

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**SES Americom, Inc.
Bristow, Virginia**

Satellite Earth Station

Prepared By:
COMSEARCH

19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
February 3, 2011

TABLE OF CONTENTS

1. CONCLUSIONS.....	3
2. SUMMARY OF RESULTS.....	4
3. SUPPLEMENTAL SHOWING	5
4. EARTH STATION COORDINATION DATA	9
5. CERTIFICATION	15

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

None

No 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 January 4, 2011.

Company

ACCELACOM-BALTIMORE LLC
ALLEGANY COLLEGE OF MARYLAND
ART Licensing Corp.
AT&T COMMUNICATIONS OF MARYLAND INC
AT&T COMMUNICATIONS OF VIRGINIA INC
AT&T CORP
Airband Communications Inc
Albermarle, County of, Virginia
Allegheny Power Service Corporation
Alltel Communications of Virginia #1 LLC
Alltel Communications of Virginia, Inc.
Atlantic Broadband (Delmar), LLC
Atlantic Broadband (Penn), LLC
BALTIMORE CITY DEPARTMENT OF PUBLIC WORK
BAY BROADBAND COMMUNICATIONS LLC
BEDFORD COUNTY 911
Baltimore County of Maryland
Baltimore Gas and Electric Company
Believe Wireless, LLC
Berks, County of
Blaze Broadband
CHESTER, COUNTY OF
COMMONWEALTH OF PENNSYLVANIA,RADIO PROJ.
COUNTY OF DINWIDDIE
Cambria, County of
Cape May County Municipal Utilities Auth
Cape May County, MIS Department
Cellco Partnership - Bridgeville, PA
Cellco Partnership - Southern Virginia
Cellco Partnership- PA Region
Cellco Prtnrshp - Phil. Tri-State Rgn
Chesterfield, County of
City of Hampton, Virginia
City of Laurel
City of Ocean City, MD

Company (Continued)

Clearwire Spectrum Holdings II, LLC
Clearwire Spectrum Holdings III, LLC
Clearwire Spectrum Holdings LLC
Conterra Ultra Broadband, LLC
County of Nelson
County of Stafford
Cricket Communications, Inc
Cumberland, County of
D&E Communications, Inc.
DELAWARE STATE - DTI
Eduro Networks LLC
Enoch Pratt Free Library
Exelon Generation Company, L.L.C
FiberTower Network Services Corp.
Franklin County Dept. of Emergency Servi
Frederick County
GEORGE MASON UNIVERSITY INSTR FNDTION
Gannett Company, Inc.
Globecom Systems, Inc.
HANOVER COUNTY
HENRICO COUNTY
Hampton Roads Planning District Commissi
Hardy Cellular Telephone Company
Harrisonburg-Rockingham ECC
Huntingdon County of
International Communications Group, Inc.
Isle of Wight, County of
John Hopkins University
PENNSYLVANIA COMMONWEALTH MEDIA SERVICES
JUNIATA COUNTY OF
Kent County Levy Court
King George County
LANCASTER COUNTY OF
LOWER SHORE BROADBAND COOPERATIVE
Last Mile Inc.
Loudoun County Public Schools
Loudoun Wireless LLC
Loudoun, County of
M&T Bank
METROPOLITAN AREA NETWORKS, INC.
MIT LINCOLN LABORATORY
Maryland Port Administration
Maryland Public Broadcasting Commission
Maryland State Highway Administration
Maryland, State of - Budget & Management
Middle East Broadcasting Networks, Inc.
Mifflin County
Montgomery, County of
NOROC Broadband LLC
National Radio Astronomy Observatory
Netrepid, Inc.

