

Ka-Band Earth Station – Santa Paula, CA

Frequency Coordination Report

28 GHz



Prepared on Behalf of
WorldVu Satellites
Limited

March 7, 2019



COMSEARCH
A CommScope Company

Table of Contents

| | |
|---|--------------|
| 1. Summary of Results | - 1 - |
| 2. 28 GHz Common Carrier and LTTS Coordination | - 1 - |
| 3. 28 GHz LMDS and UMFUS Coordination | - 2 - |
| 4. Earth Station Coordination Data | - 3 - |
| 5. Contact Information | - 7 - |

1. Summary of Results

On behalf of WorldVu Satellites Limited, Comsearch performed a coordination notice for all existing and proposed terrestrial licenses within the coordination contours of their proposed Ka-Band earth station in Santa Paula, CA, which will transmit at 28 GHz¹. Prior-notification letters were sent to the licensees and a copy of the notification data is provided in section four of this report. The earth station coordination was finalized on March 6, 2019.

No objections were received from any of the incumbent 28 GHz licensees. Our notification to the incumbents was performed under the assumption that the earth station would be operating on a secondary basis to LMDS Block A operations and a contact at WorldVu Satellites Limited has been provided in case any concerns may arise in the future.

2. 28 GHz Common Carrier and LTTS Coordination

In accordance with FCC Rules and Regulations, the Ka-Band earth station in Santa Paula, CA was prior-coordinated by Comsearch. A notification letter and datasheets for this earth station were sent to the following 28 GHz common carrier fixed microwave licensees. These licensees are authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis or local basis.

| Licensee | Authorized Geographic Area |
|-----------------------------------|----------------------------|
| BellSouth Telecommunications, LLC | California |
| Frontier Southwest Incorporated | Nationwide |
| M.U.T. Licensing, LLC | California |

A notification letter and datasheets for the Ka-Band earth station in Santa Paula, CA were also sent to the following 28 GHz local television transmission licensee. This licensee is authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis.

| Licensee | Authorized Geographic Area |
|--------------------------------|----------------------------|
| Information Super Station, LLC | Nationwide |

No objections were received from the common carrier or local television transmission service incumbents.

¹ The proposed earth station will operate in the 27.5 – 29.1, 29.5 – 30.0 GHz portion of the Ka-Band.

3. 28 GHz LMDS and UMFUS Coordination

A Notification letter was sent to the following 28 GHz LMDS licensees. The proposed earth station will operate on frequencies that overlap Block A of the LMDS service. The total frequency allocation for Block A of the LMDS spectrum appears below.

Block A: 27.500-28.350 GHz
29.100-29.250 GHz
31.075-31.225 GHz

| Licensee | Channels | Market |
|--|----------|--------------|
| Cellco Partnership | Block A | County Based |
| NextWeb, Inc. d/b/a TelePacific Communications | Block A | County Based |

A Notification letter was sent to the following 28 GHz UMFUS licensees. The proposed earth station will operate on frequencies that overlap Channel L1 & L2 of the UMFUS service. The total frequency allocation for Channels L1 & L2 of the UMFUS spectrum appears below.

Channel: L1 27.500 - 27.925 GHz
L2 27.925 - 28.350 GHz

| Licensee | Channel | Market |
|--|---------|--------------|
| Cellco Partnership | L1, L2 | County Based |
| NextWeb, Inc. d/b/a TelePacific Communications | L1, L2 | County Based |
| T-Mobile License LLC | L2 | County Based |

No objections were received from the LMDS or UMFUS incumbents.



4. Earth Station Coordination Data

This section presents the data pertinent to the proposed Ka-Band earth station in Santa Paula, CA. This data was circulated to all incumbent licensees in the shared 28 GHz frequency ranges.



