

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
SES Americom, Inc.
BRISTOW, VA
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
September 16, 2021

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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

Charles, County of
Garden State Transmissions
Prince William, County of
Verizon Maryland, Inc.
Loudoun, County of
Transcontinental Gas Pipe Line Co., 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 08/05/2021.

Company

AT&T Corp.
AT&T Mobility Spectrum LLC-GA/WV/NC/SC
Adams County Department of Emergency Svc
Albemarle, County of
Anne Arundel, County of
Atlantic Broadband (Penn), LLC
B2x Online Inc
BAE Systems Information & Electronic Sys
Baltimore County of Maryland
Baltimore Gas and Electric Company
Bedford County of
Believe Wireless, LLC
Broadcom Corporation
Calvert, County of
Caroline County, VA
Carroll, County of
Cellco Partnership-AZ/CO/NM/NV/UT
Cellco Partnership-Southern VA, North NC
Cellco Partnership-WDC/Baltimore
Cellco Prtnrshp - Phil. Tri-State Rgn
Charles, County of
Chesterfield, County of
City of Fredericksburg
Commonwealth of Pennsylvania-Radio Proj.
Comprehensive Wireless LLC
Conterra Ultra Broadband, LLC
County of Augusta
County of Culpeper
County of King William, Virginia
County of Orange, VA
County of Shenandoah
County of York (PA)
DC2A LLC
Delaware Division of Communications
Delmarva Power and Light Company
Enoch Pratt Free Library
Entercom License, LLC
Essex, County of
FELHC, Inc.
Franklin County Dept. of Emergency Servi

Frederick County, MD
Fulton County PA
Fundamental Broadcasting LLC
GSB Broadcasting LLC
Garden State Transmissions
Goochland County
Goochland, County of
Hanover, County of
Hardy Cellular Telephone Company
Hardy County OEM/E911
Harrisonburg-Rockingham ECC
Henrico County
King and Queen County
Loudoun, County of
MGW Networks, LLC
Maryland Public Broadcasting Commission
Maryland State Highway Administration
Maryland, State of - Dept.of Info & Tech
Montgomery, County of
New Cingular Wireless PCS - Maryland
New Cingular Wireless PCS LLC - VA
New Cingular Wireless PCS LLC - WV,NC,SC
New Kent County
Norfolk Southern Railway Company
Notthisagain LLC
PSEG Services Corporation
Page, County of (VA)
Pennsylvania Turnpike Commission
Powhatan,County of
Prince George's County
Prince William, County of
Radio License Holding CBC, LLC
Radio One Inc
Rappahannock Electric Cooperative
Richmond, City of
Rockbridge Reg. Pub Safety Comm Ctr
Rural Broadband Network Services LLC
Rural Broadband, LLC
Shenandoah Cable Television, LLC
Shenandoah Valley Electric Cooperative
Somerset County, Maryland
South Central Task Force (SCTFNET)
Southern Maryland Electric Cooperative I
Southside Electric Cooperative
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
The Voice Radio, LLC
Thought Transmissions, LLC
Transcontinental Gas Pipe Line Co., LLC
US Cellular Operating Company, LLC (WI)
USCOC of Cumberland, Inc.

USCOC of Virginia RSA #3, Inc.
Uniti Fiber LLC
Ursa Navigation Solutions, Inc.
Verizon Maryland, Inc.
Verizon Wireless (VAW) LLC - W/B/V Mkts
Verizon Wireless VAW LLC-Southern VA
Virginia Broadband, LLC
Virginia Department of State Police
Virginia Electric & Power Company
WBOC, Inc.
WV DHSEM, SIRN System
Warrenton Fauquier Joint Communications
Washington Gas Light Company
Washington Suburban Sanitary Commission
Weblin Holdings LLC
Wicomico County
Williamson Enterprise LLC
Worcester County 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: 09/16/2021
Job Number: 210805COMSGE03

Administrative Information

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

Site Information

BRISTOW, VA
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 Analog and Digital
Satellite Arc 5.2° W to 139° West Longitude
Azimuth Range 101.3° to 251.2°
Corresponding Elevation Angles 5.0° / 13.4°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

		Receive - FCC32	Transmit - FCC32		
Manufacturer		GD Satcom	GD Satcom		
Model		9KXC	9KXC		
Gain / Diameter		49.9 dBi / 9.0 m	53.6 dBi / 9.0 m		
3-dB / 15-dB Beamwidth		0.50° / 1.00°	0.36° / 0.72°		
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)		0.5 24.5		
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)		54.1 78.1		
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

	Receive 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	N0N - 72M0G7W / 3700.0 - 4200.0	N0N - 72M0G7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	674.8 km / 419.3 mi	441.7 km / 274.4 mi
Precipitation Scatter Contour Radius	620.5 km / 385.5 mi	189.2 km / 117.6 mi

