

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**SES Americom, Inc.
Somis, California
(11.1 Meter)**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
August 9, 2013

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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 emailed and sent to the below listed carriers with a letter dated July 25, 2013.

Company

ABC Holding Company Inc.
ANACAPA Micro Products, Inc.
AT&T California
Airband Communications Inc
Antelecom, Inc.
Bel Air Internet, LLC
Beta Operating Company LLC
CBS Broadcasting Inc
California Water Service Company
California, State of
Catalina Broadband Solutions, LLC
Chevron USA Inc.
City Of Los Angeles, Dept Water & Power
City of Pasadena, California
City of Santa Barbara Water Resources De
Clearwire Spectrum Holdings III, LLC
Color BroadBand Inc.
Community Services, Inc.
Exxon Communications Company
Fireline Network Solutions Inc.
Franklin Technology Systems, Inc.
Fresno MSA Limited Partnership
GTE Mobilnet of Santa Barbara LTD Ptsh
Glendale, City of
Iberdrola Renewables, LLC
J G BOSWELL COMPANY
Kern, County of
LOS ANGELES UNIFIED SCHOOL DISTRICT
LT-WR, LLC
Lockheed Martin Corp - Baltimore, MD
Long Beach City California
Long Beach City Electronics Div.
Long Beach City Wireless Comm Div
Long Beach City of, CA - Fire Department

Company (Continued)

Los Angeles City Info Technology Agency
Los Angeles County Dept of Public Works
Los Angeles County FCC Licensing Section
Los Angeles SMSA Ltd. Partnership
Los Angeles, City of
MHO Networks
MONTEBELLO CITY CALIFORNIA
MetroPCS California, LLC
MetroPCS Networks California, LLC
Metropolitan Water Dist of So California
NRJ TV III CA License Co, LLC
NRJ TV LA License Co, LLC
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC - N CAL
Nextlink Wireless, LLC
Nextweb, Inc.
ORANGE, COUNTY OF, CA
Port of Los Angeles
Providence Health & Services
RPM Wireless Internet, LLC
Regents of the University of California
ST. JOSEPH HEALTH SYSTEM
Santa Barbara Cellular Systems, Ltd.
Santa Barbara, County of
Skyriver Communications
Southern California Edison Company
Southern California Gas Company
Southern California Regional Rail Auth.
Sprint Spectrum, LP
Sprint Telephony PCS, L.P.
T-Mobile License LLC
TV MICROWAVES CO
Tejon Ranch Co
Temecula Valley Real Estate, Inc
Towerstream Corp
Turn Wireless, LLC
Union Pacific Railroad Company
United Water Conservation District
VENOCO, INC.
VENTURA COUNTY COMMUNITY COLLEGE
Vectus, Inc
Ventura County Office of Education
Ventura Regional Sanitation District
Ventura, County of
Venture Technologies Group, LLC
Verizon California Inc.
Verizon Wireless (VAW) LLC (CA)
WiLine Spectrum Holdings LLC.
enXco Services Corporation
unWired Broadband, 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: 08/09/2013
Job Number: 130725COMSJC02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code P3210
Licensee Name SES Americom, Inc.

Site Information SOMIS, CALIFORNIA

Venue Name
Latitude (NAD 83) 34° 19' 33.1" N
Longitude (NAD 83) 118° 59' 47.8" W
Climate Zone A
Rain Zone 4
Ground Elevation (AMSL) 307.91 m / 1010.2 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Analog and Digital
Satellite Arc 101° W to 190° West Longitude
Azimuth Range 150.1° to 259.0°
Corresponding Elevation Angles 45.7° / 7.0°
Antenna Centerline (AGL) 7.32 m / 24.0 ft

Antenna Information

Manufacturer Vertex Corporation
Model 11.1 Meter KPK
Gain / Diameter 60.3 dBi / 11.1 m
3-dB / 15-dB Beamwidth 0.17° / 0.31°

