

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
WSJN-CD
TOA ALTA, PR
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
May 18, 2011

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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. Operation in the 6 GHz band will be limited to the bandwidth shown in Section 4 of this report.

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

AT&T Mobility Puerto Rico
Neptuno Media
PUERTO RICO ELECTRIC POWER AUTHORITY
Puerto Rico Telephone Company
Sprintcom, Inc. Puerto Rico
T-Mobile Puerto Rico LLC

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 05/16/2011.

Company

ALL AMERICAN CABLE AND RADIO INC
AT&T Mobility Puerto Rico
Aeronet Wireless Broadband Corp.
CCPR of the Virgin Islands, Inc.
CROWN CASTLE INT CORP DE PUERTO RICO
EVERTEC, INC
INTERISLAND TELEPHONE CORPORATION
Iniciativa Tecnologica Centro Oriental
Interference Office, Arecibo Observatory
Neptuno Media
PRWireless, Inc.
PUERTO RICO ELECTRIC POWER AUTHORITY
PUERTO RICO HIGHWAY AUTHORITY
Puerto Rico Commonwealth of State Police
Puerto Rico Telephone Company
Sprint PCS
Sprintcom, Inc. Puerto Rico
T-Mobile Puerto Rico 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: 05/18/2011
Job Number: 110516COMSTC02

Administrative Information

Licensee Name WSJN-CD

Site Information

TOA ALTA, PR

Latitude (NAD 83) 18° 22' 28.0" N
Longitude (NAD 83) 66° 12' 23.0" W
Climate Zone A
Rain Zone 1
Ground Elevation (AMSL) 35.6 m / 116.8 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 55° W to 72° West Longitude
Azimuth Range 147.9° to 197.8°
Corresponding Elevation Angles 64.9° / 67.4°
Antenna Centerline (AGL) 2.44 m / 8.0 ft

Antenna Information

Receive

Manufacturer ANDREW CORPORATION
Model ESA45-46
Gain / Diameter 43.9 dBi / 4.5 m
3-dB / 15-dB Beamwidth 1.20° / 2.40°

Transmit

ANDREW CORPORATION
ESA45-46
46.2 dBi / 4.5 m
0.94° / 1.90°

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

51K2G7W - 36M0G7W
-13.5 -13.5
-2.43 10.5

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

32.7 32.7
43.77 56.7
43.77 72.24

Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

-154.0 dBW/4 kHz 20%
-131.0 dBW/4 kHz 0.0025%

Frequency Information

Receive 4.0 GHz

Emission / Frequency Range (MHz) 51K2G7W - 36M0G7W / 3700.0 - 4200.0

Transmit 6.1 GHz

51K2G7W - 36M0G7W / 5925.0 - 6047.0
51K2G7W - 36M0G7W / 6079.0 - 6315.0
51K2G7W - 36M0G7W / 6361.0 - 6425.0

Max Great Circle Coordination Distance 288.3 km / 179.1 mi
Precipitation Scatter Contour Radius 100.0 km / 62.1 mi

