

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

Telenor Satellite Services-Santa Paula (ES)
Santa Paula, California
(Call Sign: KB34)

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
August 30, 2007

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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, based upon the restrictions noted in the Summary of Results (Section 2).

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. Further the transmit spectrum will be limited to frequencies 6417.5 MHz to 6456.7 MHz, and the receive spectrum will be limited to frequencies 3600.0 to 3631.5 MHz.

Company

None

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.

Expedited coordination data for this earth station was e-mailed or sent to the below listed carriers with a letter dated August 28, 2007.

Company

AT&T California
AirSites2000, LLC
American Tower, LLC
CHEVRON USA INC c/o Verizon Cust Network
California, State of
Fresno MSA Limited Partnership
GTE Mobilnet of Santa Barbara LTD Ptsh
KERN COUNTY CALIFORNIA
KERN ED TELECOM CONSORTIUM
KTLA INC
LB Tower Company LLC
LOS ANGELES CITY WATER & POWER
LOS ANGELES UNIFIED SCHOOL DISTRICT
Los Angeles City Info Technology Agency
Los Angeles County Dept of Public Works
Los Angeles County FCC Licensing Section
Los Angeles SMSA Ltd. Partnership
M.U.T. Licensing, LLC
METROPOLITAN WATER DIST OF SO CALIFORNIA
MONTEBELLO CITY CALIFORNIA
Microwave Service Company
NEXTEL OF CALIFORNIA INC
New Cingular Wireless PCS - Los Angeles
Nextweb Inc
OCCIDENTAL OF ELK HILLS INC
Plains Exploration & Production Company
Santa Barbara Cellular Systems, Ltd.
Southern California Edison Company
Southern California Gas Company
TV MICROWAVES CO
Ventura, County of
Verizon California Inc.
Western Technical Services

Company (Cont'd)

Mr. Howard Fine – SOCIETY OF BROADCAST ENGINEERS
AERA ENERGY LLC
ANTELOPE VALLEY EAST KERN WATER AGENCY
ARCHDIOCESE OF LOS ANGELES WELFARE CORP
BNSF Railway Company
CITY OF POMONA COMMUNICATIONS
Exxon Communications Company
GLENDALE CITY CALIFORNIA
INCOMM DIVISION CHURCH OF SCIENTOLOGY
Los Angeles County Metro Transit Auth
MOBILE RELAY ASSOCIATES INC
New Cingular Wireless PCS LLC - N CAL
PACIFIC PIPELINE SYSTEM LLC
Pacific Gas and Electric Company
Plains Exploration & Production Company
SANTA BARBARA COUNTY
Union Pacific Railroad Company
VENOCO, INC.
CBS Broadcasting Inc
LOS ANGELES TELEVISION STATION KCAL LLC
NBC TELEMUNDO LICENSE CO.
PAPPAS SOUTHERN CALIFORNIA LICENSE, LLC
Time Warner NY Cable, Inc.
Mercury Communications
Quick Link Connections, Inc.
Globecast North America Incorporated
Village Video Production Inc.
New England Satellite Systems, Inc.
News/Sports Microwave Rental, Inc.
Information Super Station LLC
Penn Service Microwave Company, Inc.
HF Enterprises, Inc. dba HSE Communications, Inc.
Broadcast Sports Corp.
Westar Satellite Services LP
KRCA License Corp.
Coptervision
Wireless Spectrum Resources, Inc.
Broadcast Photography Services, Inc.
Universal Satellite Communications, Inc.
Casper, John
Verizon South, Inc.
GTE Southwest Inc. dba Verizon Southwest
SES Americom, Inc.
Direct Broadcast Services, Inc.
Remote Facilities Consulting Services
Winged Vision Inc.
Production & Satellite Services, Inc.
Wexler Video, Inc.
Total RF Marketing, Inc

Company (Cont'd)

Broadcast Sports Enterprises, Inc.
3G Wireless, LLC
Cohen, Elena
Speedshotz, Inc.
On Scene Video Production
International Communications Group dba Corban Networks
Qwest Communications Corporation
Microwave Telecommunications, Inc.
Eagle Communications Corporation
US Cellular Partnership
Morveen, Steven K.
Norlight Telecommunications, Inc.
Ducor Telephone Company
Orange County California
Information & Display Systems, Inc.
Mr. Bill Heiden
HK Manufacturing
Aerial Video Systems
RF Film, Inc.
Citywide News Network, Inc.
United Telephone Southeast, Inc.

