

Ka-Band Earth Station – Southbury, CT

Frequency Coordination Report

28 GHz



Prepared on Behalf of
WorldVu Satellites
Limited

May 22, 2018



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	- 7 -

1. Summary of Results

On behalf of WorldVu Satellites Limited, Comsearch performed a coordination notice for all existing and proposed terrestrial licenses within the coordination contours of their proposed Ka-Band earth station in Southbury, CT, 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 May 15, 2018.

No objections were received from any of the incumbent 28 GHz licensees. Our notification to the 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 WorldVu Satellites Limited 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 Southbury, CT 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. These licensees are authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis or local basis.

Licensee	Authorized Geographic Area
Frontier Southwest Incorporated	Nationwide
Verizon New Jersey Inc.	New Jersey

A notification letter and datasheets for the Ka-Band earth station in Southbury, CT were also sent to the following 28 GHz local television transmission licensee. 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	Nationwide

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

¹ The proposed earth station will operate in the 27.5 – 29.1, 29.5 – 30.0 GHz portion of the Ka-Band.

3. 28 GHz LMDS Coordination

A Notification letter was sent to the following 28 GHz LMDS licensees. 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
McKay Brothers	BTA321	New York, NY
NuVisions	BTA321	New York, NY
T-Mobile	BTA184	Hartford, CT
T-Mobile	BTA318	New Haven-Waterbury-Meriden, CT
T-Mobile	BTA321	New York, NY
T-Mobile	BTA427	Springfield-Holyoke, MA
Verizon	BTA007	Albany-Schenectady, NY
Verizon	BTA184	Hartford, CT
Verizon	BTA318	New Haven-Waterbury-Meriden, CT
Verizon	BTA321	New York, NY
Verizon	BTA427	Springfield-Holyoke, MA
Windstream	BTA321	New York, NY
Xchange Telecom Corp	BTA321	New York, NY

No objections were received from LMDS licensees.

4. Earth Station Coordination Data

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

Date: 04/06/2018
Job Number: 180406COMSGE03

Administrative Information
Status: ENGINEER PROPOSAL
Licensee Name: WorldVu Satellites Limited

Site Information
Venue Name: SOUTHBURY, CT
Latitude (NAD 83): 41° 27' 6.4" N
Longitude (NAD 83): 73° 17' 21.6" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 38.99 m / 127.9 ft

Link Information
Satellite Type: Low Earth Orbit
Mode: TR - Transmit-Receive
Modulation: Digital
Minimum Elevation Angle: 5.0°
Azimuth Range: 0.0° to 360°
Antenna Centerline (AGL): 2.44 m / 8.0 ft

Antenna Information		Receive -		Transmit -	
Manufacturer		CPI		CPI	
Model		3.5 meter		3.5 meter	
Gain / Diameter		54.6 dBi / 3.5 m		58.0 dBi / 3.5 m	
3-dB / 15-dB Beamwidth		0.32° / 0.36°		0.21° / 0.23°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-39.6 -15.6	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			18.4 42.4	
Interference Objectives:	Long Term	-152.4 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
	Short Term	-142.4 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)	2M16G7D - 18M0G7D / 17800.0 - 18600.0 2M16G7D - 18M0G7D / 18800.0 - 19300.0	230MG7D / 27500.0 - 29100.0 230MG7D / 29500.0 - 30000.0
Max Great Circle Coordination Distance	129.0 km / 80.1 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi



