

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:  
O3b STA to operate Bristow (June 2013)

1. Applicant

<b>Name:</b>	O3b Limited	<b>Phone Number:</b>	202 478 7183
<b>DBA Name:</b>		<b>Fax Number:</b>	
<b>Street:</b>	1129 20th St., NW, Suite 1000	<b>E-Mail:</b>	joslyn.read@o3bnetworks.com
<b>City:</b>	Washington	<b>State:</b>	
<b>Country:</b>	USA	<b>Zipcode:</b>	
<b>Attention:</b>	Ms Joslyn Read		

60 days 'with conditions'

File # SES-STA-20130617-00497

Call Sign E130107 Grant Date 08/27/2013  
(or other identifier)

Term Dates From 08/28/2013 To 10/26/2013

Approved: *[Signature]*



**GRANTED**  
International Bureau


O3b Limited  
Call Sign E130107  
SES-STA-20130617-00497

O3b Limited (O3b) is granted Special Temporary Authority (STA) for 60 days, starting August 28, 2013, to operate a fixed earth station with two 2.4 meter antennas located at a facility in Bristow, VA, to communicate with O3b's in-orbit non-geostationary orbit (NGSO) fixed-satellite service (FSS) space station system in the 17852.0-18068 MHz, 18112.0-18328.0 MHz, 18372-18588.0 MHz, 18801.0-19017.0 MHz, 19055.0-19271.0 MHz (space-to-Earth) and 27652.0-27868.0 MHz, 27912.0-28128.0 MHz, 28172.0-28388.0 MHz, 28601.0-288817.0 MHz, 28855.0-29071.0 MHz (Earth-to-space) frequency bands. This grant of STA is subject to the following conditions:

- 1) Operations under this STA 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.
- 2) Grant of this STA is without prejudice to any determination that the Commission may make regarding other pending and or future O3b applications, e.g., IBFS File Nos. SES-LIC-20130528-00455 and SES-LIC-20130618-00516.
- 3) This authorization does not constitute grant of Market Access for O3b's NGSO FSS system.
- 4) Transmitter(s) must be turned off during antenna maintenance to ensure compliance with the FCC-specified safety guidelines for human exposure to radiofrequency radiation in the region between the antenna feed and the reflector. Appropriate measures must also be taken to restrict access to other regions in which the antennas' power flux-density levels exceed the specified guidelines.
- 5) Transmissions authorized herein must comply with coordination agreements reached between the United Kingdom and other Administrations, including all coordination agreements reached between the United Kingdom and the United States.
- 6) The total power at the antenna flange for all carriers must not exceed 35.9 Watts.
- 7) The power flux-density at the Earth's surface produced by emissions from O3b's NGSO FSS system for all methods of modulation shall not exceed the levels established in 47 C.F.R. §§ 25.208(c),(e) and Article 21 of the ITU Radio Regulations.
- 8) The operations of the O3b NGSO FSS satellite system must not exceed the EPPFD limits in Nos. 22.5C, 22.5D, and 22.5F of the ITU Radio Regulations.

- 9) O3b may not receive transmissions from O3b's NGSO FSS system in the 17.8-18.6 and 18.8-19.3 GHz frequency bands (space-to-Earth) until O3b has completed coordination of its NGSO FSS system with all Federal FSS systems in the 17.8-18.6 and 18.8-19.3 GHz frequency bands under 47 C.F.R. § 2.106, Footnote US334.
- 10) O3b satellite transmissions must be conducted in accordance with the coordination agreement between O3b and U.S government systems signed on January 17, 2013 with the Department of Defense.
- 11) This STA is limited to operations associated with testing, satellite monitoring, and customer demonstrations. O3b may not provide any commercial service under this STA.
- 12) Any action taken or expense incurred as a result of operations pursuant to this STA is solely at O3b's risk.
- 13) 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.

*60 days*      *"with conditions"*

 <b>GRANTED</b> International Bureau	File # <u>SES-STA-2013061700497</u>
	Call Sign <u>E130107</u> Grant Date <u>08/27/2013</u> (or other identifier)
	Term Dates From <u>08/28/2013</u> To: <u>10/26/2013</u>
	Approved: <u>Paul E. Black</u>

**2. Contact**

**Name:** Joseph A. Godles      **Phone Number:** 202-429-4900  
**Company:** Goldberg Godles Wiener & Wright LLP      **Fax Number:** 202-429-4912  
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**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 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      CGX – Fixed Satellite Transmit/Receive Earth Station

**5. Type Request**

Use Prior to Grant       Change Station Location       Other

6. Requested Use Prior Date

06/28/2013

7. City Bristow	8. Latitude (dd mm ss.s h) 38 47 0.0 N
9. State VA	10. Longitude (dd mm ss.s h) 77 34 25.8 W
11. Please supply any need attachments. Attachment 1: STA 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.) Applicant herein seeks Special Temporary Authority to use its Bristow Earth Station to support post-launch operations.	
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.	
14. Name of Person Signing Joslyn Read	15. Title of Person Signing Vice-President, Regulatory 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.**

## Request for Special Temporary Authority

O3b Limited (“O3b”), pursuant to Section 25.120 of the Commission’s rules,<sup>1</sup> hereby requests special temporary authority (“STA”) to operate its earth station to be located in Bristow, Virginia (the “Virginia Earth Station”). O3b seeks an STA term covering the 60-day period between June 28, 2013, and August 27, 2013. O3b proposes to operate the Virginia Earth Station during this term in accordance with the parameters specified in the attached Schedule B, which will be incorporated into a license application O3b will be filing in the near future.<sup>2</sup>

O3b’s STA request is supported by good cause. The first four of the space stations comprising O3b’s non-geostationary orbit (“NGSO”) Fixed-Satellite Service (“FSS”) Ka-band system are scheduled to be launched later this month.<sup>3</sup> Soon after launch, the Virginia Earth Station will begin the proposed operations in a closely monitored environment with local control capability. Combining real-time knowledge of the local weather with locally-controlled terminal operations will help O3b’s Network Operations Center and engineering staff identify and resolve space station and system anomalies, particularly important in the early days after O3b’s first launch, but also important as an ongoing capability. Furthermore, O3b will be able to emulate remote ground station conditions, thereby providing a means for isolating issues.<sup>4</sup> Giving O3b these capabilities is unquestionably in the public interest.

