

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:
Gateway station, Phase II IOT, 90 day extension (Nov 2009)

1. Applicant

Name:	TerreStar License Inc.	Phone Number:	703-483-7800
DBA Name:		Fax Number:	
Street:	12010 Sunset Hills Road	E-Mail:	doug.brandon@terrestar.com
City:	Reston	State:	VA
Country:	USA	Zipcode:	20190 -
Attention:	Mr Douglas I Brandon		

With Condition



File # SES-STA-20091102-01408

Call Sign E070098 Grant Date 1/7/2010
(or other identifier)

Term Dates
From 11/13/09 To: 2/10/2010

Approved: Kathryn Madley

Chief Satellite Eng'g Div.

Attachment

SES-STA-20091102-01408

Condition:

All operations shall be on an unprotected and non-harmful interference basis, i.e., TerreStar License Inc. shall not cause harmful interference to, and shall not claim protection from, interference caused to it by any other lawfully operating station and it shall cease transmission(s) immediately upon notice of such interference.

With Condition



File # SES-STA-20091102-01408

Call Sign ECN0098 Grant Date 1/7/2010
(or other identifier)

From 11/3/09 To: 2/10/2010
Term Dates

Approved: *Kathleen M. ...*
Chief Satellite Eng'g B.

2. Contact	
Name: Joseph A. Godles, Esq.	Phone Number: 202-429-4900
Company: Goldberg Godles Wiener & Wright	Fax Number: 202-429-4912
Street: 1229 19th Street, NW	E-Mail: jgodles@g2w2.com
City: Washington	State: DC
Country: USA	Zipcode: 20036 -2413
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 SESLIC2007053000732 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 CGX – Fixed Satellite Transmit/Receive Earth Station	
5. Type Request	
<input type="radio"/> Use Prior to Grant <input type="radio"/> Change Station Location <input checked="" type="radio"/> Other	
6. Requested Use Prior Date 11/10/2009	
7. City North Las Vegas	8. Latitude (dd mm ss.s h) 36 14 9.9 N

9. State NV	10. Longitude (dd mm ss.s h) 115 7 13 W
11. Please supply any need attachments. Attachment 1: STA extension 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; padding: 5px; margin: 10px 0;">In accordance with the details of the attached exhibit, Applicant hereby requests a 90-day extension, commencing November 10, 2009, of its Special Temporary Authority, in order to continue conducting Phase II in-orbit testing (IOT) of the TerreStar-1 satellite using its gateway earth station facility licensed under Call Sign E070098.</div>	
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. <input checked="" type="radio"/> Yes <input type="radio"/> No	
14. Name of Person Signing Douglas I Brandon	15. Title of Person Signing General Counsel and Senior Vice President
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.

REQUEST FOR EXTENSION OF SPECIAL TEMPORARY AUTHORITY

TerreStar License Inc. (“TerreStar”), pursuant to Section 25.120 of the Commission’s rules, hereby requests a 90-day extension of its Special Temporary Authority (“STA”),¹ up to and including February 10, 2010, to conduct in-orbit testing (“IOT”) of the TerreStar-1 satellite in the manner described below. This STA request covers “Phase II” IOT operations specific to the Satellite Beam-forming Network (SBN), following the successful launch of the TerreStar-1 satellite on July 1, 2009.

In its initial set of applications seeking STA, TerreStar indicated that it was seeking authority under what was called Phase II operations, in which IOT would be conducted to test the SBN in the United States via four facilities to test the communications payload: (1) TerreStar-1, a Canadian-licensed satellite as to which TerreStar holds a letter of intent (“LOI”) authorization (Call Sign S2633) to serve the United States; (2) the 6.3-m and 9.3-m antennas associated with TerreStar’s licensed gateway earth station located in North Las Vegas, Nevada (Call Sign E070098); (3) an unlicensed 1.8-m mobile earth terminal (“MET”)² that is co-located with TerreStar’s North Las Vegas gateway earth station; and (4) TerreStar’s Calibration Earth Stations (“CES”).³ Phase II IOT is on-going consistent with the parameters sought in TerreStar’s initial STA requests. TerreStar herein seeks extension of its Phase II STAs in order to complete IOT before initiating service over the TerreStar-1 satellite.

This exhibit describes the operational parameters for Phase II IOT in the United States for the three facilities identified above and the CES. A copy of this exhibit accompanies each of the STA extension requests TerreStar is filing in connection with Phase II IOT. The STA request form this exhibit is attached to identifies, for each Phase II IOT STA request: (1) the time period for which an STA is sought; and (2) the facility for which an STA is sought.

¹ The Bureau granted TerreStar initial 30-day STAs, until September 10, 2009, to operate, respectively, its gateway antennas licensed under Call Sign E070098, a 1.8-m mobile earth terminal, and a network of 15 technically identical calibration earth stations, pursuant to File Nos. SES-STA-20090728-00926, SES-STA-20090728-00925, and SES-STA-20090728-00923. Furthermore, the Bureau granted requests seeking 60-day extensions of those STAs, until November 9, 2009, pursuant to File Nos. SES-STA-20090728-00927, SES-STA-20090728-00924, and SES-STA-20090728-00922.

² The 1.8-m MET, operating in a temporary fixed mode, uses a custom antenna that is designed for the express purpose of testing service link performance on TerreStar-1. The 1.8-m MET is entirely different from the MET handsets that will be used by TerreStar’s customers.