Date: 01/30/2019
 Job Number: 190130COMSGE02

Administrative Information

Status: ENGINEER PROPOSAL
 Call Sign: <PCNCallSign>
 Licensee Code: WORSAT
 Licensee Name: WorldVu Satellites Limited

Site Information

VENUE: SANTA PAULA, CA
 Venue Name: SANTA PAULA, CA
 Latitude (NAD 83): 34° 24' 7.2" N
 Longitude (NAD 83): 119° 4' 23.5" W
 Climate Zone: A
 Rain Zone: 4
 Ground Elevation (AMSL): 232.18 m / 761.7 ft

Link Information

Satellite Type: Low Earth Orbit
 Mode: TR - Transmit-Receive
 Modulation: Digital
 Minimum Elevation Angle: 5.0°
 Azimuth Range: 0.0° to 360°
 Antenna Centerline (AGL): 2.74 m / 9.0 ft

Antenna Information

| | | Receive - FCC32 | | Transmit - FCC32 | |
|--------------------------|-------------|------------------|-------|------------------|---------|
| Manufacturer | | CPI | | CPI | |
| Model | | 3.5 meter | | 3.5 meter | |
| Gain / Diameter | | 54.6 dBi / 3.5 m | | 58.0 dBi / 3.5 m | |
| 3-dB / 15-dB Beamwidth | | 0.32° / 0.36° | | 0.21° / 0.23° | |
| Max Available RF Power | (dBW/4 kHz) | | | -39.6 | |
| | (dBW/MHz) | | | -15.6 | |
| Maximum EIRP | (dBW/4 kHz) | | | 18.4 | |
| | (dBW/MHz) | | | 42.4 | |
| Interference Objectives: | Long Term | -152.4 dBW/MHz | 20% | -151.0 dBW/4 kHz | 20% |
| | Short Term | -142.4 dBW/MHz | 0.01% | -128.0 dBW/4 kHz | 0.0025% |

Frequency Information

| | Receive 18.0 GHz | Transmit 28.0 GHz |
|--|--|--|
| Emission / Frequency Range (MHz) | 2M16G7D - 18M0G7D / 17800.0 - 18600.0 2M16G7D - 18M0G7D / 18800.0 - 19300.0 | 230MG7D / 27500.0 - 29100.0 230MG7D / 29500.0 - 30000.0 |
| Max Great Circle Coordination Distance | 129.0 km / 80.1 mi | 100.0 km / 62.1 mi |
| Precipitation Scatter Contour Radius | 100.0 km / 62.1 mi | 100.0 km / 62.1 mi |



**WorldVu Satellites Limited
Ka-Band Earth Station – Santa Paula, CA
Frequency Coordination Report
28 GHz**

| | | | | | |
|------------------------------------|----------------------------|-------|-------------------|---------|--|
| Coordination Values | SANTA PAULA, CA | | | | |
| Licensee Name | WorldVu Satellites Limited | | | | |
| Latitude (NAD 83) | 34° 24' 7.2" N | | | | |
| Longitude (NAD 83) | 119° 4' 23.5" W | | | | |
| Ground Elevation (AMSL) | 232.18 m / 761.7 ft | | | | |
| Antenna Centerline (AGL) | 2.74 m / 9.0 ft | | | | |
| Antenna Model | CPI 3.5 meter | | | | |
| Antenna Mode | Receive 18.0 GHz | | Transmit 28.0 GHz | | |
| Interference Objectives: Long Term | -152.4 dBW/MHz | 20% | -151.0 dBW/4 kHz | 20% | |
| Short Term | -142.4 dBW/MHz | 0.01% | -128.0 dBW/4 kHz | 0.0025% | |
| Max Available RF Power | | | -39.6 (dBW/4 kHz) | | |

