

EXHIBIT 3 – FREQUENCY COORDINATIONS

1986 KA31 12.8 Meter Antenna C-band Frequency Coordination for 3700.0 - 4200.0 and 5925-6425 MHz Frequencies

2008 KA31 12.8 Meter Antenna C-band Frequency Coordination and Interference Analysis Report for 3600.0 - 3629.0 and 6425.0 - 6454.0 MHz Frequencies

2002 KB34 12.8 Meter Antenna (electronically Identical to KA31 Antenna) C-band Frequency Coordination and Interference Analysis Report for the 3700.0 - 4200.0 and 5925.0 - 6425.0 MHz frequencies

ATTACHMENT #1
PRIOR COORDINATION LETTER

February 5, 1986

***** INFORMATION ONLY *****

Reference: Temporary 6/4 GHz Earth Station Coordination at
Santa Paula, California

Dear Sir:

On behalf of COMSAT International and in accordance with FCC Rule 25.202(c), we are enclosing prior coordination data for a proposed temporary transmit and receive earth station at Santa Paula, California. Operation will begin on February 7, 1986 and continue indefinitely.

The earth station will transmit to a synchronous communication satellite in the 6 GHz band and receive in the 4 GHz band.

A COMSAT subsidiary, COMSAT General, has three licensed antennas (call signs KB-34 (2) and KA-31) at the same location as the proposed temporary antenna. Since the 6 GHz transmit power for the proposed antenna is not higher than the powers for the licensed antennas, and since COMSAT International will accept all interference into its 4 GHz receive antenna, this is an information-only letter and no response is required.

If there are any questions concerning this coordination notice, please contact the undersigned.

Sincerely,

Frank C. Meditz
Project Engineer
Spectrum Engineering Department
(301) 426-5094

Enclosures

***** INFORMATION ONLY *****

SUMMARY OF RESULTS

General

The Spectrum Engineering Department of COMSAT General Corporation has performed the frequency coordination analysis necessary under Part 25.203(c) of the FCC Rules and Regulations for the earth station complex for which construction authorization is sought herein. This included the transmittal of a prior coordination letter on February 5, 1986. The prior coordination letter is included as Attachment No. 1 hereto.

Attachment No. 2 hereto presents a summary of Common Carriers' notifications. No response is necessary.

INTRODUCTION

This appendix contains information relevant to the analysis of interference from and into a proposed temporary 6 GHz Transmit and 4 GHz Receive earth station complex, to be constructed in the vicinity of Santa Paula California, as required under para. 25.203(c) of the FCC Rules and Regulations.

The information herein presented is comprised of the following elements:

- Conclusions
- Summary of Results
- Supplemental Showing in Support of Waiver of Section 25.203(e)
- Characteristics of the Earth Station
- Coordination Contour Tables and Maps, and Related Information
- Certifications
- Attachments:
 - No. 1 Prior Coordination Notification Letter
 - No. 2 Common Carrier Coordination Notification Summary

ATTACHMENT #2

COMMON CARRIER COORDINATION NOTIFICATION SUMMARY

The following information represents the Common Carriers' notifications to the prior-coordination letter dated February 5, 1986, mailed to them by COMSAT General Corporation on behalf of COMSAT International in regard to the proposed Santa Paula, California earth station.

NAME OF CARRIER

AT&T Communications
AT&T Communications (Western Area)
American Television Relay, Inc.-MCI
Bell of Nevada
COMPUCON, Inc. Arizona office
COMPUCON, Inc., Texas office
COMSEARCH, Inc.
COMSEARCH, Inc. (Southwest)
Churchill County Telephone & Telegraph
Continental Telephone of California
GTE Sprint Communications (Eastern)
GTE Sprint Communications (National)
GTE Sprint Communications (Western)
General Telephone Co. of California
General Telephone Co. of The Northwest
General Telephone Co. of the Southwest
Group W. Cable, Inc.
MCI Telecommunications Corporation
MSI Frequency Coordinators Group
Microwave Service Company
Microwave Services International
Midwestern Relay Company
Pacific Bell
Pacific Gas and Electric Company
Rockwell International
Spectrum Planning, Inc.
Western Tele-Communications, Inc.
Western Union Telegraph Co.

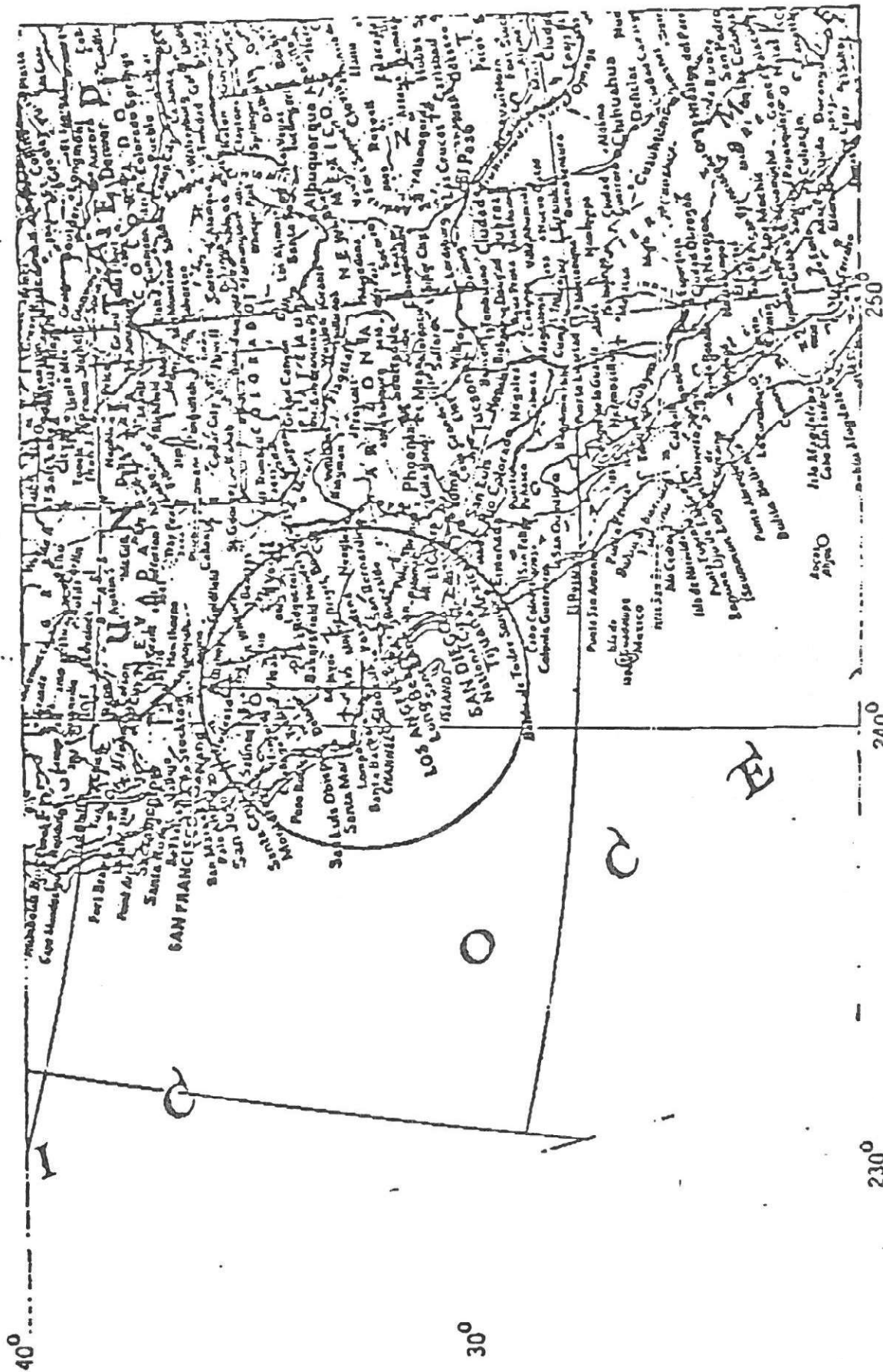
SUPPLEMENTAL REQUEST FOR WAIVER
OF PROVISIONS UNDER SECTION 25.203(e)
SANTA PAULA, CALIFORNIA

Pursuant to Section 25.203(e) of the FCC Rules and Regulations, an analysis was performed previously for three antennas whose parameters are identical (for coordination purposes) to the proposed antenna. The three antennas were granted licenses, so no further analysis is required.

