

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**SES Americom, Inc.
Sunset Beach, Hawaii**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
July 23, 2009

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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

AT&T Corp.
Hawaiian Telcom (Debtor-in-Possession)

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.

Coordination data for this earth station was sent to the below listed carriers with a letter dated June 4, 2009.

Company

AT&T CORP
HONOLULU CITY & COUNTY DEPT OF INFO TECH
Hawaii State
Hawaiian Telcom (debtor-in-possession)
New Cingular Wireless PCS LLC - Hawaii
University of Hawaii
Wireless Infrastructure 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: 07/23/2009
Job Number: 090604COMSJC01

Administrative Information

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

Site Information

SUNSET BEACH, HAWAII
Venue Name
Latitude (NAD 83) 21° 40' 14.8" N
Longitude (NAD 83) 158° 1' 55.0" W
Climate Zone B
Rain Zone 4
Ground Elevation (AMSL) 140.21 m / 460.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Analog and Digital
Satellite Arc 83° W to 143° West Longitude
Azimuth Range 95.6° to 144.0°
Corresponding Elevation Angles 5.2° / 59.4°
Antenna Centerline (AGL) 6.1 m / 20.0 ft

Antenna Information

	Receive	Transmit
Manufacturer	Andrew Corporation	Andrew Corporation
Model	9.3 Meter	9.3 Meter
Gain / Diameter	50.7 dBi / 9.3 m	54.0 dBi / 9.3 m
3-dB / 15-dB Beamwidth	0.50° / 0.94°	0.34° / 0.64°
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%

Frequency Information

	Receive 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	36M0F8W / 3700.0 - 4200.0 10K0F7D - 36M0F7D / 3700.0 - 4200.0 10K0G7W - 36M0G7W / 3700.0 - 4200.0	36M0F8W / 5925.0 - 6425.0 10K0F7D - 36M0F7D / 5925.0 - 6425.0 10K0G7W - 36M0G7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	675.2 km / 419.5 mi	413.1 km / 256.7 mi
Precipitation Scatter Contour Radius	430.6 km / 267.6 mi	102.9 km / 63.9 mi

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ATTACHMENT 1

Page 1 of 1

Andrew Corporation:
Model: 9.3 Meter

4 GHz Gain: 50.7 dBi
6 GHz Gain: 54.0 dBi

Modulation: Analog and Digital

Frequencies:

Receive Band: 3700.0 to 4200.0 MHz

Emission

36M0F8W (Analog)
10K0F7D – 36M0F7D (Digital)
10K0G7W – 36M0G7W (Digital)

Transmit Band: 5925.0 to 6425.0 MHz

<u>Emission</u>	<u>EIRP/Carrier (dBW)</u>	<u>RF Power Density (dBW/4 kHz)</u>	<u>EIRP Density (dBW/ 4 kHz)</u>
36M0F8W	79.5	-1.5	52.5
10K0F7D – 36M0F7D	55.2 to 81.0	-2.8 to -12.5	51.2 to 41.5
10K0G7W – 36M0G7W	55.2 to 81.0	-2.8 to -12.5	51.2 to 41.5