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: 08/30/2007
Job Number: 070828COMSJC01

Administrative Information

Status ENGINEER PROPOSAL
Call Sign KB34
Licensee Code P2540C
Licensee Name Telenor Satellite Services-Santa Paula (ES)

Site Information SANTA PAULA, CALIFORNIA

Venue Name
Latitude (NAD 83) 34° 24' 5.0" N
Longitude (NAD 83) 119° 4' 29.4" W
Climate Zone A
Rain Zone 4
Ground Elevation (AMSL) 228.6 m / 750.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 142° W to 142° West Longitude
Azimuth Range 216.8° to 216.8°
Corresponding Elevation Angles 43.1° / 43.1°
Antenna Centerline (AGL) 6.1 m / 20.0 ft

Antenna Information

| | Receive | Transmit |
|------------------------------------|----------------------|--------------------------|
| Manufacturer | NEC | NEC |
| Model | 10.4 Meter | 10.4 Meter |
| Gain / Diameter | 50.4 dBi / 10.4 m | 55.0 dBi / 10.4 m |
| 3-dB / 15-dB Beamwidth | 1.00° / 1.60° | 0.80° / 1.20° |
| Max Available RF Power (dBW/4 kHz) | | -2.7 |
| (dBW/MHz) | | 21.3 |
| Maximum EIRP (dBW/4 kHz) | | 52.3 |
| (dBW/MHz) | | 76.3 |
| (dBW) | | 52.3 |
| 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) | 1K65G2D / 3600.0 - 3631.5 | 1K65G2D / 6417.5 - 6456.7 |
| Max Great Circle Coordination Distance | 285.3 km / 177.2 mi | 170.7 km / 106.0 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
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Coordination Values

SANTA PAULA, CA

Licensee Name Telenor Satellite Srvcs-Santa Paula (ES)
Latitude (NAD 83) 34° 24' 5.0" N
Longitude (NAD 83) 119° 4' 29.4" W
Ground Elevation (AMSL) 228.6 m / 750.0 ft
Antenna Centerline (AGL) 6.1 m / 20.0 ft
Antenna Model NEC 10.4 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 -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 | 7.78 | 130.77 | -10.00 | 106.09 | -10.00 | 100.00 |
| 5 | 8.48 | 134.35 | -10.00 | 100.00 | -10.00 | 100.00 |
| 10 | 9.74 | 138.18 | -10.00 | 100.00 | -10.00 | 100.00 |
| 15 | 10.18 | 141.18 | -10.00 | 100.00 | -10.00 | 100.00 |
| 20 | 11.11 | 144.26 | -10.00 | 100.00 | -10.00 | 100.00 |
| 25 | 11.49 | 146.45 | -10.00 | 100.00 | -10.00 | 100.00 |
| 30 | 12.12 | 148.33 | -10.00 | 100.00 | -10.00 | 100.00 |
| 35 | 12.66 | 149.49 | -10.00 | 100.00 | -10.00 | 100.00 |
| 40 | 13.10 | 149.83 | -10.00 | 100.00 | -10.00 | 100.00 |
| 45 | 12.41 | 148.32 | -10.00 | 100.00 | -10.00 | 100.00 |
| 50 | 11.69 | 146.17 | -10.00 | 100.00 | -10.00 | 100.00 |
| 55 | 9.63 | 142.40 | -10.00 | 100.00 | -10.00 | 100.00 |
| 60 | 8.54 | 139.19 | -10.00 | 100.00 | -10.00 | 100.00 |
| 65 | 8.47 | 136.48 | -10.00 | 100.00 | -10.00 | 100.00 |
| 70 | 7.69 | 133.00 | -10.00 | 106.98 | -10.00 | 100.00 |
| 75 | 7.91 | 129.95 | -10.00 | 104.77 | -10.00 | 100.00 |
| 80 | 7.87 | 126.55 | -10.00 | 105.10 | -10.00 | 100.00 |
| 85 | 7.59 | 122.86 | -10.00 | 108.05 | -10.00 | 100.00 |
| 90 | 7.01 | 118.95 | -10.00 | 114.28 | -10.00 | 100.00 |
| 95 | 6.57 | 115.06 | -10.00 | 118.97 | -10.00 | 100.00 |
| 100 | 6.29 | 111.17 | -10.00 | 121.98 | -10.00 | 100.00 |
| 105 | 5.38 | 107.09 | -10.00 | 131.13 | -10.00 | 100.00 |
| 110 | 6.19 | 103.37 | -10.00 | 123.18 | -10.00 | 100.00 |
| 115 | 5.05 | 99.28 | -10.00 | 134.39 | -10.00 | 100.00 |
| 120 | 3.42 | 95.24 | -10.00 | 160.12 | -10.00 | 100.00 |
| 125 | 2.34 | 91.37 | -10.00 | 186.77 | -10.00 | 100.00 |
| 130 | 2.29 | 87.59 | -10.00 | 187.93 | -10.00 | 100.00 |
| 135 | 1.98 | 83.85 | -10.00 | 195.09 | -10.00 | 100.00 |
| 140 | 1.28 | 80.22 | -10.00 | 211.72 | -10.00 | 110.26 |
| 145 | 0.32 | 76.76 | -10.00 | 270.70 | -10.00 | 156.38 |
| 150 | 0.00 | 73.30 | -10.00 | 285.28 | -10.00 | 170.66 |
| 155 | 0.00 | 69.83 | -10.00 | 285.28 | -10.00 | 170.66 |
| 160 | 0.00 | 66.45 | -10.00 | 285.28 | -10.00 | 170.66 |
| 165 | 0.00 | 63.18 | -10.00 | 285.28 | -10.00 | 170.66 |
| 170 | 0.00 | 60.03 | -10.00 | 285.28 | -10.00 | 170.66 |
| 175 | 0.28 | 56.87 | -10.00 | 275.03 | -10.00 | 160.08 |
| 180 | 1.27 | 53.39 | -10.00 | 212.11 | -10.00 | 110.60 |
| 185 | 2.29 | 49.99 | -10.00 | 187.88 | -10.00 | 100.00 |

