

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**O3b Networks USA, LLC.**  
**SOUTH MTN, CA**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
April 13, 2018

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## 1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

## **2. SUMMARY OF RESULTS**

A number of great circle interference cases were identified during the interference study of the proposed earth station. Each of the cases, which exceeded the interference objective on a line-of-sight basis, was profiled and the propagation losses estimated using NBS TN101 (Revised) techniques. The losses were found to be sufficient to reduce the signal levels to acceptable magnitudes in every case.

### 3. SUPPLEMENTAL SHOWING

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, the satellite earth station proposed in this application was coordinated by Comsearch using computer techniques and in accordance with Part 25 of the FCC Rules and Regulations.

Coordination data for this earth station was sent to the below listed carriers with a letter dated 02/09/2018.

Company

ABC Holding Company Inc.  
AT&T Corp.  
AT&T Mobility Spectrum LLC - Southern CA  
Aera Energy LLC  
Aerioconnect Inc  
Aerioconnect, Inc.  
Aerionet, Inc.  
Antelecom, Inc.  
Antelope Valley College  
BP West Coast Products LLC  
Bel Air Internet, LLC  
Beverly Hills, City of  
British-American Communications, Inc.  
Burbank, City of  
CBS Broadcasting Inc  
CBS Communications Services Inc  
CBS Radio of Los Angeles, LLC  
California Internet, L.P.  
California Resources Corporation  
California, State of  
Castaic Lake Water Agency  
Citicasters Licenses, Inc.  
City of Culver City  
City of Downey  
City of Los Angeles Dept Water & Power  
City of Montebello  
City of Pasadena, California  
City of San Bernardino, MWD  
City of San Buenaventura Police Dept  
City of Santa Barbara Fire Department  
City of Torrance  
City of Whittier  
Clearwire Spectrum Holdings III, LLC  
Communication Services  
Communication Services, Inc.  
Community Memorial Health System  
El Monte Police Department  
Embee Technologies  
Fireline Network Solutions Inc.  
Foothill Transit  
Fox Television Stations, LLC

Frontier California Inc.  
Gilcomm LLC  
Glaser, Mike  
Glendale City California  
Global Telecom & Technology Americas  
Iberdrola Renewables, LLC  
Inland Empire Utilities Agency  
KAZN-TV Licensee LLC  
KTLA, LLC  
Kern Ed Telecom Consortium  
Kern, County of  
LT-WR, LLC  
Las Virgenes Unified School District  
Loma Linda University Health  
Long Beach, City of (WCD)  
Los Angeles City Info Technology Agency  
Los Angeles County Dept of Public Works  
Los Angeles County FCC Licensing Section  
Los Angeles County Metro Transit Auth  
Los Angeles Regional Interoperable Comm  
Los Angeles SMSA Ltd. Partnership  
Los Angeles, City of (ITA)  
MHO Networks  
Metropolitan Water Dist of So California  
Mobile Relay Associates Inc.  
Monrovia, City of  
NBC Telemundo License LLC  
New Cingular Wireless PCS - Los Angeles  
New Cingular Wireless PCS LLC - N CAL  
Nextel of California Inc.  
Nextweb Inc  
Olympic Wireless, LLC  
Pacific Bell Tel Com dba AT&T California  
Pasadena Area Community College Dist  
Pomona College - KSPC  
Pueblo Radiology  
Redondo Beach Police Department  
Regents of the University of California  
San Bernardino County of California  
Santa Barbara Cellular Systems, Ltd.  
Santa Barbara, County of  
Skyriver Communications  
SmartSky Networks, LLC  
South Bay Regional Public Comm Authority  
Southern California Gas Company  
Southern California Telephone Company  
Spectrum Link, Inc.  
Sprint Spectrum L.P.  
Sprint Telephony PCS, L.P.  
T-Mobile License LLC  
THUMS Long Beach Company  
Tejon Ranch Co  
Tesoro Companies, Inc  
Towerstream Corp.  
Turn Wireless, LLC  
Ultimate Internet Access, Inc

Union Pacific Railroad Company  
Vectus, Inc  
Ventura County Office of Education  
Ventura, County of  
Verizon Wireless (VAW) LLC (Southern CA)  
Verizon Wireless (VAW) LLC-N CA/NV  
West End Communications Authority  
Wiline Spectrum Holdings LLC  
XO Communications, LLC

## **4. EARTH STATION COORDINATION DATA**

This section presents the data pertinent to frequency coordination of the proposed earth station that was circulated to all carriers within its coordination contours.



# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
(703)726-5500 <http://www.comsearch.com>

Date: 04/03/2018  
Job Number: 180209COMSGE02

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### Administrative Information

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

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### Site Information SOUTH MTN, CA

Venue Name  
Latitude (NAD 83) 34° 19' 30.0" N  
Longitude (NAD 83) 118° 59' 45.6" W  
Climate Zone A  
Rain Zone 4  
Ground Elevation (AMSL) 306.95 m / 1007.0 ft

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### Link Information

Satellite Type Medium Earth Orbit  
Mode TR - Transmit-Receive  
Modulation Digital  
Minimum Elevation Angle 7.0°  
Azimuth Range 0.0° to 360°  
Antenna Centerline (AGL) 2.74 m / 9.0 ft

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### Antenna Information

	Receive - FCC32	Transmit - FCC32
Manufacturer	AVL	AVL
Model	2.4m-O3B	2.4m-O3B
Gain / Diameter	51.5 dBi / 2.4 m	54.7 dBi / 2.4 m
3-dB / 15-dB Beamwidth	0.14° / 0.32°	0.23° / 0.60°
Max Available RF Power (dBW/4 kHz) (dBW/MHz)		-35.0 -11.0
Maximum EIRP (dBW/4 kHz) (dBW/MHz)		19.7 43.7
Interference Objectives:	Long Term -156.0 dBW/MHz 20% Short Term -146.0 dBW/MHz 0.01%	-151.0 dBW/4 kHz 20% -128.0 dBW/4 kHz 0.0025%

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### Frequency Information

	Receive 18.0 GHz	Transmit 28.0 GHz
Emission / Frequency Range (MHz)	216MG7D / 17700.0 - 18300.0	216MG7D / 27500.0 - 28350.0
Max Great Circle Coordination Distance	214.9 km / 133.5 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

### SOUTH MTN, CA

Licensee Name O3b Networks USA, LLC.  
Latitude (NAD 83) 34° 19' 30.0" N  
Longitude (NAD 83) 118° 59' 45.6" W  
Ground Elevation (AMSL) 306.95 m / 1007.0 ft  
Antenna Centerline (AGL) 2.74 m / 9.0 ft  
Antenna Model AVL 2.4 M  
Antenna Mode Receive 18.0 GHz Transmit 28.0 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 -35.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	75.20	-10.00	100.00	-10.00	100.00
5	0.00	70.98	-10.00	100.00	-10.00	100.00
10	0.00	66.82	-10.00	100.00	-10.00	100.00
15	0.00	62.71	-10.00	100.00	-10.00	100.00
20	0.00	58.68	-10.00	100.00	-10.00	100.00
25	0.00	54.75	-10.00	100.00	-10.00	100.00
30	0.00	50.94	-10.00	100.00	-10.00	100.00
35	0.00	47.28	-10.00	100.00	-10.00	100.00
40	0.00	43.83	-10.00	100.00	-10.00	100.00
45	0.00	40.63	-10.00	100.00	-10.00	100.00
50	0.00	37.75	-10.00	100.00	-10.00	100.00
55	0.00	35.27	-9.60	100.00	-9.60	100.00
60	0.00	33.28	-8.36	100.00	-8.36	100.00
65	0.00	31.88	-7.01	100.00	-7.01	100.00
70	0.00	31.15	-5.40	100.00	-5.40	100.00
75	0.00	31.12	-3.48	100.00	-3.48	100.00
80	0.00	31.82	-1.16	100.00	-1.16	100.00
85	0.00	33.18	1.55	100.00	1.55	100.00
90	0.00	35.14	5.06	100.00	5.06	100.00
95	0.00	37.59	11.45	100.00	11.45	100.00
100	0.00	40.45	25.89	214.90	25.89	100.00
105	0.00	43.63	22.60	101.20	22.60	100.00
110	0.00	47.07	12.10	100.00	12.10	100.00
115	0.00	50.72	7.12	100.00	7.12	100.00
120	0.00	54.52	3.91	100.00	3.91	100.00
125	0.00	58.44	1.42	100.00	1.42	100.00
130	0.00	62.47	-0.69	100.00	-0.69	100.00
135	0.00	66.57	-2.91	100.00	-2.91	100.00
140	0.00	70.74	-4.50	100.00	-4.50	100.00
145	0.00	74.95	-5.66	100.00	-5.66	100.00
150	0.00	79.19	-6.52	100.00	-6.52	100.00
155	0.00	83.45	-6.99	100.00	-6.99	100.00
160	0.00	87.73	-7.77	100.00	-7.77	100.00
165	0.00	92.02	-8.70	100.00	-8.70	100.00
170	0.00	96.29	-9.57	100.00	-9.57	100.00
175	0.00	100.56	-10.00	100.00	-10.00	100.00
180	0.00	104.80	-10.00	136.20	-10.00	100.00
185	0.00	109.02	-10.00	112.10	-10.00	100.00

