

**FREQUENCY COORDINATION AND INTERFERENCE  
ANALYSIS REPORT**

Prepared for

**Intelsat North America LLC  
Hagerstown, Maryland**

**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Virginia 20147  
October 20, 2010

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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

Allegheny Power Service Corporation  
AT&T Communications of Maryland, Inc.  
Baltimore County of Maryland  
Baltimore Gas & Electric Company  
Celco Partnership – Newark-Dallas Verizon  
Celco Partnership – PA Region  
Exelon Generation Company LLC  
Hardy Cellular Telephone  
Local Communications Network, Inc.  
MCI Communication Services Inc.  
New Cingular Wireless PCS, LLC - PA  
New Cingular Wireless PCS – VA/DC/MD  
SCTF Net  
State of Maryland, MIEMSS  
State of WV DHHR/BPH STECS  
USCOC of Cumberland, Inc.  
Washington Gas Light Company

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 August 16, 2010.

#### Company

AT&T COMMUNICATIONS OF MARYLAND INC  
AT&T COMMUNICATIONS OF VIRGINIA INC  
AT&T CORP  
Allegheny Power Service Corporation  
Alltel Communications of Virginia #1 LLC  
Atlantic Broadband (Delmar), LLC  
Atlantic Broadband (Penn), LLC  
Atlantic City Electric Company  
BAY BROADBAND COMMUNICATIONS LLC  
BEDFORD COUNTY 911  
Baltimore County of Maryland  
Baltimore Gas and Electric Company  
Berks, County of  
Borough of Huntingdon  
CHESTER, COUNTY OF  
CNG Transmission Corporation  
COLLEGE OF SOUTHERN MARYLAND  
COMMONWEALTH OF PENNSYLVANIA, RADIO PROJ.  
CROWN COMMUNICATION, INC.  
Cambria, County of  
Celco Partnership - Bridgeville, PA  
Celco Partnership - Southern Virginia  
Celco Partnership- PA Region  
Celco Partnership-Newark-Dallas Verizon  
Celco Partnership-Washington/Baltimore  
Celco Prtnrshp - Phil. Tri-State Rgn  
Charles, County of  
Conterra Ultra Broadband, LLC  
County of Frederick  
County of Stafford  
DAUPHIN COUNTY EMERGENCY MANAGEMENT  
DELAWARE STATE - DTI  
Delmarva Power & Light Company  
Enoch Pratt Free Library  
Exelon Generation Company, L.L.C

Company (Continued)

Fayette, County of  
Frederick County  
Greene, County of (PA)  
Hardy Cellular Telephone Company  
Harrisonburg-Rockingham ECC  
International Communications Group, Inc.  
LB Tower Company LLC  
Last Mile Inc.  
Local Communications Network, Inc.  
Loudoun, County of  
MCI Communications Services Inc.  
METROPOLITAN AREA NETWORKS, INC.  
Maryland Public Broadcasting Commission  
Maryland State Highway Administration  
Maryland, State of - Budget & Management  
National Radio Astronomy Observatory  
New Cingular Wireless PCS LLC -NJ  
New Cingular Wireless PCS - VA/DC/MD  
New Cingular Wireless PCS LLC - DC  
New Cingular Wireless PCS LLC- DE/NH/RI  
New Cingular Wireless PCS, LLC - PA  
New Cingular Wireless PCS, LLC - WV/VA  
New Jersey, State of -NJ Transit  
Northern Virginia Electric Cooperative  
Open Range Communications  
PENNSYLVANIA TURNPIKE COMMISSION  
PRINCE WILLIAM COUNTY  
PSEG Services Corporation  
Peco Energy Company  
Penn Service Microwave Co., Inc.  
Pittsburgh SMSA Limited Partnership  
Prince George's County  
RAPPAHANNOCK ELECTRIC COOPERATIVE  
SCTF NET  
SHENANDOAH VALLEY ELECTRIC COOPERATIVE  
SOMERSET COUNTY  
South & Central Wireless, LLC - SOVA  
Southern Maryland Electric Cooperative I  
State of Maryland, MIEMSS  
State of WV DHHR/BPH STECS  
Texas Eastern Communications, Inc.  
USCOC of Cumberland, Inc.  
VFTECHNOLOGIES  
Verizon Maryland, Inc.  
Virginia Broadband, LLC  
Virginia Cellular LLC  
Virginia Department of State Police  
Virginia Electric & Power Company  
Virginia PCS Alliance, L.C.

