

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Computer Sciences Raytheon
CAPE CANAVER, FL
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
December 01, 2010

TABLE OF CONTENTS

1. CONCLUSIONS	3
2. SUMMARY OF RESULTS	4
3. SUPPLEMENTAL SHOWING	5
4. EARTH STATION COORDINATION DATA.....	6
5. CERTIFICATION.....	10

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

ALLTEL Wireless Holdings, LLC.
Central Florida Cellular Telephone Co
New Cingular Wireless PCS LLC - S FL
Orlando SMSA Ltd Partnership
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 09/28/2010.

Company

ALLTEL Wireless Holdings, LLC.
Central Florida Cellular Telephone Co
FLORIDA POWER AND LIGHT COMPANY
Florida RSA No. 2B (Indian River) LP
Harris Corporation - Orlando, FL
Hernando County Board of Co Commissioner
Hillsborough County Sheriff's Office
Hillsborough County Tax Collector
Lake, County of
METROPOLITAN AREA NETWORKS, INC.
New Cingular Wireless PCS LLC - S FL
Orlando SMSA Ltd Partnership
PINELLAS COUNTY
POLK, COUNTY OF
Saint Lucie, County of
South Florida Water Management District
Sumter Electric Cooperative, Inc.
Tampa Electric Company
Verizon Wireless Personal Comm, LP(S FL)
Villages Public Saftey

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: 12/01/2010
Job Number: 100928COMSTC02

Administrative Information

Licensee Name Computer Sciences Raytheon

Site Information

CAPE CANAVER, FL
Venue Name WEST TERMIMAL
Latitude (NAD 83) 28° 25' 51.7" N
Longitude (NAD 83) 80° 35' 42.5" W
Climate Zone B
Rain Zone 1
Ground Elevation (AMSL) 2.6 m / 8.5 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 18° W to 143° West Longitude
Azimuth Range 103.9° to 256.0°
Corresponding Elevation Angles 15.5° / 15.7°
Antenna Centerline (AGL) 9.0 m / 29.5 ft

Antenna Information

	Receive	Transmit
Manufacturer	VERTEX RSI	VERTEX RSI
Gain / Diameter	55.1 dBi / 16.4 m	59.0 dBi / 16.4 m
3-dB / 15-dB Beamwidth	0.30° / 0.60°	0.20° / 0.40°
		<u>51K2G7W - 36M0G7W</u>
Max Available RF Power (dBW/4 kHz)		-13.52
(dBW/MHz)		10.48
Maximum EIRP (dBW/4 kHz)		45.48
(dBW/MHz)		69.48
(dBW)		56.55
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	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	51K2G7W - 36M0G7W / 3700.0 - 4200.0	51K2G7W - 36M0G7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	594.6 km / 369.4 mi	209.0 km / 129.8 mi
Precipitation Scatter Contour Radius	596.7 km / 370.7 mi	100.0 km / 62.1 mi