A waiver of the provisions of Section 25.203(e) of the Commission's Rules and Regulations is considered to be fully justified and is hereby requested.

PRECIPITATION SCATTER CONTOUR (RECEIVE)
SANTA PAULA

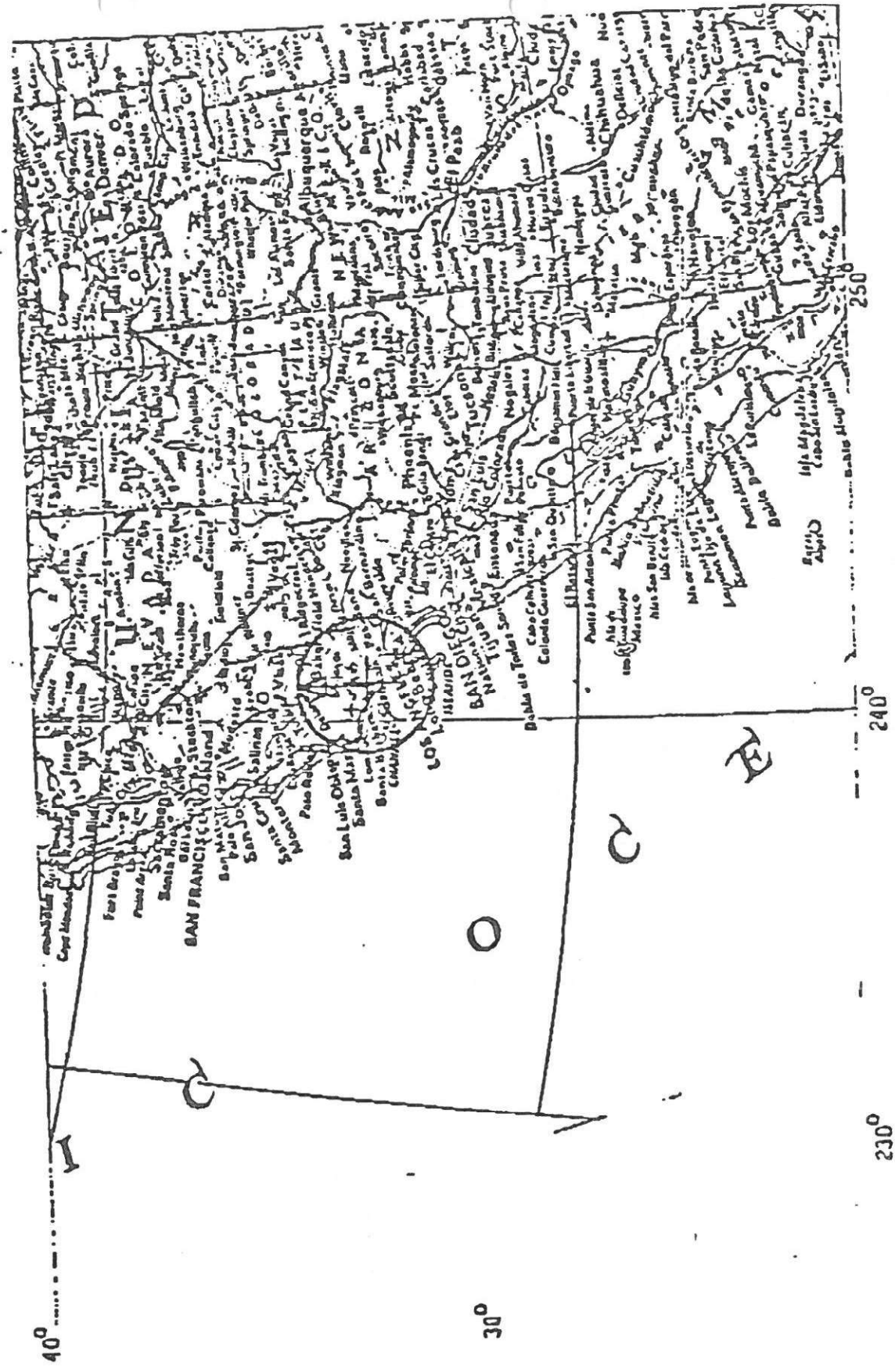
MAXIMUM COORDINATION DISTANCE 383.31 KMS



PRECIPITATION SCATTER CONTOUR (TRANSMIT)

SANTA PAULA

MAXIMUM COORDINATION DISTANCE : 164.82 KMS



230°

240°

250°

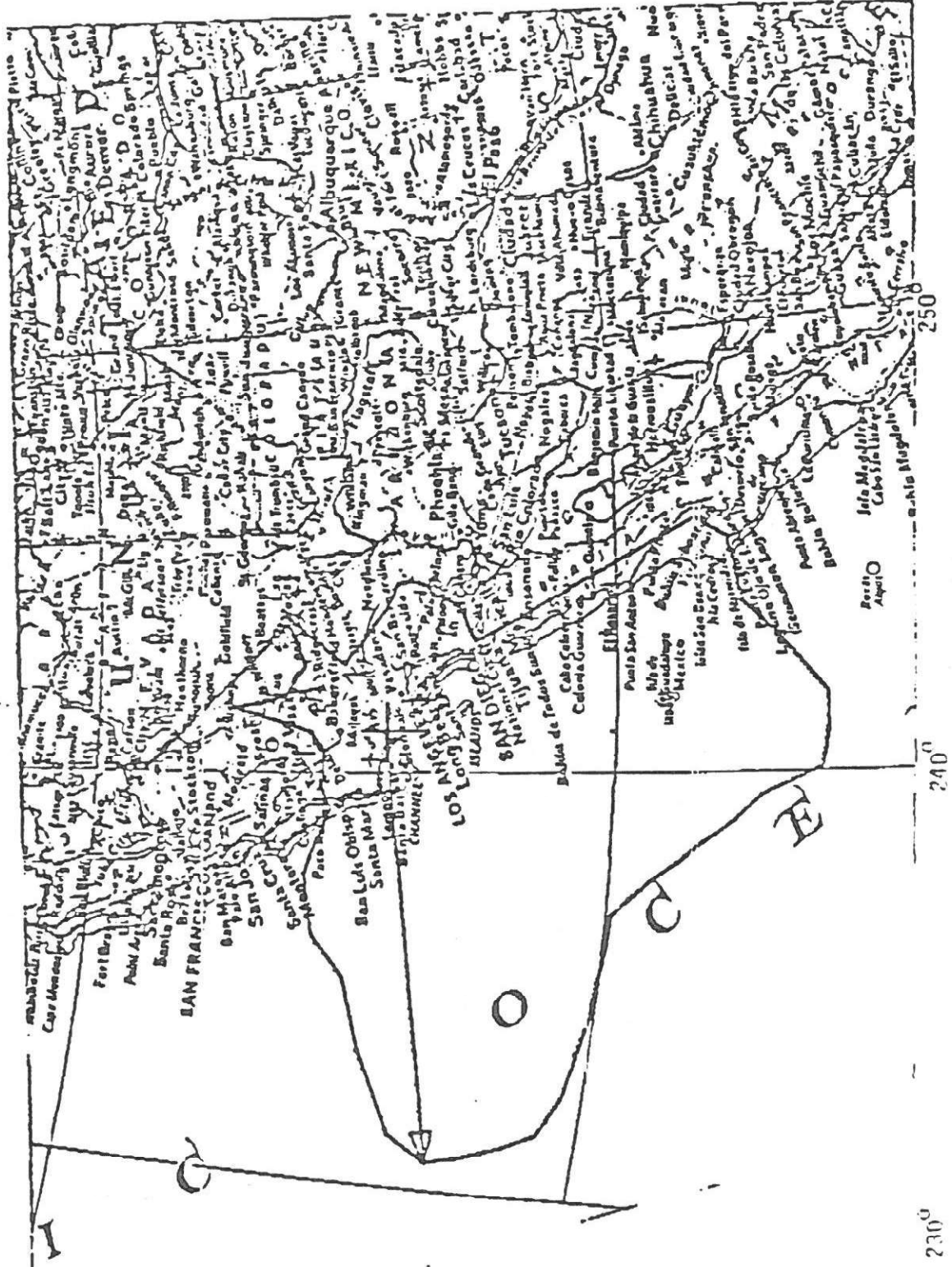
GREAT CIRCLE CONTOUR (RECEIVE)