Company (Continued)

WASHINGTON SUBURBAN SANITARY COMMISSION

WITF Inc.

Washington D.C. SMSA L.P.

Washington Gas Light Company

York County Dept of Emergency Services

## 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: 10/20/2010  
Job Number: 100816COMSJC01

### Administrative Information

Status: ENGINEER PROPOSAL  
Call Sign:  
Licensee Code: INTNOA  
Licensee Name: Intelsat North America LLC

### Site Information

**HAGERSTOWN, MARYLAND**  
Venue Name:  
Latitude (NAD 83): 39° 35' 55.0" N  
Longitude (NAD 83): 77° 45' 22.0" W  
Climate Zone: A  
Rain Zone: 2  
Ground Elevation (AMSL): 166.12 m / 545.0 ft

### Link Information

Satellite Type: Geostationary  
Mode: TR - Transmit-Receive  
Modulation: Analog and Digital  
Satellite Arc: 6° W to 143° West Longitude  
Azimuth Range: 101.9° to 253.6°  
Corresponding Elevation Angles: 5.3° / 10.3°  
Antenna Centerline (AGL): 8.23 m / 27.0 ft

### Antenna Information

	Receive	Transmit
Manufacturer	Vertex	Vertex
Model	16.4 Meter	16.4 Meter
Gain / Diameter	55.2 dBi / 16.4 m	58.7 dBi / 16.4 m
3-dB / 15-dB Beamwidth	0.31° / 0.58°	0.20° / 0.37°

Max Available RF Power	(dBW/4 kHz)	-2.7
	(dBW/MHz)	21.3

Maximum EIRP	(dBW/4 kHz)	56.0
	(dBW/MHz)	80.0

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

Emission / Frequency Range (MHz)	Receive 4.0 GHz	Transmit 6.1 GHz
	1M50G7D / 3625.0 - 4200.0	1M50G7D / 5850.0 - 6425.0
	36M0F8F / 3625.0 - 4200.0	36M0F8F / 5850.0 - 6425.0
	2M00G7F - 36M0G7F / 3625.0 - 4200.0	2M00G7F - 36M0G7F / 5850.0 - 6425.0
	100KG7W - 72M0G7W / 3625.0 - 4200.0	100KG7W - 72M0G7W / 5850.0 - 6425.0

Max Great Circle Coordination Distance	752.3 km / 467.4 mi	449.2 km / 279.1 mi
Precipitation Scatter Contour Radius	613.5 km / 381.2 mi	101.4 km / 63.0 mi

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
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### Coordination Values