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 18.0 GHz | | Transmit 28.0 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 0 | 0.00 | 75.13 | 11.53 | 129.00 | 12.07 | 100.00 |
| 5 | 0.00 | 70.92 | 11.53 | 129.00 | 12.07 | 100.00 |
| 10 | 0.00 | 66.76 | 11.53 | 129.00 | 12.07 | 100.00 |
| 15 | 0.00 | 62.65 | 11.53 | 129.00 | 12.07 | 100.00 |
| 20 | 0.00 | 58.63 | 11.53 | 129.00 | 12.07 | 100.00 |
| 25 | 0.00 | 54.70 | 11.53 | 129.00 | 12.07 | 100.00 |
| 30 | 0.00 | 50.89 | 11.53 | 129.00 | 12.07 | 100.00 |
| 35 | 0.00 | 47.24 | 11.53 | 129.00 | 12.07 | 100.00 |
| 40 | 0.00 | 43.80 | 11.53 | 129.00 | 12.07 | 100.00 |
| 45 | 0.00 | 40.60 | 11.53 | 129.00 | 12.07 | 100.00 |
| 50 | 0.00 | 37.73 | 11.53 | 129.00 | 12.07 | 100.00 |
| 55 | 0.00 | 35.26 | 11.53 | 129.00 | 12.07 | 100.00 |
| 60 | 0.00 | 33.29 | 11.53 | 129.00 | 12.07 | 100.00 |
| 65 | 0.00 | 31.90 | 11.53 | 129.00 | 12.07 | 100.00 |
| 70 | 0.00 | 31.17 | 11.53 | 129.00 | 12.07 | 100.00 |
| 75 | 0.00 | 31.17 | 11.53 | 129.00 | 12.07 | 100.00 |
| 80 | 0.00 | 31.87 | 11.53 | 129.00 | 12.07 | 100.00 |
| 85 | 0.00 | 33.24 | 11.53 | 129.00 | 12.07 | 100.00 |
| 90 | 0.00 | 35.20 | 11.53 | 129.00 | 12.07 | 100.00 |
| 95 | 0.00 | 37.66 | 11.53 | 129.00 | 12.07 | 100.00 |
| 100 | 0.00 | 40.53 | 11.53 | 129.00 | 12.07 | 100.00 |
| 105 | 0.00 | 43.71 | 11.53 | 129.00 | 12.07 | 100.00 |
| 110 | 0.00 | 47.15 | 11.53 | 129.00 | 12.07 | 100.00 |
| 115 | 0.00 | 50.80 | 11.53 | 129.00 | 12.07 | 100.00 |
| 120 | 0.00 | 54.60 | 11.53 | 129.00 | 12.07 | 100.00 |
| 125 | 0.00 | 58.52 | 11.53 | 129.00 | 12.07 | 100.00 |
| 130 | 0.00 | 62.55 | 11.53 | 129.00 | 12.07 | 100.00 |
| 135 | 0.00 | 66.65 | 11.53 | 129.00 | 12.07 | 100.00 |
| 140 | 0.00 | 70.81 | 11.53 | 129.00 | 12.07 | 100.00 |
| 145 | 0.00 | 75.02 | 11.53 | 129.00 | 12.07 | 100.00 |
| 150 | 0.00 | 79.26 | 11.53 | 129.00 | 12.07 | 100.00 |
| 155 | 0.00 | 83.53 | 11.53 | 129.00 | 12.07 | 100.00 |
| 160 | 0.00 | 87.80 | 11.53 | 129.00 | 12.07 | 100.00 |
| 165 | 0.00 | 92.09 | 11.53 | 129.00 | 12.07 | 100.00 |
| 170 | 0.00 | 96.36 | 11.53 | 129.00 | 12.07 | 100.00 |
| 175 | 0.00 | 100.63 | 11.53 | 129.00 | 12.07 | 100.00 |
| 180 | 0.00 | 104.87 | 11.53 | 129.00 | 12.07 | 100.00 |
| 185 | 0.00 | 109.08 | 11.53 | 129.00 | 12.07 | 100.00 |



WorldVu Satellites Limited
Ka-Band Earth Station – Santa Paula, CA
Frequency Coordination Report
28 GHz

| | | | | | |
|----------------------------|----------------------------|----------------|-------------------|------------------|---------|
| Coordination Values | SANTA PAULA, CA | | | | |
| Licensee Name | WorldVu Satellites Limited | | | | |
| Latitude (NAD 83) | 34° 24' 7.2" N | | | | |
| Longitude (NAD 83) | 119° 4' 23.5" W | | | | |
| Ground Elevation (AMSL) | 232.18 m / 761.7 ft | | | | |
| Antenna Centerline (AGL) | 2.74 m / 9.0 ft | | | | |
| Antenna Model | CPI 3.5 meter | | | | |
| Antenna Mode | Receive 18.0 GHz | | Transmit 28.0 GHz | | |
| Interference Objectives: | Long Term | -152.4 dBW/MHz | 20% | -151.0 dBW/4 kHz | 20% |
| | Short Term | -142.4 dBW/MHz | 0.01% | -128.0 dBW/4 kHz | 0.0025% |
| Max Available RF Power | -39.6 (dBW/4 kHz) | | | | |

