

Annex 1

28 GHz Coordination Report

Ka-Band Earth Station – Manassas, VA

Frequency Coordination Report

28 GHz



Prepared on Behalf of
O3b Networks USA, LLC

July 11, 2016



COMSEARCH
A CommScope Company



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1. Summary of Results

On behalf of O3b 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 Manassas, Virginia, 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 July 8, 2016.

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 non-interference basis in relation to primary LMDS Block A operations. A contact at O3b Networks has been provided in case any concerns may arise in the future.

2. 28 GHz Common Carrier and LTTTS Coordination

In accordance with FCC Rules and Regulations, the Ka-Band earth station in Manassas, Virginia 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 licensees on June 27, 2016. These licensees are authorized to operate temporary fixed operations from 27.5 to 29.5 GHz over a designated geographic area.

Licensee	Authorized Geographic Area
Frontier	Continental US
Verizon	Statewide: Maryland; Washington DC and Vicinity

A notification letter and datasheets for the Ka-Band earth station in Manassas, Virginia were also sent to the following 28 GHz local television transmission licensee on June 27, 2016. This licensee is authorized to operate temporary fixed operations from 27.5 to 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 – 28.35 GHz portion of the Ka-Band.

3. 28 GHz LMDS Coordination

A Notification letter was sent to the following 28 GHz LMDS licensees on June 27, 2016. 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
Nextlink/XO	BTA029	Baltimore, MD
Sprint ²	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 spectrum from XO Communications in the Baltimore 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 Manassas, Virginia. This data was circulated to all incumbent licensees in the shared 28 GHz frequency ranges.



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

Date: 06/27/2016
 Job Number: 160211COMSGE04

Administrative Information

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

Site Information

Venue Name: **MANASSAS, VA**
 Latitude (NAD 83): 38° 47' 46.6" N
 Longitude (NAD 83): 77° 34' 37.4" W
 Climate Zone: A
 Rain Zone: 2
 Ground Elevation (AMSL): 103.05 m / 338.1 ft

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): 8.74 m / 28.7 ft

Antenna Information

Manufacturer:
 Model:
 Gain / Diameter:
 3-dB / 15-dB Beamwidth:

Receive - FCC32

General Dynamics
 3247
 52.6 dBi / 2.4 m
 0.14° / 0.32°

Transmit - FCC32

General Dynamics
 3247
 55.8 dBi / 2.4 m
 0.23° / 0.60°

Max Available RF Power (dBW/4 kHz)
 (dBW/MHz)

-32.4
 -8.4

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

23.4
 47.4

Interference Objectives: Long Term
 Short Term

-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%

Frequency Information

Emission / Frequency Range (MHz)

