

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**University of Nebraska - Board of Regent**  
**OMAHA, NE**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
March 23, 2018

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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**

There were no great circle interference cases identified during the interference study of the proposed earth station.

No 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 03/13/2018.

Company

## **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: 03/23/2018  
Job Number: 180313COMSTC05

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**Administrative Information**

Licensee Code UNIVNE  
Licensee Name University of Nebraska - Board of Regent

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**Site Information**

**OMAHA, NE**

Venue Name KVNO  
Latitude (NAD 83) 41° 15' 28.1" N  
Longitude (NAD 83) 96° 0' 33.6" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 349.16 m / 1145.6 ft

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**Link Information**

Satellite Type Geostationary  
Mode RO - Receive-Only  
Modulation Analog and Digital  
Satellite Arc 58° W to 143° West Longitude  
Azimuth Range 130.2° to 238.4°  
Corresponding Elevation Angles 28.7° / 22.8°  
Antenna Centerline (AGL) 2.47 m / 8.1 ft

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**Antenna Information**

**Receive**

Manufacturer COMTECH  
Model 3.8M  
Gain / Diameter 42.0 dBi / 3.8 m  
3-dB / 15-dB Beamwidth 1.60° / 2.00°

Interference Objectives:    Long Term    -156.0 dBW/MHz    20%  
                                         Short Term    -146.0 dBW/MHz    0.01%

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**Frequency Information**

**Receive 4.0 GHz**

Emission / Frequency Range (MHz) 30K0G7W - 36M0G7W / 3700.0 - 4200.0  
30K0F7W - 36M0F7W / 3700.0 - 4200.0

Max Great Circle Coordination Distance 524.1 km / 325.6 mi  
Precipitation Scatter Contour Radius 498.8 km / 309.9 mi

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## Earth Station Data Sheet

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| Coordination Values                |  | OMAHA, NE                                |       |
|------------------------------------|--|------------------------------------------|-------|
| Licensee Name                      |  | University of Nebraska - Board of Regent |       |
| Latitude (NAD 83)                  |  | 41° 15' 28.1" N                          |       |
| Longitude (NAD 83)                 |  | 96° 0' 33.6" W                           |       |
| Ground Elevation (AMSL)            |  | 349.16 m / 1145.6 ft                     |       |
| Antenna Centerline (AGL)           |  | 2.47 m / 8.1 ft                          |       |
| Antenna Mode                       |  | Receive 4.0 GHz                          |       |
| Interference Objectives: Long Term |  | -156.0 dBW/MHz                           | 20%   |
| Short Term                         |  | -146.0 dBW/MHz                           | 0.01% |

| Azimuth (°) | Horizon<br>Elevation (°) | Antenna<br>Discrimination (°) | Receive 4.0 GHz       |                               |
|-------------|--------------------------|-------------------------------|-----------------------|-------------------------------|
|             |                          |                               | Horizon<br>Gain (dBi) | Coordination<br>Distance (km) |
| 0           | 1.27                     | 119.16                        | -10.00                | 238.29                        |
| 5           | 0.86                     | 120.61                        | -10.00                | 269.81                        |
| 10          | 0.76                     | 116.35                        | -10.00                | 282.73                        |
| 15          | 0.63                     | 112.03                        | -10.00                | 301.87                        |
| 20          | 0.66                     | 107.71                        | -10.00                | 297.67                        |
| 25          | 0.65                     | 103.34                        | -10.00                | 298.48                        |
| 30          | 0.73                     | 98.96                         | -10.00                | 287.51                        |
| 35          | 0.74                     | 94.56                         | -10.00                | 285.73                        |
| 40          | 0.68                     | 90.14                         | -10.00                | 294.16                        |
| 45          | 0.69                     | 85.73                         | -10.00                | 293.38                        |
| 50          | 0.77                     | 81.31                         | -10.00                | 281.83                        |
| 55          | 0.70                     | 76.93                         | -10.00                | 291.17                        |
| 60          | 0.70                     | 72.56                         | -10.00                | 290.80                        |
| 65          | 0.67                     | 68.23                         | -10.00                | 296.32                        |
| 70          | 0.61                     | 63.96                         | -10.00                | 304.61                        |
| 75          | 0.56                     | 59.75                         | -10.00                | 312.65                        |
| 80          | 0.49                     | 55.63                         | -10.00                | 323.43                        |
| 85          | 0.47                     | 51.59                         | -10.00                | 329.50                        |
| 90          | 0.47                     | 47.67                         | -9.96                 | 328.95                        |
| 95          | 0.57                     | 43.87                         | -9.05                 | 320.16                        |
| 100         | 0.66                     | 40.25                         | -8.12                 | 313.59                        |
| 105         | 0.53                     | 37.06                         | -7.22                 | 343.54                        |
| 110         | 0.53                     | 34.15                         | -6.33                 | 351.50                        |
| 115         | 0.64                     | 31.59                         | -5.49                 | 342.98                        |
| 120         | 0.59                     | 29.75                         | -4.84                 | 358.12                        |
| 125         | 0.41                     | 28.72                         | -4.45                 | 407.41                        |
| 130         | 0.39                     | 28.31                         | -4.30                 | 415.53                        |
| 135         | 0.27                     | 28.80                         | -4.49                 | 457.68                        |
| 140         | 0.39                     | 29.83                         | -4.87                 | 408.09                        |
| 145         | 0.33                     | 31.73                         | -5.54                 | 422.13                        |
| 150         | 0.22                     | 34.19                         | -6.35                 | 451.85                        |
| 155         | 0.00                     | 36.66                         | -7.10                 | 449.79                        |
| 160         | 0.00                     | 38.61                         | -7.67                 | 442.19                        |
| 165         | 0.00                     | 40.20                         | -8.11                 | 436.42                        |
| 170         | 0.00                     | 41.36                         | -8.42                 | 432.35                        |
| 175         | 0.00                     | 42.08                         | -8.60                 | 429.92                        |
| 180         | 0.00                     | 42.32                         | -8.66                 | 429.12                        |
| 185         | 0.00                     | 42.08                         | -8.60                 | 429.92                        |