Company (Continued)

New Cingular Wireless PCS - VA/DC/MD
New Cingular Wireless PCS LLC - DC
New Cingular Wireless PCS, LLC - PA
New Cingular Wireless PCS, LLC - WV/VA
New Jersey Turnpike Authority
New Jersey Turnpike Authority-Pkwy Div
New Kent County
Nextlink Wireless, Inc
Northern Virginia Electric Cooperative
Open Range Communications
PENNSYLVANIA MICROWAVE NETWORK INC.
PENNSYLVANIA TURNPIKE COMMISSION
Petersburg Cellular Partnership
Petersburg Police Department
Pontis Communications, Inc.
Port Networks, LLC
Public Broadcasting Service
RAYTHEON COMPANY
RCTC Wholesale Corporation - Verizon
RapidDSL & Wireless, Inc.
Roadstar Internet, Inc.
Rural Broadband Network Services LLC
SCTF NET
SECOM NET
SOMERSET COUNTY
Salem County Information Technology
Shenandoah Personal Communications Co
Somerset County, Maryland
State of Maryland, MIEMSS
State of WV DHHR/BPH STECS
Synergy Telecommunications Corp
THE HERSHEY COMPANY
Telecom Transport Management, Inc
UNIVERSITY OF MARYLAND
USCOC of Cumberland, Inc.
USCOC of Virginia RSA #2, Inc.
USCOC of Virginia RSA #3, Inc.
Verizon New Jersey, Inc.
Verizon Virginia, Inc.
Virginia Broadband, LLC
Virginia Department of State Police
Virginia Electric & Power Company
Virginia RSA #7, Inc.
WASHINGTON SUBURBAN SANITARY COMMISSION
WEST VIRGINIA RADIO CORPORATION
WICOMICO BOARD OF EDUCATION
Warrenton Fauquier Joint Communications
Washington Gas Light Company
Western PA Internet Access, Inc.
York County
York County Dept of Emergency Services
ACC License, LLC

Company (Continued)

American Broadcasting Companies, Inc.
Antietam Cable TV
C-SPAN
CBS Broadcasting Inc
CBS Corporation
COMCAST CABLEVISION OF THE DISTRICT LLC
COMMONWEALTH PUBLIC BROADCASTING
CTVN HARRISBURG, LLC
Comcast Cable Communications (Virginia)
Cox Communications - Northern VA
Delmarva Broadcast Service
Detroit Free Press, Inc.
ENTRAVISION HOLDINGS, LLC
F CORPORATION
GEORGE MASON UNIVERSITY INSTR FNDTION
Gans Communications, L.P.
Gray Television Licensee, Inc (WCAV)
HOWARD UNIVERSITY TELEVISION - (WHUT-TV)
Hampton Roads Educational Telecommunicat
JLA MEDIA AND PUBLICATIONS, LLC
LIBERTY UNIVERSITY
MEDIA GENERAL COMMUNICATIONS HOLDINGS, L
Maryland Public Broadcasting Commission
Multimedia Holdings Corporation
NATIONAL CABLE SATELLITE CORPORATION
NBC TELEMUNDO LICENSE CO.
Newport Television LLC
Pacific and Southern Company, Inc.
Pennsylvania Educational Comm Systems
SHENANDOAH VALLEY EDUCATIONAL TV CORP
WBAL HEARST-ARGYLE TV, INC. (CA CORP.)
WDBJ Television, Inc
WDCW BROADCASTING, INC.
WEST VIRGINIA EDUCATIONAL BROADCASTING
WEST VIRGINIA MEDIA HOLDINGS, LLC
WGAL Hearst- Argyle Television, Inc
WHYY, INC
WITF Inc.
WRLH
WWBT, Inc.
Young Broadcasting-WRIC-TV (PTP) DIP

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: 02/02/2011
Job Number: 110104COMSJC06

Administrative Information

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

Site Information BRISTOW, VIRGINIA

Venue Name
Latitude (NAD 83) 38° 47' 0.6" N
Longitude (NAD 83) 77° 34' 25.4" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 86.0 m / 282.2 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 10° W to 144° West Longitude
Azimuth Range 104.5° to 254.7°
Corresponding Elevation Angles 8.7° / 9.6°
Antenna Centerline (AGL) 7.62 m / 25.0 ft

Antenna Information

Receive
Manufacturer ViaSat
Model 8016A
Gain / Diameter 61.7 dBi / 11.3 m
3-dB / 15-dB Beamwidth 0.14° / 0.27°