Receive

Transmit

Vertex Corporation
11.1 Meter KPK
62.0 dBi / 11.1 m
0.13° / 0.25°

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

SEE ATTACHMENT 1
SEE ATTACHMENT 1

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

SEE ATTACHMENT 1
SEE ATTACHMENT 1
SEE ATTACHMENT 1

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

SEE ATTACHMENT 1

Transmit 14.0 GHz

SEE ATTACHMENT 1

Max Great Circle Coordination Distance 514.3 km / 319.5 mi
Precipitation Scatter Contour Radius 402.2 km / 249.9 mi

262.9 km / 163.3 mi
100.0 km / 62.1 mi

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ATTACHMENT 1

Page 1 of 2

Vertex Corporation:
Model: 11.1 Meter KPK

11.0 GHz Gain: 60.3 dBi
14.0 GHz Gain: 62.0 dBi

Satellite Arc: 101.0 to 190.0 West Longitude

Receive Band: 10950.0 to 11200.0 MHz and 11450.0 to 11700.0 MHz

Emissions

N0N
500KF9D
100KG7D – 36M0G7D
100KG7W – 36M0G7W

Satellite Arc: 101.0 to 190.0 West Longitude

Transmit Band: 13750.0 to 13770.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP/Carrier (dBW)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
N0N	-8.0	54.0	54.0
100KG7D to 20M0G7D	-14.0 -15.0	62.0 84.0	48.0 47.0
100KG7W to 20M0G7W	-14.0 -15.0	62.0 84.0	48.0 47.0

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ATTACHMENT 1

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Satellite Arc: 101.0 to 190.0 West Longitude

Transmit Band: 13770.0 to 13780.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP/Carrier (dBW)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
10M0G7D	-23.4	72.6	38.6
10M0G7W	-23.4	72.6	38.6

Satellite Arc: 101.0 to 190.0 West Longitude

Transmit Band: 13780.0 to 14000.0 MHz

<u>Emission</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP/Carrier (dBW)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
N0N	-8.0	54.0	54.0
100KG7D to 36M0G7D	-14.0 -17.5	62.0 84.0	48.0 44.5
100KG7W to 36M0G7W	-14.0 -17.5	62.0 84.0	48.0 44.5

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Coordination Values

SOMIS, CA

Licensee Name SES Americom, Inc.
Latitude (NAD 83) 34° 19' 33.1" N
Longitude (NAD 83) 118° 59' 47.8" W
Ground Elevation (AMSL) 307.91 m / 1010.2 ft
Antenna Centerline (AGL) 7.32 m / 24.0 ft
Antenna Model Vertex Corporation 11.1 Meter KPK
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 -8.0 (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	18.83	100.75	-10.00	100.00	-10.00	100.00
5	17.42	105.72	-10.00	100.00	-10.00	100.00
10	15.12	110.77	-10.00	100.00	-10.00	100.00
15	14.29	115.76	-10.00	100.00	-10.00	100.00
20	14.12	120.72	-10.00	100.00	-10.00	100.00
25	12.18	118.61	-10.00	100.00	-10.00	100.00
30	10.50	114.16	-10.00	100.00	-10.00	100.00
35	10.11	110.15	-10.00	100.00	-10.00	100.00
40	13.57	106.88	-10.00	100.00	-10.00	100.00
45	15.26	102.94	-10.00	100.00	-10.00	100.00
50	14.24	98.57	-10.00	100.00	-10.00	100.00
55	13.62	94.28	-10.00	100.00	-10.00	100.00
60	12.51	90.05	-10.00	100.00	-10.00	100.00
65	10.85	85.95	-10.00	100.00	-10.00	100.00
70	10.47	81.89	-10.00	100.00	-10.00	100.00
75	9.11	78.05	-10.00	100.00	-10.00	100.00
80	9.38	74.05	-10.00	100.00	-10.00	100.00
85	9.61	70.08	-10.00	100.00	-10.00	100.00
90	11.18	65.72	-10.00	100.00	-10.00	100.00
95	10.35	62.15	-10.00	100.00	-10.00	100.00
100	9.93	58.61	-10.00	100.00	-10.00	100.00
105	9.34	55.33	-10.00	100.00	-10.00	100.00
110	6.70	53.50	-10.00	100.00	-10.00	100.00
115	5.99	50.97	-10.00	100.00	-10.00	100.00
120	4.50	49.36	-10.00	103.98	-10.00	100.00
125	3.75	47.64	-9.95	114.60	-9.95	100.00
130	4.26	45.23	-9.39	109.12	-9.39	100.00
135	5.07	42.87	-8.80	101.43	-8.80	100.00
140	3.40	43.26	-8.90	124.34	-8.90	100.00
145	2.43	43.51	-8.96	141.32	-8.96	100.00
150	2.55	43.15	-8.87	139.10	-8.87	100.00
155	3.94	42.00	-8.58	116.33	-8.58	100.00
160	4.21	42.46	-8.70	112.24	-8.70	100.00
165	2.27	45.44	-9.44	142.90	-9.44	100.00
170	0.60	48.32	-10.00	201.88	-10.00	103.29
175	0.31	49.50	-10.00	221.07	-10.00	122.54
180	0.47	49.64	-10.00	207.22	-10.00	110.40
185	0.42	49.39	-10.00	211.51	-10.00	114.25

