

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**SES Americom, Inc.
Mount Airy, Maryland
(Call Sign: E050287)**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
July 11, 2013

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1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the 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 existing transmit-receive earth station.

Company

Airband Communications, Inc.
Baltimore Gas and Electric Company
Clearwire Spectrum Holdings III, LLC
PEG Bandwidth
Sprint Spectrum, LP
State of Maryland, MIEMSS
T-Mobile License LLC

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 May 7, 2013.

Company

256Q Networks
ADAMS COUNTY EMERGENCY MANAGEMENT AGENCY
ALLEGANY COLLEGE OF MARYLAND
ALLEGANY COUNTY GOVERNMENT
ART Licensing Corp.
AT&T COMMUNICATIONS OF MARYLAND INC
AT&T Communications of Virginia, LLC
AT&T Corp.
Aerbender, LLC
Airband Communications Inc
Albermarle, County of, Virginia
Allentown SMSA Limited Partnership
Alltel Communications LLC-Southern VA
Alltel Communications of Petersburg Inc
American Electric Power Service Corp.
Anadarko Petroleum Corporation
Atlantic Broadband (Delmar), LLC
Atlantic Broadband (Penn), LLC
BALTIMORE CITY DEPARTMENT OF PUBLIC WORK
BAY BROADBAND COMMUNICATIONS LLC
BLAIR COUNTY 911
Baltimore County of Maryland
Baltimore Gas and Electric Company
Bedford, County of
Believe Wireless, LLC
Berks, County of
Blaze Broadband
Blue Ridge Carriers
Bucks, County of
Buggs Island Telephone Cooperative, Inc.
CAMDEN COUNTY
CHESTER, COUNTY OF
Cambria, County of
Cape May County Municipal Utilities Auth
Cape May County, MIS Department
Capital Communications of America

Company (Continued)

Cellco Partnership - Bridgeville, PA/WV
Cellco Partnership - Southern Virginia
Cellco Partnership- PA Region
Cellco Partnership-Newark-Dallas Verizon
Cellco Prtnrshp - Phil. Tri-State Rgn
Central Virginia Electric Cooperative
Chesterfield, County of
City of Laurel
City of Ocean City, MD
Clearwire Spectrum Holdings III, LLC
Clearwire Spectrum Holdings LLC
Commonwealth of Pennsylvania-Radio Proj.
Comprehensive Wireless LLC
Conterra Ultra Broadband, LLC
Converge Towers LLC
Coralinks
County of Burlington
County of Lycoming
Cumberland, County of
D&E Communications, Inc.
DAUPHIN COUNTY EMERGENCY MANAGEMENT
Delaware Division of Communications
ECW Wireless, LLC
Eastern Energy Transport LLC
Eduro Networks LLC
Enoch Pratt Free Library
Exelon Generation Company, L.L.C
FELHC, Inc.
FiberTower Network Services Corp.-DIP
First State Communications LLC
Franklin County Dept. of Emergency Servi
Frederick County
Fundamental Broadcasting LLC
GEORGE MASON UNIVERSITY INSTR FNDTION
GETWIRELESS.NET
GRAY TELEVISION LICENSEE, INC (WHSV)
GREATER PHILADELPHIA RADIO INC
Garden State Transmissions
Globecomm Systems, Inc.
Gloucester Township
HENRICO COUNTY
Hanover, County of
Hardy Cellular Telephone Company
Harrisonburg-Rockingham ECC
High Voltage Communications LLC
Huntingdon County of
Jefferson Microwave, LLC
Juniata County Emergency Services
Kent County Levy Court
King George County
Kryptic Technologies

Company (Continued)

