

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
GCI Communications Corp.
MOUNTAIN VLG, AK
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
January 15, 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.

The following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. All cases reported were resolved by agreement between GCI Communications Corp and United2, LLC.

Company

United2, 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

Company

United Utilities, Inc.

United2, 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.

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Earth Station Data Sheet

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

Date: 01/15/2021
Job Number: 210115COMSTC02

Administrative Information

Call Sign: E020089
Licensee Name: GCI Communications Corp.

Site Information

MOUNTAIN VLG, AK

Latitude (NAD 83): 62° 5' 16.3" N
Longitude (NAD 83): 163° 43' 36.2" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 36.58 m / 120.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 105° W to 194° West Longitude
Azimuth Range: 118.2° to 213.4°
Corresponding Elevation Angles: 5.4° / 15.5°
Antenna Centerline (AGL): 3.66 m / 12.0 ft

Antenna Information

Receive

Manufacturer: GD Satcom
Model: 1385
Gain / Diameter: 42.0 dBi / 3.8 m
3-dB / 15-dB Beamwidth: 1.40° / 3.00°

Transmit

Manufacturer: GD Satcom
Model: 1385
Gain / Diameter: 46.2 dBi / 3.8 m
0.90° / 1.70°

| Max Available RF Power | (dBW/4 kHz) (dBW/MHz) | <u>45K0G7W - 36M0G7W</u> | | <u>60K0D7W - 36M0D7W</u> | |
|--------------------------|--------------------------|--------------------------|--------|--------------------------|---------|
| | | -2.7 | -16.53 | -2.7 | -16.53 |
| Maximum EIRP | (dBW/4 kHz) | 43.5 | 29.67 | 43.5 | 29.67 |
| | (dBW/MHz) | 54.01 | 53.67 | 55.26 | 53.67 |
| | (dBW) | 54.01 | 69.21 | 55.26 | 69.21 |
| 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

Emission / Frequency Range (MHz):
45K0G7W - 36M0G7W / 3700.0 - 4200.0
60K0D7W - 36M0D7W / 3700.0 - 4200.0

Transmit 6.1 GHz

Emission / Frequency Range (MHz):
45K0G7W - 36M0G7W / 5925.0 - 6425.0
60K0D7W - 36M0D7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance: 530.1 km / 329.3 mi 304.3 km / 189.0 mi
Precipitation Scatter Contour Radius: 611.2 km / 379.7 mi 101.3 km / 63.0 mi

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Earth Station Data Sheet

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Coordination Values

MOUNTAIN VLG, AK

| | | | | |
|------------------------------------|--------------------------|-------|------------------|---------|
| Licensee Name | GCI Communications Corp. | | | |
| Latitude (NAD 83) | 62° 5' 16.3" N | | | |
| Longitude (NAD 83) | 163° 43' 36.2" W | | | |
| Ground Elevation (AMSL) | 36.58 m / 120.0 ft | | | |
| Antenna Centerline (AGL) | 3.66 m / 12.0 ft | | | |
| 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 | 1.60 | 118.16 | -10.00 | 205.40 | -10.00 | 102.28 |
| 5 | 1.55 | 113.17 | -10.00 | 206.57 | -10.00 | 103.38 |
| 10 | 1.59 | 108.18 | -10.00 | 205.49 | -10.00 | 102.37 |
| 15 | 1.59 | 103.20 | -10.00 | 205.48 | -10.00 | 102.36 |
| 20 | 1.33 | 98.20 | -10.00 | 210.31 | -10.00 | 109.00 |
| 25 | 1.13 | 93.22 | -10.00 | 216.30 | -10.00 | 114.25 |
| 30 | 1.03 | 88.23 | -10.00 | 219.23 | -10.00 | 116.73 |
| 35 | 0.97 | 83.25 | -10.00 | 222.06 | -10.00 | 119.09 |
| 40 | 0.88 | 78.26 | -10.00 | 226.61 | -10.00 | 122.80 |
| 45 | 0.85 | 73.28 | -10.00 | 228.76 | -10.00 | 124.51 |
| 50 | 0.89 | 68.30 | -10.00 | 226.01 | -10.00 | 122.31 |
| 55 | 1.12 | 63.31 | -10.00 | 216.61 | -10.00 | 114.51 |
| 60 | 1.13 | 58.32 | -10.00 | 216.32 | -10.00 | 114.27 |
| 65 | 1.18 | 53.34 | -10.00 | 214.72 | -10.00 | 112.89 |
| 70 | 1.32 | 48.36 | -10.00 | 210.65 | -10.00 | 109.31 |
| 75 | 1.32 | 43.38 | -8.93 | 215.87 | -8.93 | 112.58 |
| 80 | 1.22 | 38.42 | -7.61 | 225.78 | -7.61 | 119.17 |
| 85 | 1.18 | 33.46 | -6.11 | 235.21 | -6.11 | 124.66 |
| 90 | 1.12 | 28.52 | -4.38 | 247.91 | -4.38 | 132.14 |
| 95 | 1.12 | 23.60 | -2.32 | 261.26 | -2.32 | 138.07 |
| 100 | 0.98 | 18.74 | 0.18 | 284.50 | 0.18 | 152.33 |
| 105 | 0.90 | 13.96 | 3.38 | 315.50 | 3.38 | 173.15 |
| 110 | 0.79 | 9.42 | 7.64 | 358.71 | 7.64 | 197.87 |
| 115 | 0.00 | 6.29 | 12.03 | 457.71 | 12.03 | 262.59 |
| 120 | 0.00 | 5.69 | 13.13 | 530.06 | 13.13 | 304.26 |
| 125 | 0.00 | 7.66 | 9.90 | 471.13 | 9.90 | 265.39 |
| 130 | 0.00 | 9.56 | 7.49 | 429.14 | 7.49 | 243.51 |
| 135 | 0.00 | 11.34 | 5.63 | 401.27 | 5.63 | 231.38 |
| 140 | 0.00 | 12.98 | 4.16 | 388.83 | 4.16 | 224.75 |
| 145 | 0.00 | 14.49 | 2.98 | 379.89 | 2.98 | 219.61 |
| 150 | 0.00 | 15.82 | 2.02 | 372.28 | 2.02 | 215.59 |
| 155 | 0.00 | 16.99 | 1.25 | 366.25 | 1.25 | 212.45 |
| 160 | 0.00 | 17.95 | 0.65 | 361.57 | 0.65 | 210.03 |
| 165 | 0.00 | 18.72 | 0.19 | 358.07 | 0.19 | 208.24 |
| 170 | 0.00 | 19.28 | -0.13 | 355.62 | -0.13 | 207.00 |
| 175 | 0.00 | 19.62 | -0.32 | 354.17 | -0.32 | 206.26 |
| 180 | 0.00 | 19.73 | -0.38 | 353.72 | -0.38 | 206.03 |
| 185 | 0.00 | 19.62 | -0.31 | 354.20 | -0.31 | 206.27 |

