

Ka-Band Earth Station – Bristow, VA

Frequency Coordination Report

28 GHz



Prepared on Behalf of
O3b Networks USA, LLC

January 2, 2015





Table of Contents

1.	Summary of Results	- 1 -
2.	28 GHz Common Carrier and LTTS Coordination	- 1 -
3.	28 GHz LMDS Coordination	- 2 -
4.	Earth Station Coordination Data	- 3 -
5.	Contact Information	- 13 -

1. Summary of Results

On behalf of Ob3 Networks, Comsearch performed a coordination notice for all existing and proposed terrestrial licenses within the coordination contours of their proposed Ka-Band earth station in Bristow, VA, which will transmit at 28 GHz¹. 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 January 2, 2015.

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, the Ka-Band earth station in Bristow, VA was prior-coordinated by Comsearch. A notification letter and datasheets for this earth station were sent to the following 28 GHz common carrier fixed microwave licensee on December 1, 2014. This licensee is authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis.

Licensee	Authorized Geographic Area
Verizon	Continental US

A notification letter and datasheets for the Ka-Band earth station in Bristow, VA were also sent to the following 28 GHz local television transmission licensee on December 1, 2014. 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 – 28.4 GHz portion of the Ka-Band.

3. 28 GHz LMDS Coordination

A Notification letter was sent to the following 28 GHz LMDS licensees on December 1, 2014. 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
Sprint ²	BTA029	Baltimore, MD
Nextlink/XO	BTA029	Baltimore, MD
Nextlink/XO	BTA374	Richmond-Petersburg, VA
Nextlink/XO	BTA461 ³	Washington, DC

No objections were received from the LMDS incumbents.

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

³ The proposed 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 shared 28 GHz frequency ranges.



O3b Networks USA, LLC
Ka-Band Earth Station – Bristow, VA
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28 GHz

Date: 11/26/2014

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° 46' 59.9" N
Longitude (NAD 83)	77° 34' 25.3" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	86.32 m / 283.2 ft

Link Information

Satellite Type	Medium Earth Orbit
Mode	TR - Transmit-Receive
Modulation	Digital
Minimum Elevation Angle	14.0°
Azimuth Range	0.0° to 360°
Antenna Centerline (AGL)	2.74 m / 9.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	AVL	AVL
Model	0.85 Meter	0.85 Meter
Gain / Diameter	42.6 dBi / 0.85 m	46.0 dBi / 0.85 m
3-dB / 15-dB Beamwidth	1.30° / 3.20°	0.90° / 2.10°

Max Available RF Power	(dBW/4 kHz)	-34.6
	(dBW/MHz)	-10.6

Maximum EIRP	(dBW/4 kHz)	11.4
	(dBW/MHz)	35.4

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 28.0 GHz

Emission / Frequency Range (MHz)	216MG7D / 17800.0 - 18300.0	216MG7D / 27600.0 - 28350.0
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Max Great Circle Coordination Distance	152.8 km / 95.0 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi



