

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Intelsat License LLC
HAGERSTOWN, MD
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
March 08, 2017

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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.

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 02/01/2017.

Company

256Q Networks
AB Services LLC
AT&T Communications of Virginia, LLC
AT&T Corp.
AT&T Wireless Services 3 LLC - PA
AWC Networks
Access MLP Operating LLC
Adams County Department of Emergency Svc
Affiniti PA, LLC
Albermarle, County of, Virginia
Allentown SMSA Limited Partnership
Alltel Communications LLC - Western PA
Alltel Communications LLC-E OH WV
American Electric Power Service Corp
Appalachia Engineering Services
Argos Engineering, LLC
Atlantic Broadband (Penn), LLC
Atlantic City Electric Company
Atlantic, County of
Augusta, County of
BLAIR COUNTY 911
Baltimore County of Maryland
Baltimore Gas and Electric Company
Beaver Springs Faith Baptist Church, Inc
Bedford County of
Believe Wireless, LLC
Berks County Department of Emergency Ser
Blue Ridge Carriers
Blueline Communications
CLEARFIELD, COUNTY OF
CNG Transmission Corporation
CROWN COMMUNICATION, INC.
Calvert, County of
Cambria, County of
Capital Communications of America
Caroline County, VA
Carroll, County of
Cellco Partnership - Bridgeville, PA/WV
Cellco Partnership - Southern Virginia
Cellco Partnership- PA Region

Cellco Partnership-WDC/Baltimore
 Cellco Prtnrshp - Phil. Tri-State Rgn
 Centre Communications Inc.
 Centre, County of
 Charles, County of
 Chester, County of
 City of Fredericksburg
 Citynet
 Clinton, County of
 Columbia Gas Transmission, LLC
 Columbia, County
 Commonwealth of Pennsylvania
 Commonwealth of Pennsylvania-Radio Proj.
 Comprehensive Wireless LLC
 Conterra Ultra Broadband, LLC
 Coralinks
 County of Burlington, Public Safety Cntr
 County of Camden
 County of Fayette
 County of Frederick
 County of Lycoming
 County of York
 DAUPHIN COUNTY EMERGENCY MANAGEMENT
 Delaware County (PA) Emergency Services
 Delaware Division of Communications
 Delmarva Broadcasting Company
 Delmarva Power and Light Company
 ECW Wireless, LLC
 Eastern MLG LLC
 Electric Railroad, LLC
 Enoch Pratt Free Library
 Exelon Generation Company, LLC
 FELHC, INC
 Federal Communication Commission
 Frederick County
 Fulton County of (PA)
 Fundamental Broadcasting LLC
 GETWIRELESS.NET
 GREAT SCOTT BROADCASTING
 Garden State Transmissions
 Gloucester, County of
 Greene, County of (PA)
 HUNTINGDON COUNTY, PA
 Hanover, County of
 Hardy Cellular Telephone Company
 Hardy County OEM/E911
 Harrisonburg-Rockingham ECC
 Henrico County
 High Voltage Communications LLC (CFN)
 Indiana, County of
 JEFFERSON COUNTY OF PENNSYLVANIA
 Jackson County West Virginia
 Jefferson Microwave, LLC
 Juniata County Emergency Services
 King and Queen County
 Kryptick Technologies

Lancaster County-Wide Communications
 Limitless Mobile, LLC
 Loudoun, County of
 MGW Networks, LLC
 MVC Research. LLC
 Maryland Public Broadcasting Commission
 Maryland State Highway Administration
 Maryland, State of - Dept.of Info & Tech
 Montgomery County Of
 National Tower Company LLC
 New Cingular Wireless PCS LLC - NJ
 New Cingular Wireless PCS - Maryland
 New Cingular Wireless PCS LLC - DC
 New Cingular Wireless PCS LLC - VA
 New Cingular Wireless PCS LLC - WV,NC,SC
 New Cingular Wireless PCS LLC-DE/NH/RI
 New Cingular Wireless PCS, LLC - PA
 New Jersey Turnpike Authority-Pkwy Div
 New Jersey, State of -NJ Transit
 New Line Networks, LLC
 Norfolk Southern Railway
 Northumberland County DPS/911
 OHIO POWER COMPANY
 Old Dominion LLC
 PA Communications
 PRESTON COUNTY OFFICE OF EMERGENCY MANAG
 PSEG Services Corporation
 Peco Energy Company
 Pennsylvania Turnpike Commission
 Peoples Natural Gas Company LLC
 Pepco Holdings Inc.
 Perry, County of
 Perseus Technology Holdings USA Inc.
 Pittsburgh SMSA Limited Partnership
 Prince George's County
 Prince William, County of
 Radio One Inc
 Rappahannock Electric Cooperative
 Rockbridge Reg. Pub Safety Comm Ctr
 Rural Broadband Network Services LLC
 SCS Networks
 SHENANDOAH VALLEY ELECTRIC COOPERATIVE
 SW Networks
 Shenandoah Personal Communications, LLC
 Somerset, County of
 South Central Task Force (SCTFNET)
 Southern Maryland Electric Cooperative I
 Spotsylvania, County of
 Sprintcom, Inc
 St. Mary's County of (MD)
 Stafford, County of
 State of Maryland, MIEMSS
 T-Mobile License LLC
 Texas Eastern Communications, LLC
 Thought Transmissions, LLC
 Torellco LLC

