Request for Special Temporary Authority

O3b Limited ("O3b"), pursuant to Section 25.120 of the Commission's rules,[1] 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.[2]

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.[3] 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.[4] 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.[5] 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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[1] 47 C.F.R. § 25.120.

[2] 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).

[3] The launch is scheduled for June 24, 2013.

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

[5] *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.[6] 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 ("$EPFD_{up}$") limits to protect co-frequency GSO FSS operations from unacceptable interference from NGSO FSS systems operating in the same frequencies.[7] Specifically, in accordance with Article 22 of the ITU Radio Regulations, if the applicable $EPFD_{up}$ 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 $EPFD_{up}$ limits. As demonstrated in the *Technical Attachment* that accompanied O3b's Hawaii application, which is hereby incorporated by reference, O3b will satisfy the $EPFD_{up}$ 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 $EPFD_{up}$ 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.[8] 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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[6] *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).

[7] *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.

[8] *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 $EPFD_{up}$ 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.

Approved by OMB
3060-0678

Date & Time Filed:
File Number: ---
Callsign/Satellite ID:

APPLICATION FOR EARTH STATION AUTHORIZATIONS FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	FCC Use Only

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
O3b Gateway Earth Station Application - Virginia

1-8. Legal Name of Applicant

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

9-16. Name of Contact Representative

Name:	Joseph A. Godles	Phone Number:	202-429-4900
Company:	Goldberg Godles Wiener & Wright LLP	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

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.	b. ◉ b1. Application for License of New Station

a. ◉ a1. Earth Station (N/A) a2. Space Station	○ b2. Application for Registration of New Domestic Receive-Only Station (N/A) b3. Amendment to a Pending Application (N/A) b4. Modification of License or Registration (N/A) b5. Assignment of License or Registration (N/A) b6. Transfer of Control of License or Registration (N/A) b7. Notification of Minor Modification (N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite (N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States ○ b10. Other (Please specify) ○ b11. Application for Earth Station to Access a Non-U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.

17c. 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):

17d.

Fee Classification BAX - Fixed Satellite Transmit/Receive Earth Station

18. If this filing is in reference to an existing station, enter:	19. If this filing is an amendment to a pending application enter:	
(a) Call sign of station:	(a) Date pending application was filed:	(b) File number of pending application:
Not Applicable	Not Applicable	Not Applicable

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

☒ a. Fixed Satellite
☐ b. Mobile Satellite
☐ c. Radiodetermination Satellite
☐ d. Earth Exploration Satellite
☐ e. Direct to Home Fixed Satellite
☐ f. Digital Audio Radio Service
☐ g. Other (please specify)

21. STATUS: Choose the button next to the applicable status. Choose only one.	22. If earth station applicant, check all that apply.
○ Common Carrier ◉ Non-Common Carrier	☐ Using U.S. licensed satellites ☒ Using Non-U.S. licensed satellites

23. If applicant is providng INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:
○ Connected to a Public Switched Network ○ Not connected to a Public Switched Network ◉ N/A

24. FREQUENCY BAND(S): Place an "X" in the box(es) next to all applicable frequency band(s).
☐ a. C-Band (4/6 GHz) ☐ b. Ku-Band (12/14 GHz)
☒ c.Other (Please specify upper and lower frequencies in MHz.)
Frequency Lower: 17800 Frequency Upper: 29100

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.
◉ a. Fixed Earth Station
○ b. Temporary-Fixed Earth Station
○ c. 12/14 GHz VSAT Network
○ d. Mobile Earth Station
(N/A) e. Geostationary Space Station
(N/A) f. Non-Geostationary Space Station
○ g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY: Choose only one.
◉ Transmit/Receive ○ Transmit-Only ○ Receive-Only ○ N/A

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)
Not Applicable

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. §§ 1.1308 and 1.1311, as an exhibit to this application.A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments. ○ **Yes** ◉ **No**

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government? ○ **Yes** ◉ **No**

30. Is the applicant an alien or the representative of an alien? ○ **Yes** ○ **No** ◉ **N/A**

31. Is the applicant a corporation organized under the laws of any foreign government? ○ **Yes** ○ **No** ◉ **N/A**

32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country? ○ **Yes** ○ **No** ◉ **N/A**

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation ○ **Yes** ○ **No** ◉ **N/A**

organized under the laws of a foreign country?

