# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
**Globecomm License Sub LLC**
**HAUPPAUGE, NY**
**(9.3 Meter)**
**Satellite Earth Station**

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
December 30, 2015

# TABLE OF CONTENTS

# 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 |
| --- |
| Capital Communications of America |

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 08/18/2015.

Company
256Q Networks
AB Services LLC
ALGONQUIN GAS TRANSMISSION, LLC
AT&T Corporation
Auburn Data Systems, LLC
BFI Licenses, LLC
Berks County Department of Emergency Ser
Blueline Communications
Bucks County Dept. of Emergency Communic
CONSOLIDATED EDISON COMPANY OF NEW YORK
CTAB Holdings LLC
Capital Communications of America
Cellco Partnership - (W-NY)
Cellco Partnership - CT, W-MA, VT
Central Hudson Gas & Electric Corp.
China Cat Productions LLC
City of New York
Connecticut State Police Department
Converge Towers LLC
Coral Reef Technologies Ltd
Coralinks
Direct Broadcast Services, Inc.
ECW Wireless, LLC
EG Broadcast Newco Corp
Eastern MLG LLC
Electric Railroad, LLC
Essex County Sheriff's Office (NJ)
Eversource Energy Service Company
FELHC, INC
Firstlevel Networks
Garden State Transmissions
Geodesic Networks LLC
Goosetown Network Services, LLC
Green Line Networks
High Voltage Communications LLC (CFN)
Jefferson Microwave, LLC
Kryptick Technologies
MONMOUTH, COUNTY OF
MVC Research. LLC
Mahwah Communications

Middlesex, County of
Montgomery County Of
Morris, County of
Nassau County Police Department
National Tower Company LLC
NeXXCom Wireless LLC
New Cingular Wireless PCS  LLC -NJ
New Cingular Wireless PCS LLC - CT
New Cingular Wireless PCS, LLC (NY)
New Jersey State Police
New Jersey Transit Rail Operations, Inc.
New Jersey, State of -NJ Transit
New Line Networks, LLC
New York Communications Co., Inc
New York, City of (Police Department)
Office of Emergency Telecom Services, NJ
Open Line Communications
Orange Poughkeepsie SMSA LTD Partnership
Orange and Rockland Utilities, Inc.
PEG Bandwidth, LLC
PSEG Services Corporation
Peco Energy Company
Pitt Power
Port Authority of New York & New Jersey
Qoncept Holdings LLC
Rendezvous Communications LLC
SCS Networks
SW Networks
Suffolk County Police Department
Sullivan County DPW
Texas Eastern Communications, LLC
Turtle Networks 6562
WESTCHESTER,  COUNTY OF
Webline Holdings LLC
Wireless Internetwork LLC
World Class Wireless, LLC
Zen Networks, Inc
iSignal
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: 08/25/2015
Job Number: 150818COMSGE06

### Administrative Information

| | |
|---|---|
| Status | ENGINEER PROPOSAL |
| Call Sign | E970361 |
| Licensee Code | SWSITE |
| Licensee Name | Globecomm License Sub LLC |

### Site Information — HAUPPAUGE, NY

| | |
|---|---|
| Venue Name | |
| Latitude (NAD 83) | 40° 48' 53.6" N |
| Longitude (NAD 83) | 73° 14' 18.4" W |
| Climate Zone | A |
| Rain Zone | 2 |
| Ground Elevation (AMSL) | 31.1 m / 102.0 ft |

### Link Information

| | |
|---|---|
| Satellite Type | Geostationary |
| Mode | TR - Transmit-Receive |
| Modulation | Digital |
| Satellite Arc | 14° W to 143° West Longitude |
| Azimuth Range | 111.3° to 256.4° |
| Corresponding Elevation Angles | 14.3° / 6.5° |
| Antenna Centerline (AGL) | 5.49 m / 18.0 ft |

