

# 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  
November 29, 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.

### 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 10/18/2021.

Company

Altius Communications  
Arlington County, VA  
B.F. SAUL COMPANY  
Believe Wireless, LLC  
Blaze Broadband  
Business Only Broadband, LLC  
Calvert County Government  
Calvert, County of  
Clearwire Spectrum Holdings III, LLC  
Data Stream Mobile Technology Inc.  
Enoch Pratt Free Library  
Entercom License, LLC  
Global Telecom & Technology Americas  
Loudoun, County of  
Maryland Port Administration  
Maryland, State of - MDOT-MTA  
Montgomery, County of  
NBC Telemundo License LLC  
One Ring Networks, Inc.  
Prince William, County of  
Radio One Inc  
RapidDSL & Wireless, Inc.  
Rural Broadband Network Services LLC  
Sprint Spectrum LLC  
State of Maryland, MIEMSS  
T-Mobile License LLC  
Telegia Communications Inc.  
Virginia Everywhere, LLC  
WKYSFM, Inc.  
Washington Cable Systems 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: 11/29/2021  
Job Number: 211018COMSGE03

### Administrative Information

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

### Site Information

**BRISTOW, VA**  
Venue Name:  
Latitude (NAD 83): 38° 47' 2.0" N  
Longitude (NAD 83): 77° 34' 20.0" W  
Climate Zone: A  
Rain Zone: 2  
Ground Elevation (AMSL): 85.15 m / 279.4 ft

### Link Information

Satellite Type: Geostationary  
Mode: TR - Transmit-Receive  
Modulation: Digital  
Satellite Arc: 20° W to 139° West Longitude  
Azimuth Range: 111.7° to 251.2°  
Corresponding Elevation Angles: 16.4° / 13.4°  
Antenna Centerline (AGL): 2.74 m / 9.0 ft

### Antenna Information

|                          |                          | Receive - FCC32                  | Transmit - FCC32                                 |
|--------------------------|--------------------------|----------------------------------|--------------------------------------------------|
| Manufacturer             |                          | Global Skyware                   | Global Skyware                                   |
| Model                    |                          | 0.9 meter                        | 0.9 meter                                        |
| Gain / Diameter          |                          | 43.7 dBi / 0.9 m                 | 47.0 dBi / 0.9 m                                 |
| 3-dB / 15-dB Beamwidth   |                          | 1.09° / 2.18°                    | 0.76° / 1.52°                                    |
| Max Available RF Power   | (dBW/4 kHz)<br>(dBW/MHz) |                                  | 0.5<br>24.5                                      |
| Maximum EIRP             | (dBW/4 kHz)<br>(dBW/MHz) |                                  | 47.5<br>71.5                                     |
| Interference Objectives: | Long Term<br>Short Term  | -156.0 dBW/MHz<br>-146.0 dBW/MHz | 20%<br>0.01%                                     |
|                          |                          |                                  | -151.0 dBW/4 kHz 20%<br>-128.0 dBW/4 kHz 0.0025% |

### Frequency Information

|                                        | Receive 18.0 GHz                  | Transmit 29.0 GHz                 |
|----------------------------------------|-----------------------------------|-----------------------------------|
| Emission / Frequency Range (MHz)       | N0N - 72M0G7W / 17800.0 - 20200.0 | N0N - 3M72G7W / 29500.0 - 30000.0 |
| Max Great Circle Coordination Distance | 156.2 km / 97.0 mi                | 148.9 km / 92.5 mi                |
| Precipitation Scatter Contour Radius   | 100.0 km / 62.1 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' 2.0" N  
Longitude (NAD 83) 77° 34' 20.0" W  
Ground Elevation (AMSL) 85.15 m / 279.4 ft  
Antenna Centerline (AGL) 2.74 m / 9.0 ft  
Antenna Model Global Skyware 0.9 meter  
Antenna Mode Receive 18.0 GHz Transmit 29.0 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 0.5 (dBW/4 kHz)

