

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Telenor Satellite Services
Santa Paula, California
(Call Sign: E890649)**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
October 27, 2006

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1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

2. SUMMARY OF RESULTS

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.

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 and/or faxed to the below listed carriers with a letter dated October 14, 2006.

Company

ABC Holding Company Inc.
AERONAUTICAL RADIO INC - ARINC
ALLTEL Comm of the Southwest Ltd Prtnrsh
AMERIQUEST MORTGAGE COMPANY
ARCHDIOCESE OF LOS ANGELES WELFARE CORP
ARIZONA WESTERN COLLEGE
ARIZONA, STATE OF DEPT OF PUBLIC SAFETY
AT&T COMMUNICATIONS OF CALIFORNIA, INC.
AT&T California
Arizona Public Service Company (APS)
BNSF Railway Company
Bakersfield City of
Black Mountain Broadband LLC
CARITAS TELECOMMUNICATIONS
CBS Broadcasting Inc
CHEVRON USA INC c/o Verizon Cust Network
CNG Communications, Inc.
California, State of
Color Broadband
Fresno MSA Limited Partnership
GLENDALE CITY CALIFORNIA
GTE Mobilnet of California LTD Partnersh
GTE Mobilnet of Santa Barbara LTD Ptsh
KERN COUNTY CALIFORNIA
KERN SCHOOLS FEDERAL CREDIT UNION
LOS ANGELES CITY WATER & POWER
Long Beach City Electronics Div.
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
Maricopa County Wireless Systems
Microwave Service Company

Company (Continued)

NEXTEL OF CALIFORNIA INC
NEXTPHASE WIRELESS INC
New Cingular Wireless PCS LLC - AZ
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC - N CAL
Nextel Spectrum Acquisition Corp
Nextweb Inc
ORANGE COUNTY GSA COMMUNICATIONS DIV
Omnipoint NY MTA License, LLC
Oxnard Ventura Simi Limited Partnership
PHOENIX CITY ARIZONA
QWEST CORPORATION
RIVERSIDE COUNTY OF
SANTA BARBARA COUNTY
San Bernardino Community Col Dis KVCR-TV
San Bernardino County of California
Santa Barbara Cellular Systems, Ltd.
Southern California Edison Company
Southern California Gas Company
T-MOBILE USA, INC.
T-Mobile License LLC
TV MICROWAVES CO
Union Pacific Railroad Company
VENTURA COUNTY COMMUNITY COLLEGE
VENTURA COUNTY OF CALIFORNIA
Ventura County Office of Education
Verizon California Inc.
Verizon Wireless (VAW) LLC-Southwest Rgn
Western Technical Services

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: 10/26/2006
Job Number: 061014COMSJC01

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: E890649
Licensee Code: P2540C
Licensee Name: Telenor Satellite Srvcs-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): 230.12 m / 755.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 46° W to 192° West Longitude
Azimuth Range: 99.8° to 260.2°
Corresponding Elevation Angles: 5.2° / 5.4°
Antenna Centerline (AGL): 9.14 m / 30.0 ft

Antenna Information

Manufacturer: TIW
Model: 14.2 Meter
Gain / Diameter: 63.1 dBi / 14.2 m
3-dB / 15-dB Beamwidth: 0.12° / 0.22°

Transmit

TIW
14.2 Meter
64.6 dBi / 14.2 m
0.10° / 0.19°

69K0G7W to 64M8G7W

Max Available RF Power (dBW/4 kHz)
(dBW/MHz)

-14.6 -22.1
-2.2 1.9

Maximum EIRP (dBW/4 kHz)
(dBW/MHz)
(dBW)

50.0 42.5
62.4 66.5
62.4 84.6

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

-151.0 dBW/4 kHz 20%
-128.0 dBW/4 kHz 0.0025%

Frequency Information

Emission / Frequency Range (MHz)

