

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Intelsat License LLC
Hagerstown, Maryland
(Call Sign: KA 262)**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
December 7, 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
Cellco Partnership – Newark-Dallas Verizon
New Cingular Wireless PCS – VA/DC/MD

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 September 7, 2010.

Company

AB Services LLC
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
Alltel Communications of Virginia, Inc.
Atlantic Broadband (Delmar), LLC
Atlantic Broadband (Penn), LLC
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
CLEARFIELD, COUNTY OF
CNG Transmission Corporation
COLLEGE OF SOUTHERN MARYLAND
COMMONWEALTH OF PENNSYLVANIA,RADIO PROJ.
CROWN COMMUNICATION, INC.
Cambria, County of
Cellco Partnership - Bridgeville, PA
Cellco Partnership - Southern Virginia
Cellco Partnership- PA Region
Cellco Partnership-Newark-Dallas Verizon
Cellco Partnership-Washington/Baltimore
Cellco 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

Company (Continued)

Enoch Pratt Free Library
Exelon Generation Company, L.L.C
FMLD Holdings, LLC
Fayette, County of
Frederick County
Greene, County of (PA)
HANOVER COUNTY
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
NTELOS Telephone, Inc.
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
Northern Virginia Electric Cooperative
Open Range Communications
PENNSYLVANIA TURNPIKE COMMISSION
PSEG Services Corporation
Peco Energy Company
Penn Service Microwave Co., Inc.
Pittsburgh SMSA Limited Partnership
Prince George's County
Prince William, County of
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.
USCOC of Virginia RSA #2, Inc.
USCOC of Virginia RSA #3, Inc.
Verizon Maryland, Inc.
Virginia Broadband, LLC

Company

Virginia Cellular LLC
Virginia Department of State Police
Virginia Electric & Power Company
Virginia PCS Alliance, L.C.
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: 12/07/2010
Job Number: 100907COMSJC01

Administrative Information

Status ENGINEER PROPOSAL
Call Sign KA262
Licensee Code INTNOA
Licensee Name Intelsat License LLC

Site Information HAGERSTOWN, MARYLAND

Venue Name
Latitude (NAD 83) 39° 35' 57.0" N
Longitude (NAD 83) 77° 45' 23.0" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 165.51 m / 543.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Analog and Digital
Satellite Arc 18° W to 143° West Longitude
Azimuth Range 110.4° to 253.6°
Corresponding Elevation Angles 14.4° / 10.3°
Antenna Centerline (AGL) 8.84 m / 29.0 ft

Antenna Information

Manufacturer Vertex
Model 15.2 KPC
Gain / Diameter 55.0 dBi / 15.2 m
3-dB / 15-dB Beamwidth 0.34° / 0.70°

Receive

Vertex
15.2 KPC
55.0 dBi / 15.2 m
0.34° / 0.70°

Transmit

Vertex
15.2 KPC
58.4 dBi / 15.2 m
0.22° / 0.44°

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

SEE ATTACHMENT 1
SEE ATTACHMENT 1

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

SEE ATTACHMENT 1
SEE ATTACHMENT 1

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

Emission / Frequency Range (MHz)

Receive 4.0 GHz

SEE ATTACHMENT 1

Transmit 6.1 GHz

SEE ATTACHMENT 1

Max Great Circle Coordination Distance 442.1 km / 274.7 mi
Precipitation Scatter Contour Radius 538.7 km / 334.7 mi

268.0 km / 166.5 mi
181.3 km / 112.6 mi

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Vertex Communications:
Model: 15.2 KPC

4 GHz Gain: 55.0 dBi
6 GHz Gain: 58.4 dBi

Satellite Arc: 18.0 to 143.0 West Longitude

Receive Band: 3700.0 to 4200.0 MHz

Emissions

800KFXD
60M0G1D
81K9G7W – 72M0G7W

Satellite Arc: 18.5 to 65.0 West Longitude

Transmit Band: 6172.0 – 6178.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
800KFXD	0.6	59.0

Satellite Arc: 18.0 to 143.0 West Longitude

Transmit Band: 5925.0 – 6425.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
60M0G1D	-14.2	44.2
81K9G7W to 72M0G7W	-14.2 to -14.2	44.2 to 44.2