**O3b Networks USA, LLC
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Coordination Values	BRISTOW, VA			
Licensee Name	O3b Networks USA, LLC.			
Latitude (NAD 83)	38° 46' 59.9" N			
Longitude (NAD 83)	77° 34' 25.3" W			
Ground Elevation (AMSL)	86.32 m / 283.2 ft			
Antenna Centerline (AGL)	2.74 m / 9.0 ft			
Antenna Model	AVL 0.85 Meter			
Antenna Mode	Receive 18.0 GHz			
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	Transmit 28.0 GHz -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	-28.7 (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	97.86	-10.00	102.69	-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	101.29	-10.00	100.00
30	0.00	67.86	-10.00	102.77	-10.00	100.00
35	0.00	62.86	-10.00	111.38	-10.00	100.00
40	0.00	57.87	-10.00	111.30	-10.00	100.00
45	0.00	52.87	-10.00	107.85	-10.00	100.00
50	0.00	47.87	-10.00	117.19	-10.00	100.00
55	0.00	42.87	-10.00	119.46	-10.00	100.00
60	0.00	37.87	-10.00	136.18	-10.00	100.00
65	0.00	32.87	-9.61	137.25	-9.61	100.00
70	0.00	27.88	-8.45	140.51	-8.45	100.00
75	0.00	22.88	-7.17	144.23	-7.17	100.00
80	0.00	17.89	-5.76	148.51	-5.76	100.00
85	0.00	12.90	-4.11	135.89	-4.11	100.00
90	0.00	7.92	-2.26	125.73	-2.26	100.00
95	0.00	3.02	-0.26	126.08	-0.26	100.00
100	0.00	2.34	1.84	124.84	1.84	100.00
105	0.00	7.20	3.58	127.73	3.58	100.00
110	0.00	12.18	4.14	129.58	4.14	100.00
115	0.00	17.17	3.35	124.78	3.35	100.00
120	0.00	22.16	1.55	117.39	1.55	100.00
125	0.00	27.15	-0.48	109.90	-0.48	100.00
130	0.00	32.15	-2.17	102.60	-2.17	100.00
135	0.00	37.15	-3.59	100.00	-3.59	100.00
140	0.00	42.15	-4.79	100.00	-4.79	100.00
145	0.00	47.15	-5.85	100.00	-5.85	100.00
150	0.00	52.15	-6.86	107.53	-6.86	100.00
155	0.00	57.14	-7.56	105.36	-7.56	100.00
160	0.00	62.14	-8.17	110.40	-8.17	100.00
165	0.00	67.14	-8.62	110.33	-8.62	100.00
170	0.00	72.14	-8.94	110.66	-8.94	100.00
175	0.00	77.14	-9.12	107.56	-9.12	100.00
180	0.00	82.14	-9.24	120.19	-9.24	100.00
185	0.00	87.14	-9.14	110.69	-9.14	100.00



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Coordination Values	BRISTOW, VA			
Licensee Name	O3b Networks USA, LLC.			
Latitude (NAD 83)	38° 46' 59.9" N			
Longitude (NAD 83)	77° 34' 25.3" W			
Ground Elevation (AMSL)	86.32 m / 283.2 ft			
Antenna Centerline (AGL)	2.74 m / 9.0 ft			
Antenna Model	AVL 0.85 Meter			
Antenna Mode	Receive 18.0 GHz			
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	Transmit 28.0 GHz -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	-28.7 (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	92.14	-8.92	106.93	-8.92	100.00
195	0.00	97.14	-8.68	122.08	-8.68	100.00
200	0.00	102.14	-8.34	140.85	-8.34	100.00
205	0.00	107.14	-7.77	142.50	-7.77	100.00
210	0.00	112.14	-7.01	143.99	-7.01	100.00
215	0.00	117.14	-6.15	140.73	-6.15	100.00
220	0.00	122.13	-5.14	140.35	-5.14	100.00
225	0.00	127.13	-3.95	143.55	-3.95	100.00
230	0.00	132.13	-2.56	150.70	-2.56	100.00
235	0.00	137.13	-0.83	146.44	-0.83	100.00
240	0.00	142.13	1.14	145.14	1.14	100.00
245	0.00	147.13	2.82	149.31	2.82	100.00
250	0.00	152.12	3.58	152.84	3.58	100.00
255	0.00	157.12	3.03	150.09	3.03	100.00
260	0.00	162.11	1.47	144.59	1.47	100.00
265	0.00	167.10	-0.44	135.38	-0.44	100.00
270	0.00	172.08	-2.35	128.54	-2.35	100.00
275	0.00	176.98	-4.12	123.33	-4.12	100.00
280	0.00	177.66	-5.73	121.00	-5.73	100.00
285	0.00	172.80	-7.16	117.96	-7.16	100.00
290	0.00	167.82	-8.43	106.79	-8.43	100.00
295	0.00	162.83	-9.60	101.06	-9.60	100.00
300	0.00	157.84	-10.00	100.00	-10.00	100.00
305	0.00	152.85	-10.00	100.00	-10.00	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	100.07	-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	103.63	-10.00	100.00