Receive 18.0 GHz

216MG7D / 17800.0 - 18600.0

Transmit 28.0 GHz

216MG7D / 27600.0 - 28350.0

Max Great Circle Coordination Distance
 Precipitation Scatter Contour Radius

215.8 km / 134.1 mi
 100.0 km / 62.1 mi

112.5 km / 69.9 mi
 100.0 km / 62.1 mi



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

Coordination Values	MANASSAS, VA				
Licensee Name	O3b Networks USA, LLC.				
Latitude (NAD 83)	38° 47' 46.6" N				
Longitude (NAD 83)	77° 34' 37.4" W				
Ground Elevation (AMSL)	103.05 m / 338.1 ft				
Antenna Centerline (AGL)	8.74 m / 28.7 ft				
Antenna Model	General Dynamics 2.4 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	-32.4 (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	136.20	-10.00	100.00
5	0.00	92.86	-10.00	136.20	-10.00	100.00
10	0.00	87.86	-10.00	136.20	-10.00	100.00
15	0.00	82.86	-10.00	136.20	-10.00	100.00
20	0.00	77.86	-10.00	136.20	-10.00	100.00
25	0.00	72.86	-10.00	136.20	-10.00	100.00
30	0.00	67.86	-10.00	136.20	-10.00	100.00
35	0.00	62.86	-10.00	136.20	-10.00	100.00
40	0.00	57.87	-10.00	136.20	-10.00	100.00
45	0.00	52.87	-10.00	136.20	-10.00	100.00
50	0.00	47.87	-10.00	136.20	-10.00	100.00
55	0.00	42.87	-10.00	136.20	-10.00	100.00
60	0.00	37.87	-8.99	139.00	-8.99	100.00
65	0.00	32.87	-7.69	142.70	-7.69	100.00
70	0.00	27.88	-6.23	147.10	-6.23	100.00
75	0.00	22.88	-4.54	152.30	-4.54	100.00
80	0.00	17.89	-2.58	159.20	-2.58	100.00
85	0.00	12.90	-0.22	167.10	-0.22	100.00
90	0.00	7.92	2.65	177.10	2.65	100.00
95	0.00	3.02	6.15	189.60	6.15	102.60
100	0.00	2.34	9.69	202.70	9.69	111.10
105	0.00	7.20	10.29	215.80	10.29	112.50
110	0.00	12.18	7.44	173.90	7.44	100.00
115	0.00	17.17	3.66	180.60	3.66	100.00
120	0.00	22.16	1.07	171.60	1.07	100.00
125	0.00	27.15	-0.97	164.60	-0.97	100.00
130	0.00	32.15	-2.64	159.00	-2.64	100.00
135	0.00	37.15	-4.04	153.90	-4.04	100.00
140	0.00	42.15	-5.22	150.20	-5.22	100.00
145	0.00	47.15	-6.11	129.50	-6.11	100.00
150	0.00	52.15	-6.98	132.80	-6.98	100.00
155	0.00	57.14	-7.69	133.10	-7.69	100.00
160	0.00	62.14	-8.33	140.90	-8.33	100.00
165	0.00	67.14	-8.78	139.60	-8.78	100.00
170	0.00	72.14	-9.09	138.70	-9.09	100.00
175	0.00	77.14	-9.28	138.20	-9.28	100.00
180	0.00	82.14	-9.35	138.00	-9.35	100.00
185	0.00	87.14	-9.28	138.20	-9.28	100.00



O3b Networks USA, LLC
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Coordination Values	MANASSAS, VA				
Licensee Name	O3b Networks USA, LLC.				
Latitude (NAD 83)	38° 47' 46.6" N				
Longitude (NAD 83)	77° 34' 37.4" W				
Ground Elevation (AMSL)	103.05 m / 338.1 ft				
Antenna Centerline (AGL)	8.74 m / 28.7 ft				
Antenna Model	General Dynamics 2.4 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	-32.4 (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	-9.09	138.70	-9.09	100.00
195	0.00	97.14	-8.78	139.60	-8.78	100.00
200	0.00	102.14	-8.33	140.90	-8.33	100.00
205	0.00	107.14	-7.76	142.50	-7.76	100.00
210	0.00	112.14	-7.06	144.60	-7.06	100.00
215	0.00	117.14	-6.22	147.10	-6.22	100.00
220	0.00	122.13	-5.22	150.20	-5.22	100.00
225	0.00	127.13	-4.04	153.90	-4.04	100.00
230	0.00	132.13	-2.64	159.00	-2.64	100.00
235	0.00	137.13	-0.97	164.60	-0.97	100.00
240	0.00	142.13	1.07	171.60	1.07	100.00
245	0.00	147.13	3.66	180.60	3.66	100.00
250	0.00	152.12	7.09	192.90	7.09	104.90
255	0.00	157.12	10.15	214.50	10.15	112.20
260	0.00	162.11	9.48	201.90	9.48	110.60
265	0.00	167.10	6.13	188.50	6.13	101.70
270	0.00	172.08	2.64	170.60	2.64	100.00
275	0.00	176.98	-0.25	161.70	-0.25	100.00
280	0.00	177.66	-2.61	157.30	-2.61	100.00
285	0.00	172.80	-4.57	149.20	-4.57	100.00
290	0.00	167.82	-6.25	137.00	-6.25	100.00
295	0.00	162.83	-7.71	134.10	-7.71	100.00
300	0.00	157.84	-9.01	124.40	-9.01	100.00
305	0.00	152.85	-10.00	121.40	-10.00	100.00
310	0.00	147.85	-10.00	124.40	-10.00	100.00
315	0.00	142.85	-10.00	133.70	-10.00	100.00
320	0.00	137.85	-10.00	136.20	-10.00	100.00
325	0.00	132.85	-10.00	136.20	-10.00	100.00
330	0.00	127.85	-10.00	136.20	-10.00	100.00
335	0.00	122.86	-10.00	136.20	-10.00	100.00
340	0.00	117.86	-10.00	136.20	-10.00	100.00
345	0.00	112.86	-10.00	136.20	-10.00	100.00
350	0.00	107.86	-10.00	136.20	-10.00	100.00
355	0.00	102.86	-10.00	136.20	-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
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5711
Fax:	703-726-5599
Email:	jlynch@comsearch.com
Web site:	www.comsearch.com

Annex 2

18 GHz Coordination Report

INTERFERENCE ANALYSIS REPORT

Prepared for
O3b Networks USA, LLC.
MANASSAS, VA
(GD Satcom 2.4 meter)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
March 16, 2016

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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 02/11/2016.