Transmit

ViaSat
8016A
62.8 dBi / 11.3 m
0.12° / 0.23°

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%

-151.0 dBW/4 kHz 20%
-128.0 dBW/4 kHz 0.0025%

Frequency Information

Emission / Frequency Range (MHz)

Receive 11.0 GHz

SEE ATTACHMENT 1

Transmit 14.0 GHz

SEE ATTACHMENT 1

Max Great Circle Coordination Distance
Precipitation Scatter Contour Radius

419.1 km / 260.4 mi
545.9 km / 339.2 mi

271.9 km / 169.0 mi
165.1 km / 102.6 mi

COMSEARCH

Earth Station Data Sheet

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

ATTACHMENT 1

Page 1 of 2

SES Americom
Antenna: ViaSat 11.3 Meter
Model: 8016A

11 GHz Gain: 61.7 dBi

14 GHz Gain: 62.8 dBi

Modulation: Digital

Satellite Arc: 10.0° to 144.0° West Longitude

Frequencies:

Receive Band: 10950.0 – 11200.0 MHz
11450.0 – 12200.0 MHz
12250.0 – 12750.0 MHz

Emissions: 500KG7W – 77M0G7W
500KD7W – 77M0D7W

Transmit Band: 13750.0 – 14000.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
500KG7W to 77M0G7W	-14.0 to -20.6	48.8 to 42.2
500KD7W to 77M0D7W	-14.0 to -20.6	48.8 to 42.2

Transmit Band: 14000.0 - 14005.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
1M00G7D	0.2	63.0

COMSEARCH

Earth Station Data Sheet

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

ATTACHMENT 1

Page 2 of 2

Transmit Band: 14000.0 – 14500.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
500KG7W to 77M0G7W	-14.0 to -15.8	48.8 to 47.0
500KD7W to 77M0D7W	-14.0 to -15.8	48.8 to 47.0

Transmit Band: 14495.0 – 14500.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
1M00G7D	0.2	63.0

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

BRISTOW, VA

Licensee Name SES Americom, Inc.
Latitude (NAD 83) 38° 47' 0.6" N
Longitude (NAD 83) 77° 34' 25.4" W
Ground Elevation (AMSL) 86.0 m / 282.2 ft
Antenna Centerline (AGL) 7.62 m / 25.0 ft
Antenna Model ViaSat 8016A
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 0.2 (dBW/4 kHz)

Azimuth (°)	Receive 11.0 GHz		Transmit 14.0 GHz			
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.59	104.35	-10.00	202.57	-10.00	125.68
5	0.71	99.40	-10.00	196.76	-10.00	120.43
10	0.72	94.45	-10.00	196.31	-10.00	120.03
15	0.70	89.50	-10.00	197.35	-10.00	120.95
20	0.50	84.55	-10.00	204.52	-10.00	129.73
25	0.53	79.60	-10.00	205.31	-10.00	128.24
30	0.41	74.66	-10.00	211.96	-10.00	135.53
35	0.21	69.73	-10.00	230.47	-10.00	154.33
40	0.27	64.79	-10.00	224.78	-10.00	148.39
45	0.41	59.85	-10.00	212.20	-10.00	135.77
50	0.29	54.93	-10.00	222.40	-10.00	145.95
55	0.00	50.06	-10.00	231.37	-10.00	155.28
60	0.00	45.16	-9.37	234.14	-9.37	157.57
65	0.00	40.29	-8.13	239.74	-8.13	163.72
70	0.00	35.45	-6.74	246.37	-6.74	169.00
75	0.00	30.64	-5.16	254.02	-5.16	175.01
80	0.00	25.91	-3.34	263.18	-3.34	181.94
85	0.00	21.28	-1.20	274.38	-1.20	190.05
90	0.00	16.86	1.33	288.28	1.33	199.66
95	0.00	12.85	4.27	302.64	4.27	210.21
100	0.25	9.56	7.48	317.84	7.48	218.27
105	0.39	8.33	8.98	419.13	8.98	271.94
110	0.60	9.78	7.24	284.89	7.24	190.20
115	0.63	13.18	4.00	264.31	4.00	174.67
120	0.65	16.84	1.34	249.03	1.34	160.76
125	0.70	20.36	-0.72	235.37	-0.72	149.16
130	0.83	23.73	-2.38	220.48	-2.38	136.20
135	0.98	26.94	-3.76	207.23	-3.76	126.53
140	0.79	30.23	-5.01	210.69	-5.01	129.70
145	0.75	33.21	-6.03	208.29	-6.03	129.73
150	0.46	36.15	-6.95	220.75	-6.95	141.25
155	0.53	38.51	-7.64	212.28	-7.64	133.69
160	0.36	40.75	-8.25	223.60	-8.25	145.43
165	0.26	42.53	-8.72	230.76	-8.72	153.31
170	0.27	43.78	-9.03	228.48	-9.03	151.25
175	0.31	44.52	-9.21	223.97	-9.21	146.78
180	0.00	45.09	-9.35	234.22	-9.35	157.64
185	0.00	44.83	-9.29	234.51	-9.29	157.87