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Coordination Values

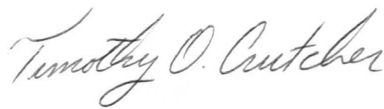
MOUNTAIN VLG, AK

| | | | | | |
|------------------------------------|--------------------------|-------|--|------------------|---------|
| Licensee Name | GCI Communications Corp. | | | | |
| Latitude (NAD 83) | 62° 5' 16.3" N | | | | |
| Longitude (NAD 83) | 163° 43' 36.2" W | | | | |
| Ground Elevation (AMSL) | 36.58 m / 120.0 ft | | | | |
| Antenna Centerline (AGL) | 3.66 m / 12.0 ft | | | | |
| 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 | 19.28 | -0.13 | 355.63 | -0.13 | 207.00 |
| 195 | 0.00 | 18.73 | 0.19 | 358.05 | 0.19 | 208.23 |
| 200 | 0.00 | 17.96 | 0.64 | 361.54 | 0.64 | 210.01 |
| 205 | 0.00 | 16.99 | 1.25 | 366.23 | 1.25 | 212.43 |
| 210 | 0.00 | 15.83 | 2.01 | 372.22 | 2.01 | 215.56 |
| 215 | 0.00 | 15.54 | 2.21 | 373.83 | 2.21 | 216.40 |
| 220 | 0.00 | 16.77 | 1.39 | 367.36 | 1.39 | 213.02 |
| 225 | 0.00 | 19.22 | -0.09 | 355.89 | -0.09 | 207.13 |
| 230 | 0.00 | 22.51 | -1.81 | 342.94 | -1.81 | 202.21 |
| 235 | 0.00 | 26.31 | -3.50 | 330.44 | -3.50 | 195.73 |
| 240 | 0.00 | 30.44 | -5.09 | 319.06 | -5.09 | 189.66 |
| 245 | 0.00 | 34.79 | -6.54 | 308.28 | -6.54 | 184.08 |
| 250 | 2.05 | 38.61 | -7.67 | 204.26 | -7.67 | 100.00 |
| 255 | 2.47 | 43.18 | -8.88 | 189.23 | -8.88 | 100.00 |
| 260 | 4.64 | 47.51 | -9.92 | 138.75 | -9.92 | 100.00 |
| 265 | 6.54 | 52.10 | -10.00 | 119.30 | -10.00 | 100.00 |
| 270 | 6.23 | 57.04 | -10.00 | 122.73 | -10.00 | 100.00 |
| 275 | 5.76 | 62.00 | -10.00 | 127.53 | -10.00 | 100.00 |
| 280 | 5.53 | 66.93 | -10.00 | 129.75 | -10.00 | 100.00 |
| 285 | 5.25 | 71.86 | -10.00 | 132.42 | -10.00 | 100.00 |
| 290 | 4.80 | 76.79 | -10.00 | 136.28 | -10.00 | 100.00 |
| 295 | 4.18 | 81.72 | -10.00 | 145.07 | -10.00 | 100.00 |
| 300 | 4.11 | 86.62 | -10.00 | 146.18 | -10.00 | 100.00 |
| 305 | 3.95 | 91.52 | -10.00 | 148.82 | -10.00 | 100.00 |
| 310 | 3.67 | 96.42 | -10.00 | 154.71 | -10.00 | 100.00 |
| 315 | 3.46 | 101.30 | -10.00 | 159.05 | -10.00 | 100.00 |
| 320 | 3.21 | 106.17 | -10.00 | 164.83 | -10.00 | 100.00 |
| 325 | 3.17 | 111.04 | -10.00 | 165.63 | -10.00 | 100.00 |
| 330 | 3.05 | 115.89 | -10.00 | 170.36 | -10.00 | 100.00 |
| 335 | 2.72 | 120.69 | -10.00 | 177.87 | -10.00 | 100.00 |
| 340 | 2.45 | 125.47 | -10.00 | 184.27 | -10.00 | 100.00 |
| 345 | 2.43 | 130.26 | -10.00 | 184.72 | -10.00 | 100.00 |
| 350 | 1.88 | 128.14 | -10.00 | 197.75 | -10.00 | 100.00 |
| 355 | 1.76 | 123.15 | -10.00 | 201.14 | -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.



Timothy O. Crutcher
Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: January 15, 2021