| Antenna Information | | Receive - FCC32 | | Transmit - FCC32 | |
|---|---|---|---|---|---|
| Manufacturer | | Andrew | | Andrew | |
| Model | | 9.3 ESA | | 9.3 ESA | |
| Gain / Diameter | | 50.4 dBi / 9.3 m | | 53.9 dBi / 9.3 m | |
| 3-dB / 15-dB Beamwidth | | 0.52° / 0.97° | | 0.34° / 0.65° | |
| Max Available RF Power | (dBW/4 kHz) | | | -12.8 | |
| | (dBW/MHz) | | | 11.2 | |
| Maximum EIRP | (dBW/4 kHz) | | | 41.1 | |
| | (dBW/MHz) | | | 65.1 | |
| 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) | 64K0G7W - 36M0G7W / 3700.0 - 4200.0<br>36M0F8W / 3700.0 - 4200.0 | 64K0G7W - 36M0G7W / 5925.0 - 6425.0<br>36M0F8W / 5925.0 - 6425.0 |
| Max Great Circle Coordination Distance | 512.0 km / 318.1 mi | 217.4 km / 135.1 mi |
| Precipitation Scatter Contour Radius | 589.0 km / 365.9 mi | 100.0 km / 62.1 mi |

# COMSEARCH

## Earth Station Data Sheet

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| **Coordination Values** | **HAUPPAUGE, NY** | | | |
|---|---|---|---|---|
| Licensee Name | Globecomm License Sub LLC | | | |
| Latitude (NAD 83) | 40° 48' 53.6" N | | | |
| Longitude (NAD 83) | 73° 14' 18.4" W | | | |
| Ground Elevation (AMSL) | 31.1 m / 102.0 ft | | | |
| Antenna Centerline (AGL) | 5.49 m / 18.0 ft | | | |
| Antenna Model | Andrew 9.3 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 | | | -12.8 (dBW/4 kHz) | |

| | | | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|---|---|---|---|---|---|---|
| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 0 | 0.00 | 103.46 | -10.00 | 285.28 | -10.00 | 134.86 |
| 5 | 0.00 | 105.74 | -10.00 | 285.28 | -10.00 | 134.86 |
| 10 | 0.00 | 100.90 | -10.00 | 285.28 | -10.00 | 134.86 |
| 15 | 0.00 | 96.06 | -10.00 | 285.28 | -10.00 | 134.86 |
| 20 | 0.00 | 91.22 | -10.00 | 285.28 | -10.00 | 134.86 |
| 25 | 0.00 | 86.38 | -10.00 | 285.28 | -10.00 | 134.86 |
| 30 | 0.00 | 81.54 | -10.00 | 285.28 | -10.00 | 134.86 |
| 35 | 0.00 | 76.70 | -10.00 | 285.28 | -10.00 | 134.86 |
| 40 | 0.00 | 71.87 | -10.00 | 285.28 | -10.00 | 134.86 |
| 45 | 0.00 | 67.04 | -10.00 | 285.28 | -10.00 | 134.86 |
| 50 | 0.00 | 62.24 | -10.00 | 285.28 | -10.00 | 134.86 |
| 55 | 0.00 | 57.45 | -10.00 | 285.28 | -10.00 | 134.86 |
| 60 | 0.00 | 52.68 | -10.00 | 285.28 | -10.00 | 134.86 |
| 65 | 0.00 | 47.95 | -10.00 | 285.28 | -10.00 | 134.86 |
| 70 | 0.00 | 43.26 | -8.90 | 292.36 | -8.90 | 137.99 |
| 75 | 0.00 | 38.63 | -7.67 | 300.51 | -7.67 | 141.65 |
| 80 | 0.00 | 34.09 | -6.32 | 309.80 | -6.32 | 145.92 |
| 85 | 0.33 | 29.53 | -4.76 | 304.06 | -4.76 | 139.02 |
| 90 | 0.37 | 25.26 | -3.06 | 310.17 | -3.06 | 140.14 |
| 95 | 0.49 | 21.25 | -1.18 | 310.02 | -1.18 | 136.54 |
| 100 | 0.26 | 17.96 | 0.64 | 353.25 | 0.64 | 164.30 |
| 105 | 0.00 | 15.63 | 2.15 | 373.34 | 2.15 | 178.62 |
| 110 | 0.00 | 14.40 | 3.04 | 380.39 | 3.04 | 182.05 |
| 115 | 0.00 | 14.82 | 2.73 | 377.93 | 2.73 | 180.86 |
| 120 | 0.71 | 16.15 | 1.79 | 316.29 | 1.79 | 134.51 |
| 125 | 0.70 | 19.27 | -0.12 | 301.33 | -0.12 | 130.26 |
| 130 | 0.51 | 22.73 | -1.92 | 302.11 | -1.92 | 133.98 |
| 135 | 0.50 | 25.93 | -3.35 | 292.90 | -3.35 | 130.50 |
| 140 | 0.41 | 29.02 | -4.57 | 295.04 | -4.57 | 133.93 |
| 145 | 0.37 | 31.87 | -5.59 | 292.88 | -5.59 | 134.20 |
| 150 | 0.30 | 34.52 | -6.45 | 296.39 | -6.45 | 136.73 |
| 155 | 0.34 | 36.78 | -7.14 | 286.18 | -7.14 | 132.34 |
| 160 | 0.44 | 38.66 | -7.68 | 271.01 | -7.68 | 123.08 |
| 165 | 0.62 | 40.08 | -8.07 | 253.73 | -8.07 | 111.70 |
| 170 | 0.74 | 41.12 | -8.35 | 243.89 | -8.35 | 105.12 |
| 175 | 0.86 | 41.72 | -8.51 | 236.30 | -8.51 | 100.00 |
| 180 | 0.95 | 41.87 | -8.55 | 230.51 | -8.55 | 100.00 |
| 185 | 1.12 | 41.46 | -8.44 | 224.52 | -8.44 | 100.00 |

