

S2747 SAT-STA-20111114-00216 IE2011004877
VIASAT, INC.
ViaSat-1

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Callsign:



File # SAT-STA-20111114-00216
Call Sign S2747 Grant Date 11/22/11
(or other identifier)
Term Dates period of
From 11/28/11 To 30 days
Approved by OMB 3060-0678
Approved: Stephen J. Duell
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:
ViaSat-1 STA at 115.1 WL

1. Applicant

Name:	ViaSat, Inc.	Phone Number:	760-476-2583
DBA Name:		Fax Number:	760-929-3941
Street:	6155 El Camino Real	E-Mail:	daryl.hunter@viasat.com
City:	Carlsbad	State:	CA
Country:	USA	Zipcode:	92009
Attention:	Mr Daryl T Hunter		

ViaSat, Inc.
Attachment to Grant
IBFS File No. SAT-STA-20111114-00216
November 22, 2011
Call Sign S2747

The application of ViaSat, Inc. for Special Temporary Authority (STA), IBFS File No. SAT-STA-20111114-00216, is GRANTED. Accordingly, ViaSat, Inc. is authorized to conduct in-orbit testing of the ViaSat-1 space station (Call Sign S2747) using the 28.1-29.1 GHz and 29.5-30.0 GHz frequency bands (Earth-to-space) and the 18.3-19.3 GHz and 19.7-20.2 GHz frequency bands (space-to-Earth) at the 115.1° W.L. orbital location, for a period of 30 days commencing on November 23, 2011. This authorization is granted in accordance with the terms and technical specifications set forth in ViaSat, Inc.'s application, the Federal Communications Commission's (Commission) rules, and the conditions of this attachment.¹

1. ViaSat, Inc. shall coordinate its test operations with all potentially affected in-orbit satellite networks.
2. The operations of the ViaSat-1 space station shall not cause harmful interference to any other lawfully operating radiocommunication system.
3. ViaSat, Inc. shall cease operations immediately upon notification of harmful interference caused by the operations of the ViaSat-1 space station to any lawfully operating radiocommunication system. Further, ViaSat, Inc. shall notify the Commission immediately, in writing, of such an event.
4. ViaSat, Inc. shall accept interference from any lawfully operating radiocommunication system.
5. ViaSat, Inc. must notify the National Telecommunications Information Administration (NTIA), in writing, of the date the ViaSat-1 space station commences in-orbit testing at 115.1° W.L. It must also notify the NTIA of the date testing is completed. The start and end dates for testing must be sent to Edward Davison at edavison@ntia.doc.gov and Scott Kotler at skotler@ntia.doc.gov, with a copy to Kal Krautkramer at the Commission, Kal.Krautkramer@fcc.gov.
6. Prior to performing in-orbit testing operations, ViaSat, Inc. must coordinate the in-orbit testing operations of ViaSat-1 with entities operating satellites within +/- 6 degrees of the 115.1° W.L. orbital location.
7. ViaSat, Inc. is granted, with conditions, a waiver of Sections 25.208(c) and (e) of the Commission's rules, 47 C.F.R. § 25.208(c) & (e). These sections state that the power flux density at the Earth's surface produced by emissions from a space station for all conditions for all methods of modulation shall not exceed certain angle-of-arrival power flux density limits that are listed in its subsections. The underlying purpose of Section 25.208(c) & (e) is to protect other radiocommunication systems operating in the 17.7-17.8 GHz, 18.3-18.8 GHz, 18.8-19.3 GHz, 19.3-19.7 GHz, 22.55-23.00 GHz, 23.00-23.55 GHz, and 24.45-24.75 GHz frequency bands. ViaSat, Inc. states that it will exceed the Section 25.208(c) & (e) pfd limits at times during the IOT period in the 18.3-19.3 GHz frequency band (space-to-Earth), which is shared with other co-primary Fixed Service (FS), Fixed-Satellite Service (FSS), Earth Exploration Satellite Service (EESS), and Space Research Service (SRS) satellite radiocommunication systems. There are no


¹ ViaSat, Inc. is authorized to operate ViaSat-1 at 115.1° W.L. See SAT-LOA-20110722-00132 and SAT-AMD-20110728-00140 (grant stamped with conditions on Oct. 14, 2011). This STA is for in-orbit testing at 115.1° W.L. that will be conducted at a variance from the authorized parameters.

ViaSat, Inc.
Attachment to Grant
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Commission-licensed EESS or SRS systems in this band. There are a number of FSS space stations operating in the 18.3-19.3 GHz band and a number of co-primary FS radiocommunication systems operating in the 18.3-18.58 GHz frequency band within the geographic area toward which ViaSat, Inc. will aim its downlink signal during in-orbit transponder testing. We note that the operations under this STA will be intermittent and of a short duration and unlikely to cause harmful interference to FS operations. In addition, ViaSat, Inc. is required to coordinate its operations with all entities operating FSS satellites within +/- 6 degrees prior to commencing operations. We also note that grant of this STA is on an unprotected, non-harmful interference basis, which requires ViaSat, Inc. not to cause harmful interference to any other lawfully operating radiocommunication system and to cease operations immediately upon notification of any such harmful interference. We find that granting a waiver of Sections 25.208(c) & (e) in this instance will not undermine the purpose of the rules, and serves the public interest by allowing ViaSat, Inc. to ensure the reliability of its ViaSat-1 satellite.