SANTA PAULA

MAXIMUM COORDINATION DISTANCE

971.54

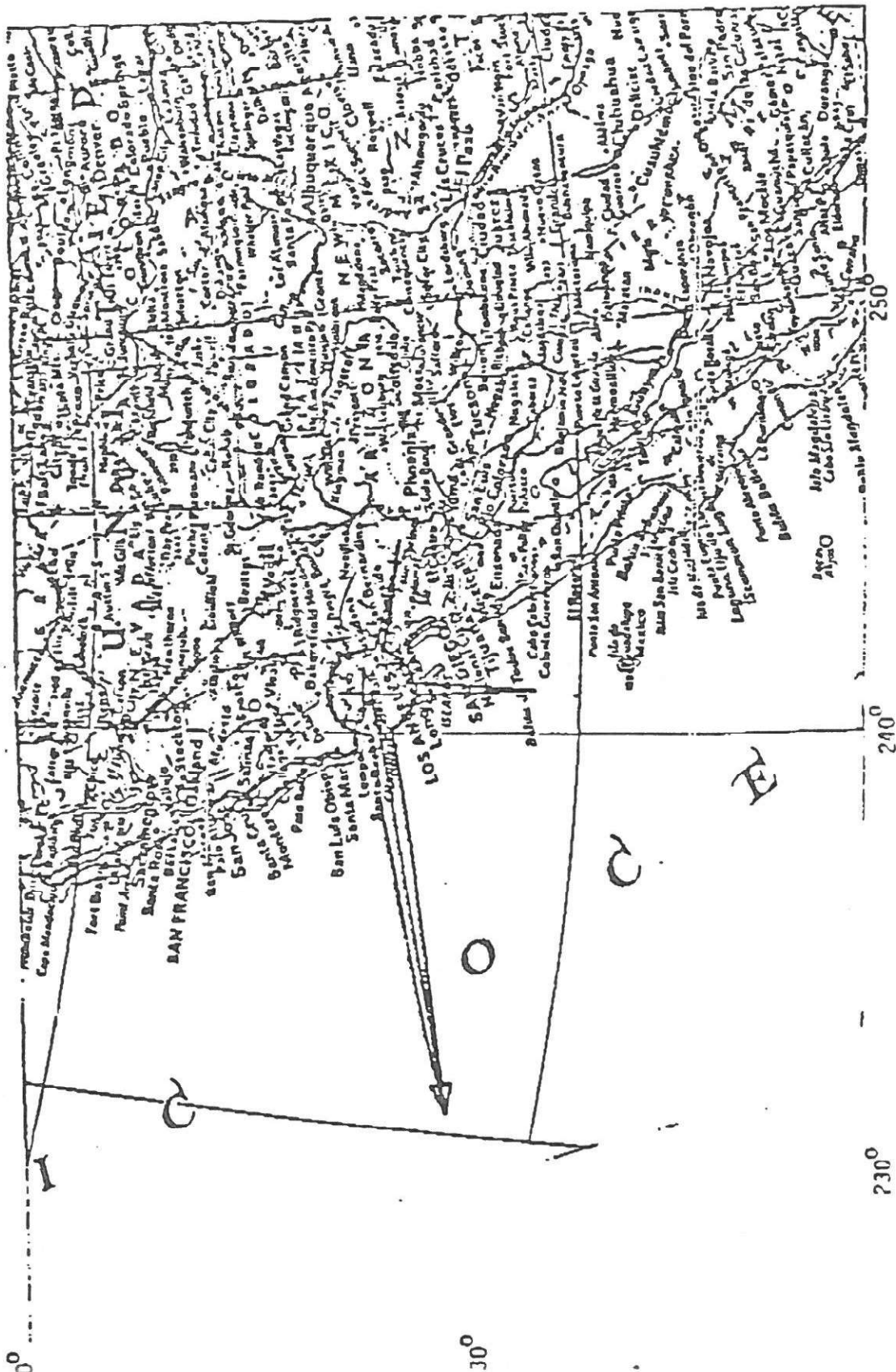
KMS



GREAT CIRCLE CONTOUR (TRANSMIT)

SANTA PAULA

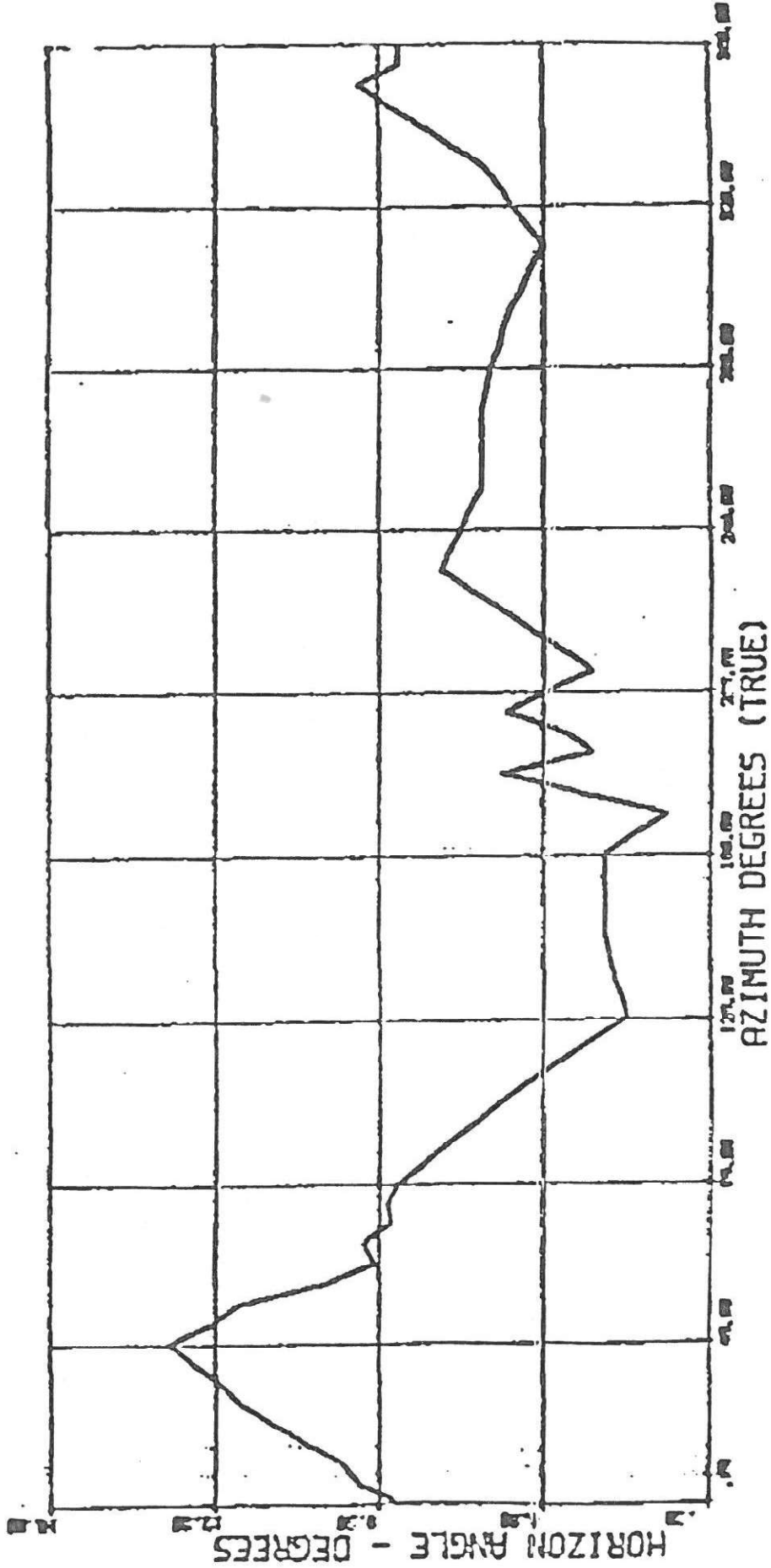
MAXIMUM COORDINATION DISTANCE : 1015.72 KMS