# COMSEARCH

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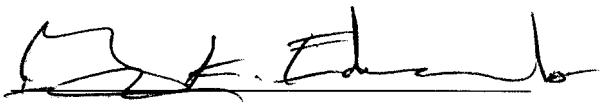
| **Coordination Values** | **HAUPPAUGE, NY** | | | |
|---|---|---|---|---|
| Licensee Name | Globecomm License Sub LLC | | | |
| Latitude (NAD 83) | 40° 48' 53.6" N | | | |
| Longitude (NAD 83) | 73° 14' 18.4" W | | | |
| Ground Elevation (AMSL) | 31.1 m / 102.0 ft | | | |
| Antenna Centerline (AGL) | 5.49 m / 18.0 ft | | | |
| Antenna Model | Andrew 9.3 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 | | | -12.8 (dBW/4 kHz) | |

| | | | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|---|---|---|---|---|---|---|
| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 190 | 1.53 | 40.36 | -8.15 | 213.35 | -8.15 | 100.00 |
| 195 | 1.43 | 39.32 | -7.86 | 217.83 | -7.86 | 100.00 |
| 200 | 1.25 | 37.93 | -7.47 | 225.52 | -7.47 | 100.00 |
| 205 | 1.66 | 35.63 | -6.80 | 216.33 | -6.80 | 100.00 |
| 210 | 1.94 | 33.15 | -6.01 | 212.47 | -6.01 | 100.00 |
| 215 | 1.93 | 30.62 | -5.15 | 217.01 | -5.15 | 100.00 |
| 220 | 1.65 | 28.06 | -4.20 | 230.72 | -4.20 | 100.00 |
| 225 | 1.18 | 25.42 | -3.13 | 253.54 | -3.13 | 103.38 |
| 230 | 1.00 | 22.38 | -1.75 | 269.85 | -1.75 | 112.39 |
| 235 | 1.15 | 18.95 | 0.06 | 276.60 | 0.06 | 113.71 |
| 240 | 1.30 | 15.40 | 2.31 | 287.19 | 2.31 | 116.46 |
| 245 | 1.33 | 11.86 | 5.15 | 308.74 | 5.15 | 124.81 |
| 250 | 1.10 | 8.43 | 8.86 | 350.54 | 8.86 | 142.67 |
| 255 | 1.20 | 5.52 | 13.44 | 511.96 | 13.44 | 217.42 |
| 260 | 1.07 | 6.52 | 11.65 | 376.20 | 11.65 | 155.18 |
| 265 | 1.15 | 10.09 | 6.90 | 331.23 | 6.90 | 133.98 |
| 270 | 0.94 | 14.64 | 2.86 | 307.40 | 2.86 | 128.43 |
| 275 | 0.85 | 19.38 | -0.18 | 290.98 | -0.18 | 123.68 |
| 280 | 0.89 | 24.18 | -2.59 | 270.94 | -2.59 | 114.59 |
| 285 | 0.75 | 29.08 | -4.59 | 266.96 | -4.59 | 115.22 |
| 290 | 0.45 | 34.03 | -6.30 | 277.88 | -6.30 | 125.47 |
| 295 | 0.28 | 38.98 | -7.77 | 290.17 | -7.77 | 134.71 |
| 300 | 0.21 | 43.92 | -9.07 | 289.37 | -9.07 | 136.20 |
| 305 | 0.37 | 48.84 | -10.00 | 264.04 | -10.00 | 121.88 |
| 310 | 0.00 | 53.83 | -10.00 | 285.28 | -10.00 | 134.86 |
| 315 | 0.00 | 58.78 | -10.00 | 285.28 | -10.00 | 134.86 |
| 320 | 0.00 | 63.74 | -10.00 | 285.28 | -10.00 | 134.86 |
| 325 | 0.00 | 68.70 | -10.00 | 285.28 | -10.00 | 134.86 |
| 330 | 0.00 | 73.66 | -10.00 | 285.28 | -10.00 | 134.86 |
| 335 | 0.00 | 78.63 | -10.00 | 285.28 | -10.00 | 134.86 |
| 340 | 0.00 | 83.59 | -10.00 | 285.28 | -10.00 | 134.86 |
| 345 | 0.00 | 88.56 | -10.00 | 285.28 | -10.00 | 134.86 |
| 350 | 0.00 | 93.53 | -10.00 | 285.28 | -10.00 | 134.86 |
| 355 | 0.00 | 98.50 | -10.00 | 285.28 | -10.00 | 134.86 |

