

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Allen Holdings, Inc
MARCHAFB, CA
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
March 12, 2015

TABLE OF CONTENTS

1. CONCLUSIONS	3
2. SUMMARY OF RESULTS	4
3. SUPPLEMENTAL SHOWING	5
4. EARTH STATION COORDINATION DATA.....	7
5. CERTIFICATION.....	11

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

California, State of
Southern California Gas Company

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 02/11/2015.

Company

ABC Holding Company Inc.
AT&T California
AirSites2000, LLC
American Tower, LLC
Anaheim City, of
BNSF Railway Company
CCO SoCal I, LLC
CNG Communications, Inc.
California, State of
Calvary Chapel of Costa Mesa
Cellco Partnership - California
City of Los Angeles Dept Water & Power
Coachella Valley Water District
Coast Community College District
DRS Technical Services
Entravision Holdings, LLC
Glendale, City of
ION Media Los Angeles License, Inc.
KTLA, LLC
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
MHO Networks
MOBILE RELAY ASSOCIATES INC
MONTEBELLO CITY CALIFORNIA
Metropolitan Water Dist of So California
NRJ TV LA License Co, LLC
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC -San Diego
Nextel of California Inc.
Norris, Samuel O
Orange, County of, CA
QUALCOMM INC.
Regional 3Cs
Riverside, County of
San Bernardino County of California
San Diego Broadband
San Diego County Water Authority

San Diego Gas & Electric Company
San Diego, City of
San Diego, County of
Skyriver Communications
Southern California Edison Company
Southern California Gas Company
Southern California Regional Rail Auth.
Station Venture Operations, LP
T-Mobile License LLC
TV MICROWAVES CO
Turn Wireless, LLC
Ultimate Internet Access, Inc
Union Pacific Railroad Company
University of California, HPWREN
Verizon California Inc.
Verizon Wireless (VAW) LLC (Southern CA)
Western Technical Services
White, Fred K

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: 03/12/2015
Job Number: 150211COMSTC06

Administrative Information

Call Sign E000232
Licensee Name Allen Holdings, Inc

Site Information

MARCHAFB, CA
Latitude (NAD 83) 33° 54' 21.7" N
Longitude (NAD 83) 117° 14' 57.8" W
Climate Zone A
Rain Zone 4
Ground Elevation (AMSL) 468.5 m / 1537.1 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 194° W to 194° West Longitude
Azimuth Range 262.5° to 262.5°
Corresponding Elevation Angles 2.3° / 2.3°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

Receive - A40931

Manufacturer COMMSCOPE
Model ESA9.3-46
Gain / Diameter 50.7 dBi / 9.3 m
3-dB / 15-dB Beamwidth 0.52° / 1.00°

Transmit - A60931

Manufacturer COMMSCOPE
Model ESA9.3-46
Gain / Diameter 53.9 dBi / 9.3 m
0.30° / 0.60°

		1M23G7W - 36M0G7W			
Max Available RF Power	(dBW/4 kHz)	-20.6	-20.6		
	(dBW/MHz)	3.4	3.4		
Maximum EIRP	(dBW/4 kHz)	33.3	33.3		
	(dBW/MHz)	57.3	57.3		
	(dBW)	72.8	58.2		
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

Emission / Frequency Range (MHz) 1M23G7W - 36M0G7W / 3482.0 - 3878.0

Transmit 6.1 GHz

1M23G7W - 36M0G7W / 6067.0 - 6103.0

Max Great Circle Coordination Distance 799.5 km / 496.8 mi 315.6 km / 196.1 mi
Precipitation Scatter Contour Radius 508.2 km / 315.7 mi 100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

