

# **FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT**

Prepared for  
**Intelsat License LLC**  
**NAPA, CA**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
March 13, 2019

## TABLE OF CONTENTS

|                                         |    |
|-----------------------------------------|----|
| 1. CONCLUSIONS .....                    | 3  |
| 2. SUMMARY OF RESULTS .....             | 4  |
| 3. SUPPLEMENTAL SHOWING .....           | 5  |
| 4. EARTH STATION COORDINATION DATA..... | 7  |
| 5. CERTIFICATION.....                   | 11 |

## **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 02/21/2019.

Company

AT&T Mobility Wireless Operations Hldgs  
Alameda County of California  
CBS Broadcasting Inc  
CBS Communications Services Inc  
California Rural Service Area #1, Inc.  
California State University, Sacramento  
California, State of  
Cify of Richmond California  
City & County of San Francisco PUC  
Contra Costa, County of  
County of San Mateo  
Crystal Smr Inc.  
East Bay Municipal Utility District  
East Bay Regional Park  
Field, David J  
Golden Gate Bridge Hwy & Trans Dist  
KGO Television, Inc.  
M.U.T. Licensing, LLC  
Marin, County of  
Mendocino County of  
Modesto Irrigation District  
Napa, City of  
Napa, County of  
New Cingular Wireless PCS LLC - N CAL  
Nextel of California Inc.  
Olympic Wireless, LLC  
Pacific Gas and Electric Company  
Pacific Satellite Connection, Inc.  
Sacramento County  
Sacramento Municipal Utility District  
Sacramento Valley Limited Partnership  
San Mateo County Transit Dist - PCJPB  
Santa Clara, County of  
Solano, County of  
Sonoma, County of CA  
Southern California Edison Company  
Telepath Corporation  
Transmission Agency of Northern Californ  
Tri-Dam Project  
Union Pacific Railroad Company  
Verizon Wireless (VAW) LLC-N CA/NV

Yolo Emergency Communications Agency  
Yuba County Water Agency  
Yuba, County of

## **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: 03/13/2019  
Job Number: 190221COMSGE05

### Administrative Information

Status: ENGINEER PROPOSAL  
Call Sign:  
Licensee Code: INTELS  
Licensee Name: Intelsat License LLC

### Site Information

#### NAPA, CA

Venue Name:  
Latitude (NAD 83): 38° 14' 41.6" N  
Longitude (NAD 83): 122° 16' 45.8" W  
Climate Zone: A  
Rain Zone: 3  
Ground Elevation (AMSL): 13.14 m / 43.1 ft

### Link Information

Satellite Type: Geostationary  
Mode: TO - Transmit-Only  
Modulation: Digital  
Satellite Arc: 50° W to 194° West Longitude  
Azimuth Range: 101.2° to 258.4°  
Corresponding Elevation Angles: 5.2° / 5.6°  
Antenna Centerline (AGL): 7.32 m / 24.0 ft

### Antenna Information

#### Transmit - FCC32

Manufacturer: Vertex-RSI  
Model: 11.1 MKX  
Gain / Diameter: 55.5 dBi / 11.1 m  
3-dB / 15-dB Beamwidth: 0.28° / 0.59°

Max Available RF Power (dBW/4 kHz): (1) -4.5 (2) -12.9  
(dBW/MHz): 19.5 11.1

Maximum EIRP (dBW/4 kHz): 51.0 42.6  
(dBW/MHz): 75.0 66.6

Interference Objectives: Long Term: -154.0 dBW/4 kHz 20%  
Short Term: -131.0 dBW/4 kHz 0.0025%

### Frequency Information

#### Transmit 6.7 GHz

Emission / Frequency Range (MHz): 20M5G7D / 6598.58 - 6618.58 (1)  
20M5G7D / 6649.73 - 6669.73 (2)

Max Great Circle Coordination Distance: 399.5 km / 248.2 mi  
Precipitation Scatter Contour Radius: 100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

