

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**SES Americom, Inc.  
Bristow, Virginia  
(Call Sign: E980076)**

**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Virginia 20147  
June 4, 2010

## TABLE OF CONTENTS

1. CONCLUSIONS.....	3
2. SUMMARY OF RESULTS.....	4
3. SUPPLEMENTAL SHOWING .....	5
4. EARTH STATION COORDINATION DATA .....	7
5. CERTIFICATION .....	11

# 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 transmit-receive earth station.

### Company

Allegheny Power Service Corporation  
Baltimore County of Maryland  
Cellco Paetnership –Newark-Dallas Verizon  
Cellco Partnership – Southern Virginia  
New Cingular Wireless PCS LLC - DC  
Northern Virginia Electric Cooperative  
Southern Maryland Electric Cooperative  
State of Maryland MIEMSS  
Verizon Maryland Inc.  
Washington DC SMSA L.P.  
Washington Gas Light Company  
Washington Suburban Sanitary Commission

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 March 26, 2010.

#### Company

ALLTEL Communications of VA No. 1, Inc.  
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  
Alltel Communications of Virginia, Inc.  
Atlantic Broadband (Delmar), LLC  
Atlantic Broadband (Penn), LLC  
BAY BROADBAND COMMUNICATIONS LLC  
Baltimore County of Maryland  
Baltimore Gas and Electric Company  
COLLEGE OF SOUTHERN MARYLAND  
Cellco Partnership - Southern Virginia  
Cellco Partnership- PA Region  
Cellco Partnership-Newark-Dallas Verizon  
Cellco Partnership-Washington/Baltimore  
Charles, County of  
Charlottesville Cellular Partnership  
Conterra Ultra Broadband, LLC  
County of Frederick  
County of Stafford  
DELAWARE STATE - DTI  
Enoch Pratt Free Library  
Frederick County  
HANOVER COUNTY  
Hardy Cellular Telephone Company  
Harrisonburg-Rockingham ECC  
Local Communications Network, Inc.  
Loudoun, County of  
MARYLAND PUBLIC BROADCASTING COMMISSION  
MCI Communication Services, Inc.  
METROPOLITAN AREA NETWORKS, INC.

Company (Continued)

Maryland State Highway Administration  
Maryland, State of - Budget & Management  
NTELOS Telephone, Inc.  
National Radio Astronomy Observatory  
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  
PRINCE WILLIAM COUNTY  
Prince George's County  
RAPPAHANNOCK ELECTRIC COOPERATIVE  
RCTC Wholesale Corporation - Verizon  
SCTF NET  
South & Central Wireless, LLC - SOVA  
Southern Maryland Electric Cooperative I  
State of Maryland, MIEMSS  
State of WV DHHR/BPH STECS  
Texas Eastern Communications, Inc.  
USCOC of Cumberland, Inc.  
USCOC of Virginia RSA #2, Inc.  
USCOC of Virginia RSA #3, Inc.  
Verizon Maryland, Inc.  
Virginia Broadband, LLC  
Virginia Cellular LLC  
Virginia Department of State Police  
Virginia Electric & Power Company  
Virginia PCS Alliance, L.C.  
Virginia RSA #7, Inc.  
WASHINGTON SUBURBAN SANITARY COMMISSION  
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: 06/04/2010  
Job Number: 100326COMSJC01

### Administrative Information

Status: ENGINEER PROPOSAL  
Call Sign: E980076  
Licensee Code: P3210  
Licensee Name: SES Americom, Inc.

### Site Information

**BRISTOW, VIRGINIA**  
Venue Name  
Latitude (NAD 83): 38° 47' 1.0" N  
Longitude (NAD 83): 77° 34' 23.0" W  
Climate Zone: A  
Rain Zone: 2  
Ground Elevation (AMSL): 85.34 m / 280.0 ft

### Link Information

Satellite Type: Geostationary  
Mode: TR - Transmit-Receive  
Modulation: Digital  
Satellite Arc: 20° W to 60° West Longitude  
Azimuth Range: 111.7° to 153.2°  
Corresponding Elevation Angles: 16.4° / 41.5°  
Antenna Centerline (AGL): 5.49 m / 18.0 ft

### Antenna Information

**Receive**  
Manufacturer: Vertex Corporation  
Model: 9.3 Meter KPC  
Gain / Diameter: 50.5 dBi / 9.3 m  
3-dB / 15-dB Beamwidth: 0.50° / 1.00°

### Transmit

Vertex Corporation  
9.3 Meter KPC  
53.8 dBi / 9.3 m  
0.36° / 0.72°

48K3G7W to 77M0G7W

Max Available RF Power	(dBW/4 kHz)	-2.7	-15.8		
	(dBW/MHz)	7.7	8.2		
Maximum EIRP	(dBW/4 kHz)	51.1	38.0		
	(dBW/MHz)	61.5	62.0		
	(dBW)	61.5	80.8		
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

43K8G7W - 77M0G7W / 3700.0 - 4200.0

#### Transmit 6.1 GHz

48K3G7W - 77M0G7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance: 352.5 km / 219.0 mi      205.4 km / 127.6 mi  
Precipitation Scatter Contour Radius: 514.1 km / 319.4 mi      100.0 km / 62.1 mi