Source: U.S. Coast and Geodetic Survey, 1954. Reproduced by permission of the U.S. Government Printing Office.

FIGURE NO.

HORIZON ANGLE DIAGRAM: SANTA PAULA



CONCLUSION

Three antennas with identical parameters (for coordination purposes) as the proposed antenna have been licensed by the FCC. The call signs are KB-34 (2) and KA-31. As a result, no further coordination for the proposed antenna is required. Coordination at 6 and 4 GHz is considered completed.

Earth Station Technical Characteristics

1. Name of Station: Santa Paula IBS (Temporary)
2. State in which Located: California
3. Call Sign: Temporary Antenna
4. Type of System: Fixed Satellite
5. Geographical Coordinates of the Antenna(s):
34 24 05 N. Latitude (D-M-S)
119 04 26 W. Longitude (D-M-S)
6. Ground Elevation: 750 Feet AMSL
7. Center of Radiation: 20 feet Maximum AGL; 770 Feet AMSL
8. Operating Frequency Bands:
5925 - 6425 MHz (Transmit)
3700 - 4200 MHz (Receive)
9. Classes of Emission: RTD
10. Emission Designator: 1H3B7D
11. Antenna Size: 4.6 Meter

- Gain Pattern: Equivalent to the pattern for the existing licensed antennas

- Main Beam Gain:
(Nominal) 47.0 dBi @ 6 GHz
43.5 dBi @ 4 GHz

- Polarization: Circular
12. Range of Satellite Longitudes: 48.1 to 190.0 Degrees West
13. Minimum Main Beam Elevation Angle: 7.0 Degrees
14. Maximum 6 GHz RF Power at the Transmit Antenna Input Terminal: 3.0 dBW in any 4 kHz Band
15. Maximum Permissible Interference Power at the Receive Input for each

| Freq. Band | F max(dBW) | 3 |
|------------|--------------|--------|
| 6 GHz | -131.0/4 kHz | 0.0025 |
| | -154.0/4 kHz | 20.0 |

Source of Interference
for all but P% of the
Time:

| | | |
|-------|---------------|------|
| 4 GHz | -165.3/85 kHz | 0.01 |
| | -173.3/85 kHz | 20.0 |

16. Type of Site Shield: Natural
17. Azimuths of Operation: 101.0 to 255.9 Degrees
(reference to true North)
18. Maximum Great Circle
Coordination Distance: 1016 km @ 6 GHz
972 km @ 4 GHz
19. Precipitation Scatter
Coordination Distance: 165 km @ 6 GHz
384 km @ 4 GHz
20. Rain Zone: 4
21. FCC 15 dB Down 1/2
Beam Width: 0.83 Degrees @ 6 GHz
1.23 Degrees @ 4 GHz
22. Antenna Make and Model: To Be Selected
23. Transmitter Make and
Model: To Be Selected
24. Transmitter Frequency
Stability: 0.001%

COMMUNICATIONS SATELLITE CORPORATION
SPECTRUM ENGINEERING DEPARTMENT
950 L'ENFANT PLAZA, S.W.
WASHINGTON, D.C. 20024

SANTA PAULA, CALIFORNIA

I hereby certify that I am the technically qualified person responsible for preparation of the Frequency Coordination data contained in this application; that I am familiar with Parts 21 and 25 of the Commission's Rules; that I have either prepared or reviewed the frequency coordination data submitted in the application; and, that it is complete and accurate to the best of my knowledge and belief.

Company: Communications Satellite Corporation
Spectrum Engineering Department

Address: 950 L'Enfant Plaza, S.W.
Washington, D.C. 20024

By: Frank C. Meditz 02/05/86
Frank C. Meditz
Title: Project Engineer

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Vizada Satellite, Inc.
Santa Paula, California
(Call Sign: KA31)**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
November 2, 2008

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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 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 most cases.

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 and frequency separation are considered on the interfering paths, sufficient losses exist to negate harmful interference from occurring with the transmit/receive earth station. Further, the receive spectrum will be limited to frequencies 3600.0 to 3629.0 MHz, and the transmit spectrum will be limited to 6425.0 to 6454.0 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 emailed and sent to the below listed carriers with a letter dated October 12, 2008.

Company

AERA ENERGY LLC
ARCHDIOCESE OF LOS ANGELES WELFARE CORP
Antelope Valley - East Kern Water Agency
BNSF Railway Company
Boeing Company
CARITAS TELECOMMUNICATIONS
CITY OF POMONA COMMUNICATIONS
California, State of
Chevron USA Inc.
Exxon Communications Company
Fresno MSA Limited Partnership
GLENDALE CITY CALIFORNIA
GULF-CALIFORNIA BROADCASTING
INCOMM DIVISION CHURCH OF SCIENTOLOGY
KERN COUNTY CALIFORNIA
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 County Metro Transit Auth
Los Angeles SMSA Ltd. Partnership
METROPOLITAN WATER DIST OF SO CALIFORNIA
MOBILE RELAY ASSOCIATES INC
Mile High Inc
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC - N CAL
ORANGE, COUNTY OF, CA
PACIFIC PIPELINE SYSTEM LLC
Pacific Gas and Electric Company
Plains Exploration & Production Company
RIVERSIDE COUNTY OF
NBC TELEMUNDO LICENSE CO.
ORANGE, COUNTY OF, CA
PAPPAS SOUTHERN CALIFORNIA LICENSE, LLC

Company (Continued)