8. ViaSat, Inc. will have personnel on duty at all times during the STA period and can be contacted at (720) 493-7300.

9. This authorization 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.

 GRANTED* International Bureau *with conditions	File #	<u>SAT-STA-20111114-00216</u>		
	Call Sign	<u>S2747</u>	Grant Date	<u>11/22/11</u>
	(or other identifier)		Term Dates	<u>period of</u>
	From	<u>11/23/11</u>	To:	<u>30 days</u>
	Approved:	<u>Stephen J. Duall</u> Stephen J. Duall Chief, Satellite Policy Branch		

2. Contact			
Name:	Daryl T. Hunter	Phone Number:	760-476-2583
Company:	ViaSat, Inc.	Fax Number:	760-929-3941
Street:	6155 El Camino Real	E-Mail:	daryl.hunter@viasat.com
City:	Carlsbad	State:	CA
Country:	USA	Zipcode:	92009 -
Attention:	Daryl T. Hunter	Relationship:	Same
(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 CRY - Space Station (Geostationary)			
5. Type Request			
<input checked="" 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.) <div style="border: 1px solid black; padding: 10px; min-height: 100px;"> STA for in-orbit testing at 115.1 WL. See Attachment A. </div>	
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. <div style="text-align: right;"> Yes <input checked="" type="radio"/> No <input type="radio"/> </div>	
10. Name of Person Signing Daryl T. Hunter	11. Title of Person Signing Director, Regulatory Affairs
12. Please supply any need attachments.	
Attachment 1: Attachment A	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

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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.

**Request for Special Temporary Authority
to Conduct In-Orbit Testing of VIASAT-1 at 115.1° W.L.**

ViaSat, Inc. (“ViaSat”) currently is authorized to conduct in-orbit testing of ViaSat-1 at 109.2° W.L. using, among other facilities, its gateway in Denver, Colorado.¹ By this application, ViaSat seeks Special Temporary Authority (“STA”) to continue that testing at 115.1° W.L. after the satellite is located there. STA is requested for a period not to exceed thirty (30) days commencing on November 23, 2011, when ViaSat-1 is expected to arrive at 115.1° W.L. after its authorized drift from 109.2° W.L.²

ViaSat originally intended to complete in-orbit testing of ViaSat-1 at 109.2° W.L., and then relocate the satellite to 115.1° W.L. ViaSat has since determined that it can commence commercial service sooner than originally expected by completing in-orbit testing at 115.1° W.L.

ViaSat already holds “regular” authority to operate ViaSat-1 at 115.1° W.L.³ and to communicate over the Denver gateway.⁴ Thus, STA is needed only for that portion of testing at 115.1° W.L. that would be conducted at variance from regularly authorized parameters.

In-orbit testing will consist of performance verification of each beam on ViaSat-1. The Denver gateway will be used to transmit and receive test signals. Consistent with industry practices and as detailed below, that gateway and the satellite temporarily will need to operate at higher-than-regularly-authorized power levels during certain tests.⁵

To enable testing of each beam in each direction (both uplink and downlink), the spacecraft will be oriented at various times to position a given beam over Denver. In closed-loop tests, the satellite will be oriented such that both the uplink and downlink beams being tested will be positioned over the Denver gateway. In open-loop uplink tests, each uplink beam will be positioned over the Denver gateway, which will result in the corresponding downlink beam illuminating a different geographic area than under regular operations (with that signal not intended to be received by any earth station). Open-loop downlink tests will be performed on a “noise loaded” basis (there will be no uplink transmission), with each downlink beam under test being positioned over the Denver gateway.

¹ File No. SAT-STA-20110927-00188 (granted Oct. 21, 2011) File No. SES-STA-20110526-00635 (granted Oct. 14, 2011).

² *See id.*

³ File No. SAT-LOA-20110722-00132; as amended (Call Sign 2474) (granted Oct. 14, 2011).

⁴ File No. SES-LIC-20110328-00379; as amended (Call Sign E110048) (granted Oct. 21, 2011).

⁵ These parameters were approved for testing at 109.2° W.L. File Nos. SAT-STA-20110927-00188 (granted Oct. 21, 2011); SES-STA-20110526-00635 (granted Oct. 14, 2011).

Tests that involve uplink transmissions will be performed using unmodulated CW carriers transmitted from the Denver gateway. In certain cases, this will involve a maximum uplink power level of 85 dBW. Operations at these higher-than-regularly-authorized power levels will be short-term (*i.e.*, typically several minutes) and limited to two specific frequencies that, consistent with Section 25.138, are being coordinated with adjacent satellites and with the U.S. government. Those frequencies are at 28.61 GHz and 29.75 GHz on the uplink, with corresponding downlink frequencies of 18.81 GHz and 19.95 GHz. The corresponding downlink power level of 73 dBW is higher than regularly-authorized for ViaSat-1, and the resulting pfd of -89 dBW/m²/MHz exceeds the limit in Section 25.208(e). While ViaSat does not believe that the brief duration of the testing at these power levels will result in harmful interference to terrestrial users, it bears emphasis that all remaining terrestrial users in these frequency ranges operate on a secondary basis, and are not entitled to interference protection in any event.⁶ To the extent necessary, ViaSat seeks a waiver of Section 25.208(e) to allow testing at the power-density levels described above.

ViaSat is coordinating the higher-power test operations with operators of commercial Ka-band satellites within six degrees of 115.1° W.L. In the unlikely event that harmful interference nonetheless occurs, ViaSat will take all appropriate steps to eliminate such interference. In addition, ViaSat is engaged in US334 coordination process for the proposed operations.

ViaSat will make available a 24/7 point of contact should any issues arise in connection with the proposed STA operations. Personnel will be on duty at all times during the STA operations and can be contacted at (720) 493-7300.

Grant of the STA will help expedite commercial service over ViaSat-1, which will serve the public interest, convenience and necessity.

⁶ See 47 C.F.R. § 101.147(r) (stations operating in the 18.8-19.3 GHz band are no longer co-primary with Part 25 services after June 8, 2010).