O3b’s proposed operations pose no risk of harmful interference. As demonstrated below, the Virginia Earth Station will provide the requisite protection to terrestrial stations and geostationary orbit (“GSO”) FSS stations operating in bands shared with O3b. The showing below, moreover, is similar to the showing O3b made in its application, which has been granted, for a license to operate a gateway earth station in Haleiwa, Hawaii.<sup>5</sup> In any event, operations under the STA for the Virginia Earth Station will be on a secondary, non-harmful interference basis.

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<sup>1</sup> 47 C.F.R. § 25.120.

<sup>2</sup> The Commission’s rules state that STAs granted for up to 60 days need not be placed on public notice if, as is true here, the party requesting the STA also plans to file an application for regular authority for the service. *See* 47 C.F.R. § 25.120(b)(3).

<sup>3</sup> The launch is scheduled for June 24, 2013.

<sup>4</sup> O3b also will use the Virginia Earth Station as a test platform for on-satellite certification of various modems and service offerings.

<sup>5</sup> *See* FCC File No. SES-LIC-20100723-00952 (granted Sep. 25, 2012).

***Protecting Terrestrial Stations.*** As stated in the attached coordination report, Comsearch notified all existing and proposed terrestrial licensees that are within the coordination contours of the Virginia Earth Station and that potentially could be affected by O3b's transmissions in the 27.6–29.1 GHz portion of the Ka-Band. No objections were received from any of these parties. Terrestrial stations, therefore, will be adequately protected.

***Protecting GSO FSS Stations in the 28.35–28.4 GHz Band.*** In the 28.35–28.4 GHz band, there is a primary allocation for GSO FSS systems and a secondary allocation for NGSO FSS systems. O3b's Virginia Earth Station transmissions in this band will be consistent with their secondary status vis-à-vis GSO FSS transmissions.

The Commission has allowed similar secondary use of frequencies in the Ka-band uplink allocated to GSO FSS on a primary basis where applicants are prepared to accept interference from and can demonstrate that their proposed operations are not likely to cause harmful interference to primary operations.<sup>6</sup> As a secondary user of the 28.35–28.4 GHz band in the United States, O3b makes no claim of protection from interference from U.S.-licensed GSO FSS networks in this band segment. In the 28.35–28.4 GHz band, the ITU has developed uplink equivalent power flux density limits (“EPFD<sub>up</sub>”) limits to protect co-frequency GSO FSS operations from unacceptable interference from NGSO FSS systems operating in the same frequencies.<sup>7</sup> Specifically, in accordance with Article 22 of the ITU Radio Regulations, if the applicable EPFD<sub>up</sub> limits are met, the NGSO FSS satellite system is considered to have met its obligations to protect GSO FSS networks from unacceptable interference.

In these bands, transmissions from the Virginia Earth Station to the O3b constellation will meet the applicable ITU EPFD<sub>up</sub> limits. As demonstrated in the *Technical Attachment* that accompanied O3b's Hawaii application, which is hereby incorporated by reference, O3b will satisfy the EPFD<sub>up</sub> limits by controlling the maximum power spectral density into transmitting earth stations as a function of their latitude and their antenna size and off-axis gain towards the GSO. O3b showed that its gateway located at Hawaii operating at its authorized power levels will meet the applicable ITU EPFD<sub>up</sub> limits in all frequency ranges where these limits apply and which overlap those used by the O3b system (*i.e.*, 27.6–28.4 GHz) due to the inherent angular separation between the O3b and geostationary orbits when viewed from the Earth at latitudes away from the equator.<sup>8</sup> The Virginia Earth Station will be operated at the same off-axis power spectral density levels, but is located further north in latitude

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<sup>6</sup> *Northrop Grumman Space & Missions Systems Corporation*, 24 FCC Rcd 2330, at ¶¶ 72-73 (Int'l Bur. 2009); *contactMEO Communications, LLC*, 21 FCC Rcd 4035, at ¶¶ 23-24, (Int'l Bur., 2006).

<sup>7</sup> See ITU Radio Regulations, Article 22. See also O3b's Hawaii application, FCC File No. SES-LIC-20100723-00952, *Technical Attachment* at A.10.1 for a discussion of O3b's compliance with the operational limits in Article 22 of the ITU Radio Regulations.

<sup>8</sup> See O3b's Hawaii application, FCC File No. SES-LIC-20100723-00952, *Technical Attachment* at A.10.1.



than the Hawaii gateway, which means an even greater angular separation between the O3b and geostationary orbits as viewed from the Earth. As a result, compliance with the applicable ITU EPFD<sub>up</sub> limits from the Virginia Earth Station is assured and co-coverage GSO FSS networks will not experience unacceptable interference in the 28.35–28.4 GHz band. In any event, O3b confirms that its operations will be on a secondary basis relative to U.S.-licensed GSO FSS networks in the same band.

### **Conclusion**

Accordingly, and for good cause shown, O3b respectfully requests that its STA be granted.