SANTA BARBARA COUNTY
San Bernardino County of California
Southern California Edison Company
Southern California Gas Company
Union Pacific Railroad Company
VENOCO, INC.
Ventura, County of
West End Communications Authority
BAY CITY TELEVISION, INC
CBS Broadcasting Inc
GULF-CALIFORNIA BROADCAST COMPANY
KRCA License Corporation
KTLA INC
LOS ANGELES TELEVISION STATION KCAL LLC
Time Warner NY Cable, Inc
American Tower, LLC
CNG Communications, Inc.
AT&T California
ALASCOM, Inc.
Bellsouth Telecommunications, Inc.
Indiana Bell Telephone Company, Inc
Ohio Bell Telephone Company
Illinois Bell Telephone Company
Michigan Bell Telephone Company
Wisconsin Bell Inc.
Southwestern Bell Telephone Company
Cincinnati Bell Telephone Company LLC
Carolina Telephone and Telegraph Company, LLC
Hawaiian Telecom
Qwest Corporation
Verizon California, Inc.
Verizon New York, Inc.
Verizon New Jersey, Inc.
Verizon Pennsylvania, Inc.
Verizon Maryland, Inc.
Verizon Delaware, Inc.
Verizon Washington DC, Inc.
Verizon Virginia, Inc.
Verizon New England, Inc.
Verizon North, Inc.
Verizon South, Inc.
Verizon Northwest, Inc.
United Telephone Southeast, LLC
Chicago Comnet Corp.
Ascent Media Network Services, LLC
Mercury Communications
Quick Link Connections, Inc.
Onboard Images

Company (Continued)

Direct Broadcasting Service, Inc.
Village Video Production, Inc.
New England Satellite Systems, Inc.
Society of Broadcast Engineers (SBE) Representatives
Steven K. Moreen
NSM Surveillance
Information Super Station, LLC
Broadcast Communications Microwave, Inc.
Global Microwave Systems, Inc
Penn Service Microwave Company, Inc.
HF Enterprises, Inc. dba HSE Communications, Inc.
Broadcast Sports Corporation
Broadcast Sports Enterprises, Inc.
HBJ Parkes, Inc.
Westar Satellite Services, LP
RF Central, LLC
Tom R. Borgeson
MidCom, Inc.
Metro Networks Communications, Inc.
Broadcast Photography Services, Inc.
Universal Satellite Communications Incorporated
Norlight Telecommunications, Inc.
International Communications Group, Inc. dba Corban Networks
John Casper
AMCI Acquisition, LP
Radiofone, Inc. dba Alltel
Regulus Media Services, Inc.
Kentucky RSA 3 Cellular General Partnership
Kentucky RSA 4 Cellular General Partnership
Plateau Telecommunications, Inc.
Remote Facilities Consulting Services
Winged Vision, Inc.
RCC Minnesota, Inc.
Goodyear Tire & Rubber Company
New England Digital Distribution, Inc.
Navajo Communications Company, Inc.
VYVX, LLC
Centurytel of the Southwest, Inc.
Production & Satellite Services, Inc.
Total RF Marketing, Inc.
DCI II, Inc
Western Technical Services (a Division of Focus Communications, Inc.)
Wexler Video Inc.
3G Wireless, LLC
Information & Display Systems, Inc.
Elena Cohen
Speedshotz, Inc
On Scene Video Production
Remote Broadcasts, Inc.
Plum TV, LLC
Public Television Communications Center, Troy Public Broadcasting

Company (Continued)

NorthWest Suburbs Community Access Corporation dba NorthWest Community Television
Aerial Video Systems
RF Film, Inc.
Citywide News Network, Inc.
Mr. William Heiden
Wolfe Air Aviation
RF Technology, 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: 11/02/2008
Job Number: 081012COMSJC02

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: KA31
Licensee Code: VIZSAT
Licensee Name: Vizada Satellite, Inc.

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: 48° W to 190° West Longitude
Azimuth Range: 101.0° to 258.9°
Corresponding Elevation Angles: 6.9° / 7.0°
Antenna Centerline (AGL): 9.14 m / 30.0 ft

Antenna Information

| | Receive | Transmit |
|------------------------|-------------------|-------------------|
| Manufacturer | Philco Ford | Philco Ford |
| Model | 12.8 Meter | 12.8 Meter |
| Gain / Diameter | 52.8 dBi / 12.8 m | 56.0 dBi / 12.8 m |
| 3-dB / 15-dB Beamwidth | 0.40° / 1.00° | 0.20° / 0.60° |

2K50G1D to 100KG1X

| | | | |
|------------------------|-------------|-----|------|
| Max Available RF Power | (dBW/4 kHz) | 9.7 | -9.2 |
| | (dBW/MHz) | 9.7 | 4.8 |

| | | | |
|--------------|-------------|------|------|
| Maximum EIRP | (dBW/4 kHz) | 65.7 | 46.8 |
| | (dBW/MHz) | 65.7 | 60.8 |

| | | | | | |
|--------------------------|------------|----------------|-------|------------------|---------|
| 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) | 2K50G1D - 100KG1X / 3600.0 - 3629.0 | 2K50G1D - 100KG1X / 6425.0 - 6454.0 |

| | | |
|--|---------------------|---------------------|
| Max Great Circle Coordination Distance | 603.3 km / 374.8 mi | 472.1 km / 293.3 mi |
| Precipitation Scatter Contour Radius | 412.7 km / 256.4 mi | 355.2 km / 220.7 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 Vizada Satellite, Inc.
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) 9.14 m / 30.0 ft
Antenna Model Philco Ford 12.8 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 9.7 (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 | 7.64 | 100.96 | -10.00 | 107.50 | -10.00 | 100.00 |
| 5 | 8.43 | 95.96 | -10.00 | 100.00 | -10.00 | 100.00 |
| 10 | 9.54 | 90.96 | -10.00 | 100.00 | -10.00 | 100.00 |
| 15 | 10.01 | 85.97 | -10.00 | 100.00 | -10.00 | 100.00 |
| 20 | 10.99 | 80.99 | -10.00 | 100.00 | -10.00 | 100.00 |
| 25 | 11.37 | 76.01 | -10.00 | 100.00 | -10.00 | 100.00 |
| 30 | 12.08 | 71.05 | -10.00 | 100.00 | -10.00 | 100.00 |
| 35 | 12.62 | 66.09 | -10.00 | 100.00 | -10.00 | 100.00 |
| 40 | 13.07 | 61.15 | -10.00 | 100.00 | -10.00 | 100.00 |
| 45 | 12.38 | 56.14 | -10.00 | 100.00 | -10.00 | 100.00 |
| 50 | 11.66 | 51.13 | -10.00 | 100.00 | -10.00 | 100.00 |
| 55 | 9.60 | 46.03 | -9.58 | 100.00 | -9.58 | 100.00 |
| 60 | 8.50 | 40.99 | -8.32 | 106.08 | -8.32 | 100.00 |
| 65 | 8.43 | 35.99 | -6.91 | 112.43 | -6.91 | 100.00 |
| 70 | 7.65 | 30.97 | -5.27 | 126.62 | -5.27 | 100.00 |
| 75 | 7.85 | 25.98 | -3.37 | 132.58 | -3.37 | 100.00 |
| 80 | 7.81 | 20.99 | -1.05 | 142.12 | -1.05 | 100.00 |
| 85 | 7.50 | 15.98 | 1.91 | 162.30 | 1.91 | 104.48 |
| 90 | 6.89 | 10.97 | 6.00 | 197.01 | 6.00 | 127.19 |
| 95 | 6.48 | 5.98 | 12.58 | 242.10 | 12.58 | 162.50 |
| 100 | 6.19 | 1.19 | 30.12 | 603.28 | 30.12 | 472.06 |
| 105 | 5.30 | 4.19 | 16.46 | 299.00 | 16.46 | 207.63 |
| 110 | 5.94 | 7.79 | 9.71 | 230.18 | 9.71 | 153.86 |
| 115 | 4.80 | 12.41 | 4.65 | 212.28 | 4.65 | 142.99 |
| 120 | 3.17 | 17.30 | 1.05 | 222.22 | 1.05 | 155.77 |
| 125 | 2.13 | 21.76 | -1.44 | 232.55 | -1.44 | 169.26 |
| 130 | 2.23 | 25.41 | -3.12 | 220.44 | -3.12 | 157.00 |
| 135 | 1.92 | 29.20 | -4.63 | 220.25 | -4.63 | 157.83 |
| 140 | 1.22 | 33.10 | -6.00 | 234.71 | -6.00 | 174.60 |
| 145 | 0.26 | 37.02 | -7.21 | 296.37 | -7.21 | 223.60 |
| 150 | 0.00 | 40.23 | -8.11 | 297.56 | -8.11 | 225.28 |
| 155 | 0.00 | 42.98 | -8.83 | 292.82 | -8.83 | 222.15 |
| 160 | 0.00 | 45.37 | -9.42 | 289.00 | -9.42 | 219.63 |
| 165 | 0.00 | 47.33 | -9.88 | 286.05 | -9.88 | 217.69 |
| 170 | 0.00 | 48.80 | -10.00 | 285.28 | -10.00 | 217.18 |
| 175 | 0.22 | 49.50 | -10.00 | 282.34 | -10.00 | 214.87 |
| 180 | 1.15 | 48.88 | -10.00 | 215.78 | -10.00 | 156.52 |