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Coordination Values

SUNSET BEACH, HI

Licensee Name SES Americom, Inc.
Latitude (NAD 83) 21° 40' 14.8" N
Longitude (NAD 83) 158° 1' 55.0" W
Ground Elevation (AMSL) 140.21 m / 460.0 ft
Antenna Centerline (AGL) 6.1 m / 20.0 ft
Antenna Model Andrew Corporation 9.3 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 -1.5 (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	0.00	95.62	-10.00	412.20	-10.00	207.71
5	0.00	90.64	-10.00	412.20	-10.00	207.71
10	0.00	85.66	-10.00	412.20	-10.00	207.71
15	0.00	80.68	-10.00	412.20	-10.00	207.71
20	0.00	75.70	-10.00	412.20	-10.00	207.71
25	0.00	70.72	-10.00	412.20	-10.00	207.71
30	0.00	65.75	-10.00	412.20	-10.00	207.71
35	0.00	60.77	-10.00	412.20	-10.00	207.71
40	0.21	55.79	-10.00	409.71	-10.00	206.43
45	0.35	50.81	-10.00	363.73	-10.00	182.08
50	0.63	45.82	-9.53	305.77	-9.53	150.81
55	0.40	40.88	-8.29	366.72	-8.29	182.85
60	0.64	35.90	-6.88	329.66	-6.88	162.05
65	0.87	30.92	-5.26	309.22	-5.26	151.08
70	1.24	25.93	-3.34	290.32	-3.34	141.30
75	1.48	20.96	-1.04	293.68	-1.04	142.37
80	1.35	16.10	1.83	329.60	1.83	159.62
85	1.88	11.15	5.82	327.56	5.82	158.03
90	2.34	6.33	11.96	357.38	11.96	173.28
95	2.43	2.87	20.55	675.22	20.55	413.11
100	2.62	5.08	14.35	364.74	14.35	176.94
105	3.14	9.44	7.63	272.17	7.63	131.45
110	3.01	14.08	3.29	246.26	3.29	119.35
115	3.80	18.32	0.42	198.61	0.42	100.50
120	3.64	22.91	-2.00	189.48	-2.00	100.00
125	3.63	27.39	-3.94	178.68	-3.94	100.00
130	3.31	31.94	-5.61	178.66	-5.61	100.00
135	3.19	36.34	-7.01	174.65	-7.01	100.00
140	2.79	40.76	-8.26	180.69	-8.26	100.00
145	2.70	44.90	-9.31	177.95	-9.31	100.00
150	2.17	49.08	-10.00	193.18	-10.00	100.00
155	2.48	52.58	-10.00	181.80	-10.00	100.00
160	2.40	55.92	-10.00	184.65	-10.00	100.00
165	2.30	58.74	-10.00	188.09	-10.00	100.00
170	2.71	60.44	-10.00	173.94	-10.00	100.00
175	2.43	62.17	-10.00	183.68	-10.00	100.00
180	2.27	63.98	-10.00	189.46	-10.00	100.00

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Coordination Values

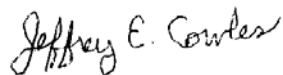
SUNSET BEACH, HI

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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			-1.5 (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)
185	2.04	66.00	-10.00	197.93	-10.00	101.72
190	2.48	67.74	-10.00	181.71	-10.00	100.00
195	2.13	70.13	-10.00	194.47	-10.00	100.03
200	2.10	72.44	-10.00	195.53	-10.00	100.55
205	1.86	74.94	-10.00	206.56	-10.00	105.83
210	1.65	77.48	-10.00	217.26	-10.00	110.69
215	0.95	80.21	-10.00	259.37	-10.00	127.38
220	0.62	82.81	-10.00	303.48	-10.00	149.83
225	0.64	85.36	-10.00	299.99	-10.00	148.06
230	0.23	87.96	-10.00	403.26	-10.00	203.10
235	0.53	90.53	-10.00	317.01	-10.00	156.76
240	0.24	93.08	-10.00	397.04	-10.00	199.88
245	0.00	95.58	-10.00	412.20	-10.00	207.71
250	0.00	98.07	-10.00	412.20	-10.00	207.71
255	0.00	100.51	-10.00	412.20	-10.00	207.71
260	0.00	102.90	-10.00	412.20	-10.00	207.71
265	0.00	105.20	-10.00	412.20	-10.00	207.71
270	0.00	107.41	-10.00	412.20	-10.00	207.71
275	0.00	109.50	-10.00	412.20	-10.00	207.71
280	0.00	111.47	-10.00	412.20	-10.00	207.71
285	0.00	113.29	-10.00	412.20	-10.00	207.71
290	0.00	114.95	-10.00	412.20	-10.00	207.71
295	0.00	116.42	-10.00	412.20	-10.00	207.71
300	0.00	117.70	-10.00	412.20	-10.00	207.71
305	0.00	118.75	-10.00	412.20	-10.00	207.71
310	0.00	119.58	-10.00	412.20	-10.00	207.71
315	0.00	120.16	-10.00	412.20	-10.00	207.71
320	0.00	120.50	-10.00	412.20	-10.00	207.71
325	0.00	120.57	-10.00	412.20	-10.00	207.71
330	0.00	120.39	-10.00	412.20	-10.00	207.71
335	0.00	119.95	-10.00	412.20	-10.00	207.71
340	0.00	115.53	-10.00	412.20	-10.00	207.71
345	0.00	110.55	-10.00	412.20	-10.00	207.71
350	0.00	105.57	-10.00	412.20	-10.00	207.71
355	0.00	100.60	-10.00	412.20	-10.00	207.71

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: July 23, 2009