Transcontinental Gas Pipeline Corp.
US Cellular Operating Company, LLC (WI)
USCOC of Cumberland, Inc.
USCOC of Virginia RSA #3, Inc.
USOC of Pennsylvania RSA No 10 B2 Inc.
Uniti Fiber PEG, LLC
Verizon Maryland, Inc.
Verizon Wireless (VAW) LLC - Maryland
Verizon Wireless (VAW) LLC - W/B/V Mkts
Verizon Wireless (VAW) LLC-Pennsylvania
Verizon Wireless VAW LLC - West Virginia
Verizon Wireless VAW LLC-Southern VA
Virginia RSA 5 Limited Partnership
Virginia Broadband, LLC
Virginia Department of State Police
Virginia Electric & Power Company
WHEELING POWER COMPANY
WV DHHR BPH, Office of EMS, Com. Div.
Washington Gas Light Company
Washington Suburban Sanitary Commission
Washington, County of
Weblin Holdings LLC
Westmoreland, County of
Wicomico County
Wireless Internetnetwork LLC
World Class Wireless, LLC
YAB Mobile
iSignal
xWave Engineering 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: 02/01/2017
Job Number: 170201COMSGE05

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: TEMP04
Licensee Code: INTELS
Licensee Name: Intelsat License LLC

Site Information HAGERSTOWN, MD

Venue Name:
Latitude (NAD 83): 39° 35' 54.0" N
Longitude (NAD 83): 77° 45' 35.0" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 173.74 m / 570.0 ft

Link Information

Satellite Type: Geostationary
Mode: TO - Transmit-Only
Modulation: Digital
Satellite Arc: 6° W to 149° West Longitude
Azimuth Range: 101.9° to 257.8°
Corresponding Elevation Angles: 5.3° / 5.7°
Antenna Centerline (AGL): 5.79 m / 19.0 ft

Antenna Information Transmit - FCC32

Manufacturer: TIW (GD Satcom)
Model: 9 Meter
Gain / Diameter: 53.5 dBi / 9.0 m
3-dB / 15-dB Beamwidth: 0.36° / 0.67°

Max Available RF Power (dBW/4 kHz): 7.2
(dBW/MHz): 31.2

Maximum EIRP (dBW/4 kHz): 60.7
(dBW/MHz): 84.7

Interference Objectives: Long Term: -154.0 dBW/4 kHz 20%
Short Term: -131.0 dBW/4 kHz 0.0025%

Frequency Information Transmit 6.1 GHz

Emission / Frequency Range (MHz): 850KFXD - 1M20FXD / 5853.0 and 6424.5

Max Great Circle Coordination Distance: 507.1 km / 315.0 mi
Precipitation Scatter Contour Radius: 431.6 km / 268.1 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

