

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
July 14, 2012

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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

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.

Expedited coordination data for this earth station was emailed and sent to the below listed carriers with a letter dated June 20, 2012.

Company

ALLEGANY COLLEGE OF MARYLAND
ALLEGANY COUNTY GOVERNMENT
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
Alltel Communications LLC-Southern VA
Alltel Communications of Petersburg Inc
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
Buggs Island Telephone Cooperative, Inc.
CHESTER, COUNTY OF
Cambria, County of
Cape May County Municipal Utilities Auth
Cape May County, MIS Department
Capital Communications of America
Cellco Partnership - Bridgeville, PA/WV
Cellco Partnership - Southern Virginia
Cellco Partnership- PA Region
Cellco Prtnrshp - Phil. Tri-State Rgn
Central Virginia Electric Cooperative
Chesterfield, County of

Company (Continued)

City of Hampton, Virginia
City of Laurel
City of Ocean City, MD
Clearwire Spectrum Holdings II, LLC
Clearwire Spectrum Holdings III, LLC
Clearwire Spectrum Holdings LLC
Commonwealth of Pennsylvania-Radio Proj.
Comprehensive Wireless LLC
Conterra Ultra Broadband, LLC
County of Nelson
County of Stafford
Cumberland, County of
D&E Communications, Inc.
DAUPHIN COUNTY EMERGENCY MANAGEMENT
DELAWARE STATE - DTI
Dinwiddie, County of
ECW Wireless, LLC
Eduro Networks LLC
Enoch Pratt Free Library
Exelon Generation Company, L.L.C
FEDERAL AVIATION ADMINISTRATION
FELHC, Inc.
FiberTower Network Services Corp.
First State Communications LLC
Franklin County Dept. of Emergency Servi
Frederick County
Fundamental Broadcasting LLC
GEORGE MASON UNIVERSITY INSTR FNCTION
Garden State Transmissions
Globecom Systems, Inc.
Gray Television Licensee, Inc (WCAV)
HENRICO COUNTY
Hampton Roads Planning District Commissi
Hanover, County of
Hardy Cellular Telephone Company
Harrisonburg-Rockingham ECC
Huntingdon County of
Juniata County Emergency Services
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 - Dept.of Info & Tech

Company (Continued)

Middle East Broadcasting Networks, Inc.
Mifflin County
Millersburg Area School District
Montgomery, County of
NEW JERSEY STATE DEPT OF TRANSPORTATION
NOROC Broadband LLC
National Radio Astronomy Observatory
Netrepid, Inc.
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 State Police
New Jersey Turnpike Authority-Pkwy Div
New Kent County
Nextlink Wireless, LLC
Norfolk Southern Railway
Northern Virginia Electric Cooperative
PENNSYLVANIA MICROWAVE NETWORK INC.
PENNSYLVANIA TURNPIKE COMMISSION
Peco Energy Company
Petersburg Cellular Partnership
Petersburg Police Department
Pontis Communications, Inc.
Port Networks, LLC
Public Broadcasting Service
RADIO ONE, INC - MD
RAYTHEON COMPANY
RCTC Wholesale Corporation
Radio One, Inc
RapidDSL & Wireless, Inc.
Roadstar Internet, Inc.
Rural Broadband Network Services LLC
SCTF NET
SECOM NET
SOMERSET COUNTY
SW Networks
Salem County Information Technology
Shenandoah Personal Communications Co
Shentel
Somerset County, Maryland
Sprint Spectrum, LP
State of Maryland, MIEMSS
State of WV DHHR/BPH STECS
Sussex County Council
Synergy Telecommunications Corp
T-Mobile License LLC
THE HERSHEY COMPANY
Telecom Transport Management, Inc
Thought Transmissions, LLC

Company (Continued)