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

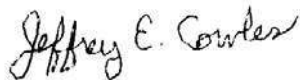
SANTA PAULA, CA

| | | | |
|------------------------------------|------------------------|-------|--|
| Licensee Name | Vizada Satellite, Inc | | |
| 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) | 9.14 m / 30.0 ft | | |
| Antenna Model | Philco Ford 12.8 Meter | | |
| Antenna Mode | Receive 4.0 GHz | | |
| Interference Objectives: Long Term | -156.0 dBW/MHz | 20% | Transmit 6.1 GHz -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 | 9.7 (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) |
| 185 | 2.15 | 47.59 | -9.94 | 191.30 | -9.94 | 131.71 |
| 190 | 3.24 | 45.74 | -9.51 | 166.66 | -9.51 | 113.01 |
| 195 | 4.50 | 43.28 | -8.91 | 145.19 | -8.91 | 100.00 |
| 200 | 3.29 | 42.60 | -8.74 | 171.14 | -8.74 | 115.03 |
| 205 | 4.12 | 39.70 | -7.97 | 155.56 | -7.97 | 103.85 |
| 210 | 2.48 | 38.39 | -7.60 | 195.07 | -7.60 | 134.21 |
| 215 | 5.33 | 33.35 | -6.08 | 147.04 | -6.08 | 100.00 |
| 220 | 6.77 | 29.20 | -4.63 | 137.45 | -4.63 | 100.00 |
| 225 | 5.52 | 26.77 | -3.69 | 156.84 | -3.69 | 102.97 |
| 230 | 4.95 | 23.63 | -2.34 | 173.37 | -2.34 | 113.97 |
| 235 | 5.81 | 19.41 | -0.20 | 174.67 | -0.20 | 113.91 |
| 240 | 5.39 | 15.91 | 1.96 | 192.04 | 1.96 | 126.65 |
| 245 | 6.55 | 11.33 | 5.64 | 199.28 | 5.64 | 129.48 |
| 250 | 5.63 | 7.97 | 9.46 | 232.53 | 9.46 | 156.18 |
| 255 | 5.79 | 3.91 | 17.19 | 292.90 | 17.19 | 201.97 |
| 260 | 6.16 | 1.36 | 28.70 | 592.18 | 28.70 | 462.32 |
| 265 | 7.47 | 6.07 | 12.41 | 226.27 | 12.41 | 148.51 |
| 270 | 6.81 | 11.06 | 5.91 | 197.48 | 5.91 | 127.69 |
| 275 | 5.46 | 16.13 | 1.81 | 190.44 | 1.81 | 125.44 |
| 280 | 4.92 | 21.16 | -1.14 | 180.52 | -1.14 | 119.05 |
| 285 | 5.26 | 26.11 | -3.42 | 161.38 | -3.42 | 106.51 |
| 290 | 5.46 | 31.09 | -5.32 | 149.25 | -5.32 | 100.00 |
| 295 | 6.13 | 36.07 | -6.93 | 134.77 | -6.93 | 100.00 |
| 300 | 6.11 | 41.06 | -8.34 | 130.64 | -8.34 | 100.00 |
| 305 | 5.57 | 46.07 | -9.59 | 130.97 | -9.59 | 100.00 |
| 310 | 6.15 | 51.06 | -10.00 | 123.57 | -10.00 | 100.00 |
| 315 | 5.92 | 56.06 | -10.00 | 125.97 | -10.00 | 100.00 |
| 320 | 5.90 | 61.06 | -10.00 | 126.18 | -10.00 | 100.00 |
| 325 | 5.26 | 66.07 | -10.00 | 132.33 | -10.00 | 100.00 |
| 330 | 5.31 | 71.07 | -10.00 | 131.84 | -10.00 | 100.00 |
| 335 | 6.24 | 76.06 | -10.00 | 122.62 | -10.00 | 100.00 |
| 340 | 7.68 | 81.06 | -10.00 | 107.13 | -10.00 | 100.00 |
| 345 | 8.00 | 86.06 | -10.00 | 103.82 | -10.00 | 100.00 |
| 350 | 8.07 | 91.06 | -10.00 | 103.18 | -10.00 | 100.00 |
| 355 | 8.28 | 96.06 | -10.00 | 101.30 | -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: November 2, 2008

FREQUENCY COORDINATION AND INTERFERENCE
ANALYSIS REPORT

PREPARED FOR
TELENOR SATELLITE SERVICES
SANTA PAULA, CALIFORNIA
SATELLITE EARTH STATION
CALL SIGN: KB34

PREPARED BY
COMSEARCH
19700 JANELIA FARM BOULEVARD
ASHBURN, VIRGINIA 20147
SEPTEMBER 18, 2002

TABLE OF CONTENTS

1. CONCLUSIONS
2. SUMMARY OF RESULTS
3. SUPPLEMENTAL SHOWING, RE: PART 25.203 (C)
4. EARTH STATION COORDINATION DATA
5. CERTIFICATION

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.

THE FOLLOWING COMPANIES REPORTED POTENTIAL GREAT CIRCLE INTERFERENCE CONFLICTS WHICH 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 AND RECEIVE EARTH STATION.

COMPANY

CALIFORNIA, STATE OF
SES AMERICOM, INC
ARCH WIRELESS LICENSE CO., LLC
SOUTHERN CALIFORNIA EDISON COMPANY
SOUTHERN CALIFORNIA GAS COMPANY
LOS ANGELES CITY COMMUNICATIONS SERVICES
AT&T WIRELESS SERVICES OF FLA, INC - NO CA, RENO
LOS ANGELES SMSA LTD PARTNERSHIP
LOS ANGELES COUNTY FCC LICENSING SECTION

NO OTHER CARRIERS REPORTED POTENTIAL INTERFERENCE CASES.

3. SUPPLEMENTAL SHOWING
RE: PART 25.203(C)

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 JULY 30, 2002.