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Date: 11/26/2014
 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° 46' 59.9" N
 Longitude (NAD 83): 77° 34' 25.3" W
 Climate Zone: A
 Rain Zone: 2
 Ground Elevation (AMSL): 86.32 m / 283.2 ft

Link Information

Satellite Type: Medium Earth Orbit
 Mode: TR - Transmit-Receive
 Modulation: Digital
 Minimum Elevation Angle: 10.0°
 Azimuth Range: 0.0° to 360°
 Antenna Centerline (AGL): 2.74 m / 9.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	Orbit	Orbit
Model	1.2 Meter	1.2 Meter
Gain / Diameter	45.0 dBi / 1.2 m	48.0 dBi / 1.2 m
3-dB / 15-dB Beamwidth	0.90° / 2.10°	0.60° / 1.40°
Max Available RF Power (dBW/4 kHz)		-28.7
		-4.7
Maximum EIRP (dBW/4 kHz)		19.3
		43.3
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%

Frequency Information

Receive 18.0 GHz

Transmit 28.0 GHz

Emission / Frequency Range (MHz)	54M0G7D - 216MG7D / 17800.0 - 18300.0	54M0G7D - 216MG7D / 27600.0 - 28350.0
Max Great Circle Coordination Distance	169.4 km / 105.2 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi



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Licensee Name	O3b Networks USA, LLC.			
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Ground Elevation (AMSL)	86.32 m / 283.2 ft			
Antenna Centerline (AGL)	2.74 m / 9.0 ft			
Antenna Model	Orbit 1.2 Meter			
Antenna Mode	Receive 18.0 GHz			
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	Transmit 28.0 GHz -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	-28.7 (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	97.86	-10.00	102.69	-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	101.29	-10.00	100.00
30	0.00	67.86	-10.00	102.77	-10.00	100.00
35	0.00	62.86	-10.00	111.38	-10.00	100.00
40	0.00	57.87	-10.00	111.30	-10.00	100.00
45	0.00	52.87	-10.00	107.85	-10.00	100.00
50	0.00	47.87	-10.00	117.19	-10.00	100.00
55	0.00	42.87	-10.00	119.46	-10.00	100.00
60	0.00	37.87	-9.75	136.88	-10.00	100.00
65	0.00	32.87	-8.56	140.20	-9.75	100.00
70	0.00	27.88	-7.24	144.03	-8.56	100.00
75	0.00	22.88	-5.76	148.51	-7.24	100.00
80	0.00	17.89	-4.06	153.83	-5.76	100.00
85	0.00	12.90	-2.04	142.04	-4.06	100.00
90	0.00	7.92	0.34	132.30	-2.04	100.00
95	0.00	3.02	3.08	135.20	0.34	100.00
100	0.00	2.34	6.03	137.49	3.08	100.00
105	0.00	7.20	7.93	151.88	6.03	100.00
110	0.00	12.18	6.95	139.00	7.93	100.00
115	0.00	17.17	4.31	127.80	6.95	100.00
120	0.00	22.16	1.63	117.62	4.31	100.00
125	0.00	27.15	-0.48	109.90	1.63	100.00
130	0.00	32.15	-2.17	102.60	-0.48	100.00
135	0.00	37.15	-3.59	100.00	-2.17	100.00
140	0.00	42.15	-4.79	100.00	-3.59	100.00
145	0.00	47.15	-5.85	100.00	-4.79	100.00
150	0.00	52.15	-6.86	107.53	-5.85	100.00
155	0.00	57.14	-7.56	105.36	-6.86	100.00
160	0.00	62.14	-8.17	110.40	-7.56	100.00
165	0.00	67.14	-8.62	110.33	-8.17	100.00
170	0.00	72.14	-8.94	110.66	-8.62	100.00
175	0.00	77.14	-9.12	107.56	-8.94	100.00
180	0.00	82.14	-9.24	120.19	-9.12	100.00
185	0.00	87.14	-9.14	110.69	-9.24	100.00