### HAGERSTOWN, MD

Licensee Name	Intelsat North America LLC		
Latitude (NAD 83)	39° 35' 55.0" N		
Longitude (NAD 83)	77° 45' 22.0" W		
Ground Elevation (AMSL)	166.12 m / 545.0 ft		
Antenna Centerline (AGL)	8.23 m / 27.0 ft		
Antenna Model	Vertex 16.4 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
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz
Max Available RF Power			-2.7 (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	0.28	101.82	-10.00	274.72	-10.00	159.82
5	0.23	96.84	-10.00	281.19	-10.00	165.45
10	0.20	91.86	-10.00	284.81	-10.00	170.25
15	0.22	86.88	-10.00	282.64	-10.00	168.36
20	0.22	81.90	-10.00	283.24	-10.00	168.88
25	0.20	76.92	-10.00	285.04	-10.00	170.45
30	0.00	71.95	-10.00	285.28	-10.00	170.66
35	0.00	66.97	-10.00	285.28	-10.00	170.66
40	0.00	62.00	-10.00	285.28	-10.00	170.66
45	0.00	57.03	-10.00	285.28	-10.00	170.66
50	0.00	52.06	-10.00	285.28	-10.00	170.66
55	0.00	47.10	-9.82	286.40	-9.82	171.34
60	0.00	42.14	-8.62	294.23	-8.62	176.03
65	0.00	37.19	-7.26	303.30	-7.26	181.28
70	0.00	32.26	-5.72	314.61	-5.72	187.24
75	0.00	27.35	-3.92	327.40	-3.92	194.13
80	0.00	22.47	-1.79	343.07	-1.79	202.27
85	0.00	17.66	0.83	362.98	0.83	210.75
90	0.00	12.98	4.17	388.86	4.17	224.76
95	0.00	8.67	8.55	426.05	8.55	245.19
100	0.00	5.62	13.26	752.34	13.26	449.18
105	0.00	6.15	12.28	543.42	12.28	312.20
110	0.00	9.60	7.45	416.38	7.45	239.82
115	0.00	13.27	3.93	387.53	3.93	223.71
120	0.00	16.89	1.31	366.72	1.31	212.69
125	0.00	20.41	-0.75	350.91	-0.75	204.62
130	0.00	23.83	-2.43	338.33	-2.43	199.84
135	0.00	27.11	-3.83	328.09	-3.83	194.49
140	0.00	30.23	-5.01	319.61	-5.01	189.96
145	0.00	33.14	-6.01	311.94	-6.01	186.11
150	0.00	35.82	-6.85	306.10	-6.85	182.86
155	0.00	38.20	-7.55	301.33	-7.55	180.15
160	0.00	40.26	-8.12	297.51	-8.12	177.95
165	0.00	41.93	-8.56	294.59	-8.56	176.24
170	0.00	43.16	-8.88	292.52	-8.88	175.02
175	0.00	43.92	-9.07	291.29	-9.07	174.29
180	0.00	44.18	-9.13	290.88	-9.13	174.04
185	0.00	43.92	-9.07	291.29	-9.07	174.28

# COMSEARCH

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### Coordination Values

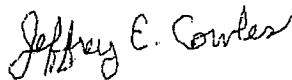
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Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz 20%
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz 0.0025%
Max Available RF Power			-2.7 (dBW/4 kHz)

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	43.16	-8.88	292.52	-8.88	175.02
195	0.00	41.93	-8.56	294.59	-8.56	176.24
200	0.00	40.26	-8.12	297.51	-8.12	177.95
205	0.00	38.20	-7.55	301.32	-7.55	180.15
210	0.00	35.81	-6.85	306.10	-6.85	182.86
215	0.22	32.97	-5.95	310.19	-5.95	184.63
220	0.38	29.94	-4.91	296.87	-4.91	171.99
225	0.42	26.80	-3.70	299.48	-3.70	172.18
230	0.29	23.62	-2.33	327.24	-2.33	191.39
235	0.00	20.42	-0.75	350.90	-0.75	204.61
240	0.30	16.68	1.45	354.21	1.45	205.06
245	0.32	13.13	4.04	373.12	4.04	212.73
250	0.29	10.61	6.36	395.31	6.36	225.57
255	0.34	10.02	6.98	454.33	6.98	257.67
260	0.37	11.76	5.24	376.09	5.24	212.80
265	0.37	15.04	2.57	354.39	2.57	203.40
270	0.28	19.11	-0.03	345.60	-0.03	201.27
275	0.34	23.48	-2.27	321.44	-2.27	186.84
280	0.33	28.06	-4.20	307.23	-4.20	179.34
285	0.00	32.85	-5.91	313.22	-5.91	186.47
290	0.00	37.61	-7.38	302.48	-7.38	180.81
295	0.00	42.41	-8.69	293.77	-8.69	175.76
300	0.00	47.25	-9.86	286.17	-9.86	171.20
305	0.27	52.07	-10.00	276.61	-10.00	161.45
310	0.32	56.95	-10.00	270.66	-10.00	156.34
315	0.00	61.88	-10.00	285.28	-10.00	170.66
320	0.00	66.78	-10.00	285.28	-10.00	170.66
325	0.00	71.69	-10.00	285.28	-10.00	170.66
330	0.00	76.60	-10.00	285.28	-10.00	170.66
335	0.28	81.51	-10.00	275.23	-10.00	160.25
340	0.31	86.44	-10.00	271.60	-10.00	157.14
345	0.28	91.36	-10.00	275.70	-10.00	160.66
350	0.24	96.28	-10.00	280.45	-10.00	164.81
355	0.32	101.21	-10.00	270.70	-10.00	156.37

## 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.



Jeffrey E. Cowles  
Engineer III, Telecommunications  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Va. 20147

DATED: October 20, 2010