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	(●) **Yes** ( ) **No**
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explination of circumstances.	( ) **Yes** (●) **No**
37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explination of circumstances.	( ) **Yes** (●) **No**
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attemptiing unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition?If Yes, attach as an exhibit, an explanation of circumstances	( ) **Yes** (●) **No**
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhinit, an explanation of the circumstances.	( ) **Yes** (●) **No**
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.	
41. 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** ( ) **No**
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in *47 C.F.R. 25.137, as appropriate*. If No, proceed to question 43.	(●) **Yes** ( ) **No**
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?United Kingdom	

43. Description. (Summarize the nature of the application and the services to be provided). O3b Limited seeks FCC authority to operate a gateway earth station in Bristow, Virginia, with a U.K.-licensed non-geostationary Ka-band satellite system.

43a. Geographic Service Rule Certification By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.	( ) **A**

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.	○ **B**
By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.	◉ **C**

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- ○ Individual
- ○ Unincorporated Association
- ○ Partnership
- ◉ Corporation
- ○ Governmental Entity
- ○ Other (please specify)

45. Name of Person Signing	46. Title of Person Signing
Joslyn Read	Vice President, Regulatory Affairs

47. Please supply any need attachments.

Attachment 1:	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).

SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B:(Technical and Operational Description)

FOR OFFICIAL USE ONLY

Location of Earth Station Site				
E1: Site Identifier:	O3B1.WMP	E5. Call Sign:		
E2: Contact Name	Randy Taylor	E6. Phone Number:	720-838-3189	
E3. Street:	8000 Gainsford Court	E7. City:	Bristow	
		E8. County:	Prince William	
E4. State	VA	E9. Zip Code	20136	
E10. Area of Operation:		Fixed		
E11. Latitude:	38 ° 47 ' 0.0 " N			
E12. Longitude:	77 ° 34 ' 25.8 " W			
E13. Lat/Lon Coordinates are:		○ NAD-27	◉ NAD-83	○ N/A
E14. Site Elevation (AMSL):		86.56 meters		

E15. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurement? If NO, provide asa technical analysis showing compliance with two-degree spacing policy.	○ Yes	○ No	◉ N/A
E16. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	◉ Yes	○ No	○ N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	◉ Yes	○ No	
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	◉ Yes	○ No	
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	○ Yes	◉ No	
E20. FAA Notification - (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and or the FAA's study regarding the potential hazard of the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.	○ Yes	◉ No	

POINTS OF COMMUNICATION

Satellite Name:O3B-A | O3B-A | Eq. NGSO If you selected OTHER, please enter the following:	
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier:

E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size	E41/42. Antenna GainTransmint and/or Recieve(____dBi at _____GHz)
O3B1.WMP	Ant 1-2	2	General Dynamics Satcom	GDST 2.4M	2.4	51.4 dBi at 18.5615
						55.2 dBi at 28.3615

E28. Antenna Id	E33/34. Diameter Minor/Major(meters)	E35. Above Ground Level (meters)	E36. Above Sea Level (meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers (dBW)
Ant 1-2	0.0/0.0	2.7	89.26	0.0	35.9	0.0	70.75

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands(MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V,L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier(dBW)	E49. Maximum ERIP Density per Carrier(dBW/4kHz)
Ant 1-2	17852 18068	R	Left and Right Circular	1M00G7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	17852 18068	R	Left and Right Circular	216MG7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	18112 18328	R	Left and Right Circular	1M00G7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	18112 18328	R	Left and Right Circular	216MG7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	18372 18588	R	Left and Right Circular	1M00G7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	18372 18588	R	Left and Right Circular	216MG7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	18801 19017	R	Left and Right Circular	1M00G7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	18801 19017	R	Left and Right Circular	216MG7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	19055 19271	R	Left and Right Circular	1M00G7D	0.0	0.0