# 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: December 30, 2015

**COMSEARCH**
**Earth Station Data Sheet**
19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
**Globecomm License Sub LLC**
**HAUPPAUGE, NY**
**(4.5 Meter)**
**Satellite Earth Station**

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
December 30, 2015

# COMSEARCH

**Earth Station Data Sheet**

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Green Line Networks
High Voltage Communications LLC (CFN)
Jefferson Microwave, LLC
Kryptick Technologies
MONMOUTH, COUNTY OF
MVC Research. LLC
Mahwah Communications
Middlesex, County of

Morris, County of
Nassau County Police Department
National Tower Company LLC
NeXXCom Wireless LLC
New Cingular Wireless PCS LLC -NJ
New Cingular Wireless PCS LLC - CT
New Cingular Wireless PCS, LLC (NY)
New Jersey State Police
New Jersey Transit Rail Operations, Inc.
New Jersey, State of -NJ Transit
New Line Networks, LLC
New York Communications Co., Inc
New York, City of (Police Department)
Office of Emergency Telecom Services, NJ
Open Line Communications
Orange Poughkeepsie SMSA LTD Partnership
Orange and Rockland Utilities, Inc.
PEG Bandwidth, LLC
PSEG Services Corporation
Pitt Power
Port Authority of New York & New Jersey
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Rendezvous Communications LLC
SCS Networks
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|---|---|
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| Job Number: | 150818COMSGE05 |

### Administrative Information

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| Call Sign | E970361 |
| Licensee Code | SWSITE |
| Licensee Name | Globecomm License Sub LLC |

### Site Information — HAUPPAUGE, NY

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|---|---|
| Venue Name | |
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| Azimuth Range | 111.3° to 256.4° |
| Corresponding Elevation Angles | 14.3° / 6.5° |
| Antenna Centerline (AGL) | 3.05 m / 10.0 ft |

| Antenna Information | | Receive - FCC32 | | Transmit - FCC32 | |
|---|---|---|---|---|---|
| Manufacturer | | ASC Signal | | ASC Signal | |
| Model | | 4.5 Meter | | 4.5 Meter | |
| Gain / Diameter | | 43.8 dBi / 4.5 m | | 46.5 dBi / 4.5 m | |
| 3-dB / 15-dB Beamwidth | | 1.22° / 2.47° | | 0.85° / 1.90° | |
| Max Available RF Power | (dBW/4 kHz) | | | -13.0 | |
| | (dBW/MHz) | | | 11.0 | |
| Maximum EIRP | (dBW/4 kHz) | | | 33.5 | |
| | (dBW/MHz) | | | 57.5 | |
| 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) | 36M0F8W / 3700.0 - 4200.0<br>64K0G7W - 36M0G7W / 3700.0 - 4200.0 | 36M0F8W / 5925.0 - 6425.0<br>64K0G7W - 36M0G7W / 5925.0 - 6425.0 |
| Max Great Circle Coordination Distance | 458.5 km / 284.9 mi | 181.1 km / 112.5 mi |
| Precipitation Scatter Contour Radius | 589.0 km / 365.9 mi | 100.0 km / 62.1 mi |