COMSEARCH

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19700 Janelia Farm Boulevard, Ashburn, VA 20147
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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 GD Satcom 9 meter
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 0.5 (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	0.80	101.23	-10.00	231.41	-10.00	135.05
5	0.98	96.24	-10.00	221.50	-10.00	128.32
10	0.93	91.26	-10.00	224.09	-10.00	130.44
15	0.84	86.27	-10.00	228.95	-10.00	133.09
20	0.77	81.28	-10.00	232.97	-10.00	136.30
25	0.76	76.30	-10.00	233.45	-10.00	136.69
30	0.64	71.31	-10.00	240.65	-10.00	142.61
35	0.40	66.34	-10.00	260.51	-10.00	159.66
40	0.55	61.35	-10.00	246.80	-10.00	147.80
45	0.59	56.37	-10.00	243.77	-10.00	145.24
50	0.48	51.40	-10.00	251.56	-10.00	151.79
55	0.32	46.44	-9.67	272.68	-9.67	171.74
60	0.00	41.51	-8.45	295.31	-8.45	189.02
65	0.00	36.55	-7.07	304.58	-7.07	194.32
70	0.00	31.61	-5.50	316.16	-5.50	200.34
75	0.00	26.69	-3.66	329.30	-3.66	205.71
80	0.00	21.81	-1.47	345.49	-1.47	214.42
85	0.00	16.99	1.25	366.24	1.25	225.99
90	0.00	12.30	4.75	393.63	4.75	242.25
95	0.35	7.78	9.72	416.66	9.72	250.96
100	0.56	4.60	15.43	674.82	15.43	441.70
105	0.73	5.67	13.17	466.87	13.17	279.00
110	0.94	9.26	7.84	349.64	7.84	205.27
115	0.94	12.98	4.17	318.81	4.17	188.94
120	1.01	16.59	1.51	292.53	1.51	173.31
125	1.10	20.09	-0.57	273.67	-0.57	158.89
130	1.14	23.51	-2.28	260.60	-2.28	150.20
135	1.24	26.75	-3.68	247.82	-3.68	141.61
140	1.36	29.80	-4.86	236.49	-4.86	133.99
145	1.42	32.69	-5.86	228.89	-5.86	130.32
150	1.17	35.58	-6.78	231.77	-6.78	133.37
155	1.08	38.05	-7.51	230.87	-7.51	133.34
160	0.86	40.31	-8.14	238.39	-8.14	138.61
165	0.49	42.32	-8.66	258.78	-8.66	156.25
170	0.46	43.60	-8.99	260.30	-8.99	158.01
175	0.54	44.29	-9.16	252.24	-9.16	151.22
180	0.50	44.59	-9.23	254.36	-9.23	153.16
185	0.00	44.82	-9.29	289.85	-9.29	185.81

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Coordination Values

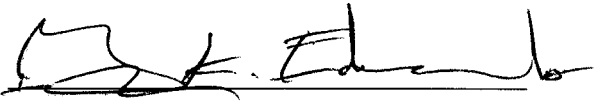
BRISTOW, VA

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Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power 0.5 (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	44.04	-9.10	291.09	-9.10	186.54
195	0.00	42.78	-8.78	293.16	-8.78	187.76
200	0.00	41.06	-8.34	296.08	-8.34	189.47
205	0.00	38.96	-7.77	299.89	-7.77	191.66
210	0.00	36.52	-7.06	304.66	-7.06	194.36
215	0.00	33.79	-6.22	310.47	-6.22	197.59
220	0.23	30.65	-5.16	314.46	-5.16	198.61
225	0.25	27.46	-3.97	320.01	-3.97	201.05
230	0.23	24.15	-2.57	333.48	-2.57	207.21
235	0.30	20.64	-0.87	337.02	-0.87	207.41
240	0.41	17.09	1.18	338.48	1.18	205.70
245	0.42	14.37	3.06	351.61	3.06	212.33
250	0.39	13.09	4.08	363.75	4.08	219.68
255	0.39	13.58	3.68	360.23	3.68	217.69
260	0.43	15.68	2.12	343.51	2.12	207.92
265	0.52	18.84	0.12	316.92	0.12	193.35
270	0.54	22.69	-1.90	299.84	-1.90	183.57
275	0.53	26.92	-3.75	287.26	-3.75	175.92
280	0.51	31.37	-5.41	277.42	-5.41	169.86
285	0.53	35.94	-6.89	266.88	-6.89	161.00
290	0.52	40.60	-8.21	259.14	-8.21	155.98
295	0.55	45.32	-9.41	249.74	-9.41	149.53
300	0.55	50.09	-10.00	246.53	-10.00	147.57
305	0.52	54.89	-10.00	248.25	-10.00	149.04
310	0.54	59.71	-10.00	247.31	-10.00	148.24
315	0.56	64.54	-10.00	245.75	-10.00	146.91
320	0.67	69.39	-10.00	239.05	-10.00	141.28
325	0.68	74.25	-10.00	238.24	-10.00	140.61
330	0.59	79.12	-10.00	243.74	-10.00	145.21
335	0.68	83.99	-10.00	238.45	-10.00	140.78
340	0.78	88.87	-10.00	232.56	-10.00	135.97
345	0.65	93.74	-10.00	240.17	-10.00	142.21
350	0.68	98.62	-10.00	238.22	-10.00	140.60
355	0.65	103.49	-10.00	240.50	-10.00	142.49

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.

BY: 

Gary K. Edwards
Senior Manager
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: September 16, 2021