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Coordination Values

HAGERSTOWN, MD

Licensee Name: Intelsat License LLC
Latitude (NAD 83): 39° 35' 57.0" N
Longitude (NAD 83): 77° 45' 23.0" W
Ground Elevation (AMSL): 165.51 m / 543.0 ft
Antenna Centerline (AGL): 8.84 m / 29.0 ft
Antenna Model: Vertex 15.2 KPC
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: 0.6 (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	0.26	106.13	-10.00	277.35	-10.00	176.72
5	0.25	104.91	-10.00	279.50	-10.00	178.57
10	0.21	100.07	-10.00	283.98	-10.00	182.36
15	0.27	95.23	-10.00	276.37	-10.00	175.86
20	0.22	90.38	-10.00	283.25	-10.00	181.74
25	0.22	85.53	-10.00	283.24	-10.00	181.74
30	0.22	80.69	-10.00	283.24	-10.00	181.74
35	0.00	75.86	-10.00	285.28	-10.00	183.45
40	0.00	71.03	-10.00	285.28	-10.00	183.45
45	0.00	66.21	-10.00	285.28	-10.00	183.45
50	0.00	61.41	-10.00	285.28	-10.00	183.45
55	0.00	56.62	-10.00	285.28	-10.00	183.45
60	0.00	51.87	-10.00	285.28	-10.00	183.45
65	0.00	47.14	-9.84	286.33	-9.84	184.08
70	0.00	42.47	-8.70	293.68	-8.70	188.45
75	0.00	37.85	-7.45	302.00	-7.45	193.24
80	0.00	33.34	-6.07	311.49	-6.07	198.53
85	0.00	28.96	-4.54	322.93	-4.54	204.35
90	0.00	24.79	-2.86	335.17	-2.86	209.23
95	0.00	20.96	-1.04	348.72	-1.04	216.61
100	0.00	17.70	0.80	362.76	0.80	224.46
105	0.00	15.37	2.33	374.79	2.33	231.34
110	0.00	14.42	3.03	380.30	3.03	234.53
115	0.00	15.12	2.51	376.20	2.51	232.15
120	0.00	17.27	1.07	364.86	1.07	225.65
125	0.00	20.41	-0.75	350.91	-0.75	217.82
130	0.00	23.83	-2.43	338.33	-2.43	210.94
135	0.00	27.11	-3.83	328.09	-3.83	205.45
140	0.00	30.23	-5.01	319.61	-5.01	202.58
145	0.00	33.14	-6.01	311.94	-6.01	198.77
150	0.00	35.82	-6.85	306.10	-6.85	195.55
155	0.00	38.20	-7.55	301.33	-7.55	192.86
160	0.00	40.26	-8.12	297.51	-8.12	190.68
165	0.00	41.93	-8.56	294.59	-8.56	188.99
170	0.00	43.16	-8.88	292.52	-8.88	187.77
175	0.00	43.92	-9.07	291.29	-9.07	187.05
180	0.00	44.18	-9.13	290.88	-9.13	186.80
185	0.00	43.92	-9.07	291.29	-9.07	187.04

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Coordination Values

HAGERSTOWN, MD

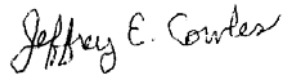
Licensee Name Intelsat License LLC
Latitude (NAD 83) 39° 35' 57.0" N
Longitude (NAD 83) 77° 45' 23.0" W
Ground Elevation (AMSL) 165.51 m / 543.0 ft
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Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -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 0.6 (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	0.00	43.16	-8.88	292.52	-8.88	187.77
195	0.00	41.93	-8.56	294.59	-8.56	188.99
200	0.00	40.26	-8.12	297.51	-8.12	190.68
205	0.00	38.20	-7.55	301.33	-7.55	192.86
210	0.00	35.81	-6.85	306.10	-6.85	195.55
215	0.00	33.14	-6.01	311.94	-6.01	198.77
220	0.43	29.90	-4.89	290.47	-4.89	180.52
225	0.30	26.89	-3.74	315.37	-3.74	197.72
230	0.25	23.65	-2.35	332.41	-2.35	206.53
235	0.30	20.20	-0.63	338.09	-0.63	208.27
240	0.29	16.69	1.44	355.87	1.44	218.31
245	0.34	13.11	4.06	369.72	4.06	224.66
250	0.46	10.45	6.52	375.92	6.52	225.30
255	0.48	9.89	7.12	442.14	7.12	268.00
260	0.39	11.74	5.26	373.04	5.26	225.22
265	0.29	15.09	2.53	364.20	2.53	222.88
270	0.31	19.10	-0.03	341.86	-0.03	210.14
275	0.35	23.47	-2.26	320.26	-2.26	199.33
280	0.27	28.09	-4.21	316.67	-4.21	199.32
285	0.00	32.86	-5.92	313.22	-5.92	199.13
290	0.00	37.61	-7.38	302.48	-7.38	193.51
295	0.00	42.41	-8.69	293.77	-8.69	188.50
300	0.00	47.25	-9.86	286.17	-9.86	183.99
305	0.24	52.08	-10.00	280.04	-10.00	179.03
310	0.20	56.97	-10.00	285.26	-10.00	183.43
315	0.23	61.86	-10.00	281.61	-10.00	180.37
320	0.00	66.78	-10.00	285.28	-10.00	183.45
325	0.00	71.69	-10.00	285.28	-10.00	183.45
330	0.20	76.60	-10.00	284.87	-10.00	183.11
335	0.39	81.51	-10.00	262.15	-10.00	161.52
340	0.31	86.44	-10.00	271.16	-10.00	171.29
345	0.28	91.36	-10.00	275.26	-10.00	174.90
350	0.23	96.28	-10.00	281.53	-10.00	180.29
355	0.35	101.21	-10.00	267.30	-10.00	167.81

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: December 7, 2010