File No. SAT-MOD-20120813-00128 (filed Nov. 27, 2012). The Commission put the Iridium Modification Application on Public Notice a second time on September 27, 2013 because the first public notice incorrectly indicated the feeder link transmission frequency band. See Report No. SAT-00974. On November 4, 2013, HNS License Sub, LLC (“Hughes”) filed a Supplemental Petition to Deny, Dismiss or Defer, In Part the

December 10, 2013 through February 7, 2014—to maintain operation of an additional, co-located satellite in its mission constellation.³ The operation of 67 satellites is made possible by technological developments and software upgrades allowing Iridium to co-locate two satellites. Grant of this STA request will serve the public interest because it will allow Iridium engineers the flexibility to address efficiently occasional system faults and anomalies and improve service quality for customers, including first responders and significant government users such as the Department of Defense.

I. BACKGROUND

Until last year, Iridium operated a mission constellation of 66 satellites located in six orbital planes of eleven slots each in nearly circular polar orbits along with six in-orbit spares.⁴ In July 2012, Iridium commenced operating a pair of co-located satellites in plane 4, slot 7 of its NGSO constellation pursuant to a grant of special temporary authority.

The Iridium satellites operate in low-Earth-orbit and use spectrum in the “Big LEO” band.⁵ Most system processing is performed using software onboard each satellite instead of on

Iridium Modification Application. Supplemental Petition to Deny, Dismiss or Defer, in Part of HNS License Sub, LLC, File No. SAT-MOD-20120813-00128 (filed Nov. 4, 2013) (“Hughes Supplemental Petition”). On November 19, 2013, Iridium filed an Opposition to the Hughes Supplemental Petition. Opposition of Iridium Constellation LLC, File No. SAT-MOD-20120813-00128 (filed Nov. 19, 2013). On November 29, 2013, Hughes filed a Reply, which completed the pleading cycle. Reply of HNS License Sub, LLC, File No. SAT-MOD-20120813-00128 (filed Nov. 29, 2013).

³ See 47 C.F.R. § 25.120(b)(2).

⁴ See *Motorola Satellite Communications, Inc. for Authority to Construct, Launch, and Operate a Low Earth Satellite System in the 1616-1626.5 MHz Band*, 10 FCC Rcd 2268 (1995) (authorizing Iridium’s predecessor in interest to launch and operate a NGSO mission constellation of 66 satellites in the Big LEO band).

⁵ See *Iridium Constellation LLC*, Order, 19 FCC Rcd 1474 (I.B. 2004).

the ground, which enables engineers to develop additional functionality and software-based solutions to occasional faults and anomalies in the system.⁶

II. REQUEST FOR SPECIAL TEMPORARY AUTHORITY

This request seeks continued special temporary authority for Iridium to add a satellite to its mission constellation. Specifically, Iridium placed one of its spare satellites, SV051, in its mission constellation in plane 4, slot 7 pursuant a grant of special temporary authority. That orbital position in the Iridium constellation is also occupied by SV007, which experienced a partial technical anomaly in 2009.⁷ SV051 is kept near the center of the orbital box for slot 7 in plane 4, and SV007 is located approximately 100 kilometers behind SV051. During the co-location, the SV051 satellite provides communications in the Big LEO Band while traffic routing uses the SV007 satellite. As a result of this co-location, the Iridium constellation consists of a total of 67 satellites, with twelve instead of 11 satellites operating in plane 4. The additional satellite is technically identical to the other operational satellites in the Iridium constellation, and the technical information provided in Iridium's modification application and previously provided to the Commission is incorporated by reference herein.⁸

⁶ *Iridium Communications Inc.*, United States Securities and Exchange Commission Form 10-K for year ending Dec. 31, 2012, at 15.

⁷ *See* Iridium Communications Inc. 2009 Annual Report and Request for Confidential Treatment (filed Oct. 15, 2009).

⁸ *See* Iridium Modification Application; Motorola Satellite Communications, Inc., Minor Amendment to Application of Motorola Satellite Communications, Inc. for Authority to Construct, Launch and Operate a Low Earth Orbit Satellite System in the 1616-1626.5 MHz Band, File No. SAT-L/A-19941115-00068 (granted Jan. 31, 1995) ("Motorola 1994 Amendment"); Iridium Constellation LLC, Application for Minor Modification of Mobile Satellite Service Authorization to Update Orbital Debris Mitigation Requirements, File No. SAT-MOD-20080701-00140 (filed Jul. 1, 2008).

III. PUBLIC INTEREST STATEMENT

Grant of this STA request will serve the public interest. Co-location of these two Iridium spacecraft is made possible through technological developments. Iridium has designed software upgrades that improve communications routing and satellite tracking. Implementation of these new software changes has enabled Iridium effectively to co-locate two satellites in slot 7 of plane 4. The co-location of these two satellites will demonstrate more robust flexibility in the configuration of the Iridium constellation. Such system flexibility may also facilitate the seamless future transition to the planned Iridium NEXT constellation. More immediately, it will result in more consistent connectivity and improved service quality for customers, such as first responders, the Federal government, and aid organizations.

Moreover, grant of this STA request poses no interference risk. The location of SV007 approximately 100 km behind SV051 ensures safe station-keeping of both satellites without any overlap in orbital position. In addition, the two satellites will operate in a complementary manner without increasing the number of satellites using Big LEO spectrum. Service link communications in the Big LEO band will be provided only on the SV051 satellite, which will be located in the station-keeping box for plane 4, slot 7 as authorized by the Commission. In each pair of co-located satellites, just one satellite will use Ka-band frequencies to receive TT&C communications. The other will receive a relay of any TT&C information from the first satellite via inter-satellite link frequencies outside the 29.25-29.3 GHz band. Finally, Iridium's software developments enable operation of both co-located satellites without harmful interference by connecting SV051 into the constellation using its forward crosslink and connecting SV007 into the constellation with its left and right crosslinks.

IV. CONCLUSION

Iridium respectfully requests that the Commission expeditiously grant this STA to permit continued operation of 67 satellites as described for a period of sixty (60) days.

Respectfully submitted,

By: Donna Bethea-Murphy

Donna Bethea-Murphy
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December 3, 2013