**WorldVu Satellites Limited
Ka-Band Earth Station – Southbury, CT
Frequency Coordination Report
28 GHz**

Coordination Values	SOUTHBURY, CT				
Licensee Name	WorldVu Satellites Limited				
Latitude (NAD 83)	41° 27' 6.4" N				
Longitude (NAD 83)	73° 17' 21.6" W				
Ground Elevation (AMSL)	38.99 m / 127.9 ft/Antenna Centerline (AGL)			2.44 m / 8.0 ft	
Antenna Model	CPI 3.5 meter				
Interference Objectives: Long Term		-152.4 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
	Short Term	-142.4 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power	-39.6 (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	101.22	11.53	129.00	12.20	100.00
5	0.00	96.23	11.53	129.00	12.20	100.00
10	0.00	91.24	11.53	129.00	12.20	100.00
15	0.00	86.25	11.53	129.00	12.20	100.00
20	0.00	81.26	11.53	129.00	12.20	100.00
25	0.00	76.27	11.53	129.00	12.20	100.00
30	0.00	71.28	11.53	129.00	12.20	100.00
35	0.00	66.30	11.53	129.00	12.20	100.00
40	0.00	61.31	11.53	129.00	12.20	100.00
45	0.00	56.33	11.53	129.00	12.20	100.00
50	0.00	51.34	11.53	129.00	12.20	100.00
55	0.00	46.36	11.53	129.00	12.20	100.00
60	0.00	41.38	11.53	129.00	12.20	100.00
65	0.00	36.41	11.53	129.00	12.20	100.00
70	0.00	31.45	11.53	129.00	12.20	100.00
75	0.00	26.49	11.53	129.00	12.20	100.00
80	0.00	21.56	11.53	129.00	12.20	100.00
85	0.00	16.66	11.53	129.00	12.20	100.00
90	0.00	11.85	11.53	129.00	12.20	100.00
95	0.00	7.29	11.53	129.00	12.20	100.00
100	0.00	3.97	11.53	129.00	12.20	100.00
105	0.00	5.32	11.53	129.00	12.20	100.00
110	0.00	9.53	11.53	129.00	12.20	100.00
115	0.00	14.25	11.53	129.00	12.20	100.00
120	0.00	19.12	11.53	129.00	12.20	100.00
125	0.00	24.04	11.53	129.00	12.20	100.00
130	0.00	28.98	11.53	129.00	12.20	100.00
135	0.00	33.94	11.53	129.00	12.20	100.00
140	0.00	38.91	11.53	129.00	12.20	100.00
145	0.00	43.89	11.53	129.00	12.20	100.00
150	0.00	48.87	11.53	129.00	12.20	100.00
155	0.00	53.85	11.53	129.00	12.20	100.00
160	0.00	58.83	11.53	129.00	12.20	100.00
165	0.00	63.82	11.53	129.00	12.20	100.00
170	0.00	68.81	11.53	129.00	12.20	100.00
175	0.00	73.79	11.53	129.00	12.20	100.00
180	0.00	78.78	11.53	129.00	12.20	100.00
185	0.00	83.77	11.53	129.00	12.20	100.00



WorldVu Satellites Limited
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Frequency Coordination Report
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Coordination Values SOUTHURY, CT

Licensee Name	WorldVu Satellites Limited				
Latitude (NAD 83)	41° 27' 6.4" N				
Longitude (NAD 83)	73° 17' 21.6" W				
Ground Elevation (AMSL)	38.99 m / 127.9 ft/Antenna Centerline (AGL)		2.44 m / 8.0 ft		
Antenna Model	CPI 3.5 meter				
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 GHz		
Interference Objectives: Long Term	Short Term	-152.4 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
		-142.4 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power	-39.6 (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	88.76	11.53	129.00	12.20	100.00
195	0.00	93.75	11.53	129.00	12.20	100.00
200	0.00	98.74	11.53	129.00	12.20	100.00
205	0.00	103.73	11.53	129.00	12.20	100.00
210	0.00	108.72	11.53	129.00	12.20	100.00
215	0.00	113.70	11.53	129.00	12.20	100.00
220	0.00	118.69	11.53	129.00	12.20	100.00
225	0.00	123.67	11.53	129.00	12.20	100.00
230	0.00	128.66	11.53	129.00	12.20	100.00
235	0.00	133.64	11.53	129.00	12.20	100.00
240	0.00	138.62	11.53	129.00	12.20	100.00
245	0.00	143.59	11.53	129.00	12.20	100.00
250	0.00	148.55	11.53	129.00	12.20	100.00
255	0.00	153.51	11.53	129.00	12.20	100.00
260	0.00	158.44	11.53	129.00	12.20	100.00
265	0.00	163.34	11.53	129.00	12.20	100.00
270	0.00	168.15	11.53	129.00	12.20	100.00
275	0.00	172.71	11.53	129.00	12.20	100.00
280	0.00	176.03	11.53	129.00	12.20	100.00
285	0.00	174.68	11.53	129.00	12.20	100.00
290	0.00	170.47	11.53	129.00	12.20	100.00
295	0.00	165.75	11.53	129.00	12.20	100.00
300	0.00	160.88	11.53	129.00	12.20	100.00
305	0.00	155.96	11.53	129.00	12.20	100.00
310	0.00	151.02	11.53	129.00	12.20	100.00
315	0.00	146.06	11.53	129.00	12.20	100.00
320	0.00	141.09	11.53	129.00	12.20	100.00
325	0.00	136.11	11.53	129.00	12.20	100.00
330	0.00	131.13	11.53	129.00	12.20	100.00
335	0.00	126.15	11.53	129.00	12.20	100.00
340	0.00	121.17	11.53	129.00	12.20	100.00
345	0.00	116.18	11.53	129.00	12.20	100.00
350	0.00	111.19	11.53	129.00	12.20	100.00
355	0.00	106.21	11.53	129.00	12.20	100.00