### NAPA, CA

Licensee Name Intelsat License LLC  
Latitude (NAD 83) 38° 14' 41.6" N  
Longitude (NAD 83) 122° 16' 45.8" W  
Ground Elevation (AMSL) 13.14 m / 43.1 ft  
Antenna Centerline (AGL) 7.32 m / 24.0 ft  
Antenna Model Vertex 11.1 meter  
Antenna Mode Transmit 6.7 GHz  
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%  
Short Term -131.0 dBW/4 kHz 0.0025%  
Max Available RF Power -4.5/-12.9 (dBW/4 kHz)

| Azimuth (°) | Horizon<br>Elevation (°) | Antenna<br>Discrimination (°) | Transmit 6.7 GHz      |                               |
|-------------|--------------------------|-------------------------------|-----------------------|-------------------------------|
|             |                          |                               | Horizon<br>Gain (dBi) | Coordination<br>Distance (km) |
| 0           | 0.00                     | 101.15                        | -10.00                | 162.08                        |
| 5           | 0.00                     | 96.17                         | -10.00                | 162.08                        |
| 10          | 0.77                     | 91.19                         | -10.00                | 122.75                        |
| 15          | 0.51                     | 86.20                         | -10.00                | 133.30                        |
| 20          | 0.43                     | 81.22                         | -10.00                | 139.84                        |
| 25          | 0.45                     | 76.24                         | -10.00                | 138.24                        |
| 30          | 1.37                     | 71.23                         | -10.00                | 102.75                        |
| 35          | 2.18                     | 66.23                         | -10.00                | 100.00                        |
| 40          | 2.10                     | 61.24                         | -10.00                | 100.00                        |
| 45          | 2.99                     | 56.22                         | -10.00                | 100.00                        |
| 50          | 2.74                     | 51.23                         | -10.00                | 100.00                        |
| 55          | 3.58                     | 46.21                         | -9.62                 | 100.00                        |
| 60          | 3.75                     | 41.21                         | -8.38                 | 100.00                        |
| 65          | 4.59                     | 36.20                         | -6.97                 | 100.00                        |
| 70          | 4.55                     | 31.20                         | -5.35                 | 100.00                        |
| 75          | 4.27                     | 26.21                         | -3.46                 | 100.00                        |
| 80          | 4.23                     | 21.21                         | -1.16                 | 100.00                        |
| 85          | 4.05                     | 16.23                         | 1.74                  | 100.00                        |
| 90          | 3.83                     | 11.27                         | 5.70                  | 106.37                        |
| 95          | 3.01                     | 6.56                          | 11.58                 | 142.32                        |
| 100         | 3.37                     | 2.16                          | 23.66                 | 399.47                        |
| 105         | 3.04                     | 4.29                          | 16.19                 | 211.64                        |
| 110         | 3.06                     | 8.06                          | 9.34                  | 133.62                        |
| 115         | 3.62                     | 11.43                         | 5.55                  | 109.50                        |
| 120         | 3.54                     | 15.14                         | 2.50                  | 100.00                        |
| 125         | 4.39                     | 18.11                         | 0.55                  | 100.00                        |
| 130         | 5.01                     | 21.09                         | -1.10                 | 100.00                        |
| 135         | 5.54                     | 23.97                         | -2.49                 | 100.00                        |
| 140         | 5.25                     | 27.27                         | -3.89                 | 100.00                        |
| 145         | 5.00                     | 30.32                         | -5.04                 | 100.00                        |
| 150         | 4.65                     | 33.21                         | -6.03                 | 100.00                        |
| 155         | 3.40                     | 36.60                         | -7.09                 | 100.00                        |
| 160         | 2.56                     | 39.34                         | -7.87                 | 100.00                        |
| 165         | 2.23                     | 41.28                         | -8.39                 | 100.00                        |
| 170         | 2.25                     | 42.47                         | -8.70                 | 100.00                        |
| 175         | 2.46                     | 42.99                         | -8.83                 | 100.00                        |
| 180         | 3.04                     | 42.65                         | -8.75                 | 100.00                        |
| 185         | 3.27                     | 42.19                         | -8.63                 | 100.00                        |

