

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
SES Americom, Inc.
HAWLEY, PA
(HMBB)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
November 04, 2020

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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 09/18/2020.

Company

AQ2AT LLC
AT&T Wireless Services 3 LLC - PA
Algonquin Gas Transmission, LLC
Allentown SMSA Limited Partnership
Auburn Data Systems, LLC
Avangrid Networks, Inc.
Binghamton MSA Limited Partnership(NY)
Binghamton MSA Limited Partnership(PA)
Blair County 911
Blueline Communications
Bradford County
Broome County Emergency Services
Cambria, County of
Carbon, County of 911 Center
Cellco Partnership - (W-NY)
Cellco Partnership - Bridgeville, PA/WV
Cellco Partnership- PA Region
Central Hudson Gas & Electric Corp.
Clearfield, County of
Commonwealth of Pennsylvania-Radio Proj.
Connecticut, State of
Consolidated Edison Company of New York
County of Centre
County of Pike
County of Warren, NJ
Delaware County Emergency Services (NY)
Dutchess County Emergency Response
EMS of Northeast Pennsylvania
Eastern MLG LLC
Eastern Pennsylvania EMS Council
Electric Railroad, LLC
Essex County Sheriff's Office (NJ)
FELHC, Inc.
Getwireless.Net
Goosetown Network Services, LLC
High Voltage Communications LLC (CFN)
Highway Networks, LLC
In The Stix Broadband LLC
Indiana, County of
Jefferson Microwave, LLC

Kryptick Technologies
Lackawanna, County of
Luzerne County of PA
Monroe County Control Center (PA)
Morris, County of
NYNEX Mobile of New York LP
New Cingular Wireless PCS, LLC - PA
New Jersey State Police
New Jersey, State of -NJ Transit
New Line Networks, LLC
New York City Police Department
New York Communications Co., Inc
Northeast Pennsylvania SMSA LTD Prtnrsh
Northumberland County DPS/911
Office of Emergency Telecom Services, NJ
Orange County Dept of Emergency Services
Orange Poughkeepsie SMSA LTD Partnership
Orange and Rockland Utilities, Inc.
PSEG Services Corporation
Pennsylvania Turnpike Commission
Pike County Commissioners
Putnam County Bureau of Emerg. Services
SW Networks
Southampton, Town Of, Police Dept.
Spectrum Holding Company LLC
State of New York, Div of State Police
Suffolk County Police Department
Sullivan County DPW
Susquehanna County PA
T-Mobile License LLC
Texas Eastern Communications, LLC
Transcontinental Gas Pipe Line Co., LLC
Transwave Communication Systems, Inc.
Ulster County of
Uniti Fiber LLC
Verizon Wireless (VAW) LLC (NY)
Verizon Wireless (VAW) LLC-Pennsylvania
Wayne, County of
Weblin Holdings LLC
Westchester, County of
Wireless Internetwork LLC
xWave Engineering LLC

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: 11/04/2020
Job Number: 200918COMSGE07

Administrative Information

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

Site Information HAWLEY, PA

Venue Name
Latitude (NAD 83) 41° 27' 51.6" N
Longitude (NAD 83) 75° 7' 46.6" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 268.89 m / 882.2 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 5° W to 145° West Longitude
Azimuth Range 103.5° to 256.4°
Corresponding Elevation Angles 6.1° / 6.3°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

| | Receive - FCC32 | Transmit - FCC32 |
|--------------------------|---|--|
| Manufacturer | Vertex | Vertex |
| Model | 9 KPC | 9 KPC |
| Gain / Diameter | 49.9 dBi / 9.0 m | 53.7 dBi / 9.0 m |
| 3-dB / 15-dB Beamwidth | 0.55° / 1.20° | 0.40° / 0.80° |
| Max Available RF Power | (dBW/4 kHz) (dBW/MHz) | 0.5 24.5 |
| Maximum EIRP | (dBW/4 kHz) (dBW/MHz) | 54.2 78.2 |
| Interference Objectives: | Long Term -156.0 dBW/MHz 20% Short Term -146.0 dBW/MHz 0.01% | -154.0 dBW/4 kHz 20% -131.0 dBW/4 kHz 0.0025% |