UNIVERSITY OF MARYLAND
USCOC of Cumberland, Inc.
USCOC of Virginia RSA #2, Inc.
USCOC of Virginia RSA #3, Inc.
Verizon Maryland, Inc.
Verizon New Jersey, Inc.
Verizon Virginia, Inc.
Verizon Wireless VAW LLC-Southern VA
Virginia Broadband, LLC
Virginia Department of State Police
Virginia Electric & Power Company
Virginia RSA #7, Inc.
Virginia Tech Foundation , Inc.
WASHINGTON SUBURBAN SANITARY COMMISSION
WEST VIRGINIA RADIO CORPORATION
WICOMICO BOARD OF EDUCATION
Warrenton Fauquier Joint Communications
Washington Gas Light Company
West Virginia PCS Alliance, L.C.
Western PA Internet Access, Inc.
World Class Wireless LLC
York County
York County Dept of Emergency Services
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: 07/14/2012
Job Number: 120620COMSJC12

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' 3.3" N
Longitude (NAD 83) 77° 34' 22.6" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 87.48 m / 287.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Analog and Digital
Satellite Arc 10° W to 139° West Longitude
Azimuth Range 104.5° to 251.2°
Corresponding Elevation Angles 8.7° / 13.4°
Antenna Centerline (AGL) 7.32 m / 24.0 ft

Antenna Information

	Receive	Transmit
Manufacturer	GD SATCOM	GD SATCOM
Model	11 Meter	11 Meter
Gain / Diameter	60.3 dBi / 11.0 m	62.0 dBi / 11.0 m
3-dB / 15-dB Beamwidth	0.15° / 0.32°	0.13° / 0.27°

100KNON, 1M00F8D, 500KG7W to 77M0G7D

Max Available RF Power	(dBW/4 kHz)	-8.0	-8.0	-14.0	-16.0
	(dBW/MHz)	6.0	16.0	7.0	8.0
Maximum EIRP	(dBW/4 kHz)	54.0	54.0	48.0	46.0
	(dBW/MHz)	68.0	78.0	69.0	70.0
	(dBW)	68.0	78.0	69.0	88.8
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)	100KNON / 10950.0 - 11200.0	100KNON / 13750.0 - 14500.0
	1M00F8D / 10950.0 - 11200.0	1M00F8D / 13750.0 - 14500.0
	500KG7W - 77M0G7W / 10950.0 - 11200.0	500KG7W - 77M0G7W / 13750.0 - 14500.0
	100KNON / 11450.0 - 12200.0	
	1M00F8D / 11450.0 - 12200.0	
	500KG7W - 77M0G7W / 11450.0 - 12200.0	

Max Great Circle Coordination Distance	424.4 km / 263.7 mi	229.6 km / 142.7 mi
Precipitation Scatter Contour Radius	545.9 km / 339.2 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

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Coordination Values

BRISTOW, VA

Licensee Name SES Americom, Inc.
Latitude (NAD 83) 38° 47' 3.3" N
Longitude (NAD 83) 77° 34' 22.6" W
Ground Elevation (AMSL) 87.48 m / 287.0 ft
Antenna Centerline (AGL) 7.32 m / 24.0 ft
Antenna Model GD SATCOM Technologies 11 Meter
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	0.62	104.35	-10.00	200.85	-10.00	102.36
5	0.81	99.41	-10.00	191.42	-10.00	100.00
10	0.78	94.45	-10.00	193.20	-10.00	100.00
15	0.57	89.50	-10.00	203.28	-10.00	104.57
20	0.57	84.55	-10.00	203.42	-10.00	104.69
25	0.43	79.61	-10.00	210.66	-10.00	113.49
30	0.35	74.67	-10.00	217.67	-10.00	119.63
35	0.22	69.73	-10.00	229.87	-10.00	129.84
40	0.22	64.80	-10.00	228.92	-10.00	129.06
45	0.39	59.85	-10.00	214.09	-10.00	116.53
50	0.00	54.97	-10.00	231.37	-10.00	129.81
55	0.00	50.06	-10.00	231.37	-10.00	129.81
60	0.00	45.16	-9.37	234.14	-9.37	131.48
65	0.00	40.29	-8.13	239.74	-8.13	134.91
70	0.00	35.45	-6.74	246.37	-6.74	138.97
75	0.00	30.64	-5.16	254.02	-5.16	143.87
80	0.00	25.91	-3.34	263.18	-3.34	149.90
85	0.00	21.28	-1.20	274.37	-1.20	157.46
90	0.00	16.86	1.33	288.28	1.33	168.50
95	0.00	12.85	4.27	302.63	4.27	179.69
100	0.00	9.79	7.23	322.87	7.23	190.93
105	0.00	8.72	8.49	424.37	8.49	229.64
110	0.00	10.29	6.69	318.96	6.69	188.89
115	0.00	13.61	3.65	298.79	3.65	177.34
120	0.35	17.03	1.22	271.95	1.22	151.19
125	0.35	20.60	-0.85	260.95	-0.85	144.16
130	0.39	24.03	-2.52	247.50	-2.52	134.61
135	0.49	27.29	-3.90	231.77	-3.90	124.73
140	0.51	30.44	-5.09	224.45	-5.09	119.97
145	0.47	33.43	-6.10	223.33	-6.10	120.25
150	0.29	36.28	-6.99	235.55	-6.99	130.16
155	0.46	38.58	-7.66	217.46	-7.66	116.98
160	0.52	40.61	-8.22	210.70	-8.22	111.63
165	0.25	42.54	-8.72	231.92	-8.72	130.27
170	0.00	44.04	-9.10	235.36	-9.10	132.22
175	0.23	44.60	-9.23	232.13	-9.23	129.70
180	0.22	44.87	-9.30	232.12	-9.30	129.75

