

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**ITT Corporation, Advanced Engineering & Sciences Division
Annapolis Junction, Maryland**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
September 1, 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, based upon the restrictions noted in the Summary of Results (Section 2).

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 most cases.

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 and frequency separation are considered on the interfering paths, sufficient losses exist to negate harmful interference from occurring with the proposed transmit-receive earth station. Further the transmit spectrum will be limited to frequencies 5925.0 to 6077.4 MHz, 6139.1 to 6181.2 MHz, 6213.2 to 6240.5 MHz, 6272.5 to 6359.1 MHz, and 6391.1 to 6425.0 MHz.

Company

Baltimore County of Maryland
MCI Communication Services Company
New Cingular Wireless PCS, LLC – DC
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 July 21, 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
BAY BROADBAND COMMUNICATIONS LLC
Baltimore County of Maryland
Baltimore Gas and Electric Company
CHESTER, COUNTY OF
COLLEGE OF SOUTHERN MARYLAND
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
County of York
DAUPHIN COUNTY EMERGENCY MANAGEMENT
DELAWARE STATE - DTI
Delmarva Power & Light Company
Enoch Pratt Free Library
Exelon Generation Company, L.L.C
Frederick County
Hardy Cellular Telephone Company
International Communications Group, Inc.
King and Queen County
LB Tower Company LLC
Last Mile Inc.
Local Communications Network, Inc.
Loudoun, County of

Company (Continued)

MARYLAND PUBLIC BROADCASTING COMMISSION
MCI Communications Services Inc.
METROPOLITAN AREA NETWORKS, INC.
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
Northern Virginia Electric Cooperative
Open Range Communications
PENNSYLVANIA TURNPIKE COMMISSION
PRINCE WILLIAM COUNTY
PSEG Services Corporation
Peco Energy Company
Prince George's County
RAPPAHANNOCK ELECTRIC COOPERATIVE
SCTF NET
Southern Maryland Electric Cooperative I
State of Maryland, MIEMSS
State of WV DHHR/BPH STECS
Texas Eastern Communications, Inc.
USCOC of Cumberland, Inc.
Verizon Maryland, Inc.
Virginia Broadband, 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
Wireless Strategies, Inc.

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: 09/01/2010
Job Number: 100721COMSJC05

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code ITTADV
Licensee Name ITT Corporation, Advanced Engineering & Sciences

Site Information ANNAPOLIS JUNCTION, MARYLAND

Venue Name
Latitude (NAD 83) 39° 7' 33.6" N
Longitude (NAD 83) 76° 46' 21.7" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 60.05 m / 197.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 24° W to 25° West Longitude
Azimuth Range 115.6° to 116.4°
Corresponding Elevation Angles 19.8° / 20.5°
Antenna Centerline (AGL) 11.28 m / 37.0 ft

Antenna Information

Manufacturer Prodelin
Model 2.4 Meter 1251
Gain / Diameter 38.0 dBi / 2.4 m
3-dB / 15-dB Beamwidth 2.16° / 4.00°

Receive

Prodelin
2.4 Meter 1251
38.0 dBi / 2.4 m
2.16° / 4.00°

Transmit

Prodelin
2.4 Meter 1251
42.0 dBi / 2.4 m
1.76° / 2.55°

Max Available RF Power (dBW/4 kHz) -11.3
(dBW/MHz) 6.7

Maximum EIRP (dBW/4 kHz) 30.7
(dBW/MHz) 48.7

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

250KG7D / 3700.0 - 4200.0

Transmit 6.1 GHz

250KG7D / 5925.0 - 6077.4
250KG7D / 6139.1 - 6181.2
250KG7D / 6213.2 - 6240.5
250KG7D / 6272.5 - 6359.1
250KG7D / 6391.1 - 6425.0

Max Great Circle Coordination Distance 343.4 km / 213.4 mi 169.3 km / 105.2 mi
Precipitation Scatter Contour Radius 504.2 km / 313.2 mi 100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values