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Coordination Values	BRISTOW, VA		
Licensee Name	O3b Networks USA, LLC.		
Latitude (NAD 83)	38° 46' 59.9" N		
Longitude (NAD 83)	77° 34' 25.3" W		
Ground Elevation (AMSL)	86.32 m / 283.2 ft		
Antenna Centerline (AGL)	2.74 m / 9.0 ft		
Antenna Model	Orbit 1.2 Meter		
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		-28.7 (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	92.14	-8.92	106.93	-9.14	100.00
195	0.00	97.14	-8.68	122.08	-8.92	100.00
200	0.00	102.14	-8.34	140.85	-8.68	100.00
205	0.00	107.14	-7.77	142.50	-8.34	100.00
210	0.00	112.14	-7.01	143.99	-7.77	100.00
215	0.00	117.14	-6.15	140.73	-7.01	100.00
220	0.00	122.13	-5.14	140.35	-6.15	100.00
225	0.00	127.13	-3.95	143.55	-5.14	100.00
230	0.00	132.13	-2.56	150.70	-3.95	100.00
235	0.00	137.13	-0.83	146.44	-2.56	100.00
240	0.00	142.13	1.28	145.60	-0.83	100.00
245	0.00	147.13	3.89	153.10	1.28	100.00
250	0.00	152.12	6.33	163.46	3.89	100.00
255	0.00	157.12	7.11	169.39	6.33	100.00
260	0.00	162.11	2.84	159.20	7.11	100.00
265	0.00	167.10	0.24	145.74	5.48	100.00
270	0.00	172.08	-2.06	135.17	2.84	100.00
275	0.00	176.98	-4.04	128.96	0.24	100.00
280	0.00	177.66	-5.75	125.53	-2.06	100.00
285	0.00	172.80	-7.23	121.70	-4.04	100.00
290	0.00	167.82	-8.55	109.89	-5.75	100.00
295	0.00	162.83	-9.74	103.64	-7.23	100.00
300	0.00	157.84	-10.00	100.00	-8.55	100.00
305	0.00	152.85	-10.00	100.00	-9.74	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	100.07	-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	103.63	-10.00	100.00



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Ka-Band Earth Station – Bristow, VA
Frequency Coordination Report
28 GHz

Date: 11/26/2014

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° 46' 59.9" N
Longitude (NAD 83)	77° 34' 25.3" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	86.32 m / 283.2 ft

Link Information

Satellite Type	Medium Earth Orbit
Mode	TR - Transmit-Receive
Modulation	Digital
Minimum Elevation Angle	14.0°
Azimuth Range	0.0° to 360°
Antenna Centerline (AGL)	2.74 m / 9.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	AVL	AVL
Model	2.4 Meter	2.4 Meter
Gain / Diameter	51.3 dBi / 2.4 m	54.7 dBi / 2.4 m
3-dB / 15-dB Beamwidth	0.23° / 0.60°	0.14° / 0.32°
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)	-31.5 -7.5
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)	23.2 47.2
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%

Frequency Information

Receive 18.0 GHz

Transmit 28.0 GHz

Emission / Frequency Range (MHz)	216MG7D / 17800.0 - 18300.0	216MG7D / 27600.0 - 28350.0
Max Great Circle Coordination Distance	152.8 km / 95.0 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi



O3b Networks USA, LLC
Ka-Band Earth Station – Bristow, VA
Frequency Coordination Report
28 GHz