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 18.0 GHz | | Transmit 28.0 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 190 | 0.00 | 113.24 | 11.53 | 129.00 | 12.07 | 100.00 |
| 195 | 0.00 | 117.35 | 11.53 | 129.00 | 12.07 | 100.00 |
| 200 | 0.00 | 121.37 | 11.53 | 129.00 | 12.07 | 100.00 |
| 205 | 0.00 | 125.30 | 11.53 | 129.00 | 12.07 | 100.00 |
| 210 | 0.00 | 129.11 | 11.53 | 129.00 | 12.07 | 100.00 |
| 215 | 0.00 | 132.76 | 11.53 | 129.00 | 12.07 | 100.00 |
| 220 | 0.00 | 136.20 | 11.53 | 129.00 | 12.07 | 100.00 |
| 225 | 0.00 | 139.40 | 11.53 | 129.00 | 12.07 | 100.00 |
| 230 | 0.00 | 142.27 | 11.53 | 129.00 | 12.07 | 100.00 |
| 235 | 0.00 | 144.74 | 11.53 | 129.00 | 12.07 | 100.00 |
| 240 | 0.00 | 146.71 | 11.53 | 129.00 | 12.07 | 100.00 |
| 245 | 0.00 | 148.10 | 11.53 | 129.00 | 12.07 | 100.00 |
| 250 | 0.00 | 148.83 | 11.53 | 129.00 | 12.07 | 100.00 |
| 255 | 0.00 | 148.83 | 11.53 | 129.00 | 12.07 | 100.00 |
| 260 | 0.00 | 148.13 | 11.53 | 129.00 | 12.07 | 100.00 |
| 265 | 0.00 | 146.76 | 11.53 | 129.00 | 12.07 | 100.00 |
| 270 | 0.00 | 144.80 | 11.53 | 129.00 | 12.07 | 100.00 |
| 275 | 0.00 | 142.34 | 11.53 | 129.00 | 12.07 | 100.00 |
| 280 | 0.00 | 139.47 | 11.53 | 129.00 | 12.07 | 100.00 |
| 285 | 0.00 | 136.29 | 11.53 | 129.00 | 12.07 | 100.00 |
| 290 | 0.00 | 132.85 | 11.53 | 129.00 | 12.07 | 100.00 |
| 295 | 0.00 | 129.20 | 11.53 | 129.00 | 12.07 | 100.00 |
| 300 | 0.00 | 125.40 | 11.53 | 129.00 | 12.07 | 100.00 |
| 305 | 0.00 | 121.48 | 11.53 | 129.00 | 12.07 | 100.00 |
| 310 | 0.00 | 117.45 | 11.53 | 129.00 | 12.07 | 100.00 |
| 315 | 0.00 | 113.35 | 11.53 | 129.00 | 12.07 | 100.00 |
| 320 | 0.00 | 109.19 | 11.53 | 129.00 | 12.07 | 100.00 |
| 325 | 0.00 | 104.98 | 11.53 | 129.00 | 12.07 | 100.00 |
| 330 | 0.00 | 100.74 | 11.53 | 129.00 | 12.07 | 100.00 |
| 335 | 0.00 | 96.47 | 11.53 | 129.00 | 12.07 | 100.00 |
| 340 | 0.00 | 92.20 | 11.53 | 129.00 | 12.07 | 100.00 |
| 345 | 0.00 | 87.91 | 11.53 | 129.00 | 12.07 | 100.00 |
| 350 | 0.00 | 83.64 | 11.53 | 129.00 | 12.07 | 100.00 |
| 355 | 0.00 | 79.37 | 11.53 | 129.00 | 12.07 | 100.00 |