E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	19055 19271	R	Left and Right Circular	216MG7D	0.0	0.0
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	27652 27868	T	Left and Right Circular	1M00G7D	48.6	24.6
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	27652 27868	T	Left and Right Circular	216MG7D	70.75	23.4
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	27912 28128	T	Left and Right Circular	1M00G7D	48.6	24.6
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	27912 28128	T	Left and Right Circular	216MG7D	70.75	23.4
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	28172 28388	T	Left and Right Circular	1M00G7D	48.6	24.6
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	28172 28388	T	Left and Right Circular	216MG7D	70.75	23.4
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	28601 28817	T	Left and Right Circular	1M00G7D	48.6	24.6
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	28601 28817	T	Left and Right Circular	216MG7D	70.75	23.4
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	28855 29071	T	Left and Right Circular	1M00G7D	48.6	24.6
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						
Ant 1-2	28855 29071	T	Left and Right Circular	216MG7D	70.75	23.4
E50. Modulation and Services QPSK, 8PSK, 16PSK, 32PSK and Internet						

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc E/W Limit	E56. Earth Station Azimuth Angle Eastern Limit	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon(dBW/4kHz)
Ant 1-2	Non-Geostationary	17800 18600	0.0/ 0.0	122.22	7.6	238.54	7.0	0.0
	Non-Geostationary	18800 19300	0.0/ 0.0	122.22	7.6	238.54	7.0	0.0

Non-Geostationary	27600 28400	0.0/ 0.0	122.22	7.6	238.54	7.0	-21.9
Non-Geostationary	28600 29100	0.0/ 0.0	122.22	7.6	238.54	7.0	-21.9

REMOTE CONTROL POINT LOCATION

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			E65. Phone Number 202-478-7134
E62. Street Address 8000 Gainsford Court			
E63. City Bristow	E67. County Prince William	E64/68. State/Country VA/ USA	E66. Zip Code 20136

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			E65. Phone Number +352 710 725 82
E62. Street Address L-6815 Chateau de Betzdorf			
E63. City Betzdorf	E67. County Grevenmacher	E64/68. State/Country / Luxembourg	E66. Zip Code

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 0.25 - 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember - You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

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.

Ka-Band Earth Station – Bristow, VA

Frequency Coordination Report

28 GHz

Prepared on Behalf of
O3b Networks USA, LLC

May 28, 2013

COMSEARCH®
A CommScope Company

Table of Contents

1. Summary of Results

On behalf of O3b Networks' proposed earth station transmitting at 28 GHz[1], Comsearch performed a coordination notice for all existing and proposed terrestrial licenses within the coordination contours of the Ka-Band station in Bristow, VA. Prior notification letters were sent to the licensees and a copy of the notification data is provided in section four of this report. The earth station coordination was finalized on May 22, 2013.

No objections were received from any of the incumbent 28 GHz licensees. Our notification to the LMDS incumbents was performed under the assumption that the earth station would be operating on a secondary basis to LMDS Block A operations and a contact at O3b Networks has been provided in case any concerns may arise in the future.

2. 28 GHz Common Carrier and LTTS Coordination

In accordance with FCC Rules and Regulations, a Ka-Band earth station in Bristow, VA was prior coordinated by Comsearch. The notification letters and datasheet for this earth station were sent to the following 28 GHz common carrier fixed microwave licensees on April 22, 2013. These licensees are authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a statewide or nationwide basis.

Licensee	Authorized Geographic Area
GTE Southwest Inc. dba Verizon	Continental US
Verizon	Statewide: VA, MD, and DC

A notification letter and datasheet for the Ka-Band earth station in Bristow, VA was also sent to the following 28 GHz local television transmission licensee on April 22, 2013. This licensee is authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis.

Licensee	Authorized Geographic Area
Information Super Station, LLC	Continental US

No objections were received from the common carrier or local television transmission service incumbents.

[1] The proposed earth station will operate in the 27.6 – 29.1 GHz portion of the Ka-Band.

3. 28 GHz LMDS Coordination

Notification letters were sent to the following 28 GHz LMDS licensees and lessees on April 22, 2013. The proposed earth station will operate on frequencies that overlap Block A of the LMDS service. The total frequency allocation for Block A of the LMDS spectrum appears below.

Block A: 27.500-28.350 GHz
29.100-29.250 GHz
31.075-31.225 GHz

Licensee	Market	Market Name
Clearwire[2]	BTA029	Baltimore, MD
Nextlink Wireless / XO	BTA029	Baltimore, MD
Verizon	BTA116	Dover, DE
Nextlink Wireless / XO	BTA374	Richmond-Petersburg, VA
Verizon	BTA398	Salisbury, MD
Nextlink Wireless / XO	BTA461[3]	Washington, DC

No objections were received from the LMDS incumbents.