AT&T WIRELESS SER OF FL - LOS ANGELES
AT&T WIRELESS SER OF FL INC - NO CA,RENO
AT&T WIRELESS SERVICES OF FL - San Diego
BAKERSFIELD CELLULAR LLC
CALIFORNIA, STATE OF
CHEVRON USA INC c/o Verizon Cust Network
CNG COMMUNICATIONS, INC.
COAST COMMUNITY COLLEGE DISTRICT
FRESNO MSA LIMITED PARTNERSHIP
GLOBECAST NORTH AMERICA INCORPORATED
GTE MOBILNET OF CALIFORNIA LTD PARTNERSH
GTE MOBILNET OF SANTA BARBARA LTD PARTNE
KERN COUNTY CALIFORNIA
KERN COUNTY COMMUNICATIONS DIVISION
KERN ED TELECOM CONSORTIUM
LB Tower Company LLC
LOS ANGELES CITY COMMUNICATIONS SERVICES
LOS ANGELES COUNTY DEPT OF PUBLIC WORKS
LOS ANGELES COUNTY FCC LICENSING SECTION
LOS ANGELES SMSA LTD PARTNERSHIP
MCI WORLDCOM NETWORK SERVICES INC
METROPOLITAN WATER DIST OF SO CALIFORNIA
MICROWAVE SERVICE COMPANY
MOBILEMEDIA COMMUNICATIONS INC - LA
MOBILEMEDIA COMMUNICATIONS INC - LA 1
MUT LICENSING INC
ORANGE COUNTY GSA COMMUNICATIONS DIV
OXNARD VENTURA SIMI LIMITED PARTNERSHIP
PACAMTEL LLC

PACIFIC BELL PASADENA REGION
PACIFIC BELL SACRAMENTO REGION
RIVERSIDE COUNTY OF
RIVERSIDE TELEPORT CORPORATION
SAN BERNARDINO COUNTY OF CALIFORNIA
SES AMERICOM, INC.
SOUTHERN CALIFORNIA EDISON COMPANY
SOUTHERN CALIFORNIA GAS COMPANY
SOUTHWESTERN BELL MOBILE SYSTEMS, LLC
TV MICROWAVES CO
VERESTAR, INC
VERIZON CALIFORNIA INC.
WESTERN UNION CORPORATION
WINSTAR WIRELESS FIBER CORPORATION
Western Technical Services

4. EARTH STATION COORDINATION DATA

THIS SECTION PRESENTS THE DATA PERTINENT TO FREQUENCY
COORDINATION OF THE PROPOSED EARTH STATION WHICH WAS
CIRCULATED TO ALL COMMON CARRIERS WITHIN ITS COOR-
DINATION CONTOURS.

SATELLITE EARTH STATION
FREQUENCY COORDINATION DATA
07/24/2002

| | | | |
|--|---|------------|--|
| Company | TELENOR SATELLITE SERVICES | | |
| Earth Station Name, State | SANTA PAULA, CA | | |
| Call Sign | KB34 | | |
| Latitude (DMS) (NAD83) | 34 24 5.0 N | | |
| Longitude (DMS) (NAD83) | 119 4 29.4 W | | |
| Ground Elevation AMSL (Ft/m) | 750.0 / 228.60 | | |
| Antenna Centerline AGL (Ft/m) | 30.0 / 9.14 | | |
| Receive Antenna Type: | PHILCO FORD | | |
| | 12.8 METER | | |
| 4.0 GHz Gain (dBi) / Diameter (m) | 52.8 / 12.8 | | |
| 3 dB / 15 dB Half Beamwidth | 0.40 / 0.50 | | |
| Transmit Antenna Type: | PHILCO FORD | | |
| | 12.8 METER | | |
| 6.0 GHz Gain (dBi) / Diameter (m) | 56.0 / 12.8 | | |
| 3 dB / 15 dB Half Beamwidth | 0.30 / 0.50 | | |
| Operating Mode | TRANSMIT AND RECEIVE | | |
| Modulation | ANALOG & DIGITAL | | |
| Emission / Receive Band (MHz) | (1) 21K9G7W - 72M0G7W / 3700.0000 - 4200.0000 | | |
| | (1) 4M00G7F - 36M0G7F / 3700.0000 - 4200.0000 | | |
| | (2) 18M0F8F - 36M0F8F / 3700.0000 - 4200.0000 | | |
| Emission / Transmit Band (MHz) | (1) 21K9G7W - 72M0G7W / 5925.0000 - 6425.0000 | | |
| | (1) 4M00G7F - 36M0G7F / 5925.0000 - 6425.0000 | | |
| | (2) 18M0F8F - 36M0F8F / 5925.0000 - 6425.0000 | | |
| | (1) DIGITAL | (2) ANALOG | |
| Max. Available RF Power (dBW)/4 kHz) | -2.70 | -0.50 | |
| (dBW)/MHz) | 21.30 | 23.50 | |
| Max. EIRP (dBW)/4 kHz) | 53.30 | 55.50 | |
| (dBW)/MHz) | 77.30 | 79.50 | |
| Max permissible Interference Power | | | |
| 4.0 GHz, 20% (dBW/1 MHz) | -155.0 | | |
| 4.0 GHz, 0.0100% (dBW/1 MHz) | -132.0 | | |
| 6.0 GHz, 20% (dBW/4 kHz) | -154.0 | | |
| 6.0 GHz, 0.0025% (dBW/4 kHz) | -131.0 | | |
| Range of Satellite Arc (Geostationary) | | | |
| Degrees Longitude | 46.0 W / 192.0 W | | |
| Azimuth Range (Min/Max) | 99.8 / 260.2 | | |
| Corresponding Elevation Angles | 5.2 / 5.4 | | |
| Radio Climate | A | | |
| Rain Zone | 4 | | |
| Max Great Circle Coordination Distance (Mi/Km) | | | |
| 4.0 GHz | 323.6 / 520.8 | | |
| 6.0 GHz | 278.2 / 447.7 | | |
| Precipitation Scatter Contour Radius (Mi/Km) | | | |
| 4.0 GHz | 208.2 / 335.1 | | |
| 6.0 GHz | 71.1 / 114.4 | | |

Table of Earth Station Coordination Values
07/24/2002

Earth Station Name SANTA PAULA CA
 Owner TELENOR SATELLITE SERVICES
 Latitude (DMS) (NAD83) 34 24 5.0 N
 Longitude (DMS) (NAD83) 119 4 29.4 W
 Ground Elevation (Ft/m) 750.0 / 228.60 AMSL
 Antenna Centerline (Ft/m) 30.0 / 9.14 AGL
 Antenna Model PHILCO FORD 12.8 METER
 Objectives: Receive -155.0 (dBW /1 MHz)
 Transmit -154.0 (dBW /4 kHz) TX Power -0.5 (dBW/4 kHz)