Company

APC Realty and Equipment CO LLC
Adams County Department of Emergency Svc
Arlington County Emergency Comm Ctr
B.F. SAUL COMPANY
Believe Wireless, LLC
Blaze Broadband
CBS Broadcasting Inc
CBS Communication Services Inc
Calvert County Government
Calvert, County of
Chesapeake Television Licensee, LLC
Clearwire Spectrum Holdings III, LLC
Clearwire Spectrum Holdings LLC
Commissioners of Caroline County
ECW Wireless, LLC
Enoch Pratt Free Library
Franklin County Dept. of Emergency Servi
George Washington University
Global Telecom & Technology Americas
Home Sales Company, Inc
Loudoun, County of
Maryland Port Administration
Maryland, State of - MDOT-MTA
NBC Telemundo License LLC
New Cingular Wireless PCS LLC - VA
Prince William, County of
Radio One Inc
RapidDSL & Wireless, Inc.
Red Zebra Broadcasting Licensee, LLC
Salisbury University Foundation, Inc.
Shenandoah Personal Communications, LLC
Sprint Spectrum L.P.
Sprintcom, Inc
Telecom Transport Management, Inc
Telegia Communications Inc.
Virginia Cellular LLC
Virginia Everywhere, LLC
Virginia PCS Alliance, L.C.
WASHINGTON CABLE SYSTEMS INC
WICOMICO BOARD OF EDUCATION

WKYSFM, INC
WRLH Licensee, LLC
Washington Metro Area Transit Police Dep
Wicomico County
Wor-Wic Community College
World Class Wireless, 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: 03/16/2016
Job Number: 160211COMSGE04

Administrative Information

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

Site Information

MANASSAS, VA
Venue Name
Latitude (NAD 83) 38° 47' 46.6" N
Longitude (NAD 83) 77° 34' 37.4" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 103.05 m / 338.1 ft

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

Antenna Information

		Receive - FCC32		Transmit - FCC32	
Manufacturer		General Dynamics		General Dynamics	
Model		3247		3247	
Gain / Diameter		52.6 dBi / 2.4 m		55.8 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)			-32.4 -8.4	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			23.4 47.4	
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 - 18600.0	216MG7D / 27600.0 - 28350.0
Max Great Circle Coordination Distance	215.8 km / 134.1 mi	112.5 km / 69.9 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
(703)726-5500 <http://www.comsearch.com>