5. Contact Information

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

Contact person:	Dennis Jimeno
Title:	Engineer III, Telecommunications
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5858
Fax:	703-726-5599
Email:	DJimeno@Comsearch.com
Web site:	www.comsearch.com

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
WorldVu Satellites Limited
SOUTHBURY, CT
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
May 22, 2018

TABLE OF CONTENTS

1. CONCLUSIONS	3
2. SUMMARY OF RESULTS	4
3. SUPPLEMENTAL SHOWING	5
4. EARTH STATION COORDINATION DATA.....	8
5. CERTIFICATION.....	12

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 04/06/2018.

Company

AT&T Corp.
American Broadcasting Companies, Inc.
Bergen, County of
Blue Blazer (DE) LLC
Borough of Fort Lee, New Jersey
Business Only Broadband, LLC
CBS Radio East, LLC.
Central Hudson Gas & Electric Corp.
Chevra Hatzalah Inc.
City of Jersey City
City of Springfield Police Department
City of Westfield
City of Yonkers,NY(Dept of Public Works)
Clearwire Spectrum Holdings III, LLC
ECW Wireless, LLC
East Hampton Town Police Department
Electric Railroad, LLC
Entergy Nuclear Indian Point 2, LLC
Federal Home Loan Bank of New York
Fishers Island Telephone
Geodesic Networks LLC
Greenwich, Town of (CT)
Hammarlund Research LLC
High Voltage Communications LLC (CFN)
Highway Networks, LLC
Hispanic Information and Telecomm Netwrk
Hoboken Fire Department
Holyoke, City of
Holyoke, City of
Hudson County Prosecutors Office
J & R Electronics Inc
Jefferson Microwave, LLC
Lawrence School District
Lehman College
MTA - Long Island Railroad
Mahwah Township New Jersey
Manchester Town Police Department
Marcus Spectrum Holdings, LLC
Massachusetts Commonwealth of
Mid-Hudson Cablevision
Middletown, City of

Mineola Union Free School District
Mount Sinai Hospital
NBC Telemundo License LLC
NEW YORK UNIVERSITY
NW Technologies, LLC
NYC DOT Staten Island Ferry
Nassau County Government
Nassau County Police Department
National Tower Company II, LLC
National Tower Company LLC
New Cingular Wireless PCS LLC - NJ
New Cingular Wireless PCS LLC - MA
New Cingular Wireless PCS, LLC (NY)
New Jersey Public Broadcasting Authority
New Jersey, State of -NJ Transit
New Line Networks, LLC
New York City Police Department
New York City Police TARU
New York Communications Co., Inc
New York Methodist Hospital
New York Power Authority
New York SMSA Limited Partnership
Nextel Comm. of The Mid-Atlantic, Inc.
Nextel of New York, Inc.
Nextlink Wireless, LLC
Northrop Grumman Systems Corp.
Northrop Grumman Systems Corporation Inc
Office of Emergency Mng, City of Newark
Portland, Town of
Rendezvous Communications LLC
Sachem Central School District
Sesame Workshop
Simsbury Fire District
Sprint Spectrum L.P.
Sprintcom, Inc
St. Lukes Cornwall Hospital
Standard Backhaul Communications LLC
State of New York, Div of State Police
T-Mobile License LLC
TTWN Networks, LLC
The Center for Discovery
The Goldman Sachs Group, Inc.
Time Warner Cable New York City LLC
Tivcorp, Inc.
Total Recall Corp
Towerstream Corp.
Town Of Berlin
Town of North Hempstead
Town of Smithtown Dept of Public Safety
Town of Westport Connecticut
Town of Wethersfield
Verizon Wireless (VAW) LLC (NY)
Waterbury City Police
Weblin Holdings LLC
Weehawken, Township of
Westchester, County of

