

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Roberts Communications Network, LLC
DANIA, FL
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
March 23, 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.

The following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. When over-the-horizon losses are considered on the interfering paths, sufficient blockage exists to negate harmful interference from occurring with the proposed transmit-receive earth station.

Company

Verizon Wireless Personal Comm, LP(S FL)

No other carriers reported potential interference cases.

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 01/12/2018.

Company

Broward County Board of Commissioners
COLLIER, COUNTY OF
Computer Office Solutions, Inc.
Embarq Florida, Inc.
Florida Power and Light Company
Florida Rural Broadband Alliance, LLC
Florida State
GM Consulting Group, Inc.
HiQ Data Corporation
Martin County Sheriffs Office
Miami-Dade County
New Cingular Wireless PCS LLC - N FL
New Cingular Wireless PCS LLC - S FL
Olympic Wireless, LLC
Palm Beach, County of
South Florida Water Management District
T-Mobile License LLC
Verizon Wireless (VAW) LLC - S Florida
Verizon Wireless Personal Comm, LP(S FL)

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: 03/23/2018
Job Number: 180112COMSTC08

Administrative Information

Call Sign E980130
Licensee Code ROBCOM
Licensee Name Roberts Communications Network, LLC

Site Information DANIA, FL

Venue Name
Latitude (NAD 83) 26° 3' 13.0" N
Longitude (NAD 83) 80° 8' 15.5" W
Climate Zone B
Rain Zone 1
Ground Elevation (AMSL) 0.81 m / 2.7 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 60° W to 143° West Longitude
Azimuth Range 140.1° to 257.3°
Corresponding Elevation Angles 52.2° / 15.8°
Antenna Centerline (AGL) 9.75 m / 32.0 ft

Antenna Information

Receive - C40551

Manufacturer COMTECH ANTENNA SYSTEMS
Model 5 METER OFFSAT
Gain / Diameter 42.0 dBi / 5.5 m
3-dB / 15-dB Beamwidth 1.00° / 2.00°

Transmit - C60551

COMTECH ANTENNA SYSTEMS
5 METER OFFSAT
45.9 dBi / 5.5 m
0.60° / 1.60°

		<u>1M20G7W - 36M0G7W</u>			
Max Available RF Power	(dBW/4 kHz)	-15.0	-14.77		
	(dBW/MHz)	9.0	9.23		
Maximum EIRP	(dBW/4 kHz)	30.9	31.13		
	(dBW/MHz)	54.9	55.13		
	(dBW)	55.67	70.67		
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%

Frequency Information

Receive 4.0 GHz

Emission / Frequency Range (MHz) 1M20G7W - 36M0G7W / 3700.0 - 4200.0

Transmit 6.1 GHz

1M20G7W - 36M0G7W / 5924.0 - 6425.0

Max Great Circle Coordination Distance 543.4 km / 337.6 mi 162.4 km / 100.9 mi
Precipitation Scatter Contour Radius 595.2 km / 369.8 mi 100.0 km / 62.1 mi