Frequency Information

| | Receive 4.0 GHz | Transmit 6.1 GHz |
|--|---------------------------------|---------------------------------|
| Emission / Frequency Range (MHz) | N0N - 72M0G7W / 3625.0 - 4200.0 | N0N - 72M0G7W / 5850.0 - 6425.0 |
| Max Great Circle Coordination Distance | 571.4 km / 355.0 mi | 345.2 km / 214.5 mi |
| Precipitation Scatter Contour Radius | 596.9 km / 370.9 mi | 186.2 km / 115.7 mi |

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Coordination Values

HAWLEY, PA

Licensee Name SES Americom, Inc.
Latitude (NAD 83) 41° 27' 51.6" N
Longitude (NAD 83) 75° 7' 46.6" W
Ground Elevation (AMSL) 268.89 m / 882.2 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model Vertex 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 | 5.24 | 103.46 | -10.00 | 132.49 | -10.00 | 100.00 |
| 5 | 4.09 | 98.46 | -10.00 | 146.56 | -10.00 | 100.00 |
| 10 | 3.09 | 93.46 | -10.00 | 169.40 | -10.00 | 100.00 |
| 15 | 2.53 | 88.46 | -10.00 | 182.37 | -10.00 | 100.00 |
| 20 | 3.11 | 83.47 | -10.00 | 168.82 | -10.00 | 100.00 |
| 25 | 3.13 | 78.48 | -10.00 | 166.56 | -10.00 | 100.00 |
| 30 | 2.99 | 73.49 | -10.00 | 171.69 | -10.00 | 100.00 |
| 35 | 2.84 | 68.50 | -10.00 | 175.21 | -10.00 | 100.00 |
| 40 | 2.76 | 63.51 | -10.00 | 176.94 | -10.00 | 100.00 |
| 45 | 1.99 | 58.55 | -10.00 | 194.70 | -10.00 | 102.18 |
| 50 | 2.52 | 53.54 | -10.00 | 182.63 | -10.00 | 100.00 |
| 55 | 2.87 | 48.54 | -10.00 | 174.42 | -10.00 | 100.00 |
| 60 | 2.86 | 43.56 | -8.98 | 179.88 | -8.98 | 100.00 |
| 65 | 2.78 | 38.58 | -7.66 | 188.21 | -7.66 | 100.00 |
| 70 | 2.14 | 33.67 | -6.18 | 206.74 | -6.18 | 112.03 |
| 75 | 1.89 | 28.75 | -4.46 | 222.03 | -4.46 | 123.71 |
| 80 | 1.64 | 23.86 | -2.44 | 241.77 | -2.44 | 135.83 |
| 85 | 1.60 | 18.98 | 0.04 | 259.48 | 0.04 | 146.87 |
| 90 | 2.41 | 13.95 | 3.39 | 257.24 | 3.39 | 141.12 |
| 95 | 2.70 | 9.12 | 8.00 | 284.94 | 8.00 | 155.30 |
| 100 | 2.70 | 4.86 | 14.84 | 345.02 | 14.84 | 191.45 |
| 105 | 2.16 | 4.23 | 16.33 | 523.98 | 16.33 | 322.80 |
| 110 | 2.28 | 7.36 | 10.32 | 317.97 | 10.32 | 178.69 |
| 115 | 3.03 | 10.38 | 6.59 | 264.23 | 6.59 | 141.93 |
| 120 | 3.42 | 13.57 | 3.69 | 232.99 | 3.69 | 124.74 |
| 125 | 3.78 | 16.66 | 1.46 | 211.29 | 1.46 | 110.18 |
| 130 | 4.60 | 19.27 | -0.12 | 191.29 | -0.12 | 100.00 |
| 135 | 4.90 | 22.10 | -1.61 | 178.17 | -1.61 | 100.00 |
| 140 | 4.93 | 24.96 | -2.93 | 170.39 | -2.93 | 100.00 |
| 145 | 5.25 | 27.35 | -3.92 | 158.86 | -3.92 | 100.00 |
| 150 | 4.73 | 30.19 | -4.99 | 160.60 | -4.99 | 100.00 |
| 155 | 3.46 | 33.43 | -6.10 | 180.98 | -6.10 | 100.00 |
| 160 | 2.82 | 35.84 | -6.86 | 191.24 | -6.86 | 100.00 |
| 165 | 3.00 | 37.15 | -7.25 | 185.43 | -7.25 | 100.00 |
| 170 | 2.95 | 38.28 | -7.57 | 184.98 | -7.57 | 100.00 |
| 175 | 2.86 | 39.01 | -7.78 | 185.86 | -7.78 | 100.00 |
| 180 | 2.64 | 39.46 | -7.90 | 190.21 | -7.90 | 100.00 |
| 185 | 2.32 | 39.55 | -7.93 | 197.05 | -7.93 | 102.33 |