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

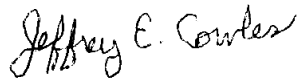
BRISTOW, VA

Licensee Name SES Americom, Inc.
Latitude (NAD 83) 38° 47' 0.6" N
Longitude (NAD 83) 77° 34' 25.4" W
Ground Elevation (AMSL) 86.0 m / 282.2 ft
Antenna Centerline (AGL) 7.62 m / 25.0 ft
Antenna Model ViaSat 8016A
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 0.2 (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)
190	0.00	44.04	-9.10	235.36	-9.10	158.58
195	0.00	42.77	-8.78	236.79	-8.78	159.76
200	0.00	41.06	-8.34	238.80	-8.34	161.43
205	0.00	38.96	-7.77	241.42	-7.77	165.10
210	0.00	36.52	-7.06	244.84	-7.06	167.77
215	0.00	33.79	-6.22	248.85	-6.22	170.98
220	0.00	30.82	-5.22	253.72	-5.22	174.78
225	0.00	27.65	-4.04	259.58	-4.04	179.25
230	0.00	24.31	-2.65	266.74	-2.65	184.55
235	0.00	20.85	-0.98	275.58	-0.98	190.90
240	0.31	17.05	1.21	275.27	1.21	188.05
245	0.36	13.37	3.85	285.99	3.85	194.77
250	0.26	10.44	6.53	310.69	6.53	213.97
255	0.32	9.27	7.82	413.22	7.82	269.25
260	0.36	10.63	6.34	297.90	6.34	203.98
265	0.44	13.73	3.55	275.49	3.55	185.63
270	0.44	17.76	0.76	260.04	0.76	174.00
275	0.47	22.16	-1.64	244.66	-1.64	159.50
280	0.44	26.79	-3.70	237.21	-3.70	154.27
285	0.46	31.51	-5.46	226.85	-5.46	145.74
290	0.48	36.30	-7.00	218.72	-7.00	139.29
295	0.47	41.14	-8.36	213.48	-8.36	135.51
300	0.49	46.00	-9.57	207.09	-9.57	130.52
305	0.47	50.89	-10.00	206.81	-10.00	130.62
310	0.49	55.79	-10.00	205.15	-10.00	130.32
315	0.43	60.70	-10.00	210.20	-10.00	133.83
320	0.46	65.62	-10.00	207.58	-10.00	131.35
325	0.47	70.55	-10.00	207.15	-10.00	130.95
330	0.47	75.48	-10.00	206.87	-10.00	130.67
335	0.50	80.41	-10.00	204.80	-10.00	130.00
340	0.47	85.35	-10.00	207.21	-10.00	131.00
345	0.45	90.29	-10.00	208.33	-10.00	132.06
350	0.58	95.22	-10.00	203.17	-10.00	126.23
355	0.47	100.16	-10.00	206.74	-10.00	130.56

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: February 3, 2011