LOWER SHORE BROADBAND COOPERATIVE
Lancaster County of
Last Mile Inc.
Lehigh, County of
Local Media TV Philadelphia
Loudoun County Public Schools
Loudoun Wireless LLC
Loudoun, County of
M&T Bank
MB Microwave, LLC
MIT LINCOLN LABORATORY
MVC Research. LLC
Maryland Port Administration
Maryland Public Broadcasting Commission
Maryland State Highway Administration
Maryland, State of - Dept.of Info & Tech
MetroPCS AWS, LLC
Middle East Broadcasting Networks, Inc.
Mifflin County
Millersburg Area School District
Montgomery, County of
NOROC Broadband LLC
National Radio Astronomy Observatory
National Tower Company
Nelson, County of
Netrepid, Inc.
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 of PA LLC
New Cingular Wireless PCS, LLC - PA
New Jersey State Dept of Transportation
New Jersey State Police
New Jersey Turnpike Authority-Pkwy Div
New Jersey, State of -NJ Transit
New Kent County
Newgig Networks, LLC
Nextlink Wireless, LLC
Norfolk Southern Railway
Northern Virginia Electric Cooperative
PEG Bandwidth
PENNSYLVANIA MICROWAVE NETWORK INC.
PENNSYLVANIA TURNPIKE COMMISSION
Page County Broadband Authority
Peco Energy Company
PhillieCo, L.P.
Philly Sports Wireless
Pitt Power

Company (Continued)

Pontis Communications, Inc.
Port Networks, LLC
Public Broadcasting Service
QUALCOMM INC.
RADIO ONE, INC - MD
RAYTHEON COMPANY
RCTC Wholesale Corporation
Radio One Inc, LLC
RapidDSL & Wireless, Inc.
Roadstar Internet, Inc.
Rural Broadband Network Services LLC
SCHUYLKILL, COUNTY OF
SCTF NET
SECOM NET
SOMERSET COUNTY
SOUTHEASTERN PENNSYLVANIA TRANSIT AUTH
SW Networks
Salem County Information Technology
Shenandoah Personal Communications, LLC
Somerset County, Maryland
Southern Maryland Electric Cooperative I
Sprint Spectrum, LP
Sprintcom, Inc
Stafford, County of
Standard Backhaul Communications LLC
State of Maryland, MIEMSS
State of WV DHHR/BPH STECS
Sussex County Council
Synergy Telecommunications Corp
T-Mobile License LLC
THE HERSHEY COMPANY
TOWNSQUARE MEDIA ATLANTIC CITY LICENSE,
TRF SERVICES LLC
TWO WAY RADIO INC.
Telecom Transport Management, Inc
Thought Transmissions, LLC
Turtle Networks 6386
Turtle Networks 6423
Turtle Networks 6444
Turtle Networks 6466
Turtle Networks 6467
USCOC of Cumberland, Inc.
Union, County Of
Valley Rural Electric Cooperative, Inc.
Velox Networks LLC
Verizon New Jersey, Inc.
Verizon Virginia, Inc.
Verizon Wireless (VAW) LLC - Maryland
Verizon Wireless (VAW) LLC - W/B/V Mkts
Verizon Wireless (VAW) LLC-Pennsylvania
Verizon Wireless LLC - West Virginia
Verizon Wireless VAW LLC-Southern VA

Company (Continued)

Virginia Broadband, LLC
Virginia Electric & Power Company
Virginia PCS Alliance, L.C.
Virginia Tech Foundation , Inc.
WASHINGTON COUNTY BOARD OF EDUCATION
WEST VIRGINIA RADIO CORPORATION
WHYY, INC.
WICOMICO BOARD OF EDUCATION
Warrenton Fauquier Joint Communications
Washington Gas Light Company
Washington Suburban Sanitary Commission
West Virginia PCS Alliance, L.C.
Western PA Internet Access, Inc.
Wireless Internet Work II.
Wireless Internetwork LLC
World Class Wireless LLC
York County Dept of Emergency Services
Zen Networks, Inc
iSignal

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: 07/11/2013
Job Number: 130507COMSJC03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E050287
Licensee Code P3210
Licensee Name SES Americom, Inc.

