

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:
GX Aviation Honeywell Antenna STA

1. Applicant


Name:	ISAT US Inc.	Phone Number:	202-248-5158
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Attention:	Mr Chris Murphy		

SES-STA-20150304-00112

File # 20150304 Grant Date 3-31-15

Call Sign 51201S Term Dates 3-31-15
(or other identifier) To 5-31-15

Approved: *Chris Murphy*



GRANTED
International Bureau

2. Contact

Name: Chris Murphy **Phone Number:** 2022485150
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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 SESLIC2014103000832 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 CGV – Fixed Satellite VSAT System

5. Type Request

Use Prior to Grant Change Station Location Other

6. Requested Use Prior Date
05/01/2015

7. City

8. Latitude
(dd mm ss.s h) 0 0 0.0

9. State	10. Longitude (dd mm ss.s h) 0 0 0.0
11. Please supply any need attachments. Attachment 1: Narrative Attachment 2: Attachment 3:	
12. 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.) <div style="border: 1px solid black; height: 100px; width: 100%;"></div> Please see attached narrative.	
13. 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 <input checked="" type="radio"/> No <input type="radio"/>	
14. Name of Person Signing Chris Murphy	15. Title of Person Signing Director, Government Affairs
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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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.

Applicant: ISAT US, Inc.

Call Sign: E140114

File No.: **SES-STA-20150304-00112**

Special Temporary Authority (STA)

ISAT US, Inc. is granted special temporary authority for a period of 30 days, commencing May 1, 2015, to operate one aircraft earth station (Honeywell MCS-8200 fuselage-mount user terminal) for testing that will communicate with the Inmarsat-5 F1 geostationary orbit space station at the 62.6° E.L. orbital location (IS5F1), using the 29.5-30.0 GHz (Earth-to-space) and 19.7-20.2 GHz (space-to-Earth) frequency bands. Operations must be in accordance with the technical specifications contained in ISAT US, Inc.'s application, and are subject to the following conditions:


1. The temporary authority granted is for acceptance testing of the Honeywell MCS-8200 terminal. Operations are limited to testing outside the United States over international waters and in foreign airspace while the single aircraft earth station is mounted on board a United States-flagged aircraft (Tail Number: N757HW) and remotely controlled through Inmarsat's gateway facility located in Fucino, Italy, and its Network Operations Center in London, England.
2. Operations under this grant of special temporary authority must be on an unprotected, non-harmful interference basis, *i.e.*, while operating under this temporary authority ISAT US, Inc. must not cause harmful interference to, and must not claim protection from interference caused to it by, any other lawfully operating radiocommunication system. ISAT US, Inc. must cease operations immediately upon notification of such interference and must immediately inform the Commission, in writing, of such an event.
3. The aircraft earth station authorized herein must cease transmissions when the antenna-to-GSO skew angle produces off-axis EIRP spectral density emissions greater than the limits in Section 25.138 of the Commission's rules. *See* 47 C.F.R. § 25.138. The aircraft earth station may resume transmissions once the risk of harmful interference has passed.
4. ISAT US, Inc. must take all necessary measures to ensure that the antenna does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR §§ 1.1307(b) and 1.1310 wherever such exposures might occur. Measures must be taken to ensure compliance with limits for both occupational controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Requirements for restrictions can be determined by predictions based on calculations, modeling or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/lrfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for workers. The licensee shall ensure installation of terminals on aircraft by qualified installers who have an understanding of the antenna's radiation environment and the measures best suited to maximize protection of the general public and persons operating the aircraft and equipment. A terminal exhibiting radiation exposure levels exceeding 1.0 mW/cm² in accessible areas, such as at the exterior surface of the radome, shall have a label attached to the surface of the terminal warning about the radiation hazard and shall include thereon

a diagram showing the regions around the terminal where the radiation levels could exceed 1.0 mW/cm².