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Coordination Values

DANIA, FL

Licensee Name Roberts Communications Network, LLC
Latitude (NAD 83) 26° 3' 13.0" N
Longitude (NAD 83) 80° 8' 15.5" W
Ground Elevation (AMSL) 0.81 m / 2.7 ft
Antenna Centerline (AGL) 9.75 m / 32.0 ft
Antenna Model COMTECH ANTENNA SYSTEMS 5 METER OFFSAT
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -15.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	102.20	-8.44	432.03	-8.12	149.43
5	0.00	107.00	-9.40	419.72	-9.70	143.36
10	0.00	111.78	-10.36	407.80	-12.81	132.19
15	0.00	110.66	-10.13	410.55	-12.37	133.71
20	0.00	107.93	-9.59	417.37	-10.44	140.55
25	0.00	105.10	-9.02	424.55	-8.18	149.20
30	0.00	102.19	-8.44	432.06	-8.13	149.41
35	0.00	99.22	-8.00	437.78	-8.17	149.23
40	0.00	96.20	-8.07	436.83	-8.19	149.14
45	0.00	93.15	-8.05	437.12	-8.16	149.28
50	0.00	90.09	-8.08	436.69	-8.20	149.10
55	0.00	87.03	-8.03	437.36	-8.14	149.35
60	0.00	83.98	-8.08	436.74	-8.19	149.15
65	0.00	80.96	-8.02	437.59	-8.23	149.00
70	0.00	77.98	-8.03	437.35	-8.25	148.90
75	0.00	75.07	-8.07	436.82	-8.27	148.82
80	0.00	72.23	-8.11	436.36	-8.22	149.03
85	0.00	69.49	-8.08	436.68	-8.11	149.47
90	0.00	66.87	-8.04	437.23	-8.14	149.37
95	0.00	64.38	-8.01	437.65	-8.20	149.13
100	0.00	62.05	-8.08	436.68	-8.27	148.82
105	0.00	59.91	-8.04	437.25	-8.17	149.22
110	0.00	57.98	-8.09	436.65	-8.11	149.48
115	0.00	56.29	-8.04	437.28	-8.10	149.52
120	0.00	54.86	-8.04	437.22	-8.15	149.33
125	0.00	53.72	-8.09	436.68	-8.21	149.06
130	0.00	52.88	-8.05	437.16	-8.17	149.23
135	0.00	52.37	-8.08	436.78	-8.18	149.19
140	0.00	52.19	-8.04	437.29	-8.21	149.07
145	0.00	52.35	-8.03	437.38	-8.11	149.49
150	0.00	52.84	-8.03	437.43	-8.13	149.41
155	0.00	53.66	-8.03	437.46	-8.73	147.11
160	0.00	54.79	-8.59	430.04	-9.10	145.67
165	0.00	56.20	-9.56	417.75	-9.66	143.52
170	0.00	57.87	-11.03	399.58	-10.62	139.91
175	0.00	59.12	-12.48	382.69	-11.58	136.44
180	0.00	59.55	-13.44	371.91	-12.54	133.11
185	0.00	59.12	-13.82	367.70	-13.10	131.24

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Coordination Values

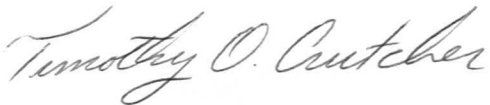
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Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -15.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	57.87	-13.57	370.45	-13.10	131.24
195	0.00	55.89	-13.18	374.81	-13.10	131.24
200	0.00	53.32	-12.33	384.40	-12.76	132.36
205	0.00	50.30	-11.12	398.58	-12.16	134.42
210	0.00	46.91	-10.38	407.49	-12.10	134.62
215	0.00	43.26	-9.65	416.55	-11.75	135.84
220	0.00	39.40	-8.88	426.34	-10.86	139.03
225	0.00	35.38	-8.08	436.79	-9.25	145.07
230	0.00	31.25	-8.00	437.80	-7.60	151.58
235	0.00	27.12	-6.85	453.29	-7.10	153.66
240	0.00	23.29	-5.32	474.06	-6.42	156.59
245	0.00	19.95	-3.96	493.84	-5.10	162.43
250	0.00	17.39	-1.91	525.33	-5.10	162.43
255	0.00	15.99	-0.79	543.41	-5.10	162.43
260	0.00	16.05	-0.84	542.66	-5.10	162.43
265	0.00	17.55	-2.04	523.33	-5.10	162.43
270	0.00	20.18	-4.07	492.19	-5.17	162.10
275	0.00	23.56	-5.43	472.49	-6.53	156.11
280	0.00	27.42	-6.97	451.63	-7.10	153.66
285	0.00	31.58	-8.00	437.80	-7.73	151.03
290	0.00	35.93	-8.03	437.45	-8.19	149.15
295	0.00	40.42	-8.07	436.81	-8.17	149.24
300	0.00	44.99	-8.07	436.89	-8.14	149.38
305	0.00	49.64	-8.02	437.52	-8.15	149.34
310	0.00	54.33	-8.05	437.10	-8.21	149.08
315	0.00	59.05	-8.08	436.78	-8.11	149.48
320	0.00	63.80	-8.05	437.17	-8.15	149.33
325	0.00	68.58	-8.04	437.26	-8.13	149.40
330	0.00	73.36	-8.05	437.17	-8.20	149.14
335	0.00	78.16	-8.01	437.66	-8.17	149.22
340	0.00	82.97	-8.04	437.31	-8.18	149.19
345	0.00	87.78	-8.04	437.28	-8.18	149.21
350	0.00	92.59	-8.03	437.42	-8.17	149.24
355	0.00	97.40	-8.05	437.18	-8.12	149.46

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.

A handwritten signature in cursive script that reads "Timothy O. Crutcher".

Timothy O. Crutcher
Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: March 23, 2018