Coordination Values	BRISTOW, VA			
Licensee Name	O3b Networks USA, LLC.			
Latitude (NAD 83)	38° 46' 59.9" N			
Longitude (NAD 83)	77° 34' 25.3" W			
Ground Elevation (AMSL)	86.32 m / 283.2 ft			
Antenna Centerline (AGL)	2.74 m / 9.0 ft			
Antenna Model	AVL 2.4 Meter			
Antenna Mode	Receive 18.0 GHz			
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	Transmit 28.0 GHz -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	-31.5 (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	97.86	-10.00	102.69	-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	101.29	-10.00	100.00
30	0.00	67.86	-10.00	102.77	-10.00	100.00
35	0.00	62.86	-10.00	111.38	-10.00	100.00
40	0.00	57.87	-10.00	111.30	-10.00	100.00
45	0.00	52.87	-10.00	107.85	-10.00	100.00
50	0.00	47.87	-10.00	117.19	-10.00	100.00
55	0.00	42.87	-10.00	119.46	-10.00	100.00
60	0.00	37.87	-10.00	136.18	-10.00	100.00
65	0.00	32.87	-9.61	137.25	-9.61	100.00
70	0.00	27.88	-8.45	140.51	-8.45	100.00
75	0.00	22.88	-7.17	144.23	-7.17	100.00
80	0.00	17.89	-5.76	148.51	-5.76	100.00
85	0.00	12.90	-4.11	135.89	-4.11	100.00
90	0.00	7.92	-2.26	125.73	-2.26	100.00
95	0.00	3.02	-0.26	126.08	-0.26	100.00
100	0.00	2.34	1.84	124.84	1.84	100.00
105	0.00	7.20	3.58	127.73	3.58	100.00
110	0.00	12.18	4.14	129.58	4.14	100.00
115	0.00	17.17	3.35	124.78	3.35	100.00
120	0.00	22.16	1.55	117.39	1.55	100.00
125	0.00	27.15	-0.48	109.90	-0.48	100.00
130	0.00	32.15	-2.17	102.60	-2.17	100.00
135	0.00	37.15	-3.59	100.00	-3.59	100.00
140	0.00	42.15	-4.79	100.00	-4.79	100.00
145	0.00	47.15	-5.85	100.00	-5.85	100.00
150	0.00	52.15	-6.86	107.53	-6.86	100.00
155	0.00	57.14	-7.56	105.36	-7.56	100.00
160	0.00	62.14	-8.17	110.40	-8.17	100.00
165	0.00	67.14	-8.62	110.33	-8.62	100.00
170	0.00	72.14	-8.94	110.66	-8.94	100.00
175	0.00	77.14	-9.12	107.56	-9.12	100.00
180	0.00	82.14	-9.24	120.19	-9.24	100.00
185	0.00	87.14	-9.14	110.69	-9.14	100.00



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Max Available RF Power	-31.5 (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	92.14	-8.92	106.93	-8.92	100.00
195	0.00	97.14	-8.68	122.08	-8.68	100.00
200	0.00	102.14	-8.34	140.85	-8.34	100.00
205	0.00	107.14	-7.77	142.50	-7.77	100.00
210	0.00	112.14	-7.01	143.99	-7.01	100.00
215	0.00	117.14	-6.15	140.73	-6.15	100.00
220	0.00	122.13	-5.14	140.35	-5.14	100.00
225	0.00	127.13	-3.95	143.55	-3.95	100.00
230	0.00	132.13	-2.56	150.70	-2.56	100.00
235	0.00	137.13	-0.83	146.44	-0.83	100.00
240	0.00	142.13	1.14	145.14	1.14	100.00
245	0.00	147.13	2.82	149.31	2.82	100.00
250	0.00	152.12	3.58	152.84	3.58	100.00
255	0.00	157.12	3.03	150.09	3.03	100.00
260	0.00	162.11	1.47	144.59	1.47	100.00
265	0.00	167.10	-0.44	135.38	-0.44	100.00
270	0.00	172.08	-2.35	128.54	-2.35	100.00
275	0.00	176.98	-4.12	123.33	-4.12	100.00
280	0.00	177.66	-5.73	121.00	-5.73	100.00
285	0.00	172.80	-7.16	117.96	-7.16	100.00
290	0.00	167.82	-8.43	106.79	-8.43	100.00
295	0.00	162.83	-9.60	101.06	-9.60	100.00
300	0.00	157.84	-10.00	100.00	-10.00	100.00
305	0.00	152.85	-10.00	100.00	-10.00	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	100.07	-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	103.63	-10.00	100.00



5. Contact Information

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

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