[2] Clearwire is leasing LMDS spectrum from Nextlink Wireless / XO in the Baltimore, MD Basic Trading Area (BTA).

[3] The proposed Bristow,VA earth station will be located inside BTA461.

4. Earth Station Coordination Data

This section presents the data pertinent to the proposed Ka-Band earth station in Bristow, VA. This data was circulated to all incumbent licensees in the 28 GHz shared frequency ranges.

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5662 http://www.comsearch.com

Date:	04/17/2013
Job Number:	<PCNJobCode>

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	<PCNCallSign>
Licensee Code	O3BNET
Licensee Name	O3b Networks USA, LLC.

Site Information — BRISTOW, VA

Venue Name	
Latitude (NAD 83)	38° 47' 0.0" N
Longitude (NAD 83)	77° 34' 25.8" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	86.56 m / 284.0 ft

Link Information

Satellite Type	Medium Earth Orbit
Mode	TR - Transmit-Receive
Modulation	Digital
Minimum Elevation Angle	7.0°
Azimuth Range	122.2° to 239°
Antenna Centerline (AGL)	2.74 m / 9.0 ft

Antenna Information		Receive - FCC32		Transmit - FCC32	
Manufacturer		GD Satcom		GD Satcom	
Model		2.4 Meter		2.4 Meter	
Gain / Diameter		52.6 dBi / 2.4 m		55.8 dBi / 2.4 m	
3-dB / 15-dB Beamwidth		0.23° / 0.60°		0.14° / 0.32°	
Max Available RF Power	(dBW/4 kHz)			-14.0	
	(dBW/MHz)			10.0	
Maximum EIRP	(dBW/4 kHz)			41.8	
	(dBW/MHz)			65.8	
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%

Frequency Information	Receive 18.0 GHz	Transmit 29.0 GHz
Emission / Frequency Range (MHz)	1M00G7D – 216MG7D / 17852.0 - 18068.0	1M00G7D - 216MG7D / 27652.0 - 27868.0
	1M00G7D - 216MG7D / 18112.0 - 18328.0	1M00G7D - 216MG7D / 27912.0 - 28128.0
	1M00G7D - 216MG7D / 18372.0 - 18588.0	1M00G7D - 216MG7D / 28172.0 - 28388.0
	1M00G7D - 216MG7D / 18801.0 - 19017.0	1M00G7D - 216MG7D / 28601.0 - 28817.0
	1M00G7D - 216MG7D / 19055.0 - 19271.0	1M00G7D - 216MG7D / 28855.0 - 29071.0
Max Great Circle Coordination Distance	198.5 km / 123.3 mi	136.7 km / 84.9 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values	**BRISTOW, VA**			
Licensee Name	O3b Networks USA, LLC.			
Latitude (NAD 83)	38° 47' 0.0" N			
Longitude (NAD 83)	77° 34' 25.8" W			
Ground Elevation (AMSL)	86.56 m / 284.0 ft			
Antenna Centerline (AGL)	2.74 m / 9.0 ft			
Antenna Model	GD Satcom 2.4 Meter			
Antenna Mode	Receive 18.0 GHz		Transmit 29.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power			-14.0 (dBW/4 kHz)	