Site Information MOUNT AIRY, MARYLAND

Venue Name
Latitude (NAD 83) 39° 22' 37.1" N
Longitude (NAD 83) 77° 4' 49.1" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 198.12 m / 650.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Analog and Digital
Satellite Arc 10° W to 145° West Longitude
Azimuth Range 105.0° to 255.6°
Corresponding Elevation Angles 8.9° / 8.3°
Antenna Centerline (AGL) 11.89 m / 39.0 ft

Antenna Information

	Receive	Transmit
Manufacturer	Vertex	Vertex
Model	13.1 Meter KPK	13.1 Meter KPK
Gain / Diameter	61.5 dBi / 13.1 m	63.5 dBi / 13.1 m
3-dB / 15-dB Beamwidth	0.10° / 0.26°	0.11° / 0.22°

Max Available RF Power	(dBW/4 kHz)	-8.0
	(dBW/MHz)	16.0

Maximum EIRP	(dBW/4 kHz)	55.5
	(dBW/MHz)	79.5

Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%

Frequency Information

	Receive 11.0 GHz	Transmit 14.0 GHz
Emission / Frequency Range (MHz)	NON / 10950.0 - 11200.0	NON / 14000.0 - 14500.0
	1M00F9D / 10950.0 - 11200.0	1M00F9D / 14000.0 - 14500.0
	100KD7W - 72M0D7W / 10950.0 - 11200.0	100KD7W - 72M0D7W / 14000.0 - 14500.0
	100KG7W - 72M0G7W / 10950.0 - 11200.0	100KG7W - 72M0G7W / 14000.0 - 14500.0
	NON / 11450.0 - 12200.0	
	1M00F9D / 11450.0 - 12200.0	
	100KD7W - 72M0D7W / 11450.0 - 12200.0	
	100KG7W - 72M0G7W / 11450.0 - 12200.0	

Max Great Circle Coordination Distance	456.0 km / 283.3 mi	244.4 km / 151.9 mi
Precipitation Scatter Contour Radius	551.4 km / 342.6 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

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Coordination Values

MOUNT AIRY, MD

Licensee Name SES Americom, Inc.
Latitude (NAD 83) 39° 22' 37.1" N
Longitude (NAD 83) 77° 4' 49.1" W
Ground Elevation (AMSL) 198.12 m / 650.0 ft
Antenna Centerline (AGL) 11.89 m / 39.0 ft
Antenna Model Vertex 13.1 Meter KPK
Antenna Mode Receive 11.0 GHz Transmit 14.0 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -151.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -128.0 dBW/4 kHz 0.0025%
Max Available RF Power -8.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.47	104.30	-10.00	207.10	-10.00	110.28
5	0.42	99.91	-10.00	211.39	-10.00	114.15
10	0.33	94.96	-10.00	219.22	-10.00	120.97
15	0.37	90.02	-10.00	215.00	-10.00	117.32
20	0.41	85.07	-10.00	211.63	-10.00	114.36
25	0.63	80.12	-10.00	200.47	-10.00	102.02
30	0.77	75.17	-10.00	193.52	-10.00	100.00
35	0.70	70.23	-10.00	197.07	-10.00	100.00
40	0.68	65.29	-10.00	198.21	-10.00	100.02
45	0.66	60.36	-10.00	199.28	-10.00	100.96
50	0.88	55.41	-10.00	187.68	-10.00	100.00
55	0.58	50.52	-10.00	202.83	-10.00	104.15
60	0.68	45.61	-9.48	200.01	-9.48	101.04
65	0.67	40.72	-8.25	203.25	-8.25	104.82
70	0.64	35.86	-6.87	210.43	-6.87	109.83
75	0.60	31.05	-5.30	218.79	-5.30	115.35
80	0.46	26.33	-3.51	236.55	-3.51	128.20
85	0.38	21.70	-1.41	255.03	-1.41	139.65
90	0.34	17.25	1.08	272.08	1.08	151.55
95	0.27	13.21	3.98	295.65	3.98	170.98
100	0.32	9.96	7.05	306.99	7.05	178.52
105	0.00	8.93	8.23	456.02	8.23	244.45
110	0.00	10.21	6.77	319.51	6.77	189.18
115	0.36	13.13	4.05	286.56	4.05	160.45
120	0.50	16.65	1.47	257.97	1.47	138.15
125	0.00	20.53	-0.81	276.47	-0.81	158.90
130	0.00	23.96	-2.49	267.56	-2.49	152.83
135	0.00	27.26	-3.89	260.36	-3.89	148.03
140	0.00	30.39	-5.07	254.47	-5.07	144.17
145	0.00	33.32	-6.07	249.59	-6.07	141.02
150	0.00	36.01	-6.91	245.56	-6.91	138.46
155	0.00	38.41	-7.61	242.14	-7.61	136.40
160	0.22	40.28	-8.13	237.66	-8.13	133.14
165	0.21	41.96	-8.57	236.28	-8.57	132.45
170	0.23	43.18	-8.88	233.01	-8.88	130.07
175	0.47	43.70	-9.01	210.94	-9.01	112.72
180	0.60	43.83	-9.04	203.59	-9.04	106.03