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Coordination Values


SANTA PAULA, CA

| | | | | |
|------------------------------------|--|-------|------------------|---------|
| Licensee Name | Telenor Satellite Srvcs-Santa Paula (ES) | | | |
| Latitude (NAD 83) | 34° 24' 5.0" N | | | |
| Longitude (NAD 83) | 119° 4' 29.4" W | | | |
| Ground Elevation (AMSL) | 228.6 m / 750.0 ft | | | |
| Antenna Centerline (AGL) | 6.1 m / 20.0 ft | | | |
| Antenna Model | NEC 10.4 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 | | | -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 | 3.38 | 46.67 | -9.73 | 162.40 | -9.73 | 100.00 |
| 195 | 4.65 | 43.38 | -8.93 | 142.82 | -8.93 | 100.00 |
| 200 | 3.47 | 42.52 | -8.72 | 165.44 | -8.72 | 100.00 |
| 205 | 4.30 | 40.31 | -8.13 | 151.89 | -8.13 | 100.00 |
| 210 | 2.69 | 40.91 | -8.29 | 187.16 | -8.29 | 100.00 |
| 215 | 5.54 | 37.62 | -7.39 | 138.96 | -7.39 | 100.00 |
| 220 | 6.97 | 36.27 | -6.99 | 126.73 | -6.99 | 100.00 |
| 225 | 5.72 | 38.16 | -7.54 | 136.47 | -7.54 | 100.00 |
| 230 | 5.15 | 39.87 | -8.01 | 140.22 | -8.01 | 100.00 |
| 235 | 6.05 | 40.71 | -8.24 | 131.64 | -8.24 | 100.00 |
| 240 | 5.64 | 43.16 | -8.88 | 133.11 | -8.88 | 100.00 |
| 245 | 6.75 | 44.79 | -9.28 | 119.86 | -9.28 | 100.00 |
| 250 | 5.75 | 48.31 | -10.00 | 127.56 | -10.00 | 100.00 |
| 255 | 5.92 | 51.24 | -10.00 | 125.96 | -10.00 | 100.00 |
| 260 | 6.28 | 54.30 | -10.00 | 122.11 | -10.00 | 100.00 |
| 265 | 7.62 | 57.13 | -10.00 | 107.80 | -10.00 | 100.00 |
| 270 | 6.99 | 61.06 | -10.00 | 114.47 | -10.00 | 100.00 |
| 275 | 5.63 | 65.27 | -10.00 | 128.71 | -10.00 | 100.00 |
| 280 | 5.01 | 69.21 | -10.00 | 134.76 | -10.00 | 100.00 |
| 285 | 5.29 | 72.93 | -10.00 | 132.04 | -10.00 | 100.00 |
| 290 | 5.50 | 76.75 | -10.00 | 130.03 | -10.00 | 100.00 |
| 295 | 6.17 | 80.58 | -10.00 | 123.33 | -10.00 | 100.00 |
| 300 | 6.14 | 84.56 | -10.00 | 123.63 | -10.00 | 100.00 |
| 305 | 5.61 | 88.56 | -10.00 | 128.93 | -10.00 | 100.00 |
| 310 | 6.20 | 92.55 | -10.00 | 122.99 | -10.00 | 100.00 |
| 315 | 5.98 | 96.52 | -10.00 | 125.44 | -10.00 | 100.00 |
| 320 | 5.96 | 100.47 | -10.00 | 125.63 | -10.00 | 100.00 |
| 325 | 5.32 | 104.28 | -10.00 | 131.77 | -10.00 | 100.00 |
| 330 | 5.34 | 108.13 | -10.00 | 131.59 | -10.00 | 100.00 |
| 335 | 6.26 | 112.20 | -10.00 | 122.35 | -10.00 | 100.00 |
| 340 | 7.70 | 116.49 | -10.00 | 106.89 | -10.00 | 100.00 |
| 345 | 8.02 | 120.38 | -10.00 | 103.62 | -10.00 | 100.00 |
| 350 | 8.09 | 124.08 | -10.00 | 102.99 | -10.00 | 100.00 |
| 355 | 8.30 | 127.73 | -10.00 | 101.11 | -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.



Jeffrey E. Cowles
Principal Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Va. 20147

DATED: August 30, 2007