			Receive 18.0 GHz		Transmit 29.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	97.86	-10.00	100.90	-10.00	100.00
5	0.00	92.86	-10.00	100.00	-10.00	100.00
10	0.00	87.86	-10.00	100.00	-10.00	100.00
15	0.00	82.86	-10.00	100.00	-10.00	100.00
20	0.00	77.86	-10.00	100.00	-10.00	100.00
25	0.00	72.86	-10.00	102.20	-10.00	100.00
30	0.00	67.86	-10.00	103.10	-10.00	100.00
35	0.00	62.86	-10.00	108.30	-10.00	100.00
40	0.00	57.87	-10.00	111.90	-10.00	100.00
45	0.00	52.87	-10.00	107.60	-10.00	100.00
50	0.00	47.87	-10.00	112.00	-10.00	100.00
55	0.00	42.87	-10.00	116.00	-10.00	100.00
60	0.00	37.87	-8.98	138.00	-8.98	100.00
65	0.00	32.87	-7.69	142.70	-7.69	102.20
70	0.00	27.88	-6.23	147.10	-6.23	105.80
75	0.00	22.88	-4.54	152.30	-4.54	109.80
80	0.00	17.89	-2.58	159.20	-2.58	114.50
85	0.00	12.90	-0.16	153.40	-0.16	109.50
90	0.00	7.92	2.89	139.80	2.89	100.00
95	0.00	3.02	6.69	147.40	6.69	100.50
100	0.00	2.34	10.98	158.20	10.98	106.50
105	0.00	7.20	11.99	185.10	11.99	124.70
110	0.00	12.18	7.90	144.30	7.89	100.00
115	0.00	17.17	4.32	127.60	4.33	100.00
120	0.00	22.16	1.61	118.50	1.61	100.00
125	0.00	27.16	-0.49	110.90	-0.49	100.00
130	0.00	32.15	-2.17	102.30	-2.17	100.00
135	0.00	37.15	-3.58	100.00	-3.58	100.00
140	0.00	42.15	-4.79	100.00	-4.79	100.00
145	0.00	47.15	-5.83	100.00	-5.83	100.00
150	0.00	52.15	-6.84	104.50	-6.84	100.00
155	0.00	57.14	-7.55	103.10	-7.55	100.00
160	0.00	62.14	-8.18	110.70	-8.18	100.00
165	0.00	67.14	-8.62	110.30	-8.62	100.00
170	0.00	72.14	-8.94	110.00	-8.94	100.00
175	0.00	77.14	-9.13	109.10	-9.13	100.00
180	0.00	82.14	-9.22	114.60	-9.22	100.00
185	0.00	87.14	-9.11	106.60	-9.11	100.00

COMSEARCH

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Coordination Values	**BRISTOW, VA**			
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Antenna Model	GD Satcom 2.4 Meter			
Antenna Mode	Receive 18.0 GHz		Transmit 29.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power			-14.0 (dBW/4 kHz)	

			Receive 18.0 GHz		Transmit 29.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	92.14	-8.93	107.10	-8.92	100.00
195	0.00	97.14	-8.70	129.70	-8.70	100.00
200	0.00	102.14	-8.36	130.90	-8.26	100.00
205	0.00	107.14	-7.77	142.50	-7.77	102.00
210	0.00	112.14	-7.01	143.00	-7.01	102.30
215	0.00	117.14	-6.15	139.70	-6.15	100.00
220	0.00	122.13	-5.13	138.80	-5.13	100.00
225	0.00	127.13	-3.95	142.30	-3.95	101.00
230	0.00	132.13	-2.55	148.90	-2.55	106.60
235	0.00	137.13	-0.84	147.30	-0.84	104.50
240	0.00	142.13	1.29	144.40	1.29	101.30
245	0.00	147.13	3.94	152.30	3.94	106.80
250	0.00	152.12	7.53	166.60	7.53	116.20
255	0.00	157.12	10.91	198.50	10.91	136.70
260	0.00	162.11	10.18	175.90	10.18	122.30
265	0.00	167.10	6.38	158.70	6.38	110.30
270	0.00	172.08	2.76	143.10	2.76	100.00
275	0.00	176.98	-0.17	133.50	-0.17	100.00
280	0.00	177.66	-2.56	128.90	-2.56	100.00
285	0.00	172.80	-4.52	113.50	-4.52	100.00
290	0.00	167.82	-6.22	112.80	-6.22	100.00
295	0.00	162.83	-7.69	109.00	-7.69	100.00
300	0.00	157.84	-8.98	100.00	-7.95	100.00
305	0.00	152.85	-10.00	100.00	-9.24	100.00
310	0.00	147.85	-10.00	100.00	-10.00	100.00
315	0.00	142.85	-10.00	100.00	-10.00	100.00
320	0.00	137.85	-10.00	100.00	-10.00	100.00
325	0.00	132.85	-10.00	100.00	-10.00	100.00
330	0.00	127.85	-10.00	100.00	-10.00	100.00
335	0.00	122.86	-10.00	100.00	-10.00	100.00
340	0.00	117.86	-10.00	100.00	-10.00	100.00
345	0.00	112.86	-10.00	100.00	-10.00	100.00
350	0.00	107.86	-10.00	100.00	-10.00	100.00
355	0.00	102.86	-10.00	100.00	-10.00	100.00

5. Contact Information

For questions or information regarding the 28 GHz Frequency Coordination Report, please contact:

Contact person:	Joanna Lynch
Title:	Manager, Spectrum & Data Solutions
Company:	Comsearch
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