Coordination Values

MANASSAS, VA

Licensee Name O3b Networks USA, LLC.
Latitude (NAD 83) 38° 47' 46.6" N
Longitude (NAD 83) 77° 34' 37.4" W
Ground Elevation (AMSL) 103.05 m / 338.1 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model General Dynamics 2.4 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 -32.4 (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	136.20	-10.00	100.00
5	0.00	92.86	-10.00	136.20	-10.00	100.00
10	0.00	87.86	-10.00	136.20	-10.00	100.00
15	0.00	82.86	-10.00	136.20	-10.00	100.00
20	0.00	77.86	-10.00	136.20	-10.00	100.00
25	0.00	72.86	-10.00	136.20	-10.00	100.00
30	0.00	67.86	-10.00	136.20	-10.00	100.00
35	0.00	62.86	-10.00	136.20	-10.00	100.00
40	0.00	57.87	-10.00	136.20	-10.00	100.00
45	0.00	52.87	-10.00	136.20	-10.00	100.00
50	0.00	47.87	-10.00	136.20	-10.00	100.00
55	0.00	42.87	-10.00	136.20	-10.00	100.00
60	0.00	37.87	-8.99	139.00	-8.99	100.00
65	0.00	32.87	-7.69	142.70	-7.69	100.00
70	0.00	27.88	-6.23	147.10	-6.23	100.00
75	0.00	22.88	-4.54	152.30	-4.54	100.00
80	0.00	17.89	-2.58	159.20	-2.58	100.00
85	0.00	12.90	-0.22	167.10	-0.22	100.00
90	0.00	7.92	2.65	177.10	2.65	100.00
95	0.00	3.02	6.15	189.60	6.15	102.60
100	0.00	2.34	9.69	202.70	9.69	111.10
105	0.00	7.20	10.29	215.80	10.29	112.50
110	0.00	12.18	7.44	173.90	7.44	100.00
115	0.00	17.17	3.66	180.60	3.66	100.00
120	0.00	22.16	1.07	171.60	1.07	100.00
125	0.00	27.15	-0.97	164.60	-0.97	100.00
130	0.00	32.15	-2.64	159.00	-2.64	100.00
135	0.00	37.15	-4.04	153.90	-4.04	100.00
140	0.00	42.15	-5.22	150.20	-5.22	100.00
145	0.00	47.15	-6.11	129.50	-6.11	100.00
150	0.00	52.15	-6.98	132.80	-6.98	100.00
155	0.00	57.14	-7.69	133.10	-7.69	100.00
160	0.00	62.14	-8.33	140.90	-8.33	100.00
165	0.00	67.14	-8.78	139.60	-8.78	100.00
170	0.00	72.14	-9.09	138.70	-9.09	100.00
175	0.00	77.14	-9.28	138.20	-9.28	100.00
180	0.00	82.14	-9.35	138.00	-9.35	100.00
185	0.00	87.14	-9.28	138.20	-9.28	100.00

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

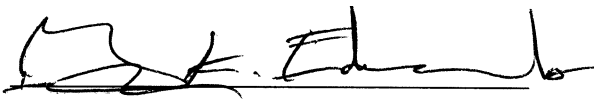
MANASSAS, VA

Licensee Name O3b Networks USA, LLC.
Latitude (NAD 83) 38° 47' 46.6" N
Longitude (NAD 83) 77° 34' 37.4" W
Ground Elevation (AMSL) 103.05 m / 338.1 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model General Dynamics 2.4 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 -32.4 (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	-9.09	138.70	-9.09	100.00
195	0.00	97.14	-8.78	139.60	-8.78	100.00
200	0.00	102.14	-8.33	140.90	-8.33	100.00
205	0.00	107.14	-7.76	142.50	-7.76	100.00
210	0.00	112.14	-7.06	144.60	-7.06	100.00
215	0.00	117.14	-6.22	147.10	-6.22	100.00
220	0.00	122.13	-5.22	150.20	-5.22	100.00
225	0.00	127.13	-4.04	153.90	-4.04	100.00
230	0.00	132.13	-2.64	159.00	-2.64	100.00
235	0.00	137.13	-0.97	164.60	-0.97	100.00
240	0.00	142.13	1.07	171.60	1.07	100.00
245	0.00	147.13	3.66	180.60	3.66	100.00
250	0.00	152.12	7.09	192.90	7.09	104.90
255	0.00	157.12	10.15	214.50	10.15	112.20
260	0.00	162.11	9.48	201.90	9.48	110.60
265	0.00	167.10	6.13	188.50	6.13	101.70
270	0.00	172.08	2.64	170.60	2.64	100.00
275	0.00	176.98	-0.25	161.70	-0.25	100.00
280	0.00	177.66	-2.61	157.30	-2.61	100.00
285	0.00	172.80	-4.57	149.20	-4.57	100.00
290	0.00	167.82	-6.25	137.00	-6.25	100.00
295	0.00	162.83	-7.71	134.10	-7.71	100.00
300	0.00	157.84	-9.01	124.40	-9.01	100.00
305	0.00	152.85	-10.00	121.40	-10.00	100.00
310	0.00	147.85	-10.00	124.40	-10.00	100.00
315	0.00	142.85	-10.00	133.70	-10.00	100.00
320	0.00	137.85	-10.00	136.20	-10.00	100.00
325	0.00	132.85	-10.00	136.20	-10.00	100.00
330	0.00	127.85	-10.00	136.20	-10.00	100.00
335	0.00	122.86	-10.00	136.20	-10.00	100.00
340	0.00	117.86	-10.00	136.20	-10.00	100.00
345	0.00	112.86	-10.00	136.20	-10.00	100.00
350	0.00	107.86	-10.00	136.20	-10.00	100.00
355	0.00	102.86	-10.00	136.20	-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: March 16, 2016