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Coordination Values

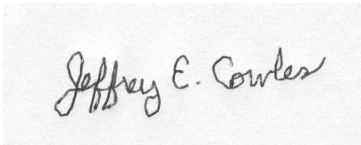
BRISTOW, VA

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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	0.00	44.83	-9.29	234.51	-9.29	131.70
190	0.00	44.04	-9.10	235.36	-9.10	132.22
195	0.00	42.77	-8.78	236.79	-8.78	133.09
200	0.00	41.06	-8.34	238.80	-8.34	134.33
205	0.00	38.96	-7.76	241.43	-7.76	135.95
210	0.00	36.52	-7.06	244.84	-7.06	138.01
215	0.00	33.79	-6.22	248.85	-6.22	140.55
220	0.00	30.82	-5.22	253.72	-5.22	143.68
225	0.00	27.65	-4.04	259.58	-4.04	147.51
230	0.00	24.31	-2.65	266.74	-2.65	152.28
235	0.00	20.85	-0.98	275.58	-0.98	158.29
240	0.21	17.24	1.09	285.94	1.09	166.61
245	0.25	14.53	2.95	291.92	2.95	169.22
250	0.23	13.25	3.94	297.55	3.94	175.69
255	0.25	13.72	3.56	296.15	3.56	172.20
260	0.33	15.76	2.06	278.47	2.06	156.04
265	0.36	18.95	0.06	264.70	0.06	146.24
270	0.39	22.78	-1.94	251.28	-1.94	137.08
275	0.39	26.99	-3.78	241.85	-3.78	131.59
280	0.38	31.42	-5.43	234.27	-5.43	128.60
285	0.42	35.97	-6.90	224.33	-6.90	122.02
290	0.41	40.63	-8.22	219.74	-8.22	119.57
295	0.44	45.35	-9.41	211.98	-9.41	114.06
300	0.40	50.12	-10.00	212.79	-10.00	115.38
305	0.43	54.90	-10.00	210.13	-10.00	113.02
310	0.42	59.72	-10.00	211.08	-10.00	113.87
315	0.39	64.56	-10.00	213.41	-10.00	115.93
320	0.44	69.41	-10.00	209.62	-10.00	112.56
325	0.47	74.26	-10.00	206.72	-10.00	109.94
330	0.46	79.13	-10.00	208.13	-10.00	111.22
335	0.42	84.00	-10.00	210.98	-10.00	113.78
340	0.38	88.87	-10.00	214.80	-10.00	117.15
345	0.54	93.74	-10.00	205.00	-10.00	106.15
350	0.49	98.61	-10.00	205.66	-10.00	108.97
355	0.49	103.48	-10.00	205.27	-10.00	108.61

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.

A rectangular box containing a handwritten signature in black ink that reads "Jeffrey E. Cowles".

Jeffrey E. Cowles
Engineer III, Telecommunications
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Va. 20147

DATED: July 14, 2012