# 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' 1.0" N  
Longitude (NAD 83) 77° 34' 23.0" W  
Ground Elevation (AMSL) 85.34 m / 280.0 ft  
Antenna Centerline (AGL) 5.49 m / 18.0 ft  
Antenna Model Vertex Corp. 9.3 KPC  
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 -2.7 (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	0.83	110.87	-10.00	229.81	-10.00	125.35
5	0.91	106.08	-10.00	225.27	-10.00	121.71
10	0.90	101.27	-10.00	225.85	-10.00	122.18
15	0.81	96.45	-10.00	230.51	-10.00	125.89
20	0.85	91.64	-10.00	228.61	-10.00	124.39
25	0.69	86.82	-10.00	238.06	-10.00	131.73
30	0.60	82.02	-10.00	243.14	-10.00	134.29
35	0.36	77.23	-10.00	265.59	-10.00	152.06
40	0.57	72.42	-10.00	245.38	-10.00	135.99
45	0.56	67.63	-10.00	245.64	-10.00	136.19
50	0.43	62.88	-10.00	257.05	-10.00	145.05
55	0.24	58.17	-10.00	280.41	-10.00	164.77
60	0.00	53.51	-10.00	285.28	-10.00	170.66
65	0.00	48.85	-10.00	285.28	-10.00	170.66
70	0.00	44.24	-9.15	290.77	-9.15	173.98
75	0.00	39.71	-7.97	298.50	-7.97	178.53
80	0.00	35.28	-6.69	307.22	-6.69	183.49
85	0.00	31.00	-5.28	317.67	-5.28	188.90
90	0.00	26.94	-3.76	328.58	-3.76	194.75
95	0.00	23.22	-2.15	340.42	-2.15	200.92
100	0.00	20.02	-0.54	352.49	-0.54	205.41
105	0.44	17.24	1.08	333.74	1.08	190.76
110	0.52	15.93	1.94	331.40	1.94	187.63
115	0.94	15.77	2.06	301.45	2.06	162.90
120	0.94	17.47	0.94	292.81	0.94	157.73
125	0.99	20.22	-0.65	277.73	-0.65	148.27
130	1.06	23.57	-2.31	263.42	-2.31	139.64
135	1.13	26.83	-3.72	251.63	-3.72	133.99
140	1.18	29.94	-4.90	242.35	-4.90	128.65
145	1.23	32.84	-5.91	234.93	-5.91	124.18
150	1.39	35.40	-6.73	225.15	-6.73	117.54
155	1.34	37.84	-7.45	222.91	-7.45	116.63
160	0.76	40.40	-8.16	244.22	-8.16	134.05
165	0.73	42.11	-8.61	243.50	-8.61	134.08
170	0.49	43.75	-9.02	256.70	-9.02	143.41
175	0.46	45.55	-9.46	257.25	-9.46	144.46
180	0.50	47.66	-9.95	250.62	-9.95	139.88
185	0.00	50.47	-10.00	285.28	-10.00	170.66

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

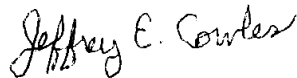
### BRISTOW, VA

Licensee Name	SES Americom, Inc.			
Latitude (NAD 83)	38° 47' 1.0" N			
Longitude (NAD 83)	77° 34' 23.0" W			
Ground Elevation (AMSL)	85.34 m / 280.0 ft			
Antenna Centerline (AGL)	5.49 m / 18.0 ft			
Antenna Model	Vertex Corp. 9.3 KPC			
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			-2.7 (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	53.16	-10.00	285.28	-10.00	170.66
195	0.00	56.07	-10.00	285.28	-10.00	170.66
200	0.00	59.17	-10.00	285.28	-10.00	170.66
205	0.00	62.42	-10.00	285.28	-10.00	170.66
210	0.00	65.80	-10.00	285.28	-10.00	170.66
215	0.22	69.21	-10.00	283.26	-10.00	168.90
220	0.25	72.79	-10.00	279.42	-10.00	163.90
225	0.26	76.43	-10.00	277.35	-10.00	162.09
230	0.28	80.12	-10.00	275.63	-10.00	160.60
235	0.29	83.85	-10.00	273.92	-10.00	159.13
240	0.38	87.60	-10.00	263.09	-10.00	149.99
245	0.42	91.37	-10.00	258.37	-10.00	146.12
250	0.43	95.14	-10.00	257.51	-10.00	145.42
255	0.41	98.88	-10.00	260.28	-10.00	147.68
260	0.43	102.60	-10.00	257.91	-10.00	145.74
265	0.55	106.30	-10.00	246.37	-10.00	136.74
270	0.55	109.93	-10.00	246.33	-10.00	136.72
275	0.56	113.47	-10.00	245.68	-10.00	136.22
280	0.52	116.90	-10.00	248.68	-10.00	138.53
285	0.54	120.23	-10.00	247.40	-10.00	137.54
290	0.53	123.41	-10.00	247.83	-10.00	137.87
295	0.55	126.42	-10.00	246.48	-10.00	136.83
300	0.56	129.22	-10.00	245.75	-10.00	136.27
305	0.53	131.73	-10.00	247.62	-10.00	137.71
310	0.54	133.96	-10.00	247.34	-10.00	137.49
315	0.62	135.92	-10.00	241.96	-10.00	133.40
320	0.76	137.54	-10.00	233.51	-10.00	128.23
325	0.63	138.47	-10.00	241.44	-10.00	133.01
330	0.63	139.03	-10.00	241.50	-10.00	133.06
335	0.69	134.48	-10.00	238.10	-10.00	131.76
340	0.79	129.85	-10.00	232.10	-10.00	127.14
345	0.69	125.13	-10.00	237.54	-10.00	131.33
350	0.72	120.40	-10.00	236.29	-10.00	130.38
355	0.68	115.63	-10.00	238.15	-10.00	131.79

## 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: June 4, 2010