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Ground Elevation (AMSL)	198.12 m / 650.0 ft			
Antenna Centerline (AGL)	11.89 m / 39.0 ft			
Antenna Model	Vertex 13.1 Meter KPK			
Antenna Mode	Receive 11.0 GHz		Transmit 14.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power			-8.0 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
185	0.51	43.66	-9.00	207.67	-9.00	109.75
190	0.39	43.02	-8.84	218.26	-8.84	118.96
195	0.49	41.71	-8.50	211.49	-8.50	112.65
200	0.41	40.12	-8.08	220.25	-8.08	119.86
205	0.32	38.14	-7.53	230.97	-7.53	128.26
210	0.44	35.65	-6.80	222.41	-6.80	120.28
215	0.25	33.12	-6.00	244.56	-6.00	136.50
220	0.27	30.18	-4.99	247.80	-4.99	138.08
225	0.23	27.09	-3.82	257.89	-3.82	145.62
230	0.38	23.70	-2.37	249.84	-2.37	136.42
235	0.51	20.18	-0.62	246.30	-0.62	131.18
240	0.40	16.72	1.42	267.82	1.42	147.02
245	0.38	13.11	4.06	284.34	4.06	158.25
250	0.38	9.66	7.38	301.71	7.38	173.35
255	0.31	7.99	9.43	446.59	9.43	238.01
260	0.40	9.04	8.10	304.42	8.10	174.46
265	0.39	12.28	4.77	287.81	4.77	160.36
270	0.35	16.43	1.61	274.02	1.61	152.52
275	0.53	20.87	-0.99	243.35	-0.99	130.61
280	0.47	25.58	-3.20	237.04	-3.20	128.22
285	0.47	30.36	-5.06	227.80	-5.06	122.78
290	0.37	35.22	-6.67	230.29	-6.67	126.75
295	0.37	40.09	-8.08	223.92	-8.08	122.97
300	0.36	44.99	-9.33	219.24	-9.33	120.31
305	0.23	49.92	-10.00	228.68	-10.00	128.87
310	0.47	54.81	-10.00	206.51	-10.00	109.74
315	0.64	59.73	-10.00	200.02	-10.00	101.62
320	0.66	64.68	-10.00	199.09	-10.00	100.79
325	0.85	69.62	-10.00	189.54	-10.00	100.00
330	1.08	74.56	-10.00	179.11	-10.00	100.00
335	1.16	79.52	-10.00	176.40	-10.00	100.00
340	1.03	84.48	-10.00	180.57	-10.00	100.00
345	0.78	89.44	-10.00	193.28	-10.00	100.00
350	0.58	94.39	-10.00	202.84	-10.00	104.16
355	0.40	99.34	-10.00	212.92	-10.00	115.49

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: July 11, 2013