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Coordination Values

CAPE CANAVER, FL

Licensee Name Computer Sciences Raytheon
Latitude (NAD 83) 28° 25' 51.7" N
Longitude (NAD 83) 80° 35' 42.5" W
Ground Elevation (AMSL) 2.6 m / 8.5 ft
Antenna Centerline (AGL) 9.0 m / 29.5 ft
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 -13.5 (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	103.35	-10.00	412.20	-10.00	148.04
5	0.00	98.54	-10.00	412.20	-10.00	148.04
10	0.00	93.73	-10.00	412.20	-10.00	148.04
15	0.00	88.91	-10.00	412.20	-10.00	148.04
20	0.00	84.09	-10.00	412.20	-10.00	148.04
25	0.00	79.28	-10.00	412.20	-10.00	148.04
30	0.00	74.47	-10.00	412.20	-10.00	148.04
35	0.00	69.67	-10.00	412.20	-10.00	148.04
40	0.00	64.89	-10.00	412.20	-10.00	148.04
45	0.00	60.12	-10.00	412.20	-10.00	148.04
50	0.00	55.37	-10.00	412.20	-10.00	148.04
55	0.00	50.66	-10.00	412.20	-10.00	148.04
60	0.00	45.99	-9.57	417.60	-9.57	149.66
65	0.00	41.38	-8.42	432.28	-8.42	154.42
70	0.00	36.86	-7.16	448.99	-7.16	159.90
75	0.00	32.45	-5.78	467.48	-5.78	166.21
80	0.00	28.21	-4.26	489.43	-4.26	173.49
85	0.00	24.24	-2.61	514.40	-2.61	181.81
90	0.00	20.68	-0.89	541.80	-0.89	190.96
95	0.00	17.80	0.74	568.95	0.74	200.43
100	0.00	15.96	1.92	589.44	1.92	207.26
105	0.00	15.54	2.22	594.59	2.22	208.98
110	0.00	16.64	1.47	581.55	1.47	204.64
115	0.00	19.00	0.03	556.99	0.03	196.43
120	0.00	22.23	-1.67	529.19	-1.67	186.75
125	0.00	25.99	-3.37	502.73	-3.37	177.92
130	0.00	30.05	-4.95	479.37	-4.95	170.15
135	0.00	34.05	-6.30	460.79	-6.30	163.79
140	0.00	37.91	-7.47	444.87	-7.47	158.54
145	0.00	41.60	-8.48	431.53	-8.48	154.18
150	0.00	45.08	-9.35	420.35	-9.35	150.55
155	0.00	48.27	-10.00	412.20	-10.00	148.04
160	0.00	51.11	-10.00	412.20	-10.00	148.04
165	0.00	53.48	-10.00	412.20	-10.00	148.04
170	0.00	55.29	-10.00	412.20	-10.00	148.04
175	0.00	56.43	-10.00	412.20	-10.00	148.04
180	0.00	56.82	-10.00	412.20	-10.00	148.04
185	0.00	56.43	-10.00	412.20	-10.00	148.04

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Coordination Values


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Antenna Centerline (AGL)	9.0 m / 29.5 ft		
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			-13.5 (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	55.29	-10.00	412.20	-10.00	148.04
195	0.00	53.48	-10.00	412.20	-10.00	148.04
200	0.00	51.10	-10.00	412.20	-10.00	148.04
205	0.00	48.27	-10.00	412.20	-10.00	148.04
210	0.00	45.08	-9.35	420.36	-9.35	150.55
215	0.00	41.60	-8.48	431.54	-8.48	154.18
220	0.00	37.91	-7.47	444.88	-7.47	158.54
225	0.00	34.05	-6.30	460.80	-6.30	163.79
230	0.00	30.05	-4.95	479.36	-4.95	170.15
235	0.00	26.00	-3.38	502.66	-3.38	177.89
240	0.00	22.26	-1.69	528.89	-1.69	186.65
245	0.00	19.08	-0.01	556.27	-0.01	195.81
250	0.00	16.76	1.40	580.21	1.40	204.19
255	0.00	15.70	2.10	592.60	2.10	208.32
260	0.00	16.15	1.80	587.19	1.80	206.51
265	0.00	18.00	0.62	566.89	0.62	199.74
270	0.00	20.88	-0.99	540.14	-0.99	190.41
275	0.00	24.42	-2.69	513.11	-2.69	181.38
280	0.00	28.39	-4.33	488.42	-4.33	173.16
285	0.00	32.61	-5.83	466.69	-5.83	165.95
290	0.00	37.02	-7.21	448.36	-7.21	159.69
295	0.00	41.54	-8.46	431.76	-8.46	154.25
300	0.00	46.14	-9.60	417.17	-9.60	149.52
305	0.00	50.80	-10.00	412.20	-10.00	148.04
310	0.00	55.51	-10.00	412.20	-10.00	148.04
315	0.00	60.25	-10.00	412.20	-10.00	148.04
320	0.00	65.01	-10.00	412.20	-10.00	148.04
325	0.00	69.79	-10.00	412.20	-10.00	148.04
330	0.00	74.59	-10.00	412.20	-10.00	148.04
335	0.00	79.39	-10.00	412.20	-10.00	148.04
340	0.00	84.20	-10.00	412.20	-10.00	148.04
345	0.00	89.01	-10.00	412.20	-10.00	148.04
350	0.00	93.83	-10.00	412.20	-10.00	148.04
355	0.00	98.64	-10.00	412.20	-10.00	148.04

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.



Timothy O. Crutcher
Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
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DATED: December 01, 2010