# COMSEARCH

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| Longitude (NAD 83) | 73° 14' 18.4" W | | | |
| Ground Elevation (AMSL) | 31.1 m / 102.0 ft | | | |
| Antenna Centerline (AGL) | 3.05 m / 10.0 ft | | | |
| Antenna Model | ASC Signal 4.5 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 | | | -13.0 (dBW/4 kHz) | |

| | | | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|---|---|---|---|---|---|---|
| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 0 | 0.00 | 103.46 | -10.00 | 285.28 | -10.00 | 134.30 |
| 5 | 0.00 | 105.74 | -10.00 | 285.28 | -10.00 | 134.30 |
| 10 | 0.00 | 100.90 | -10.00 | 285.28 | -10.00 | 134.30 |
| 15 | 0.00 | 96.06 | -10.00 | 285.28 | -10.00 | 134.30 |
| 20 | 0.00 | 91.22 | -10.00 | 285.28 | -10.00 | 134.30 |
| 25 | 0.00 | 86.38 | -10.00 | 285.28 | -10.00 | 134.30 |
| 30 | 0.00 | 81.54 | -10.00 | 285.28 | -10.00 | 134.30 |
| 35 | 0.00 | 76.70 | -10.00 | 285.28 | -10.00 | 134.30 |
| 40 | 0.00 | 71.87 | -10.00 | 285.28 | -10.00 | 134.30 |
| 45 | 0.00 | 67.04 | -10.00 | 285.28 | -10.00 | 134.30 |
| 50 | 0.00 | 62.24 | -10.00 | 285.28 | -10.00 | 134.30 |
| 55 | 0.00 | 57.45 | -10.00 | 285.28 | -10.00 | 134.30 |
| 60 | 0.00 | 52.68 | -10.00 | 285.28 | -10.00 | 134.30 |
| 65 | 0.00 | 47.95 | -10.00 | 285.28 | -10.00 | 134.30 |
| 70 | 0.00 | 43.26 | -8.90 | 292.36 | -8.90 | 137.41 |
| 75 | 0.00 | 38.63 | -7.67 | 300.51 | -7.67 | 141.05 |
| 80 | 0.00 | 34.09 | -6.32 | 309.80 | -6.32 | 145.28 |
| 85 | 0.37 | 29.51 | -4.75 | 298.66 | -4.75 | 134.77 |
| 90 | 0.41 | 25.24 | -3.05 | 305.41 | -3.05 | 136.29 |
| 95 | 0.53 | 21.22 | -1.17 | 306.45 | -1.17 | 133.60 |
| 100 | 0.31 | 17.93 | 0.66 | 347.49 | 0.66 | 158.82 |
| 105 | 0.56 | 15.11 | 2.51 | 332.67 | 2.51 | 143.40 |
| 110 | 0.93 | 13.48 | 3.76 | 316.34 | 3.76 | 131.27 |
| 115 | 0.99 | 13.87 | 3.45 | 309.26 | 3.45 | 127.82 |
| 120 | 1.08 | 15.84 | 2.00 | 293.53 | 2.00 | 120.60 |
| 125 | 1.14 | 18.95 | 0.06 | 276.67 | 0.06 | 113.16 |
| 130 | 1.18 | 22.24 | -1.68 | 263.14 | -1.68 | 107.07 |
| 135 | 1.20 | 25.41 | -3.12 | 253.04 | -3.12 | 102.44 |
| 140 | 1.20 | 28.42 | -4.34 | 245.29 | -4.34 | 100.00 |
| 145 | 1.21 | 31.20 | -5.36 | 238.76 | -5.36 | 100.00 |
| 150 | 1.29 | 33.70 | -6.19 | 231.36 | -6.19 | 100.00 |
| 155 | 1.33 | 35.92 | -6.88 | 226.08 | -6.88 | 100.00 |
| 160 | 1.38 | 37.82 | -7.44 | 221.70 | -7.44 | 100.00 |
| 165 | 1.44 | 39.31 | -7.86 | 217.57 | -7.86 | 100.00 |
| 170 | 1.54 | 40.35 | -8.15 | 213.17 | -8.15 | 100.00 |
| 175 | 1.54 | 41.04 | -8.33 | 212.27 | -8.33 | 100.00 |
| 180 | 1.64 | 41.18 | -8.37 | 209.25 | -8.37 | 100.00 |
| 185 | 1.67 | 40.91 | -8.30 | 208.68 | -8.30 | 100.00 |