5. Contact Information

For questions or information regarding the 28 GHz Frequency Coordination Report, please contact:

| | |
|-----------------|---|
| Contact person: | Dennis Jimeno |
| Title: | Engineer III, Telecommunications |
| Company: | Comsearch |
| Address: | 19700 Janelia Farm Blvd., Ashburn, VA 20147 |
| Telephone: | 703-726-5858 |
| Fax: | 703-726-5599 |
| Email: | DJimeno@Comsearch.com |
| Web site: | www.comsearch.com |

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
WorldVu Satellites Limited
SANTA PAULA, CA
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
March 07, 2019

TABLE OF CONTENTS

| | |
|---|----|
| 1. CONCLUSIONS | 3 |
| 2. SUMMARY OF RESULTS | 4 |
| 3. SUPPLEMENTAL SHOWING | 5 |
| 4. EARTH STATION COORDINATION DATA..... | 8 |
| 5. CERTIFICATION..... | 12 |

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 01/30/2019.

Company

ABC Holding Company Inc.
AT&T Corp.
AT&T Mobility Spectrum LLC - Southern CA
Aera Energy LLC
Aerioconnect Inc
Aerioconnect, Inc.
Aerionet, Inc.
Anaheim City, of
Antelecom, Inc.
Antelope Valley College
BP West Coast Products LLC
Bakersfield, City of
Bel Air Internet, LLC
Beverly Hills, City of
Burbank, City of
CBS Broadcasting Inc
CBS Communications Services Inc
California Internet, L.P
California Internet, L.P.
California Resources Corporation
California, State of
Castaic Lake Water Agency
Chevron USA Inc.
Citicasters Licenses, Inc.
City of Culver City
City of Los Angeles Dept Water & Power
City of Monrovia
City of Montebello
City of Pasadena, California
City of Santa Barbara Fire Department
City of Whittier
Clearwire Spectrum Holdings III, LLC
Communication Services
Communication Services Inc.
Conterra Ultra Broadband, LLC
Disneyland Resort
El Monte Police Department
Embee Technologies
Entercom License, LLC
Fireline Network Solutions Inc.
Foothill Transit

Fox Television Stations, LLC
Frontier California Inc.
Gilcomm, LLC
Glendale City California
Global Telecom & Technology Americas
Go Creative Wireless
Iberdrola Renewables, LLC
KTLA, LLC
Kern County Superintendent of Schools
Kern Ed Telecom Consortium
Kern Schools Federal Credit Union
Kern Valley Dispatch
Kern, County of
LT-WR, LLC
Las Virgenes Unified School District
Long Beach, City of (WCD)
Los Angeles City Info Technology Agency
Los Angeles County Dept of Public Works
Los Angeles County FCC Licensing Section
Los Angeles County Metro Transit Auth
Los Angeles Regional Interoperable Comm
Los Angeles SMSA Ltd. Partnership
Los Angeles, City of (ITA)
Macpherson Oil Company
Metropolitan Water Dist of So California
Mobile Relay Associates Inc.
NBC Telemundo License LLC
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC - N CAL
New Cingular Wireless PCS, LLC - SE Cal
Nextel of California Inc.
Nextweb Inc
Olympic Wireless, LLC
One Ring Networks, Inc.
Pacific Bell Tel Com dba AT&T California
Pasadena Area Community College Dist
Pomona College - KSPC
Redondo Beach Police Department
Regents of the University of California
Santa Barbara Cellular Systems, Ltd.
Santa Barbara, County of
Skyriver Communications
SmartSky Networks, LLC
South Bay Regional Public Comm Authority
Southern California Gas Company
Spectrum Link, Inc.
Sprint Spectrum L.P.
Sprint Telephony PCS, L.P.
T-Mobile License LLC
THUMS Long Beach Company
Tejon Ranch Co
Tesoro Companies, Inc
Towerstream Corp.
Turn Wireless, LLC
Union Pacific Railroad Company
Ventura County Office of Education

