



**UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
RADIO STATION AUTHORIZATION**

Name: O3b Limited
Authorization Type: License
Non Common Carrier

Call Sign: E150018
File Number: SES-LIC-20150310-00138
Grant date: 09/30/2015 Expiration Date: 09/30/2030



Nature of Service: Fixed Satellite Service

Class of Station: Fixed Earth Stations

A) Site Location(s)

#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	NAD	Special Provisions (Refer to Section H)
1)	1	8000 Gainsford Court Bristow, Prince William, VA 20136	38°46'59.9"N	77°34'25.3"W	86.32	83	

Licenses certifies antenna(s) comply with gain patterns specified in Section 25.209

Subject to the provisions of the Communications Act of 1934, The Communications Satellite Act of 1962, subsequent acts and treaties, and all present and future regulations made by this Commission, and further subject to the conditions and requirements set forth in this license, the grantee is authorized to construct, use and operate the radio facilities described below for radio communications for the term beginning September 30, 2015 (3 AM Eastern Standard Time) and ending September 30, 2030 (3 AM Eastern Standard Time) . The required date of completion of construction and commencement of operation is September 30, 2016 (3 AM Eastern Standard Time) . Grantee must file with the Commission a certification upon completion of construction and commencement of operation.

B) Particulars of Operations

The General Provision 1010 applies to all receiving frequency bands.
The General Provision 1900 applies to all transmitting frequency bands.
For the text of these provisions, refer to Section H.

#	Frequency (MHz)	Polarization Code	Emission	Tx/Rx Mode	Max EIRP /Carrier (dBW)	Max EIRP Density /Carrier (dBW/4kHz)	Associated Antenna	Special Provisions (Refer to Section H)	Modulation/ Services
1)	28600.0000-29100.0000	L,R	216MG7D	Tx	60.60	12.30	1		Various Modulations up to 32APSK; Digital Data Link
2)	28600.0000-29100.0000	L,R	54M0G7D	Tx	60.60	19.30	1		Various Modulations up to 32APSK; Digital Data Link
3)	27600.0000-28400.0000	L,R	216MG7D	Tx	60.60	13.30	1		Various Modulations up to 32APSK; Digital Data Link
4)	27600.0000-28400.0000	L,R	54M0G7D	Tx	60.60	19.30	1		Various Modulations up to 32APSK; Digital Data Link
5)	18800.0000-19300.0000	L,R	216MG7D	Rx			1		Various Modulations up to 32APSK; Digital Data Link
6)	18800.0000-19300.0000	L,R	54M0G7D	Rx			1		Various Modulations up to 32APSK; Digital Data Link
7)	17800.0000-18600.0000	L,R	216MG7D	Rx			1		Various Modulations up to 32APSK; Digital Data Link



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8)	17800.0000-18600.0000	L,R	54MOG7D	Rx			1		Various Modulations up to 32APSK; Digital Data Link

C) Frequency Coordination Limits

#	Frequency Limits (MHz)	Satellite Arc (Deg. Long.)		Elevation (Degrees)		Azimuth (Degrees)		Max EIRP Density toward Horizon (dBW/4kHz)	Associated Antenna(s)
		East Limit	West Limit	East Limit	West Limit	East Limit	West Limit		
1)	17800.0000-18600.0000	NGSO		10.0	10.0	121.5	238.5		1
2)	18800.0000-19300.0000	NGSO		10.0	10.0	121.5	238.5		1
3)	27600.0000-28400.0000	NGSO		10.0	10.0	121.5	238.5	-39.8	1
4)	28600.0000-29100.0000	NGSO		10.0	10.0	121.5	238.5	-39.8	1

D) Points of Communications

The following stations located in the Satellite orbits consistent with Sections B and C of this Entry:

- 1) 1 to O3b Limited NGSO satellite system (S2935) (UK-licensed)

E) Antenna Facilities

Site ID	Antenna ID	Units	Diameter (meters)	Manufacturer	Model number	Site Elevation (Meters)	Max Antenna Height (Meters)	Special Provisions (Refer to Section H)
1	1	2	1.2	Orbit	AL-7103-Ka	86.32	2 AGL/ 75 AMSL	
		Max Gains (s):	48.0 dBi @	28.3000 GHz	45.0 dBi @	19.2000 GHz		
		Maximum total input power at antenna flange (Watts) =				20.00		
		Maximum aggregate output EIRP for all carriers (dBW) =				60.60		

G) Antenna Structure marking and lighting requirements:

None unless otherwise specified under Special and General Provisions



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H) Special and General Provisions