³ TerreStar submitted an application (File No. SES-LIC-20090403-00405; Call Sign E090061) on April 1, 2009, seeking authority to operate a network of 15 technically identical calibration earth stations, at fixed locations which point to the TerreStar-1 satellite and dynamically calibrate the channel responses of the satellite beams. TerreStar’s application remains pending.

Based on discussions with the FCC's staff, and in light of the fact that no FCC radio license has been issued for TerreStar-1, TerreStar did not file any request for special temporary authority for the satellite in connection with IOT. Rather, TerreStar identified in the initial IOT STA requests the parameters for TerreStar-1's operations during IOT that deviate from the parameters on which the LOI authorization for TerreStar-1 are based.

* * *

During Phase II IOT, the components related to TerreStar's Satellite Beam-forming Network are being tested as engineers check the combined payload performance with the Ground-Based Beam Forming ("GBBF") network to determine how well various S-band beams are formed. As the Commission is aware, the S-band antenna subsystem of TerreStar-1 satellite system is based on the so-called GBBF approach. As such, the ground GBBF equipment, which is housed at the TerreStar gateway sites at both North Las Vegas ("NLV"), NV and Allan Park ("AP"), Ontario, Canada, are being tested in a *combined* manner with the satellite S-band antenna and associated radiating elements to ascertain the actual beam-forming capabilities and performance. In addition, during its time in orbit, TerreStar has been obtaining the actual beam patterns of the elemental beams which are essential to the beam-forming task and to compare them against the prediction.

The communication payload of the TerreStar-1 satellite consists of two repeater subsystems: one associated with the Forward channel and another one associated with the Return channel. The Forward channel refers to the Ku-to-S band signal path that originates from a Ku-band gateway facility to the satellite, and then traverses to an S-band device on the ground: in this instance the 1.8-m IOT antenna. The Return channel refers to the reverse link, *ie.*, from an S-band device such as the 1.8-m IOT antenna to the satellite and then back to the Ku-band gateway on the ground. As part of its on-going IOT, TerreStar is conducting various tests of the Forward and Return subsystems consistent with the technical details outlined in its initial requests for STA.

STA is needed because the technical operations required for IOT go beyond the operations authorized by TerreStar's FCC licenses and authorizations. In its STA extension requests, TerreStar seeks authority to continue the following operations that are not already authorized:

- TerreStar-1: Use of unmodulated (CW) carriers not covered by the LOI authorization and use of power levels higher than are authorized by the LOI authorization

Exhibit 1

- NLV gateway: Use of unmodulated (CW) carriers in the 12.75-13.25 GHz band that are not covered by the license and use of power levels higher than are authorized by the license (the temporary coordination of the unmodulated carriers is being extended by Comsearch through the STA period requested herein)
- NLV gateway: Use of higher power and wider bandwidth for 12.751 and 12.999 GHz command carriers than is authorized by the license and corresponding changes to the emission designators for the carriers. The EIRP, EIRP density, and bandwidth of these command carriers have been increased to 72 dBW, 48.8 dBW, and 832 KHz, respectively, from what is currently licensed (the temporary coordination of the higher power and wider bandwidth is being extended by Comsearch through the STA period requested herein)
- NLV gateway: Feeder link transmissions on discrete frequencies in the upper half of the 12.75-13.25 GHz band (the gateway license authorizes transmissions only in the lower half of the band; the temporary coordination of the additional frequencies is being extended by Comsearch through the STA period requested herein)
- NLV gateway: Use of a different polarization and higher power for the 12.992 GHz CW pilot signal than is authorized by the license (the license shows right hand polarization; left hand polarization will be used). The EIRP and EIRP density of the pilot signal has been increased to 80 dBW from what is currently licensed (the temporary coordination of the CW carriers is being extended by Comsearch through the STA period requested herein)
- NLV gateway: Use of wider bandwidth for 11.2005 GHz and 11.4495 GHz telemetry carriers than is authorized by the license and corresponding changes to the emission designators for the carriers. The bandwidth of these telemetry carriers have been increased to 400 KHz from what is currently licensed
- NLV gateway: Use of 5 MHz carriers in the 12.75-13.00 GHz band that are not covered by the license (the temporary

Exhibit 1

coordination of the 5 MHz carriers is being extended by Comsearch through the STA period requested herein)

- 1.8-m MET: Operation of this earth station, which has not been licensed
- CES terminals: Operation of TerreStar's 15 technically identical U.S. Calibration Earth Stations in accordance with the parameters specified in connection with application for a license to operate the Calibration Earth Stations
- CES terminals: Operation of unmodulated (CW) carriers (operation of these CW carriers is not requested in TerreStar's pending CES application), at higher EIRP than requested in TerreStar's CES application, by four of TerreStar's 15 U.S. CESs, located in San Manuel, AZ, Miami, FL, Austin, NV, and North Las Vegas, NV

* * *

Extensive testing of this first of its kind GBBF system is continuing. TerreStar believes that an additional 90 days beyond the November 9 STA expiration date will be required to complete testing. Accordingly, TerreStar is requesting 90-day STA extensions.

TerreStar's requests for extension of its STAs are supported by good cause. Grant of the extension requests is in the public interest, as it will enable TerreStar to conclude in-orbit testing on TerreStar-1 and facilitate proper functioning of the satellite's communications payload in anticipation of providing service to the public via the satellite and associated ground stations.