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

Coordination Values

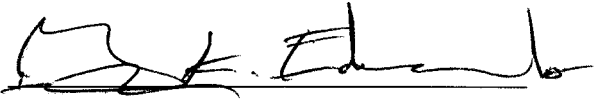
HAWLEY, PA

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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) |
| 190 | 2.34 | 38.87 | -7.74 | 197.51 | -7.74 | 102.60 |
| 195 | 3.73 | 36.46 | -7.05 | 170.19 | -7.05 | 100.00 |
| 200 | 4.62 | 34.18 | -6.34 | 155.40 | -6.34 | 100.00 |
| 205 | 4.80 | 32.24 | -5.71 | 155.85 | -5.71 | 100.00 |
| 210 | 4.72 | 30.20 | -5.00 | 160.85 | -5.00 | 100.00 |
| 215 | 4.09 | 28.31 | -4.30 | 177.23 | -4.30 | 100.00 |
| 220 | 4.46 | 25.34 | -3.09 | 177.48 | -3.09 | 100.00 |
| 225 | 4.55 | 22.37 | -1.74 | 183.22 | -1.74 | 100.00 |
| 230 | 4.59 | 19.28 | -0.13 | 191.53 | -0.13 | 100.00 |
| 235 | 5.07 | 15.71 | 2.09 | 196.57 | 2.09 | 100.00 |
| 240 | 5.86 | 11.80 | 5.20 | 205.22 | 5.20 | 100.00 |
| 245 | 6.30 | 8.06 | 9.35 | 222.80 | 9.35 | 110.18 |
| 250 | 6.84 | 4.17 | 16.49 | 266.92 | 16.49 | 133.04 |
| 255 | 7.39 | 0.39 | 42.09 | 571.43 | 42.09 | 345.23 |
| 260 | 8.02 | 4.03 | 16.87 | 251.10 | 16.87 | 122.29 |
| 265 | 8.87 | 9.01 | 8.13 | 187.10 | 8.13 | 100.00 |
| 270 | 9.63 | 14.04 | 3.32 | 146.94 | 3.32 | 100.00 |
| 275 | 10.77 | 19.16 | -0.06 | 122.98 | -0.06 | 100.00 |
| 280 | 11.45 | 24.17 | -2.58 | 107.14 | -2.58 | 100.00 |
| 285 | 12.22 | 29.20 | -4.63 | 100.00 | -4.63 | 100.00 |
| 290 | 12.31 | 34.11 | -6.32 | 100.00 | -6.32 | 100.00 |
| 295 | 12.31 | 39.04 | -7.79 | 100.00 | -7.79 | 100.00 |
| 300 | 12.01 | 43.94 | -9.07 | 100.00 | -9.07 | 100.00 |
| 305 | 11.17 | 48.83 | -10.00 | 100.00 | -10.00 | 100.00 |
| 310 | 11.04 | 53.79 | -10.00 | 100.00 | -10.00 | 100.00 |
| 315 | 11.52 | 58.79 | -10.00 | 100.00 | -10.00 | 100.00 |
| 320 | 11.28 | 63.75 | -10.00 | 100.00 | -10.00 | 100.00 |
| 325 | 11.31 | 68.73 | -10.00 | 100.00 | -10.00 | 100.00 |
| 330 | 10.97 | 73.70 | -10.00 | 100.00 | -10.00 | 100.00 |
| 335 | 10.27 | 78.67 | -10.00 | 100.00 | -10.00 | 100.00 |
| 340 | 9.54 | 83.65 | -10.00 | 100.00 | -10.00 | 100.00 |
| 345 | 8.63 | 88.65 | -10.00 | 100.00 | -10.00 | 100.00 |
| 350 | 7.72 | 93.64 | -10.00 | 106.68 | -10.00 | 100.00 |
| 355 | 6.30 | 98.64 | -10.00 | 121.94 | -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 04, 2020