5. ISAT US, Inc. must maintain a point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized, for discussing interference concerns with other licensees and U.S. Government agencies.
6. Aircraft earth stations authorized herein must employ a tracking algorithm that is resistant to capturing and tracking adjacent satellite signals, and each station must be capable of inhibiting its own transmission in the event it detects unintended satellite tracking.
7. Aircraft earth stations authorized herein must be monitored and controlled by a ground-based network control and monitoring center. Such stations must be able to receive "enable transmission" and "disable transmission" commands from the network control center and must cease transmission immediately after receiving a "parameter change" command until receiving an "enable transmission" command from the network control center. The network control center must monitor operation of each aircraft earth station to determine if it is malfunctioning, and each aircraft earth station must self-monitor and automatically cease transmission on detecting an operational fault that could cause harmful interference to a fixed-satellite service network.
8. Stations authorized herein must not be used to provide air traffic control communications.
9. Operation in the territory or airspace of any country other than the United States must be in compliance with the applicable laws, regulations, and licensing procedures of that country, as well as with the conditions of this authorization.
10. Communications between ISAT US, Inc.'s earth station and IS5F1 space station must be in compliance with all existing and future space station coordination agreements reached between the United Kingdom and other Administrations.
11. ISAT US, Inc. must maintain records of the following data for each operating aircraft earth station (AES), a record of the aircraft location (i.e., latitude/longitude/altitude), transmit frequency, channel bandwidth and satellite used shall be time annotated and maintained for a period of not less than one year. Records shall be recorded at time intervals no greater than one (1) minute while the AES is transmitting. The operator shall make this data available, in the form of a comma delimited electronic spreadsheet, within 24 hours of a request from the Commission, NTIA, or a frequency coordinator for purposes of resolving harmful interference events. A description of the units (i.e., degrees, minutes, MHz ...) in which the records values are recorded will be supplied along with the records.
12. Antenna elevation for all operations must be at least 5 degrees above the geographic horizon while the aircraft is on the ground.

13. ISAT US, Inc. must comply with any pertinent limits established by the International Telecommunication Union to protect other services allocated internationally.
14. Operations authorized pursuant to this license are operations by U.S.-registered aircraft anywhere within the coverage area/frequency bands identified in the application for the satellite listed as a point of communication. Authorization for operations by U.S.-registered aircraft outside U.S. territory, pursuant to this license, does not constitute a grant of access to the market in the United States under the Commission's DISCO II policies.
15. Grant of this authorization is without prejudice to any determination that the Commission may make regarding pending applications or future requests for special temporary authority. *E.g.* IBFS File No. SES-LIC-20141030-00832.
16. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at ISAT US, Inc.'s risk.

This action is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective immediately. Petitions for reconsideration under Section 1.106 or applications for review under Sections 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within thirty days of the date of the public notice indicating that this action was taken.

 GRANTED International Bureau	File # <u>SES-STA-20150304-00112</u>
	Call Sign <u>E40114</u> Grant Date <u>3-31-15</u> (or other identifier)
	From <u>5-1-15</u> Term Dates To: <u>5-31-15</u>
	Approved: <u>Paul E. Hays</u>

Request for Special Temporary Authority

Pursuant to Section 301(e) of the Communications Act,¹ ISAT US, Inc. (“ISAT”) requests special temporary authority (“STA”) to operate one (1) transmit/receive earth station mounted on a United States-flagged aircraft in the 29.5-30.0 GHz band for uplink communications and in the 19.7-20.2 GHz band for downlink communications using the Inmarsat-5 F1 satellite, located at the 62.6° E.L. orbital location (“I5F1”). Testing of the earth station will be conducted outside the United States over international waters and in foreign airspace while mounted on board a United States-flagged aircraft (Tail Number: N757HW)² and will be operated through Inmarsat’s gateway facility located in Fucino, Italy. ISAT requests STA for a period of 30 days commencing on May 1, 2015.

The earth station terminal at issue is a Honeywell MCS-8200 fuselage-mount user terminal, which is the subject of ISAT’s pending application with the Commission seeking blanket authority for earth station terminals to be mounted on aircraft to provide mobile communications services over Inmarsat’s Global Xpress Ka-band satellite system.³ The Application contains all of the technical parameters that are relevant for the STA operations, except that the terminal will communicate with I5F1 during the testing operations. I5F1 is technically identical to the Inmarsat-5 F2 satellite for which U.S. market access has been sought.⁴ Throughout the terminal testing, Inmarsat will remotely control the terminal operations through its Fucino, Italy gateway and Inmarsat’s Network Operations Center located in London. ISAT requests a waiver of the U.S. Table of Allocations to the extent necessary to operate mobile terminals in the segments of the Ka-band identified above, as detailed in the Application.⁵

The purpose of the proposed STA operations is to conduct acceptance testing of the prototype Earth Station manufactured by Inmarsat’s supplier, Honeywell, Inc. (“Honeywell”). During the testing, the aircraft will be flown within the airspace of the United Kingdom, Norway and the Netherlands and over international waters surrounding these countries. The relevant administration in each of these countries has adopted the

¹ 47 U.S.C. § 301(e).