# COMSEARCH

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### Coordination Values

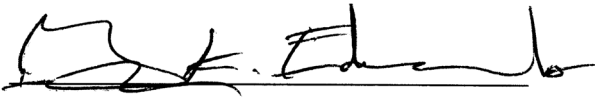
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Antenna Mode Receive 18.0 GHz Transmit 28.0 GHz  
Interference Objectives: Long Term -156.0 dBW/MHz 20% -151.0 dBW/4 kHz 20%  
Short Term -146.0 dBW/MHz 0.01% -128.0 dBW/4 kHz 0.0025%  
Max Available RF Power -35.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	113.18	-10.00	136.20	-10.00	100.00
195	0.00	117.29	-9.55	100.00	-9.55	100.00
200	0.00	121.32	-8.91	100.00	-8.91	100.00
205	0.00	125.25	-8.03	100.00	-8.03	100.00
210	0.00	129.06	-7.14	100.00	-7.14	100.00
215	0.00	132.72	-6.23	100.00	-6.23	100.00
220	0.00	136.17	-5.23	100.00	-5.23	100.00
225	0.00	139.37	-4.55	100.00	-4.55	100.00
230	0.00	142.25	-3.00	100.00	-3.00	100.00
235	0.00	144.73	-0.70	100.00	-0.70	100.00
240	0.00	146.72	2.56	100.00	2.56	100.00
245	0.00	148.12	6.98	100.00	6.98	100.00
250	0.00	148.85	13.48	100.00	13.48	100.00
255	0.00	148.88	32.39	116.50	32.39	100.00
260	0.00	148.18	16.56	213.30	16.56	100.00
265	0.00	146.82	8.78	100.00	8.78	100.00
270	0.00	144.86	5.26	100.00	5.26	100.00
275	0.00	142.41	1.77	100.00	1.77	100.00
280	0.00	139.55	-1.14	100.00	-1.14	100.00
285	0.00	136.37	-3.50	100.00	-3.50	100.00
290	0.00	132.93	-5.48	100.00	-5.48	100.00
295	0.00	129.28	-7.05	100.00	-7.05	100.00
300	0.00	125.48	-8.38	100.00	-8.38	100.00
305	0.00	121.56	-9.59	100.00	-9.59	100.00
310	0.00	117.53	-10.00	100.00	-10.00	100.00
315	0.00	113.43	-10.00	100.00	-10.00	100.00
320	0.00	109.26	-10.00	100.00	-10.00	100.00
325	0.00	105.05	-10.00	100.00	-10.00	100.00
330	0.00	100.81	-10.00	100.00	-10.00	100.00
335	0.00	96.55	-10.00	100.00	-10.00	100.00
340	0.00	92.27	-10.00	100.00	-10.00	100.00
345	0.00	87.99	-10.00	100.00	-10.00	100.00
350	0.00	83.71	-10.00	100.00	-10.00	100.00
355	0.00	79.44	-10.00	100.00	-10.00	100.00

## 5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: 

Gary K. Edwards  
Senior Manager  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147

DATED: April 13, 2018