Receive 11.0 GHz

69K0G7W - 6M21G7W / 10950.0 - 11200.0
69K0G7W - 6M21G7W / 11450.0 - 12200.0

Transmit 14.0 GHz

69K0G7W - 64M8G7W / 14000.0 - 14500.0

Max Great Circle Coordination Distance
Precipitation Scatter Contour Radius

721.0 km / 448.0 mi
430.5 km / 267.5 mi

315.2 km / 195.9 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)	230.12 m / 755.0 ft				
Antenna Centerline (AGL)	9.14 m / 30.0 ft				
Antenna Model	TIW 14.2 Meter				
Antenna Mode	Receive 11.0 GHz		Transmit 14.0 GHz		
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power					-14.6 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	7.58	99.75	-10.00	100.00	-10.00	100.00
5	8.41	94.75	-10.00	100.00	-10.00	100.00
10	9.44	89.76	-10.00	100.00	-10.00	100.00
15	9.93	84.78	-10.00	100.00	-10.00	100.00
20	10.93	79.81	-10.00	100.00	-10.00	100.00
25	11.31	74.85	-10.00	100.00	-10.00	100.00
30	12.06	69.91	-10.00	100.00	-10.00	100.00
35	12.60	64.98	-10.00	100.00	-10.00	100.00
40	13.05	60.07	-10.00	100.00	-10.00	100.00
45	12.36	55.07	-10.00	100.00	-10.00	100.00
50	11.64	50.06	-10.00	100.00	-10.00	100.00
55	9.59	44.92	-9.31	100.00	-9.31	100.00
60	8.48	39.87	-8.02	100.00	-8.02	100.00
65	8.40	34.88	-6.57	100.00	-6.57	100.00
70	7.62	29.84	-4.87	100.00	-4.87	100.00
75	7.82	24.88	-2.90	100.00	-2.90	100.00
80	7.78	19.91	-0.48	105.76	-0.48	100.00
85	7.45	14.92	2.66	121.00	2.66	100.00
90	6.84	9.89	7.12	146.83	7.12	100.00
95	6.43	4.90	14.73	201.36	14.73	100.00
100	6.14	0.37	42.84	721.02	42.84	315.23
105	5.26	4.21	16.39	230.32	16.39	103.26
110	5.82	7.87	9.60	179.24	9.60	100.00
115	4.68	12.49	4.59	162.83	4.59	100.00
120	3.05	17.38	1.00	180.46	1.00	100.00
125	2.03	21.82	-1.47	191.59	-1.47	100.00
130	2.20	25.43	-3.13	179.38	-3.13	100.00
135	1.89	29.22	-4.64	180.02	-4.64	100.00
140	1.19	33.12	-6.00	194.16	-6.00	100.00
145	0.22	37.04	-7.22	241.44	-7.22	119.30
150	0.00	40.23	-8.11	239.81	-8.11	119.01
155	0.00	42.98	-8.83	236.55	-8.83	117.22
160	0.00	45.37	-9.42	233.92	-9.42	115.76
165	0.00	47.33	-9.88	231.90	-9.88	114.62
170	0.00	48.80	-10.00	231.37	-10.00	114.32
175	0.00	49.72	-10.00	231.37	-10.00	114.32
180	1.08	48.94	-10.00	178.84	-10.00	100.00
185	2.09	47.66	-9.95	144.76	-9.95	100.00

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Coordination Values

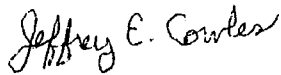
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Antenna Mode	Receive 11.0 GHz		Transmit 14.0 GHz
Interference Objectives:	Long Term	-156.0 dBW/MHz 20%	-151.0 dBW/4 kHz 20%
	Short Term	-146.0 dBW/MHz 0.01%	-128.0 dBW/4 kHz 0.0025%
Max Available RF Power			-14.6 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	3.17	45.80	-9.52	126.09	-9.52	100.00
195	4.42	43.35	-8.93	108.71	-8.93	100.00
200	3.21	42.67	-8.75	128.28	-8.75	100.00
205	4.03	39.77	-7.99	117.06	-7.99	100.00
210	2.38	38.46	-7.63	148.55	-7.63	100.00
215	5.23	33.43	-6.10	109.56	-6.10	100.00
220	6.66	29.27	-4.66	101.26	-4.66	100.00
225	5.41	26.84	-3.72	116.84	-3.72	100.00
230	4.85	23.70	-2.37	128.10	-2.37	100.00
235	5.68	19.49	-0.25	127.81	-0.25	100.00
240	5.27	15.99	1.90	139.76	1.90	100.00
245	6.45	11.40	5.58	143.87	5.58	100.00
250	5.57	8.01	9.41	181.19	9.41	100.00
255	5.72	3.95	17.10	222.88	17.10	100.80
260	6.10	0.46	40.48	712.21	40.48	309.96
265	7.39	5.25	13.99	184.84	13.99	100.00
270	6.73	9.94	7.06	148.02	7.06	100.00
275	5.37	14.85	2.71	142.47	2.71	100.00
280	4.88	19.85	-0.45	133.99	-0.45	100.00
285	5.25	24.85	-2.88	121.69	-2.88	100.00
290	5.44	29.85	-4.87	112.17	-4.87	100.00
295	6.12	34.85	-6.56	100.00	-6.56	100.00
300	6.09	39.85	-8.01	100.00	-8.01	100.00
305	5.55	44.85	-9.29	100.00	-9.29	100.00
310	6.12	49.85	-10.00	100.00	-10.00	100.00
315	5.89	54.85	-10.00	100.00	-10.00	100.00
320	5.87	59.85	-10.00	100.00	-10.00	100.00
325	5.23	64.85	-10.00	100.00	-10.00	100.00
330	5.30	69.85	-10.00	100.00	-10.00	100.00
335	6.22	74.85	-10.00	100.00	-10.00	100.00
340	7.67	79.86	-10.00	100.00	-10.00	100.00
345	7.99	84.85	-10.00	100.00	-10.00	100.00
350	8.06	89.85	-10.00	100.00	-10.00	100.00
355	8.27	94.84	-10.00	100.00	-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 Blvd.
Ashburn, Va. 20147

DATED: October 27, 2006