Ventura, County of
Verizon Wireless (VAW) LLC (Southern CA)
Verizon Wireless (VAW) LLC-N CA/NV
Walnut Valley Water District
West Covina, City of
WiLogic, Inc
Widmo Holdings LLC
Wiline Spectrum Holdings LLC
XO Communications, 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: 03/07/2019
Job Number: 190130COMSGE02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code WORSAT
Licensee Name WorldVu Satellites Limited

Site Information SANTA PAULA, CA

Venue Name
Latitude (NAD 83) 34° 24' 7.2" N
Longitude (NAD 83) 119° 4' 23.5" W
Climate Zone A
Rain Zone 4
Ground Elevation (AMSL) 232.18 m / 761.7 ft

Link Information

Satellite Type Low Earth Orbit
Mode TR - Transmit-Receive
Modulation Digital
Minimum Elevation Angle 5.0°
Azimuth Range 0.0° to 360°
Antenna Centerline (AGL) 2.74 m / 9.0 ft

Antenna Information

| | Receive - FCC32 | Transmit - FCC32 |
|---|---|--|
| Manufacturer | CPI | CPI |
| Model | 3.5 meter | 3.5 meter |
| Gain / Diameter | 54.6 dBi / 3.5 m | 58.0 dBi / 3.5 m |
| 3-dB / 15-dB Beamwidth | 0.32° / 0.36° | 0.21° / 0.23° |
| Max Available RF Power (dBW/4 kHz) (dBW/MHz) | | -39.6 -15.6 |
| Maximum EIRP (dBW/4 kHz) (dBW/MHz) | | 18.4 42.4 |
| Interference Objectives: | Long Term -152.4 dBW/MHz 20% Short Term -142.4 dBW/MHz 0.01% | -151.0 dBW/4 kHz 20% -128.0 dBW/4 kHz 0.0025% |

Frequency Information

| | Receive 18.0 GHz | Transmit 28.0 GHz |
|--|--|--|
| Emission / Frequency Range (MHz) | 2M16G7D - 18M0G7D / 17800.0 - 18600.0 2M16G7D - 18M0G7D / 18800.0 - 19300.0 | 230MG7D / 27500.0 - 29100.0 230MG7D / 29500.0 - 30000.0 |
| Max Great Circle Coordination Distance | 129.0 km / 80.1 mi | 100.0 km / 62.1 mi |
| Precipitation Scatter Contour Radius | 100.0 km / 62.1 mi | 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

SANTA PAULA, CA

| | | | | |
|------------------------------------|----------------------------|-------------------|-------------------|---------|
| Licensee Name | WorldVu Satellites Limited | | | |
| Latitude (NAD 83) | 34° 24' 7.2" N | | | |
| Longitude (NAD 83) | 119° 4' 23.5" W | | | |
| Ground Elevation (AMSL) | 232.18 m / 761.7 ft | | | |
| Antenna Centerline (AGL) | 2.74 m / 9.0 ft | | | |
| Antenna Model | CPI 3.5 meter | | | |
| Antenna Mode | Receive 18.0 GHz | Transmit 28.0 GHz | | |
| Interference Objectives: Long Term | -152.4 dBW/MHz | 20% | -151.0 dBW/4 kHz | 20% |
| Short Term | -142.4 dBW/MHz | 0.01% | -128.0 dBW/4 kHz | 0.0025% |
| Max Available RF Power | | | -39.6 (dBW/4 kHz) | |