| Azimuth (Deg) | Horizon Elevation Angle (Deg) | Antenna Disc. Angle (Deg) | 4.0 GHz | | 6.0 GHz | |
|------------------|--|------------------------------------|--------------------------|----------------------------------|--------------------------|----------------------------------|
| | | | Antenna Gain (dBi) | Coordination Distance (Km) | Antenna Gain (dBi) | Coordination Distance (Km) |
| 0 | 7.25 | 99.75 | -10.00 | 100.0 | -10.00 | 100.0 |
| 5 | 7.78 | 94.75 | -10.00 | 100.0 | -10.00 | 100.0 |
| 10 | 9.44 | 89.76 | -10.00 | 100.0 | -10.00 | 100.0 |
| 15 | 10.20 | 84.78 | -10.00 | 100.0 | -10.00 | 100.0 |
| 20 | 10.78 | 79.81 | -10.00 | 100.0 | -10.00 | 100.0 |
| 25 | 11.30 | 74.84 | -10.00 | 100.0 | -10.00 | 100.0 |
| 30 | 11.97 | 69.90 | -10.00 | 100.0 | -10.00 | 100.0 |
| 35 | 12.29 | 64.96 | -10.00 | 100.0 | -10.00 | 100.0 |
| 40 | 12.86 | 60.05 | -10.00 | 100.0 | -10.00 | 100.0 |
| 45 | 12.14 | 55.05 | -10.00 | 100.0 | -10.00 | 100.0 |
| 50 | 11.47 | 50.04 | -10.00 | 100.0 | -10.00 | 100.0 |
| 55 | 9.60 | 44.92 | -9.31 | 100.0 | -9.31 | 100.0 |
| 60 | 8.72 | 39.88 | -8.02 | 100.0 | -8.02 | 100.0 |
| 65 | 8.29 | 34.87 | -6.56 | 100.0 | -6.56 | 100.0 |
| 70 | 7.61 | 29.84 | -4.87 | 100.0 | -4.87 | 100.0 |
| 75 | 7.94 | 24.90 | -2.90 | 100.0 | -2.90 | 100.0 |
| 80 | 7.79 | 19.92 | -0.48 | 100.0 | -0.48 | 100.0 |
| 85 | 7.47 | 14.92 | 2.65 | 103.9 | 2.65 | 100.0 |
| 90 | 6.55 | 9.84 | 7.17 | 131.9 | 7.17 | 100.0 |
| 95 | 6.45 | 4.91 | 14.72 | 171.4 | 14.72 | 126.0 |
| 100 | 6.02 | 0.36 | 43.05 | 520.8 | 43.05 | 447.7 |
| 105 | 5.31 | 4.18 | 16.47 | 200.7 | 16.47 | 148.5 |
| 110 | 5.39 | 8.12 | 9.26 | 152.8 | 9.26 | 114.9 |
| 115 | 4.38 | 12.68 | 4.42 | 143.9 | 4.42 | 108.3 |
| 120 | 3.02 | 17.40 | 0.99 | 154.0 | 0.99 | 118.1 |
| 125 | 2.18 | 21.73 | -1.43 | 161.6 | -1.43 | 124.8 |
| 130 | 1.76 | 25.71 | -3.25 | 164.5 | -3.25 | 127.5 |
| 135 | 1.73 | 29.33 | -4.68 | 158.7 | -4.68 | 123.3 |
| 140 | 1.14 | 33.15 | -6.01 | 172.5 | -6.01 | 133.3 |
| 145 | 0.56 | 36.81 | -7.15 | 195.5 | -7.15 | 153.9 |
| 150 | 0.00 | 40.23 | -8.11 | 220.0 | -8.11 | 186.4 |
| 155 | 0.00 | 42.98 | -8.83 | 216.9 | -8.83 | 183.7 |
| 160 | 0.00 | 45.37 | -9.42 | 214.4 | -9.42 | 181.4 |
| 165 | 0.00 | 47.33 | -9.88 | 212.6 | -9.88 | 179.6 |
| 170 | 0.00 | 48.80 | -10.00 | 212.1 | -10.00 | 179.2 |
| 175 | 0.00 | 49.72 | -10.00 | 212.1 | -10.00 | 179.2 |
| 180 | 0.69 | 49.33 | -10.00 | 175.7 | -10.00 | 136.8 |

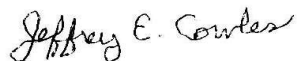
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07/24/2002

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 Antenna Model PHILCO FORD 12.8 METER
 Objectives: Receive -155.0 (dBW /1 MHz)
 Transmit -154.0 (dBW /4 kHz) TX Power -0.5 (dBW/4 kHz)

| Azimuth (Deg) | Horizon Elevation Angle (Deg) | Antenna Disc. Angle (Deg) | 4.0 GHz | | 6.0 GHz | |
|------------------|--|------------------------------------|--------------------------|----------------------------------|--------------------------|----------------------------------|
| | | | Antenna Gain (dBi) | Coordination Distance (Km) | Antenna Gain (dBi) | Coordination Distance (Km) |
| 185 | 1.30 | 48.43 | -10.00 | 147.6 | -10.00 | 116.3 |
| 190 | 3.29 | 45.68 | -9.49 | 108.5 | -9.49 | 100.0 |
| 195 | 4.47 | 43.31 | -8.91 | 100.0 | -8.91 | 100.0 |
| 200 | 2.66 | 43.14 | -8.87 | 122.6 | -8.87 | 100.0 |
| 205 | 3.62 | 40.11 | -8.08 | 108.1 | -8.08 | 100.0 |
| 210 | 3.12 | 37.90 | -7.47 | 119.5 | -7.47 | 100.0 |
| 215 | 3.46 | 34.73 | -6.52 | 117.0 | -6.52 | 100.0 |
| 220 | 5.67 | 29.99 | -4.92 | 100.0 | -4.92 | 100.0 |
| 225 | 5.54 | 26.75 | -3.68 | 100.0 | -3.68 | 100.0 |
| 230 | 4.08 | 24.21 | -2.60 | 121.0 | -2.60 | 100.0 |
| 235 | 2.51 | 21.53 | -1.33 | 154.5 | -1.33 | 118.9 |
| 240 | 4.56 | 16.43 | 1.61 | 131.0 | 1.61 | 100.0 |
| 245 | 6.41 | 11.42 | 5.56 | 126.9 | 5.56 | 100.0 |
| 250 | 5.44 | 8.09 | 9.30 | 152.5 | 9.30 | 114.6 |
| 255 | 5.32 | 4.18 | 16.48 | 197.0 | 16.48 | 145.1 |
| 260 | 6.41 | 0.50 | 39.50 | 514.1 | 39.50 | 440.9 |
| 265 | 7.10 | 5.15 | 14.20 | 157.5 | 14.20 | 116.9 |
| 270 | 6.60 | 9.92 | 7.08 | 131.0 | 7.08 | 100.0 |
| 275 | 4.73 | 14.86 | 2.70 | 133.2 | 2.70 | 100.0 |
| 280 | 4.78 | 19.86 | -0.45 | 119.9 | -0.45 | 100.0 |
| 285 | 5.31 | 24.85 | -2.88 | 104.5 | -2.88 | 100.0 |
| 290 | 5.41 | 29.85 | -4.87 | 100.0 | -4.87 | 100.0 |
| 295 | 6.00 | 34.85 | -6.56 | 100.0 | -6.56 | 100.0 |
| 300 | 6.11 | 39.85 | -8.01 | 100.0 | -8.01 | 100.0 |
| 305 | 5.60 | 44.85 | -9.29 | 100.0 | -9.29 | 100.0 |
| 310 | 6.29 | 49.85 | -10.00 | 100.0 | -10.00 | 100.0 |
| 315 | 5.85 | 54.85 | -10.00 | 100.0 | -10.00 | 100.0 |
| 320 | 5.59 | 59.85 | -10.00 | 100.0 | -10.00 | 100.0 |
| 325 | 5.12 | 64.85 | -10.00 | 100.0 | -10.00 | 100.0 |
| 330 | 5.17 | 69.85 | -10.00 | 100.0 | -10.00 | 100.0 |
| 335 | 6.09 | 74.85 | -10.00 | 100.0 | -10.00 | 100.0 |
| 340 | 7.67 | 79.86 | -10.00 | 100.0 | -10.00 | 100.0 |
| 345 | 8.04 | 84.85 | -10.00 | 100.0 | -10.00 | 100.0 |
| 350 | 7.92 | 89.85 | -10.00 | 100.0 | -10.00 | 100.0 |
| 355 | 8.20 | 94.84 | -10.00 | 100.0 | -10.00 | 100.0 |

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
SENIOR FREQUENCY COORDINATOR
COMSEARCH
19700 JANELIA FARM BOULEVARD
ASHBURN, VIRGINIA 20147

DATED: September 18, 2002