| Azimuth (°) | Horizon<br>Elevation (°) | Antenna<br>Discrimination (°) | Receive 18.0 GHz      |                               | Transmit 29.0 GHz     |                               |
|-------------|--------------------------|-------------------------------|-----------------------|-------------------------------|-----------------------|-------------------------------|
|             |                          |                               | Horizon<br>Gain (dBi) | Coordination<br>Distance (km) | Horizon<br>Gain (dBi) | Coordination<br>Distance (km) |
| 0           | 1.20                     | 108.40                        | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 5           | 1.06                     | 106.09                        | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 10          | 1.05                     | 101.28                        | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 15          | 1.06                     | 96.46                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 20          | 1.07                     | 91.64                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 25          | 0.97                     | 86.82                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 30          | 0.83                     | 82.01                         | -10.00                | 100.49                        | -10.00                | 100.00                        |
| 35          | 0.69                     | 77.21                         | -10.00                | 106.02                        | -10.00                | 101.16                        |
| 40          | 0.81                     | 72.39                         | -10.00                | 100.98                        | -10.00                | 100.00                        |
| 45          | 0.76                     | 67.61                         | -10.00                | 103.16                        | -10.00                | 100.00                        |
| 50          | 0.75                     | 62.83                         | -10.00                | 103.65                        | -10.00                | 100.00                        |
| 55          | 0.56                     | 58.11                         | -10.00                | 111.48                        | -10.00                | 106.79                        |
| 60          | 0.49                     | 53.41                         | -10.00                | 115.00                        | -10.00                | 110.38                        |
| 65          | 0.46                     | 48.73                         | -10.00                | 116.95                        | -10.00                | 112.34                        |
| 70          | 0.34                     | 44.14                         | -9.12                 | 128.13                        | -9.12                 | 123.35                        |
| 75          | 0.24                     | 39.63                         | -7.95                 | 138.44                        | -7.95                 | 132.99                        |
| 80          | 0.00                     | 35.28                         | -6.69                 | 145.68                        | -6.69                 | 139.64                        |
| 85          | 0.30                     | 30.85                         | -5.23                 | 141.13                        | -5.23                 | 135.43                        |
| 90          | 0.55                     | 26.62                         | -3.63                 | 128.60                        | -3.63                 | 123.69                        |
| 95          | 0.80                     | 22.68                         | -1.89                 | 122.69                        | -1.89                 | 117.89                        |
| 100         | 1.13                     | 19.13                         | -0.04                 | 116.71                        | -0.04                 | 111.91                        |
| 105         | 1.28                     | 16.47                         | 1.58                  | 117.62                        | 1.58                  | 112.79                        |
| 110         | 1.35                     | 15.11                         | 2.52                  | 118.75                        | 2.52                  | 113.80                        |
| 115         | 1.49                     | 15.22                         | 2.44                  | 115.15                        | 2.44                  | 110.19                        |
| 120         | 1.55                     | 16.93                         | 1.28                  | 110.37                        | 1.28                  | 105.42                        |
| 125         | 1.42                     | 19.90                         | -0.47                 | 108.51                        | -0.47                 | 103.53                        |
| 130         | 1.48                     | 23.27                         | -2.17                 | 102.36                        | -2.17                 | 100.00                        |
| 135         | 1.55                     | 26.52                         | -3.59                 | 100.00                        | -3.59                 | 100.00                        |
| 140         | 1.60                     | 29.62                         | -4.79                 | 100.00                        | -4.79                 | 100.00                        |
| 145         | 1.65                     | 32.51                         | -5.80                 | 100.00                        | -5.80                 | 100.00                        |
| 150         | 1.74                     | 35.12                         | -6.64                 | 100.00                        | -6.64                 | 100.00                        |
| 155         | 1.85                     | 37.40                         | -7.32                 | 100.00                        | -7.32                 | 100.00                        |
| 160         | 1.75                     | 39.52                         | -7.92                 | 100.00                        | -7.92                 | 100.00                        |
| 165         | 1.41                     | 41.47                         | -8.44                 | 100.00                        | -8.44                 | 100.00                        |
| 170         | 1.02                     | 43.07                         | -8.85                 | 100.00                        | -8.85                 | 100.00                        |
| 175         | 0.66                     | 44.17                         | -9.13                 | 109.49                        | -9.13                 | 104.75                        |
| 180         | 0.74                     | 44.35                         | -9.17                 | 106.26                        | -9.17                 | 101.39                        |
| 185         | 0.72                     | 44.11                         | -9.11                 | 106.92                        | -9.11                 | 102.08                        |