# COMSEARCH

## Earth Station Data Sheet

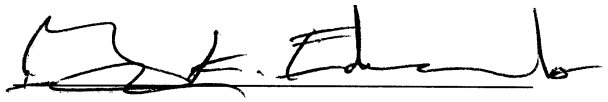
19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

| **Coordination Values** | **HAUPPAUGE, NY** | | | |
|---|---|---|---|---|
| Licensee Name | Globecomm License Sub LLC | | | |
| Latitude (NAD 83) | 40° 48' 53.6" N | | | |
| Longitude (NAD 83) | 73° 14' 18.4" W | | | |
| Ground Elevation (AMSL) | 31.1 m / 102.0 ft | | | |
| Antenna Centerline (AGL) | 3.05 m / 10.0 ft | | | |
| Antenna Model | ASC Signal 4.5 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 | | | -13.0 (dBW/4 kHz) | |

| | | | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|---|---|---|---|---|---|---|
| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 190 | 1.86 | 40.04 | -8.06 | 204.67 | -8.06 | 100.00 |
| 195 | 1.77 | 39.00 | -7.78 | 208.47 | -7.78 | 100.00 |
| 200 | 1.78 | 37.44 | -7.33 | 210.23 | -7.33 | 100.00 |
| 205 | 2.16 | 35.20 | -6.66 | 206.52 | -6.66 | 100.00 |
| 210 | 2.43 | 32.74 | -5.88 | 204.38 | -5.88 | 100.00 |
| 215 | 2.43 | 30.22 | -5.01 | 206.21 | -5.01 | 100.00 |
| 220 | 2.15 | 27.67 | -4.05 | 217.37 | -4.05 | 100.00 |
| 225 | 1.85 | 24.91 | -2.91 | 231.91 | -2.91 | 100.00 |
| 230 | 1.92 | 21.69 | -1.41 | 238.79 | -1.41 | 100.00 |
| 235 | 2.08 | 18.28 | 0.45 | 246.16 | 0.45 | 100.00 |
| 240 | 2.07 | 14.86 | 2.70 | 262.04 | 2.70 | 100.00 |
| 245 | 2.11 | 11.32 | 5.66 | 283.36 | 5.66 | 106.81 |
| 250 | 2.06 | 7.76 | 9.76 | 320.17 | 9.76 | 122.42 |
| 255 | 1.96 | 4.80 | 14.98 | 458.48 | 14.98 | 181.12 |
| 260 | 1.84 | 5.88 | 12.76 | 354.65 | 12.76 | 137.28 |
| 265 | 1.63 | 9.85 | 7.16 | 314.30 | 7.16 | 123.48 |
| 270 | 1.52 | 14.43 | 3.02 | 284.25 | 3.02 | 112.50 |
| 275 | 1.34 | 19.24 | -0.11 | 267.92 | -0.11 | 107.53 |
| 280 | 1.09 | 24.14 | -2.57 | 260.41 | -2.57 | 106.70 |
| 285 | 0.96 | 29.05 | -4.58 | 253.39 | -4.58 | 105.11 |
| 290 | 0.82 | 33.98 | -6.28 | 251.41 | -6.28 | 106.55 |
| 295 | 0.65 | 38.93 | -7.76 | 253.25 | -7.76 | 110.31 |
| 300 | 0.49 | 43.88 | -9.06 | 256.01 | -9.06 | 114.32 |
| 305 | 0.54 | 48.83 | -10.00 | 247.23 | -10.00 | 109.59 |
| 310 | 0.00 | 53.83 | -10.00 | 285.28 | -10.00 | 134.30 |
| 315 | 0.00 | 58.78 | -10.00 | 285.28 | -10.00 | 134.30 |
| 320 | 0.00 | 63.74 | -10.00 | 285.28 | -10.00 | 134.30 |
| 325 | 0.00 | 68.70 | -10.00 | 285.28 | -10.00 | 134.30 |
| 330 | 0.00 | 73.66 | -10.00 | 285.28 | -10.00 | 134.30 |
| 335 | 0.00 | 78.63 | -10.00 | 285.28 | -10.00 | 134.30 |
| 340 | 0.00 | 83.59 | -10.00 | 285.28 | -10.00 | 134.30 |
| 345 | 0.00 | 88.56 | -10.00 | 285.28 | -10.00 | 134.30 |
| 350 | 0.00 | 93.53 | -10.00 | 285.28 | -10.00 | 134.30 |
| 355 | 0.00 | 98.50 | -10.00 | 285.28 | -10.00 | 134.30 |

# 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: December 30, 2015