A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

- 1010 --- Applicable to all receiving frequency bands. Emission designator indicates the maximum bandwidth of received signal at associated station(s). Maximum EIRP and maximum EIRP density are not applicable to receive operations.
- 1900 --- Applicable to all transmitting frequency bands. Authority is granted to transmit any number of RF carriers with the specified parameters on any discrete frequencies within associated band in accordance with the other terms and conditions of this authorization, subject to any additional limitations that may be required to avoid unacceptable levels of inter-satellite interference.
- 2300 --- Authority is granted to operate this station by remote control provided that: (1) the parameters of the transmissions of this station monitored at the remote control point, and the operational functions sufficient to ensure that the operations of this station are in full compliance with the station authorization at all times; (2) upon detection by the grantee, or upon notification from the Commission, of a deviation of the operation of this station, transmissions shall be immediately suspended until the deviation is corrected, except that transmissions concerning the immediate safety of life or property may be conducted for the duration of such emergency; and (3) the grantee shall have available, at all times, the technical personnel necessary to perform the technical servicing and maintenance of this station expeditiously. See also Public Notice "The International Bureau Provides Guidance Concerning the Relocation of Earth Station Remote Control Points", DA 06-978 (rel. May 4, 2006).
- 2916 --- 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 earth station's power flux density levels exceed the specified guidelines.
- 2938 --- Upon completion of construction, each licensee must file with the Commission a certification including the following information: (1) name of the licensee, (2) file number of the application, (3) call sign of the antenna, (4) date of the license, (5) certification that the facility as authorized has been completed, (6) certification that each antenna facility has been tested and is within 2 dB of the pattern specified in Section 25.209, and (7) certification that the station is operational (including the date of commencement of service) and will remain operational during the license period unless the license is submitted for cancellation.
- 5208 --- The licensee shall 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. Compliance can be accomplished in most cases by appropriate restrictions, such as fencing. 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/rfsafety) 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.
- 5216 --- All operations shall be on a non-common carrier basis.
- 6659 --- This grant does not authorize the licensee to provide commercial fixed satellite service operations in the 17.8-18.3 GHz band within the United States.



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H) Special and General Provisions

A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

- 90193 --- Grant of this application and operations under this license are based upon and subject to the conditions, waivers, and findings specified for Call Sign S2935.
- 90226 --- Transmissions between earth station call sign E150018 and O3b Limited NGSO space stations are limited to the provision of integration, testing, and demonstration services in the 17.8-18.6 GHz and 18.8-19.3 GHz (space-to-Earth) and the 27.6-28.4 GHz and 28.6-29.1 GHz (Earth-to-space) frequency bands. This authorization is limited to two earth station terminals each employing two 1.2 meter antennas located within an area of one second latitude by one second longitude, and does not permit O3b Limited to operate ubiquitously deployed terminals in these frequency bands. See 47 C.F.R. § 25.103; Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, Third Report and Order, 12 FCC Rcd. 22310, 22327 para. 42 (1997).
- 90236 --- For operations pursuant to this authorization, the minimum elevation angle of the direction of maximum radiation of the O3b antenna with respect to the horizontal plane at which O3b's earth stations may transmit is 10 degrees.



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B) This RADIO STATION AUTHORIZATION is granted subject to the additional conditions specified below:

This authorization is issued on the grantee's representation that the statements contained in the application are true and that the undertakings described will be carried out in good faith.

This authorization shall not be construed in any manner as a finding by the Commission on the question of marking or lighting of the antenna system should future conditions require. The grantee expressly agrees to install such marking or lighting as the Commission may require under the provisions of Section 303(q) of the Communications Act. 47 U.S.C. § 303(q).

Neither this authorization nor the right granted by this authorization shall be assigned or otherwise transferred to any person, firm, company or corporation without the written consent of the Commission. This authorization is subject to the right of use or control by the government of the United States conferred by Section 706 of the Communications Act. 47 U.S.C. § 706. Operation of this station is governed by Part 25 of the Commission's Rules. 47 C.F.R. Part 25.

This authorization shall not vest in the licensee any right to operate this station nor any right in the use of the designated frequencies beyond the term of this license, nor in any other manner than authorized herein.

This authorization is issued on the grantee's representation that the station is in compliance with environmental requirements set forth in Section 1.1307 of the Commission's Rules. 47 C.F.R. § 1.1307.

This authorization is issued on the grantee's representation that the station is in compliance with the Federal Aviation Administration (FAA) requirements as set forth in Section 17.4 of the Commission's Rules. 47 C.F.R. § 17.4.

The following condition applies when this authorization permits construction of or modifies the construction permit of a radio station.

This authorization shall be automatically forfeited if the station does not meet each required construction deadline by the required date of completion unless, before such date(s), a specific application is timely filed to request an extension of the construction deadline(s), supported with good cause why that failure to construct by the required date was due to factors not under control of the grantee.

Licensees are required to pay annual regulatory fees related to this authorization. The requirement to collect annual regulatory fees from regulatees is contained in Public Law 103-66, "The Omnibus Budget Reconciliation Act of 1993." These regulatory fees, which are likely to change each fiscal year, are used to offset costs associated with the Commission's enforcement, public service, international and policy and rulemaking activities. The Commission issues a Report and Order each year, setting the new regulatory fee rates. Receive only earth stations are exempt from payment of regulatory fees.