HAGERSTOWN, MD

Licensee Name Intelsat License LLC
Latitude (NAD 83) 39° 35' 54.0" N
Longitude (NAD 83) 77° 45' 35.0" W
Ground Elevation (AMSL) 173.74 m / 570.0 ft
Antenna Centerline (AGL) 5.79 m / 19.0 ft
Antenna Model TIW 9 meter
Antenna Mode Transmit 6.1 GHz
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%
Max Available RF Power 7.2 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	101.81	-10.00	207.10
5	0.00	96.84	-10.00	207.10
10	0.00	91.86	-10.00	207.10
15	0.00	86.88	-10.00	207.10
20	0.00	81.90	-10.00	207.10
25	0.00	76.92	-10.00	207.10
30	0.00	71.95	-10.00	207.10
35	0.00	66.97	-10.00	207.10
40	0.00	62.00	-10.00	207.10
45	0.00	57.03	-10.00	207.10
50	0.00	52.06	-10.00	207.10
55	0.00	47.09	-9.82	207.79
60	0.00	42.14	-8.62	212.59
65	0.00	37.19	-7.26	218.19
70	0.00	32.26	-5.72	224.84
75	0.00	27.34	-3.92	232.91
80	0.00	22.47	-1.79	243.02
85	0.00	17.65	0.83	255.60
90	0.00	12.98	4.17	274.11
95	0.00	8.66	8.56	301.31
100	0.00	5.61	13.27	507.05
105	0.00	6.15	12.28	371.03
110	0.00	9.60	7.45	294.11
115	0.00	13.27	3.93	272.70
120	0.00	16.89	1.31	258.14
125	0.00	20.41	-0.75	248.15
130	0.00	23.83	-2.43	239.94
135	0.00	27.11	-3.83	233.34
140	0.00	30.23	-5.01	227.97
145	0.00	33.14	-6.01	223.55
150	0.00	35.82	-6.85	219.92
155	0.00	38.20	-7.55	216.96
160	0.00	40.26	-8.12	214.61
165	0.00	41.93	-8.56	212.81
170	0.00	43.16	-8.88	211.54
175	0.00	43.92	-9.07	210.78
180	0.00	44.18	-9.13	210.53
185	0.00	43.92	-9.07	210.78

Earth Station Data Sheet

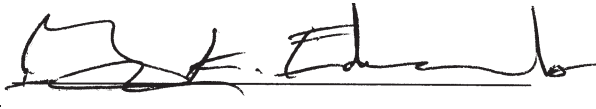
Coordination Values

Licensee Name	Intelsat License LLC		
Latitude (NAD 83)	39° 35' 54.0" N		
Longitude (NAD 83)	77° 45' 35.0" W		
Ground Elevation (AMSL)	173.74 m / 570.0 ft		
Antenna Centerline (AGL)	5.79 m / 19.0 ft		
Antenna Model	TIW 9 meter		
Antenna Mode	Transmit 6.1 GHz		
Interference Objectives: Long Term	-154.0 dBW/4 kHz	20%	
Short Term	-131.0 dBW/4 kHz	0.0025%	
Max Available RF Power	7.2 (dBW/4 kHz)		

			Transmit 6.1 GHz	
	Horizon	Antenna	Horizon	Coordination
Azimuth (°)	Elevation (°)	Discrimination (°)	Gain (dBi)	Distance (km)
190	0.00	43.16	-8.88	211.54
195	0.00	41.93	-8.56	212.81
200	0.00	40.26	-8.12	214.61
205	0.00	38.20	-7.55	216.96
210	0.00	35.81	-6.85	219.92
215	0.00	33.14	-6.01	223.55
220	0.00	30.22	-5.01	227.97
225	0.00	27.11	-3.83	233.34
230	0.00	23.83	-2.43	239.93
235	0.00	20.42	-0.75	248.14
240	0.00	16.89	1.31	258.16
245	0.00	13.28	3.92	272.68
250	0.00	9.59	7.46	294.19
255	0.00	6.33	11.96	378.50
260	0.00	6.11	12.35	489.18
265	0.00	9.18	7.93	297.19
270	0.00	13.46	3.77	271.82
275	0.00	18.11	0.55	254.16
280	0.00	22.90	-2.00	242.02
285	0.00	27.76	-4.09	232.16
290	0.00	32.66	-5.85	224.24
295	0.00	37.59	-7.38	217.70
300	0.00	42.53	-8.72	212.18
305	0.00	47.48	-9.91	207.44
310	0.00	52.44	-10.00	207.10
315	0.00	57.40	-10.00	207.10
320	0.00	62.37	-10.00	207.10
325	0.00	67.34	-10.00	207.10
330	0.00	72.31	-10.00	207.10
335	0.00	77.28	-10.00	207.10
340	0.00	82.26	-10.00	207.10
345	0.00	87.23	-10.00	207.10
350	0.00	92.21	-10.00	207.10
355	0.00	97.18	-10.00	207.10

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: March 08, 2017