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## Earth Station Data Sheet

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### Coordination Values

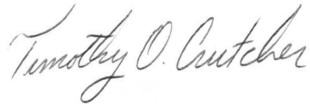
### OMAHA, NE

Licensee Name University of Nebraska - Board of Regent  
Latitude (NAD 83) 41° 15' 28.1" N  
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Ground Elevation (AMSL) 349.16 m / 1145.6 ft  
Antenna Centerline (AGL) 2.47 m / 8.1 ft  
Antenna Mode Receive 4.0 GHz  
Interference Objectives: Long Term -156.0 dBW/MHz 20%  
Short Term -146.0 dBW/MHz 0.01%

| Azimuth (°) | Horizon<br>Elevation (°) | Antenna<br>Discrimination (°) | Receive 4.0 GHz       |                               |
|-------------|--------------------------|-------------------------------|-----------------------|-------------------------------|
|             |                          |                               | Horizon<br>Gain (dBi) | Coordination<br>Distance (km) |
| 190         | 0.00                     | 41.36                         | -8.42                 | 432.35                        |
| 195         | 0.00                     | 40.20                         | -8.11                 | 436.41                        |
| 200         | 0.00                     | 38.62                         | -7.67                 | 442.19                        |
| 205         | 0.00                     | 36.66                         | -7.10                 | 449.79                        |
| 210         | 0.00                     | 34.38                         | -6.41                 | 459.34                        |
| 215         | 0.00                     | 31.81                         | -5.57                 | 470.51                        |
| 220         | 0.00                     | 29.01                         | -4.56                 | 484.93                        |
| 225         | 0.00                     | 26.30                         | -3.50                 | 500.82                        |
| 230         | 0.00                     | 24.26                         | -2.62                 | 514.26                        |
| 235         | 0.26                     | 22.82                         | -1.96                 | 499.04                        |
| 240         | 0.00                     | 22.89                         | -1.99                 | 524.11                        |
| 245         | 0.24                     | 23.50                         | -2.27                 | 503.53                        |
| 250         | 0.29                     | 25.22                         | -3.04                 | 470.78                        |
| 255         | 0.21                     | 27.80                         | -4.10                 | 487.77                        |
| 260         | 0.00                     | 31.03                         | -5.29                 | 474.36                        |
| 265         | 0.00                     | 34.51                         | -6.45                 | 458.77                        |
| 270         | 0.35                     | 38.10                         | -7.52                 | 392.11                        |
| 275         | 0.53                     | 42.03                         | -8.59                 | 330.03                        |
| 280         | 0.74                     | 46.14                         | -9.60                 | 289.59                        |
| 285         | 0.87                     | 50.42                         | -10.00                | 269.05                        |
| 290         | 0.99                     | 54.79                         | -10.00                | 254.89                        |
| 295         | 1.06                     | 59.26                         | -10.00                | 249.99                        |
| 300         | 1.04                     | 63.79                         | -10.00                | 251.44                        |
| 305         | 0.84                     | 68.39                         | -10.00                | 271.93                        |
| 310         | 0.76                     | 72.99                         | -10.00                | 282.56                        |
| 315         | 0.91                     | 77.59                         | -10.00                | 262.86                        |
| 320         | 1.04                     | 82.20                         | -10.00                | 251.33                        |
| 325         | 1.17                     | 86.84                         | -10.00                | 243.90                        |
| 330         | 1.42                     | 91.49                         | -10.00                | 229.66                        |
| 335         | 1.57                     | 96.15                         | -10.00                | 221.50                        |
| 340         | 1.71                     | 100.81                        | -10.00                | 214.02                        |
| 345         | 1.69                     | 105.45                        | -10.00                | 214.96                        |
| 350         | 1.76                     | 110.09                        | -10.00                | 211.43                        |
| 355         | 1.61                     | 114.67                        | -10.00                | 219.22                        |

## 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.

A handwritten signature in cursive script that reads "Timothy O. Crutcher".

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

DATED: March 23, 2018