ANNAPOLIS JT, MD

Licensee Name ITT Corporation, Advanced Engineering & Sciences
Latitude (NAD 83) 39° 7' 33.6" N
Longitude (NAD 83) 76° 46' 21.7" W
Ground Elevation (AMSL) 60.05 m / 197.0 ft
Antenna Centerline (AGL) 11.28 m / 37.0 ft
Antenna Model Prodelin 2.4 Meter 1251
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 -11.3 (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	114.00	-10.00	285.28	-10.00	139.17
5	0.00	109.35	-10.00	285.28	-10.00	139.17
10	0.40	104.71	-10.00	261.19	-10.00	123.94
15	0.40	100.01	-10.00	261.45	-10.00	124.12
20	0.42	95.30	-10.00	258.44	-10.00	122.03
25	0.43	90.58	-10.00	257.91	-10.00	121.65
30	0.47	85.87	-10.00	253.01	-10.00	118.18
35	0.41	81.16	-10.00	260.22	-10.00	123.27
40	0.36	76.45	-10.00	265.95	-10.00	127.24
45	0.37	71.76	-10.00	263.92	-10.00	125.83
50	0.49	67.07	-10.00	251.39	-10.00	117.03
55	0.39	62.44	-10.00	262.06	-10.00	124.55
60	0.42	57.81	-10.00	258.85	-10.00	122.31
65	0.30	53.27	-10.00	273.22	-10.00	132.17
70	0.28	48.76	-10.00	274.85	-10.00	133.27
75	0.42	44.27	-9.15	263.59	-9.15	124.35
80	0.45	39.92	-8.03	267.09	-8.03	125.04
85	0.60	35.64	-6.80	262.41	-6.80	119.87
90	0.56	31.65	-5.51	273.60	-5.51	125.54
95	0.36	28.05	-4.20	303.58	-4.20	142.39
100	0.29	24.81	-2.86	323.02	-2.86	153.73
105	0.00	22.38	-1.74	343.41	-1.74	169.32
110	0.43	20.15	-0.61	322.00	-0.61	148.30
115	0.41	19.41	-0.20	327.06	-0.20	151.21
120	0.34	19.94	-0.49	334.48	-0.49	157.59
125	0.33	21.54	-1.33	328.76	-1.33	154.94
130	0.00	24.31	-2.64	336.73	-2.64	164.19
135	0.00	27.42	-3.95	327.19	-3.95	159.27
140	0.00	30.88	-5.24	317.97	-5.24	154.62
145	0.27	34.53	-6.46	300.05	-6.46	143.89
150	0.00	38.72	-7.70	300.35	-7.70	146.30
155	0.00	42.93	-8.82	292.90	-8.82	142.74
160	0.00	47.28	-9.87	286.13	-9.87	139.56
165	0.00	51.71	-10.00	285.28	-10.00	139.17
170	0.00	56.21	-10.00	285.28	-10.00	139.17
175	0.00	60.77	-10.00	285.28	-10.00	139.17
180	0.00	65.37	-10.00	285.28	-10.00	139.17
185	0.00	69.99	-10.00	285.28	-10.00	139.17

COMSEARCH

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Coordination Values

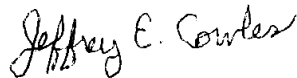
ANNAPOLIS JT, MD

Licensee Name	ITT Corporation, Advanced Engineering & Sciences				
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Antenna Model	Prodelin 2.4 Meter 1251				
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			-11.3 (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	74.64	-10.00	285.28	-10.00	139.17
195	0.00	79.30	-10.00	285.28	-10.00	139.17
200	0.00	83.98	-10.00	285.28	-10.00	139.17
205	0.00	88.66	-10.00	285.28	-10.00	139.17
210	0.00	93.34	-10.00	285.28	-10.00	139.17
215	0.00	98.02	-10.00	285.28	-10.00	139.17
220	0.00	102.69	-10.00	285.28	-10.00	139.17
225	0.00	107.35	-10.00	285.28	-10.00	139.17
230	0.00	111.99	-10.00	285.28	-10.00	139.17
235	0.00	116.60	-10.00	285.28	-10.00	139.17
240	0.00	121.18	-10.00	285.28	-10.00	139.17
245	0.00	125.72	-10.00	285.28	-10.00	139.17
250	0.00	130.19	-10.00	285.28	-10.00	139.17
255	0.00	134.59	-10.00	285.28	-10.00	139.17
260	0.00	138.88	-10.00	285.28	-10.00	139.17
265	0.00	143.03	-10.00	285.28	-10.00	139.17
270	0.23	147.11	-10.00	281.70	-10.00	136.66
275	0.21	150.79	-10.00	283.54	-10.00	137.95
280	0.22	154.08	-10.00	282.50	-10.00	137.22
285	0.30	156.87	-10.00	272.51	-10.00	131.69
290	0.31	158.81	-10.00	271.77	-10.00	131.20
295	0.22	159.63	-10.00	282.58	-10.00	137.28
300	0.31	159.46	-10.00	271.67	-10.00	131.13
305	0.28	158.07	-10.00	275.06	-10.00	133.41
310	0.38	155.85	-10.00	263.49	-10.00	125.54
315	0.38	152.82	-10.00	263.44	-10.00	125.51
320	0.36	149.18	-10.00	266.00	-10.00	127.27
325	0.34	145.24	-10.00	267.64	-10.00	128.39
330	0.35	141.09	-10.00	266.85	-10.00	127.85
335	0.34	136.78	-10.00	267.86	-10.00	128.54
340	0.26	132.34	-10.00	277.58	-10.00	133.85
345	0.28	127.85	-10.00	275.58	-10.00	133.76
350	0.26	123.29	-10.00	277.61	-10.00	133.87
355	0.00	118.63	-10.00	285.28	-10.00	139.17

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
Principal Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Va 20147

DATED: September 1, 2010