

S2110 SAT-STA-20130927-00118 IB2013002102
Iridium Constellation LLC
Iridium



File # SAT-STA-20130927-00118
Call Sign S2110 Grant Date 10/23/13
(or other identifier)
Term Dates period of
From 10/11/13 To: 60 days
Approved: *Stephen J. Duall*

Approved by OMB
3060-0678

Date & Time Filed: Sep 27 2013 11:29:08:883AM
File Number: SAT-STA-20130927-00118
Callsign:

*with conditions

Stephen J. Duall
Chief, Satellite Policy Branch

FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY
FOR OFFICIAL USE ONLY

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
Iridium 9th STA co-location

I. 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-20130927-00118
Call Sign S2110

The application of Iridium Constellation LLC (Iridium), IBFS File No. SAT-STA-2030927-00118, for special temporary authority for a period of 60 days is granted, commencing on October 11, 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.



*with conditions

File # SAT-STA-20130927-00118

Call Sign S2110 Grant Date 10/23/13

(or other identifier)

Term Dates period of
From 10/11/13 To: 60 days

Approved: _____

Stephen J. Duall
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?

- If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).
- Governmental Entity Noncommercial educational licensee
- Other (please explain):

4b. Fee Classification CXW – Space Station (Non-Geostationary)

5. Type Request

- Change Station Location Extend Expiration Date 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 ('Iridium') requests special temporary authority for an additional sixty (60) days, from October 11, 2013 through December 9, 2013, to maintain operation of an additional, co-located satellite in its mission constellation.

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).

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember – You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.

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

_____)	
)	
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 On September 14, 2012, October 4, 2012, December 19, 2012, February 7, 2013, April 25, 2013, June 13, 2013, and August 8, 2013, the International Bureau granted Iridium STA for additional 60-day periods—until October 15, 2012, December 14, 2012, February 12, 2013, April 13, 2013, June 12, 2013, August 11, 2013, and October 10, 2013, respectively—to continue to operate an additional, co-located satellite in its mission constellation.² Iridium hereby requests STA for an

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”). On October 31, 2012, HNS License Sub, LLC (“Hughes”) filed a Petition to Deny or Dismiss the Iridium Modification Application. Petition to Deny or Dismiss, in Part of HNS License Sub, LLC, File No. SAT-MOD-20120813-00128 (filed

additional sixty (60) days—from October 11, 2013 through December 9, 2013—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

Oct. 31, 2012) (“Hughes Petition”). On November 15, 2012, Iridium filed an Opposition to the Hughes Petition. Opposition of Iridium Constellation LLC, File No. SAT-MOD-20120813-00128 (filed Nov. 15, 2012). On November 27, 2012, Hughes filed a Reply, which completed the pleading cycle. Reply to Opposition, File No. SAT-MOD-20120813-00128 (filed Nov. 27, 2012).

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
Vice President, Regulatory
Engineering
Iridium Satellite LLC
1750 Tysons Boulevard
Suite 1400
McLean, VA 22102

September 27, 2013