² The aircraft to be used for the proposed tests is a Boeing 757 that is regularly utilized for various testing purposes and is owned and operated by the Honeywell Corporation.

³ ISAT US, Inc. Application for Earth Station Authorizations GX Aeronautical Mobile Blanket License Application, IBFS File No. SES-LIC-20141030-00832, Call Sign E140114 (filed Oct. 23, 2014) (the “Application”). This Application includes two different terminal types, but STA is being sought only for the terminal identified as “Aero 1” on the Schedule B.

⁴ See Inmarsat Mobile Networks, Inc., Application for Authority to Operate Gateway Earth Station with I5F2 Satellite at 55° W.L., File No. SES-LIC-20120426-00397, Call Sign E120072 (filed Apr. 26, 2012), as amended.

⁵ See Application, Exhibit A at 6; see also 47 C.F.R. § 2.106.

decision of the European Conference of Postal and Telecommunications Administrations (“CEPT”) governing the operation of earth stations on mobile platforms in the Ka band.⁶

The proposed STA operations would not cause harmful interference into primary operations in the proposed frequencies. The parameters of the testing are within the levels that Inmarsat either has coordinated, or has informally agreed upon during coordination discussions, for ISF1 with all adjacent co-frequency satellite networks. Furthermore, the proposed STA operations will protect adjacent operations consistent with Section 25.138(a) of the Commission’s rules for EIRP spectral density off axis limits and in compliance with the requirements of ECC Decision 13(01). In the Application, ISAT explained that the performance of this asymmetrical antenna in the elevation plane exceeds the Section 25.138(a)(2) off-axis EIRP spectral density mask in limited circumstances when the axis of the antenna is oriented at skew angles below approximately 15 degrees in relation to the GSO plane.⁷ In the geographic area for the proposed testing, the skew angles are entirely above 15 degrees, and thus, the off-axis power density levels will comply with the Section 25.138(a) limits at all times during the testing operations.

Testing the earth station on an aircraft requires approval by the Federal Aviation Administration, and FAA Flight Safety Certification for this earth station and this specific aircraft will have been granted prior to execution of the tests.

Granting this STA would serve the public interest by facilitating the assessment of the prototype earth station and will enable Inmarsat to proceed in implementing its ultimate plans to deploy the aeronautical antennas for the provision of broadband access service. As detailed in the Application, facilitating the ultimate availability of broadband access on board aircraft will help satisfy the rapidly growing demand and consumer expectations for ubiquitous Internet connectivity on land, at sea, and in the air.⁸ The Commission previously has granted STA under similar circumstances,⁹ as well as permanent authority to operate Ka-band mobile earth stations on board aircraft.¹⁰

⁶ See CEPT Electronic Communications Committee (ECC) Decision 13(01) approved 8 March 2013, “The harmonized use, free circulation and exemption from individual licensing of Earth Stations On Mobile Platforms (ESOMPs) within the frequency bands 17.3-20.2 GHz and 27.5-30.0 GHz, *available at* http://www.erodocdb.dk/doks/implement_doc_adm.aspx?docid=2477 (adopted by the United Kingdom as of June 25, 2014, Norway as of June 25, 2014, and Netherlands as of Jan. 27, 2015).

⁷ Application, Exhibit A at 10.

⁸ See *id.*, Exhibit A at 1.

⁹ See, e.g., *Row 44, Inc., Application for Special Temporary Authority for Mobility Testing of Aircraft Earth Stations*, File No. SES-STA-20080711-00928, Order and Authorization, DA 09-585 (rel. Mar. 13, 2009).

¹⁰ See *ViaSat, Inc., Radio Station Authorization*, File No. SES-LIC-20120427-00404, Call Sign. E120075 (Granted July 17, 2013).

For these reasons, ISAT submits that grant of STA is in the public interest in this case. ISAT will make available a 24/7 point of contact who can be reached in the unlikely event that any issues arise in connection with the operations under the requested STA. Personnel will be on duty at all times during the STA period. I can be contacted personally at (202) 248-5158. Inmarsat's Network Operations Center in London is also available 24 hours per day and can be reached at +44 20 77281616.