120.1 km / 74.6 mi
100.0 km / 62.1 mi

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Coordination Values

TOA ALTA, PR

Licensee Name WSJN-CD
Latitude (NAD 83) 18° 22' 28.0" N
Longitude (NAD 83) 66° 12' 23.0" W
Ground Elevation (AMSL) 35.6 m / 116.8 ft
Antenna Centerline (AGL) 2.44 m / 8.0 ft
Antenna Model ANDREW CORPORATION ESA45-46
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	1.48	112.26	-11.46	202.00	-16.16	100.00
5	1.47	110.89	-10.63	206.00	-15.33	100.00
10	1.63	109.48	-9.68	206.00	-14.28	100.00
15	2.56	108.41	-8.82	187.35	-13.21	100.00
20	1.88	106.16	-7.03	209.14	-10.96	100.00
25	1.71	104.16	-6.10	218.44	-9.80	100.00
30	1.93	102.26	-6.10	212.33	-9.80	100.00
35	1.90	100.15	-6.10	213.18	-9.80	100.00
40	1.90	98.00	-6.10	213.19	-9.80	100.00
45	1.98	95.81	-6.10	210.92	-9.80	100.00
50	1.78	93.54	-6.10	216.65	-9.80	100.00
55	1.78	91.29	-6.10	216.66	-9.80	100.00
60	1.70	89.03	-6.10	218.96	-9.80	100.00
65	1.61	86.79	-6.10	221.48	-9.80	100.00
70	1.61	84.57	-6.10	221.47	-9.80	100.00
75	1.67	82.37	-6.10	219.64	-9.80	100.00
80	1.49	80.29	-6.10	225.24	-9.80	100.00
85	0.73	78.53	-6.10	258.35	-9.80	100.01
90	0.38	76.77	-6.10	288.33	-9.80	120.12
95	0.43	74.92	-6.12	282.31	-9.80	116.26
100	0.67	73.04	-7.63	252.99	-9.80	102.86
105	0.48	71.55	-9.21	256.68	-9.80	112.13
110	0.64	69.95	-10.10	240.39	-9.97	103.76
115	0.61	68.63	-10.10	242.28	-10.36	104.13
120	1.07	67.05	-10.10	217.70	-10.77	100.00
125	1.63	65.51	-10.10	203.98	-11.58	100.00
130	1.79	64.50	-10.10	199.67	-12.38	100.00
135	1.84	63.79	-10.10	198.37	-12.80	100.00
140	2.09	63.09	-10.10	191.91	-12.80	100.00
145	2.58	62.36	-10.10	180.75	-12.80	100.00
150	2.56	62.37	-10.10	181.22	-12.80	100.00
155	2.27	62.87	-10.10	187.97	-12.80	100.00
160	3.33	62.27	-10.10	161.59	-12.80	100.00
165	4.41	61.93	-10.10	141.31	-12.80	100.00
170	4.48	62.80	-10.10	140.33	-12.80	100.00
175	4.44	63.73	-10.10	140.92	-12.80	100.00
180	3.60	64.84	-10.10	155.63	-12.80	100.00
185	3.09	65.04	-10.10	168.87	-12.80	100.00

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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 (°)	Receive 4.0 GHz		Transmit 6.1 GHz			
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	3.12	64.58	-10.10	166.48	-12.80	100.00
195	2.71	64.76	-10.10	177.69	-12.80	100.00
200	2.70	64.76	-10.10	177.92	-12.80	100.00
205	2.71	64.94	-10.10	177.69	-12.80	100.00
210	2.31	65.73	-10.10	187.06	-12.80	100.00
215	1.66	66.92	-10.10	203.24	-12.80	100.00
220	1.73	67.61	-10.10	201.42	-11.98	100.00
225	1.97	68.32	-10.10	194.94	-11.12	100.00
230	2.05	69.36	-10.10	192.94	-10.51	100.00
235	1.82	70.80	-10.10	199.04	-10.06	100.00
240	2.32	71.83	-9.31	190.45	-9.80	100.00
245	2.12	73.51	-7.49	203.53	-9.80	100.00
250	2.71	74.82	-6.10	197.43	-9.80	100.00
255	2.61	76.67	-6.10	199.60	-9.80	100.00
260	2.67	78.52	-6.10	198.30	-9.80	100.00
265	2.61	80.50	-6.10	199.62	-9.80	100.00
270	2.61	82.51	-6.10	199.60	-9.80	100.00
275	2.67	84.57	-6.10	198.31	-9.80	100.00
280	2.77	86.65	-6.10	196.13	-9.80	100.00
285	2.22	88.81	-6.10	205.44	-9.80	100.00
290	2.22	90.91	-6.10	205.44	-9.80	100.00
295	1.65	92.93	-6.10	220.26	-9.80	100.00
300	1.72	94.97	-6.10	218.43	-9.80	100.00
305	1.08	96.80	-6.10	238.72	-9.80	100.00
310	0.81	98.60	-6.10	253.57	-9.80	100.00
315	1.19	100.59	-6.10	235.16	-9.80	100.00
320	1.72	102.64	-6.10	218.24	-9.80	100.00
325	0.86	103.89	-6.10	250.48	-9.80	100.00
330	1.58	105.93	-6.84	218.72	-10.73	100.00
335	0.99	107.03	-7.73	233.01	-11.83	100.00
340	0.92	108.34	-8.77	231.19	-13.14	100.00
345	1.15	109.74	-9.89	216.34	-14.54	100.00
350	0.77	110.50	-10.40	230.96	-15.10	100.00
355	1.17	111.77	-11.16	209.44	-15.86	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.



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

DATED: May 18, 2011