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

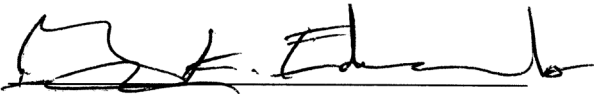
### NAPA, CA

Licensee Name Intelsat License LLC  
Latitude (NAD 83) 38° 14' 41.6" N  
Longitude (NAD 83) 122° 16' 45.8" W  
Ground Elevation (AMSL) 13.14 m / 43.1 ft  
Antenna Centerline (AGL) 7.32 m / 24.0 ft  
Antenna Model Vertex 11.1 meter  
Antenna Mode Transmit 6.7 GHz  
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%  
Short Term -131.0 dBW/4 kHz 0.0025%  
Max Available RF Power -4.5/-12.9 (dBW/4 kHz)

| Azimuth (°) | Horizon<br>Elevation (°) | Antenna<br>Discrimination (°) | Transmit 6.7 GHz      |                               |
|-------------|--------------------------|-------------------------------|-----------------------|-------------------------------|
|             |                          |                               | Horizon<br>Gain (dBi) | Coordination<br>Distance (km) |
| 190         | 3.61                     | 41.15                         | -8.36                 | 100.00                        |
| 195         | 3.69                     | 39.92                         | -8.03                 | 100.00                        |
| 200         | 3.78                     | 38.25                         | -7.57                 | 100.00                        |
| 205         | 2.93                     | 37.00                         | -7.20                 | 100.00                        |
| 210         | 2.66                     | 34.85                         | -6.56                 | 100.00                        |
| 215         | 1.82                     | 32.82                         | -5.90                 | 103.73                        |
| 220         | 1.04                     | 30.44                         | -5.09                 | 126.07                        |
| 225         | 0.29                     | 27.79                         | -4.10                 | 176.84                        |
| 230         | 0.00                     | 24.63                         | -2.79                 | 191.58                        |
| 235         | 0.00                     | 21.13                         | -1.12                 | 197.96                        |
| 240         | 0.00                     | 17.51                         | 0.92                  | 205.72                        |
| 245         | 0.00                     | 13.82                         | 3.48                  | 214.22                        |
| 250         | 0.00                     | 10.05                         | 6.94                  | 229.11                        |
| 255         | 0.00                     | 6.57                          | 11.56                 | 277.13                        |
| 260         | 0.24                     | 5.59                          | 13.32                 | 384.22                        |
| 265         | 0.43                     | 8.35                          | 8.96                  | 215.88                        |
| 270         | 0.51                     | 12.62                         | 4.47                  | 191.59                        |
| 275         | 0.44                     | 17.32                         | 1.03                  | 182.67                        |
| 280         | 0.40                     | 22.15                         | -1.63                 | 175.47                        |
| 285         | 0.41                     | 27.02                         | -3.79                 | 163.63                        |
| 290         | 0.80                     | 31.88                         | -5.59                 | 134.22                        |
| 295         | 0.93                     | 36.81                         | -7.15                 | 123.81                        |
| 300         | 0.74                     | 41.79                         | -8.53                 | 128.29                        |
| 305         | 1.14                     | 46.72                         | -9.74                 | 109.50                        |
| 310         | 0.70                     | 51.73                         | -10.00                | 125.97                        |
| 315         | 0.81                     | 56.69                         | -10.00                | 120.71                        |
| 320         | 0.89                     | 61.66                         | -10.00                | 117.26                        |
| 325         | 0.96                     | 66.64                         | -10.00                | 114.13                        |
| 330         | 0.84                     | 71.62                         | -10.00                | 119.50                        |
| 335         | 0.00                     | 76.62                         | -10.00                | 162.08                        |
| 340         | 0.00                     | 81.60                         | -10.00                | 162.08                        |
| 345         | 0.00                     | 86.58                         | -10.00                | 162.08                        |
| 350         | 0.00                     | 91.55                         | -10.00                | 162.08                        |
| 355         | 0.00                     | 96.53                         | -10.00                | 162.08                        |

## 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: March 13, 2019