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Max Available RF Power -8.0 (dBW/4 kHz)

Azimuth (°)	Receive 11.0 GHz		Transmit 14.0 GHz			
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	1.36	47.61	-9.94	170.00	-9.94	100.00
195	3.92	43.90	-9.06	114.99	-9.06	100.00
200	5.70	40.59	-8.21	100.00	-8.21	100.00
205	7.65	36.83	-7.16	100.00	-7.16	100.00
210	8.22	33.96	-6.27	100.00	-6.27	100.00
215	9.59	30.16	-4.98	100.00	-4.98	100.00
220	11.51	25.74	-3.26	100.00	-3.26	100.00
225	11.85	22.33	-1.72	100.00	-1.72	100.00
230	11.75	19.04	0.01	100.00	0.01	100.00
235	11.75	15.51	2.23	100.00	2.23	100.00
240	11.75	11.86	5.15	100.00	5.15	100.00
245	11.64	8.15	9.22	115.44	9.22	100.00
250	11.19	4.60	15.44	149.38	15.44	100.00
255	13.60	0.94	32.65	241.09	32.65	102.00
260	10.58	2.96	20.22	514.28	20.22	262.92
265	11.27	7.37	10.31	122.80	10.31	100.00
270	14.60	13.36	3.86	100.00	3.86	100.00
275	15.24	17.95	0.65	100.00	0.65	100.00
280	16.34	22.90	-2.00	100.00	-2.00	100.00
285	14.45	26.97	-3.77	100.00	-3.77	100.00
290	13.74	31.65	-5.51	100.00	-5.51	100.00
295	14.38	36.64	-7.10	100.00	-7.10	100.00
300	15.13	41.65	-8.49	100.00	-8.49	100.00
305	15.87	46.65	-9.72	100.00	-9.72	100.00
310	16.53	51.63	-10.00	100.00	-10.00	100.00
315	15.67	56.43	-10.00	100.00	-10.00	100.00
320	15.20	61.32	-10.00	100.00	-10.00	100.00
325	15.08	66.24	-10.00	100.00	-10.00	100.00
330	15.74	71.22	-10.00	100.00	-10.00	100.00
335	16.31	76.18	-10.00	100.00	-10.00	100.00
340	17.10	81.13	-10.00	100.00	-10.00	100.00
345	17.24	86.05	-10.00	100.00	-10.00	100.00
350	16.97	90.97	-10.00	100.00	-10.00	100.00
355	17.37	95.89	-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
Engineer III, Telecommunications
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Va. 20147

DATED: August 9, 2013