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 18.0 GHz | | Transmit 28.0 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 0 | 0.00 | 75.13 | 11.53 | 129.00 | 12.07 | 100.00 |
| 5 | 0.00 | 70.92 | 11.53 | 129.00 | 12.07 | 100.00 |
| 10 | 0.00 | 66.76 | 11.53 | 129.00 | 12.07 | 100.00 |
| 15 | 0.00 | 62.65 | 11.53 | 129.00 | 12.07 | 100.00 |
| 20 | 0.00 | 58.63 | 11.53 | 129.00 | 12.07 | 100.00 |
| 25 | 0.00 | 54.70 | 11.53 | 129.00 | 12.07 | 100.00 |
| 30 | 0.00 | 50.89 | 11.53 | 129.00 | 12.07 | 100.00 |
| 35 | 0.00 | 47.24 | 11.53 | 129.00 | 12.07 | 100.00 |
| 40 | 0.00 | 43.80 | 11.53 | 129.00 | 12.07 | 100.00 |
| 45 | 0.00 | 40.60 | 11.53 | 129.00 | 12.07 | 100.00 |
| 50 | 0.00 | 37.73 | 11.53 | 129.00 | 12.07 | 100.00 |
| 55 | 0.00 | 35.26 | 11.53 | 129.00 | 12.07 | 100.00 |
| 60 | 0.00 | 33.29 | 11.53 | 129.00 | 12.07 | 100.00 |
| 65 | 0.00 | 31.90 | 11.53 | 129.00 | 12.07 | 100.00 |
| 70 | 0.00 | 31.17 | 11.53 | 129.00 | 12.07 | 100.00 |
| 75 | 0.00 | 31.17 | 11.53 | 129.00 | 12.07 | 100.00 |
| 80 | 0.00 | 31.87 | 11.53 | 129.00 | 12.07 | 100.00 |
| 85 | 0.00 | 33.24 | 11.53 | 129.00 | 12.07 | 100.00 |
| 90 | 0.00 | 35.20 | 11.53 | 129.00 | 12.07 | 100.00 |
| 95 | 0.00 | 37.66 | 11.53 | 129.00 | 12.07 | 100.00 |
| 100 | 0.00 | 40.53 | 11.53 | 129.00 | 12.07 | 100.00 |
| 105 | 0.00 | 43.71 | 11.53 | 129.00 | 12.07 | 100.00 |
| 110 | 0.00 | 47.15 | 11.53 | 129.00 | 12.07 | 100.00 |
| 115 | 0.00 | 50.80 | 11.53 | 129.00 | 12.07 | 100.00 |
| 120 | 0.00 | 54.60 | 11.53 | 129.00 | 12.07 | 100.00 |
| 125 | 0.00 | 58.52 | 11.53 | 129.00 | 12.07 | 100.00 |
| 130 | 0.00 | 62.55 | 11.53 | 129.00 | 12.07 | 100.00 |
| 135 | 0.00 | 66.65 | 11.53 | 129.00 | 12.07 | 100.00 |
| 140 | 0.00 | 70.81 | 11.53 | 129.00 | 12.07 | 100.00 |
| 145 | 0.00 | 75.02 | 11.53 | 129.00 | 12.07 | 100.00 |
| 150 | 0.00 | 79.26 | 11.53 | 129.00 | 12.07 | 100.00 |
| 155 | 0.00 | 83.53 | 11.53 | 129.00 | 12.07 | 100.00 |
| 160 | 0.00 | 87.80 | 11.53 | 129.00 | 12.07 | 100.00 |
| 165 | 0.00 | 92.09 | 11.53 | 129.00 | 12.07 | 100.00 |
| 170 | 0.00 | 96.36 | 11.53 | 129.00 | 12.07 | 100.00 |
| 175 | 0.00 | 100.63 | 11.53 | 129.00 | 12.07 | 100.00 |
| 180 | 0.00 | 104.87 | 11.53 | 129.00 | 12.07 | 100.00 |
| 185 | 0.00 | 109.08 | 11.53 | 129.00 | 12.07 | 100.00 |

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

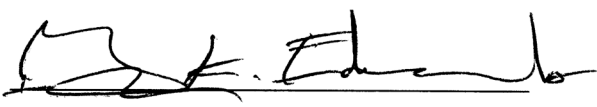
SANTA PAULA, CA

| | | | | |
|------------------------------------|----------------------------|-------|-------------------|---------|
| Licensee Name | WorldVu Satellites Limited | | | |
| Latitude (NAD 83) | 34° 24' 7.2" N | | | |
| Longitude (NAD 83) | 119° 4' 23.5" W | | | |
| Ground Elevation (AMSL) | 232.18 m / 761.7 ft | | | |
| Antenna Centerline (AGL) | 2.74 m / 9.0 ft | | | |
| Antenna Model | CPI 3.5 meter | | | |
| Antenna Mode | Receive 18.0 GHz | | Transmit 28.0 GHz | |
| Interference Objectives: Long Term | -152.4 dBW/MHz | 20% | -151.0 dBW/4 kHz | 20% |
| Short Term | -142.4 dBW/MHz | 0.01% | -128.0 dBW/4 kHz | 0.0025% |
| Max Available RF Power | | | -39.6 (dBW/4 kHz) | |