Wilbraham Police Department
William Paterson University
Windsor Town Connecticut
Wireless Internetwork LLC
World Class Wireless, LLC
Xchange Telecom Corp.
Zen Networks, Inc
xWave Engineering 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: 05/22/2018
Job Number: 180406COMSGE03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code WORSAT
Licensee Name WorldVu Satellites Limited

Site Information SOUTHURY, CT

Venue Name
Latitude (NAD 83) 41° 27' 6.4" N
Longitude (NAD 83) 73° 17' 21.6" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 38.99 m / 127.9 ft

Link Information

Satellite Type Low Earth Orbit
Mode TR - Transmit-Receive
Modulation Digital
Minimum Elevation Angle 5.0°
Azimuth Range 0.0° to 360°
Antenna Centerline (AGL) 2.44 m / 8.0 ft

Antenna Information

		Receive - FCC32		Transmit - FCC32	
Manufacturer		CPI		CPI	
Model		3.5 meter		3.5 meter	
Gain / Diameter		54.6 dBi / 3.5 m		58.0 dBi / 3.5 m	
3-dB / 15-dB Beamwidth		0.32° / 0.36°		0.21° / 0.23°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-35.0 -11.0	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz) (dBW)			23.0 47.0	
Interference Objectives:	Long Term	-152.4 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
	Short Term	-142.4 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)	2M16G7D - 18M0G7D / 17800.0 - 18600.0 2M16G7D - 18M0G7D / 18800.0 - 19300.0	230MG7W / 27500.0 - 29100.0 230MG7W / 29500.0 - 30000.0
Max Great Circle Coordination Distance	129.0 km / 80.1 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

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

Coordination Values

SOUTHBURY, CT

Licensee Name	WorldVu Satellites Limited			
Latitude (NAD 83)	41° 27' 6.4" N			
Longitude (NAD 83)	73° 17' 21.6" W			
Ground Elevation (AMSL)	38.99 m / 127.9 ft			
Antenna Centerline (AGL)	2.44 m / 8.0 ft			
Antenna Model	CPI 3.5 meter			
Antenna Mode	Receive 18.0 GHz	Transmit 28.0 GHz		
Interference Objectives: Long Term	-152.4 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
Short Term	-142.4 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	101.22	11.53	129.00	12.20	100.00
5	0.00	96.23	11.53	129.00	12.20	100.00
10	0.00	91.24	11.53	129.00	12.20	100.00
15	0.00	86.25	11.53	129.00	12.20	100.00
20	0.00	81.26	11.53	129.00	12.20	100.00
25	0.00	76.27	11.53	129.00	12.20	100.00
30	0.00	71.28	11.53	129.00	12.20	100.00
35	0.00	66.30	11.53	129.00	12.20	100.00
40	0.00	61.31	11.53	129.00	12.20	100.00
45	0.00	56.33	11.53	129.00	12.20	100.00
50	0.00	51.34	11.53	129.00	12.20	100.00
55	0.00	46.36	11.53	129.00	12.20	100.00
60	0.00	41.38	11.53	129.00	12.20	100.00
65	0.00	36.41	11.53	129.00	12.20	100.00
70	0.00	31.45	11.53	129.00	12.20	100.00
75	0.00	26.49	11.53	129.00	12.20	100.00
80	0.00	21.56	11.53	129.00	12.20	100.00
85	0.00	16.66	11.53	129.00	12.20	100.00
90	0.00	11.85	11.53	129.00	12.20	100.00
95	0.00	7.29	11.53	129.00	12.20	100.00
100	0.00	3.97	11.53	129.00	12.20	100.00
105	0.00	5.32	11.53	129.00	12.20	100.00
110	0.00	9.53	11.53	129.00	12.20	100.00
115	0.00	14.25	11.53	129.00	12.20	100.00
120	0.00	19.12	11.53	129.00	12.20	100.00
125	0.00	24.04	11.53	129.00	12.20	100.00
130	0.00	28.98	11.53	129.00	12.20	100.00
135	0.00	33.94	11.53	129.00	12.20	100.00
140	0.00	38.91	11.53	129.00	12.20	100.00
145	0.00	43.89	11.53	129.00	12.20	100.00
150	0.00	48.87	11.53	129.00	12.20	100.00
155	0.00	53.85	11.53	129.00	12.20	100.00
160	0.00	58.83	11.53	129.00	12.20	100.00
165	0.00	63.82	11.53	129.00	12.20	100.00
170	0.00	68.81	11.53	129.00	12.20	100.00
175	0.00	73.79	11.53	129.00	12.20	100.00
180	0.00	78.78	11.53	129.00	12.20	100.00
185	0.00	83.77	11.53	129.00	12.20	100.00

