

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**SES Americom, Inc.  
Moorpark, California  
(Call Sign: KB27)**

**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Virginia 20147  
July 31, 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 transmit-receive earth station.

### Company

Los Angeles County FCC Licensing Section  
Los Angeles SMSA Ltd. Partnership  
New Cingular Wireless PCS – Los Angeles  
Southern California Edison Company  
Southern California Gas Company  
Southern California Regional Rail Authority  
Verizon California Inc.

No other 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 May 3, 2013.

#### Company

ABC Holding Company Inc.  
AT&T California  
AirSites2000, LLC  
American Tower, LLC  
California, State of  
City of Los Angeles, Dept Water & Power  
Exxon Communications Company  
Fresno MSA Limited Partnership  
GTE Mobilnet of California LTD Partnersh  
GTE Mobilnet of Santa Barbara LTD Ptnsh  
KTLA, LLC  
Kern, County of  
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  
MONTEBELLO CITY CALIFORNIA  
Metropolitan Water Dist of So California  
New Cingular Wireless PCS - Los Angeles  
New Cingular Wireless PCS LLC - N CAL  
Nextel of California Inc.  
Nextweb, Inc.  
ORANGE, COUNTY OF, CA  
Regents of the University of California  
Santa Barbara Cellular Systems, Ltd.  
Santa Barbara, County of  
Skyriver Communications  
Southern California Edison Company  
Southern California Gas Company  
Southern California Regional Rail Auth.  
TV MICROWAVES CO

Company (Continued)

Ventura, County of  
Verizon California Inc.  
Verizon Wireless (VAW) LLC (CA)  
Vintage Production California LLC  
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: 07/31/2013  
Job Number: 130503COMSJC17

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign KB27  
Licensee Code P3210  
Licensee Name SES Americom, Inc.

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### Site Information MOORPARK, CALIFORNIA

Venue Name  
Latitude (NAD 83) 34° 19' 31.0" N  
Longitude (NAD 83) 118° 59' 44.4" W  
Climate Zone A  
Rain Zone 4  
Ground Elevation (AMSL) 307.9 m / 1010.2 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Analog and Digital  
Satellite Arc 53° W to 188° West Longitude  
Azimuth Range 104.1° to 257.8°  
Corresponding Elevation Angles 11.1° / 8.6°  
Antenna Centerline (AGL) 9.14 m / 30.0 ft

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### Antenna Information

**Receive**  
Manufacturer Vertex  
Model 13 Meter KPC  
Gain / Diameter 53.5 dBi / 13.0 m  
3-dB / 15-dB Beamwidth 0.35° / 0.74°

### Transmit

Vertex  
13 Meter KPC  
56.8 dBi / 13.0 m  
0.26° / 0.52°

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%

-154.0 dBW/4 kHz 20%  
-131.0 dBW/4 kHz 0.0025%

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### Frequency Information

Emission / Frequency Range (MHz)

### Receive 4.0 GHz

SEE ATTACHMENT 1

### Transmit 6.1 GHz

SEE ATTACHMENT 1

Max Great Circle Coordination Distance 465.1 km / 289.0 mi  
Precipitation Scatter Contour Radius 398.2 km / 247.4 mi

270.5 km / 168.0 mi  
124.6 km / 77.4 mi



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## Earth Station Data Sheet

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ATTACHMENT 1

Page 1 of 2

Vertex Communications:  
Model: 13 KPC

4 GHz Gain: 53.5 dBi  
6 GHz Gain: 56.8 dBi

Satellite Arc: 145.0 to 188.0 West Longitude

Receive Band: 3625.0 to 3700.0 MHz

### Emissions

N0N  
1M00F9D  
36M0F8W  
100KD7W – 36M0D7W  
100KG7W – 36M0G7W

Satellite Arc: 53.0 to 188.0 West Longitude

Receive Band: 3700.0 to 4200.0 MHz

### Emissions

N0N  
1M00F9D  
36M0F8W  
100KD7W – 36M0D7W  
100KG7W – 36M0G7W

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ATTACHMENT 1

Page 2 of 2

Satellite Arc: 145.0 to 188.0 West Longitude

Transmit Band: 5850.0 to 5925.0 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	0.5	57.3	57.3
1M00F9D	0.5	81.3	57.3
36M0F8W	-0.5	83.3	56.3
100KD7W to 36M0D7W	-2.7 -12.7	68.1 83.6	54.1 44.1
100KG7W to 36M0G7W	-2.7 -12.7	68.1 83.6	54.1 44.1

Satellite Arc: 53.0 to 188.0 West Longitude

Transmit Band: 5925.0 to 6425.0 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	0.5	57.3	57.3
1M00F9D	0.5	81.3	57.3
36M0F8W	-0.5	83.3	56.3
100KD7W to 36M0D7W	-2.7 -12.7	68.1 83.6	54.1 44.1
100KG7W to 36M0G7W	-2.7 -12.7	68.1 83.6	54.1 44.1