# COMSEARCH

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### Coordination Values

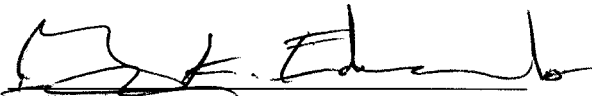
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Latitude (NAD 83) 38° 47' 2.0" N  
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Short Term -146.0 dBW/MHz 0.01% -128.0 dBW/4 kHz 0.0025%  
Max Available RF Power 0.5 (dBW/4 kHz)

| Azimuth (°) | Horizon<br>Elevation (°) | Antenna<br>Discrimination (°) | Receive 18.0 GHz      |                               | Transmit 29.0 GHz     |                               |
|-------------|--------------------------|-------------------------------|-----------------------|-------------------------------|-----------------------|-------------------------------|
|             |                          |                               | Horizon<br>Gain (dBi) | Coordination<br>Distance (km) | Horizon<br>Gain (dBi) | Coordination<br>Distance (km) |
| 190         | 0.38                     | 43.67                         | -9.01                 | 125.25                        | -9.01                 | 120.54                        |
| 195         | 0.00                     | 42.77                         | -8.78                 | 139.58                        | -8.78                 | 134.05                        |
| 200         | 0.00                     | 41.06                         | -8.34                 | 140.85                        | -8.34                 | 135.22                        |
| 205         | 0.00                     | 38.96                         | -7.77                 | 142.50                        | -7.77                 | 136.73                        |
| 210         | 0.22                     | 36.34                         | -7.01                 | 143.13                        | -7.01                 | 137.30                        |
| 215         | 0.50                     | 33.40                         | -6.09                 | 124.22                        | -6.09                 | 119.47                        |
| 220         | 0.85                     | 30.19                         | -5.00                 | 112.34                        | -5.00                 | 107.55                        |
| 225         | 0.77                     | 27.09                         | -3.82                 | 118.87                        | -3.82                 | 114.14                        |
| 230         | 0.37                     | 24.05                         | -2.53                 | 143.74                        | -2.53                 | 137.80                        |
| 235         | 0.39                     | 20.58                         | -0.84                 | 147.59                        | -0.84                 | 141.30                        |
| 240         | 0.50                     | 17.02                         | 1.23                  | 144.56                        | 1.23                  | 138.48                        |
| 245         | 0.52                     | 14.28                         | 3.13                  | 150.12                        | 3.13                  | 143.46                        |
| 250         | 0.48                     | 13.00                         | 4.15                  | 156.16                        | 4.15                  | 148.92                        |
| 255         | 0.50                     | 13.47                         | 3.76                  | 153.08                        | 3.76                  | 146.13                        |
| 260         | 0.53                     | 15.59                         | 2.18                  | 146.13                        | 2.18                  | 139.89                        |
| 265         | 0.61                     | 18.78                         | 0.16                  | 136.18                        | 0.16                  | 130.75                        |
| 270         | 0.77                     | 22.57                         | -1.84                 | 124.30                        | -1.84                 | 119.48                        |
| 275         | 0.90                     | 26.76                         | -3.69                 | 113.74                        | -3.69                 | 108.96                        |
| 280         | 1.09                     | 31.16                         | -5.34                 | 102.99                        | -5.34                 | 100.00                        |
| 285         | 0.59                     | 35.92                         | -6.88                 | 118.43                        | -6.88                 | 113.74                        |
| 290         | 0.59                     | 40.59                         | -8.21                 | 114.96                        | -8.21                 | 110.32                        |
| 295         | 0.76                     | 45.27                         | -9.40                 | 104.51                        | -9.40                 | 100.00                        |
| 300         | 0.92                     | 50.02                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 305         | 1.04                     | 54.81                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 310         | 1.09                     | 59.63                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 315         | 1.04                     | 64.49                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 320         | 0.93                     | 69.36                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 325         | 1.00                     | 74.23                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 330         | 1.09                     | 79.10                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 335         | 0.98                     | 83.98                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 340         | 0.85                     | 88.87                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 345         | 0.92                     | 93.75                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 350         | 0.95                     | 98.63                         | -10.00                | 100.00                        | -10.00                | 100.00                        |
| 355         | 1.00                     | 103.51                        | -10.00                | 100.00                        | -10.00                | 100.00                        |

## 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: November 29, 2021