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 18.0 GHz | | Transmit 28.0 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 190 | 0.00 | 113.24 | 11.53 | 129.00 | 12.07 | 100.00 |
| 195 | 0.00 | 117.35 | 11.53 | 129.00 | 12.07 | 100.00 |
| 200 | 0.00 | 121.37 | 11.53 | 129.00 | 12.07 | 100.00 |
| 205 | 0.00 | 125.30 | 11.53 | 129.00 | 12.07 | 100.00 |
| 210 | 0.00 | 129.11 | 11.53 | 129.00 | 12.07 | 100.00 |
| 215 | 0.00 | 132.76 | 11.53 | 129.00 | 12.07 | 100.00 |
| 220 | 0.00 | 136.20 | 11.53 | 129.00 | 12.07 | 100.00 |
| 225 | 0.00 | 139.40 | 11.53 | 129.00 | 12.07 | 100.00 |
| 230 | 0.00 | 142.27 | 11.53 | 129.00 | 12.07 | 100.00 |
| 235 | 0.00 | 144.74 | 11.53 | 129.00 | 12.07 | 100.00 |
| 240 | 0.00 | 146.71 | 11.53 | 129.00 | 12.07 | 100.00 |
| 245 | 0.00 | 148.10 | 11.53 | 129.00 | 12.07 | 100.00 |
| 250 | 0.00 | 148.83 | 11.53 | 129.00 | 12.07 | 100.00 |
| 255 | 0.00 | 148.83 | 11.53 | 129.00 | 12.07 | 100.00 |
| 260 | 0.00 | 148.13 | 11.53 | 129.00 | 12.07 | 100.00 |
| 265 | 0.00 | 146.76 | 11.53 | 129.00 | 12.07 | 100.00 |
| 270 | 0.00 | 144.80 | 11.53 | 129.00 | 12.07 | 100.00 |
| 275 | 0.00 | 142.34 | 11.53 | 129.00 | 12.07 | 100.00 |
| 280 | 0.00 | 139.47 | 11.53 | 129.00 | 12.07 | 100.00 |
| 285 | 0.00 | 136.29 | 11.53 | 129.00 | 12.07 | 100.00 |
| 290 | 0.00 | 132.85 | 11.53 | 129.00 | 12.07 | 100.00 |
| 295 | 0.00 | 129.20 | 11.53 | 129.00 | 12.07 | 100.00 |
| 300 | 0.00 | 125.40 | 11.53 | 129.00 | 12.07 | 100.00 |
| 305 | 0.00 | 121.48 | 11.53 | 129.00 | 12.07 | 100.00 |
| 310 | 0.00 | 117.45 | 11.53 | 129.00 | 12.07 | 100.00 |
| 315 | 0.00 | 113.35 | 11.53 | 129.00 | 12.07 | 100.00 |
| 320 | 0.00 | 109.19 | 11.53 | 129.00 | 12.07 | 100.00 |
| 325 | 0.00 | 104.98 | 11.53 | 129.00 | 12.07 | 100.00 |
| 330 | 0.00 | 100.74 | 11.53 | 129.00 | 12.07 | 100.00 |
| 335 | 0.00 | 96.47 | 11.53 | 129.00 | 12.07 | 100.00 |
| 340 | 0.00 | 92.20 | 11.53 | 129.00 | 12.07 | 100.00 |
| 345 | 0.00 | 87.91 | 11.53 | 129.00 | 12.07 | 100.00 |
| 350 | 0.00 | 83.64 | 11.53 | 129.00 | 12.07 | 100.00 |
| 355 | 0.00 | 79.37 | 11.53 | 129.00 | 12.07 | 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: March 07, 2019