

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**Global Crossing Americas Solutions, Inc**  
**BAYAMON, PR**  
**(E110151)**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
January 13, 2016

## 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.

### 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 01/12/2016.

Company

ALL AMERICAN CABLE AND RADIO INC  
AT&T Mobility Puerto Rico  
AT&T Mobility Virgin Islands, Inc.  
Aeronet Wireless Broadband Corp.  
Broadband Telecommunications Network  
Critical Hub Networks, Inc.  
EVERTEC, INC  
INTERISLAND TELEPHONE CORPORATION  
Iniciativa Tecnologica Centro Oriental  
Neptuno Media  
Osnet Wireless Corporation  
PR Wireless, Inc.  
PREPA Networks, LLC.  
Puerto Rico Commonwealth  
Puerto Rico Commonwealth of State Police  
Puerto Rico Electric Power Authority  
Puerto Rico Telephone Company, Inc.  
Sprintcom, Inc  
Sprintcom, Inc. Puerto Rico  
Surge Communications LLC  
T-Mobile Puerto Rico LLC  
UNIVERSITY OF THE VIRGIN ISLANDS

## **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: 01/13/2016  
Job Number: 160112COMSGE09

---

### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E110151  
Licensee Code GLOAME  
Licensee Name Global Crossing Americas Solutions, Inc

---

### Site Information

**BAYAMON, PR**  
Venue Name BETANCES  
Latitude (NAD 83) 18° 23' 48.9" N  
Longitude (NAD 83) 66° 9' 59.1" W  
Climate Zone B  
Rain Zone 1  
Ground Elevation (AMSL) 13.11 m / 43.0 ft

---

### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 45° W to 56° West Longitude  
Azimuth Range 129.2° to 150.4°  
Corresponding Elevation Angles 57.6° / 65.5°  
Antenna Centerline (AGL) 6.4 m / 21.0 ft

---

### Antenna Information

		<b>Receive - FCC32</b>		<b>Transmit - FCC32</b>	
Manufacturer		Prodelin		Prodelin	
Model		1251		1251	
Gain / Diameter		38.0 dBi / 2.4 m		42.0 dBi / 2.4 m	
3-dB / 15-dB Beamwidth		2.30° / 4.60°		1.50° / 3.00°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-17.6 6.4	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			24.4 48.4	
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

	<b>Receive 4.0 GHz</b>	<b>Transmit 6.1 GHz</b>
Emission / Frequency Range (MHz)	230KG7D - 8M45G7D / 3700.0 - 4200.0	230KG7D - 1M30G7D / 6110.0 - 6166.0 230KG7D - 1M30G7D / 6382.0 - 6423.0
Max Great Circle Coordination Distance	412.2 km / 256.1 mi	132.9 km / 82.6 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

### BAYAMON, PR

Licensee Name Global Crossing Americas Solutions, Inc  
Latitude (NAD 83) 18° 23' 48.9" N  
Longitude (NAD 83) 66° 9' 59.1" W  
Ground Elevation (AMSL) 13.11 m / 43.0 ft  
Antenna Centerline (AGL) 6.4 m / 21.0 ft  
Antenna Model Prodelin 2.4 meter  
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 -17.6 (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	2.31	111.09	-10.00	187.94	-10.00	100.00
5	2.73	108.87	-10.00	173.15	-10.00	100.00
10	2.73	106.30	-10.00	173.12	-10.00	100.00
15	2.30	103.49	-10.00	188.34	-10.00	100.00
20	1.21	100.48	-10.00	241.33	-10.00	100.00
25	1.40	97.84	-10.00	230.61	-10.00	100.00
30	0.47	94.97	-10.00	329.54	-10.00	110.35
35	0.40	92.27	-10.00	346.99	-10.00	115.82
40	0.00	89.56	-10.00	412.20	-10.00	132.91
45	0.00	86.89	-10.00	412.20	-10.00	132.91
50	0.00	84.23	-10.00	412.20	-10.00	132.91
55	0.00	81.60	-10.00	412.20	-10.00	132.91
60	0.49	78.87	-10.00	323.57	-10.00	108.56
65	1.32	76.00	-10.00	234.99	-10.00	100.00
70	1.23	73.51	-10.00	240.36	-10.00	100.00
75	0.60	71.41	-10.00	306.05	-10.00	103.11
80	1.07	68.86	-10.00	249.52	-10.00	100.00
85	0.34	67.17	-10.00	365.30	-10.00	119.03
90	0.30	65.24	-10.00	377.97	-10.00	122.66
95	0.23	63.50	-10.00	402.96	-10.00	130.09
100	0.34	61.81	-10.00	365.38	-10.00	119.05
105	0.54	60.25	-10.00	315.50	-10.00	106.09
110	0.84	58.81	-10.00	272.56	-10.00	100.00
115	1.00	57.73	-10.00	253.85	-10.00	100.00
120	0.57	57.50	-10.00	311.22	-10.00	104.75
125	0.65	57.04	-10.00	299.26	-10.00	100.90
130	0.77	56.82	-10.00	281.99	-10.00	100.00
135	0.88	56.91	-10.00	267.62	-10.00	100.00
140	1.06	57.20	-10.00	250.11	-10.00	100.00
145	1.34	57.69	-10.00	234.27	-10.00	100.00
150	1.42	58.64	-10.00	229.75	-10.00	100.00
155	1.42	59.92	-10.00	229.75	-10.00	100.00
160	1.42	61.44	-10.00	229.73	-10.00	100.00
165	1.69	62.96	-10.00	215.07	-10.00	100.00
170	1.67	64.91	-10.00	216.12	-10.00	100.00
175	1.43	66.54	-10.00	228.79	-10.00	100.00
180	1.27	67.77	-10.00	238.23	-10.00	100.00
185	1.40	68.90	-10.00	230.76	-10.00	100.00



# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

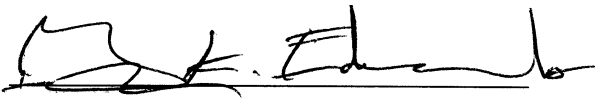
### BAYAMON, PR

Licensee Name Global Crossing Americas Solutions, Inc  
Latitude (NAD 83) 18° 23' 48.9" N  
Longitude (NAD 83) 66° 9' 59.1" W  
Ground Elevation (AMSL) 13.11 m / 43.0 ft  
Antenna Centerline (AGL) 6.4 m / 21.0 ft  
Antenna Model Prodelin 2.4 meter  
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 -17.6 (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	1.34	70.35	-10.00	233.94	-10.00	100.00
195	1.10	72.06	-10.00	247.88	-10.00	100.00
200	1.15	73.69	-10.00	245.08	-10.00	100.00
205	1.58	75.23	-10.00	221.18	-10.00	100.00
210	1.14	77.34	-10.00	245.38	-10.00	100.00
215	0.91	79.38	-10.00	263.03	-10.00	100.00
220	0.99	81.36	-10.00	254.87	-10.00	100.00
225	1.01	83.43	-10.00	253.13	-10.00	100.00
230	0.79	85.57	-10.00	278.94	-10.00	100.00
235	0.83	87.69	-10.00	273.24	-10.00	100.00
240	1.20	89.83	-10.00	242.19	-10.00	100.00
245	0.77	91.97	-10.00	281.91	-10.00	100.00
250	0.94	94.11	-10.00	261.18	-10.00	100.00
255	1.12	96.27	-10.00	246.69	-10.00	100.00
260	0.98	98.31	-10.00	255.73	-10.00	100.00
265	0.94	100.31	-10.00	261.69	-10.00	100.00
270	0.85	102.23	-10.00	270.52	-10.00	100.00
275	1.65	104.51	-10.00	216.99	-10.00	100.00
280	2.13	106.62	-10.00	194.49	-10.00	100.00
285	2.77	108.79	-10.00	171.84	-10.00	100.00
290	2.63	110.35	-10.00	176.56	-10.00	100.00
295	2.63	111.85	-10.00	176.55	-10.00	100.00
300	2.63	113.19	-10.00	176.55	-10.00	100.00
305	3.06	114.73	-10.00	163.02	-10.00	100.00
310	3.06	115.73	-10.00	163.03	-10.00	100.00
315	3.10	116.56	-10.00	161.93	-10.00	100.00
320	3.10	117.14	-10.00	161.95	-10.00	100.00
325	2.73	117.13	-10.00	173.16	-10.00	100.00
330	2.73	117.27	-10.00	173.14	-10.00	100.00
335	2.39	116.83	-10.00	185.03	-10.00	100.00
340	2.41	116.54	-10.00	184.29	-10.00	100.00
345	2.13	115.73	-10.00	194.71	-10.00	100.00
350	2.13	115.00	-10.00	194.70	-10.00	100.00
355	2.31	113.39	-10.00	187.94	-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: January 13, 2016