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

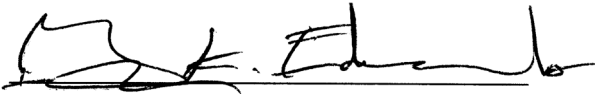
SOUTHBURY, CT

Licensee Name	WorldVu Satellites Limited			
Latitude (NAD 83)	41° 27' 6.4" N			
Longitude (NAD 83)	73° 17' 21.6" W			
Ground Elevation (AMSL)	38.99 m / 127.9 ft			
Antenna Centerline (AGL)	2.44 m / 8.0 ft			
Antenna Model	CPI 3.5 meter			
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 GHz	
Interference Objectives: Long Term	-152.4 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
Short Term	-142.4 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	88.76	11.53	129.00	12.20	100.00
195	0.00	93.75	11.53	129.00	12.20	100.00
200	0.00	98.74	11.53	129.00	12.20	100.00
205	0.00	103.73	11.53	129.00	12.20	100.00
210	0.00	108.72	11.53	129.00	12.20	100.00
215	0.00	113.70	11.53	129.00	12.20	100.00
220	0.00	118.69	11.53	129.00	12.20	100.00
225	0.00	123.67	11.53	129.00	12.20	100.00
230	0.00	128.66	11.53	129.00	12.20	100.00
235	0.00	133.64	11.53	129.00	12.20	100.00
240	0.00	138.62	11.53	129.00	12.20	100.00
245	0.00	143.59	11.53	129.00	12.20	100.00
250	0.00	148.55	11.53	129.00	12.20	100.00
255	0.00	153.51	11.53	129.00	12.20	100.00
260	0.00	158.44	11.53	129.00	12.20	100.00
265	0.00	163.34	11.53	129.00	12.20	100.00
270	0.00	168.15	11.53	129.00	12.20	100.00
275	0.00	172.71	11.53	129.00	12.20	100.00
280	0.00	176.03	11.53	129.00	12.20	100.00
285	0.00	174.68	11.53	129.00	12.20	100.00
290	0.00	170.47	11.53	129.00	12.20	100.00
295	0.00	165.75	11.53	129.00	12.20	100.00
300	0.00	160.88	11.53	129.00	12.20	100.00
305	0.00	155.96	11.53	129.00	12.20	100.00
310	0.00	151.02	11.53	129.00	12.20	100.00
315	0.00	146.06	11.53	129.00	12.20	100.00
320	0.00	141.09	11.53	129.00	12.20	100.00
325	0.00	136.11	11.53	129.00	12.20	100.00
330	0.00	131.13	11.53	129.00	12.20	100.00
335	0.00	126.15	11.53	129.00	12.20	100.00
340	0.00	121.17	11.53	129.00	12.20	100.00
345	0.00	116.18	11.53	129.00	12.20	100.00
350	0.00	111.19	11.53	129.00	12.20	100.00
355	0.00	106.21	11.53	129.00	12.20	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: May 22, 2018