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## Earth Station Data Sheet

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### Coordination Values

### MOORPARK, CA

Licensee Name SES Americom, Inc.  
Latitude (NAD 83) 34° 19' 31.0" N  
Longitude (NAD 83) 118° 59' 44.4" W  
Ground Elevation (AMSL) 307.9 m / 1010.2 ft  
Antenna Centerline (AGL) 9.14 m / 30.0 ft  
Antenna Model Vertex 13 Meter KPC  
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 0.5 (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	14.87	102.14	-10.00	100.00	-10.00	100.00
5	14.63	99.08	-10.00	100.00	-10.00	100.00
10	14.04	94.09	-10.00	100.00	-10.00	100.00
15	11.15	89.10	-10.00	100.00	-10.00	100.00
20	13.34	84.10	-10.00	100.00	-10.00	100.00
25	14.69	79.12	-10.00	100.00	-10.00	100.00
30	13.43	74.11	-10.00	100.00	-10.00	100.00
35	12.53	69.11	-10.00	100.00	-10.00	100.00
40	10.80	64.10	-10.00	100.00	-10.00	100.00
45	10.84	59.10	-10.00	100.00	-10.00	100.00
50	11.13	54.10	-10.00	100.00	-10.00	100.00
55	12.21	49.11	-10.00	100.00	-10.00	100.00
60	13.14	44.14	-9.12	100.00	-9.12	100.00
65	13.48	39.16	-7.82	100.00	-7.82	100.00
70	13.47	34.17	-6.34	100.00	-6.34	100.00
75	13.24	29.17	-4.62	100.00	-4.62	100.00
80	11.77	24.11	-2.55	105.04	-2.55	100.00
85	9.99	19.13	-0.04	128.47	-0.04	100.00
90	8.81	14.28	3.13	154.25	3.13	100.00
95	9.43	9.25	7.85	179.28	7.85	100.00
100	9.45	4.42	15.87	225.80	15.87	105.70
105	9.20	2.10	23.96	296.56	23.96	145.02
110	7.68	6.75	11.26	215.93	11.26	103.13
115	7.51	10.77	6.20	190.38	6.20	100.00
120	6.25	15.41	2.31	183.57	2.31	100.00
125	7.15	18.58	0.27	157.25	0.27	100.00
130	7.29	22.12	-1.62	145.46	-1.62	100.00
135	8.39	24.82	-2.87	129.67	-2.87	100.00
140	7.70	28.58	-4.40	129.74	-4.40	100.00
145	7.97	31.41	-5.43	122.58	-5.43	100.00
150	7.97	34.16	-6.34	118.81	-6.34	100.00
155	7.20	37.22	-7.27	123.07	-7.27	100.00
160	7.79	38.73	-7.70	115.11	-7.70	100.00
165	7.16	40.90	-8.29	119.45	-8.29	100.00
170	4.45	44.66	-9.25	144.45	-9.25	100.00
175	1.76	48.07	-10.00	201.14	-10.00	108.02
180	0.00	50.11	-10.00	285.28	-10.00	183.06
185	0.70	49.11	-10.00	237.35	-10.00	139.87

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### Coordination Values

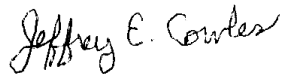
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Licensee Name	SES Americom, Inc.			
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Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power			0.5 (dBW/4 kHz)	

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	0.00	48.89	-10.00	285.28	-10.00	183.06
195	0.91	46.61	-9.71	226.44	-9.71	132.02
200	2.16	43.64	-9.00	195.50	-9.00	101.79
205	3.62	40.19	-8.10	165.33	-8.10	100.00
210	4.63	36.81	-7.15	151.38	-7.15	100.00
215	5.10	33.59	-6.15	149.31	-6.15	100.00
220	4.05	31.20	-5.35	172.27	-5.35	100.00
225	1.55	29.49	-4.74	231.08	-4.74	131.05
230	1.78	25.75	-3.27	232.16	-3.27	130.63
235	2.41	21.63	-1.38	225.99	-1.38	124.41
240	3.71	17.00	1.24	211.43	1.24	110.55
245	5.23	12.18	4.86	207.72	4.86	103.23
250	6.86	7.26	10.48	222.03	10.48	108.65
255	7.56	2.86	20.57	293.18	20.57	144.64
260	8.60	2.21	23.37	465.15	23.37	270.47
265	8.34	7.22	10.54	206.61	10.54	100.00
270	6.40	12.41	4.66	195.45	4.66	100.00
275	7.96	17.23	1.10	151.59	1.10	100.00
280	10.49	22.29	-1.70	117.57	-1.70	100.00
285	11.91	27.40	-3.94	100.00	-3.94	100.00
290	11.39	32.32	-5.74	100.00	-5.74	100.00
295	10.33	37.25	-7.28	100.00	-7.28	100.00
300	10.92	42.26	-8.65	100.00	-8.65	100.00
305	11.34	47.27	-9.87	100.00	-9.87	100.00
310	13.09	52.35	-10.00	100.00	-10.00	100.00
315	13.06	57.32	-10.00	100.00	-10.00	100.00
320	13.52	62.32	-10.00	100.00	-10.00	100.00
325	13.89	67.32	-10.00	100.00	-10.00	100.00
330	14.81	72.32	-10.00	100.00	-10.00	100.00
335	14.72	77.29	-10.00	100.00	-10.00	100.00
340	14.08	82.25	-10.00	100.00	-10.00	100.00
345	14.14	87.23	-10.00	100.00	-10.00	100.00
350	15.02	92.20	-10.00	100.00	-10.00	100.00
355	16.23	97.15	-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: July 31, 2013