MARCHAFB, CA

Licensee Name Allen Holdings, Inc
Latitude (NAD 83) 33° 54' 21.7" N
Longitude (NAD 83) 117° 14' 57.8" W
Ground Elevation (AMSL) 468.5 m / 1537.1 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model Commscope ESA9.3-46
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 -20.6 (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	0.81	97.48	-10.30	228.91	-10.10	100.00
5	1.80	102.48	-10.30	198.67	-10.10	100.00
10	0.92	107.48	-10.30	222.99	-10.10	100.00
15	1.14	112.48	-11.79	207.40	-11.59	100.00
20	2.69	117.48	-14.29	155.26	-15.09	100.00
25	3.04	122.48	-15.30	143.31	-17.10	100.00
30	2.35	127.48	-15.30	158.14	-17.10	100.00
35	1.92	132.48	-15.30	170.82	-17.10	100.00
40	1.83	137.48	-15.30	173.63	-17.10	100.00
45	1.52	142.48	-15.30	182.86	-17.10	100.00
50	0.90	147.46	-15.30	203.06	-17.10	100.00
55	0.62	152.44	-15.30	214.70	-17.10	100.00
60	0.54	157.42	-15.30	219.21	-17.10	100.00
65	0.81	162.43	-15.30	205.06	-17.10	100.00
70	0.92	167.41	-15.30	202.18	-17.10	100.00
75	0.51	172.28	-13.93	227.54	-15.27	100.00
80	0.00	176.61	-11.66	274.97	-12.13	110.12
85	0.00	176.63	-11.65	275.02	-12.12	110.15
90	0.00	172.18	-13.99	261.16	-15.36	102.12
95	0.57	167.40	-15.30	217.26	-17.10	100.00
100	0.76	162.45	-15.30	207.46	-17.10	100.00
105	0.61	157.46	-15.30	215.55	-17.10	100.00
110	1.14	152.49	-15.30	194.23	-17.10	100.00
115	1.93	147.51	-15.30	170.68	-17.10	100.00
120	2.38	142.51	-15.30	157.42	-17.10	100.00
125	2.57	137.51	-15.30	153.22	-17.10	100.00
130	1.77	132.51	-15.30	175.44	-17.10	100.00
135	0.76	127.50	-15.30	207.54	-17.10	100.00
140	0.00	122.49	-15.30	253.82	-17.10	100.00
145	0.00	117.49	-14.30	259.43	-15.09	102.76
150	0.00	112.50	-11.80	274.10	-11.60	111.47
155	0.00	107.50	-10.30	283.38	-10.10	115.27
160	0.00	102.51	-10.30	283.38	-10.10	115.27
165	0.00	97.51	-10.30	283.38	-10.10	115.27
170	0.00	92.51	-10.30	283.38	-10.10	115.27
175	0.00	87.52	-10.30	283.38	-10.10	115.27
180	0.00	82.52	-10.30	283.38	-10.10	115.27
185	0.00	77.53	-10.30	283.38	-10.10	115.27

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

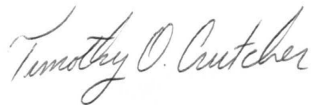
MARCHAFB, CA

Licensee Name	Allen Holdings, Inc			
Latitude (NAD 83)	33° 54' 21.7" N			
Longitude (NAD 83)	117° 14' 57.8" W			
Ground Elevation (AMSL)	468.5 m / 1537.1 ft			
Antenna Centerline (AGL)	5.49 m / 18.0 ft			
Antenna Model	Commscope ESA9.3-46			
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			-20.6 (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	72.53	-10.30	283.38	-10.10	115.27
195	0.27	67.53	-10.30	274.87	-10.10	109.79
200	0.55	62.53	-10.30	245.03	-10.10	100.00
205	0.48	57.53	-10.30	250.23	-10.10	100.00
210	0.44	52.54	-10.30	255.17	-10.10	100.00
215	0.56	47.54	-9.81	246.81	-9.61	100.00
220	0.56	42.54	-8.32	256.12	-8.61	100.00
225	0.55	37.55	-6.81	266.00	-7.12	100.00
230	0.50	32.56	-5.81	276.03	-5.61	103.16
235	0.51	27.57	-5.30	278.46	-5.10	103.85
240	0.54	22.58	-5.30	276.42	-5.10	102.51
245	0.60	17.59	-3.37	285.21	-3.17	104.72
250	0.66	12.62	1.08	314.45	1.28	113.95
255	0.74	7.67	7.36	359.83	7.23	127.21
260	0.77	2.93	16.97	445.73	17.17	160.02
265	0.73	2.93	17.00	799.55	17.20	315.65
270	0.72	7.64	7.41	361.81	7.26	128.26
275	0.54	12.60	1.10	323.51	1.30	119.64
280	0.33	17.59	-3.37	314.34	-3.17	122.86
285	0.22	22.57	-5.30	314.31	-5.10	126.29
290	0.00	27.57	-5.30	317.55	-5.10	128.30
295	0.00	32.56	-5.81	313.95	-5.61	126.95
300	0.00	37.54	-6.81	306.39	-7.12	122.98
305	0.23	42.52	-8.31	292.85	-8.60	116.97
310	0.00	47.53	-9.81	286.52	-9.61	116.54
315	0.00	52.52	-10.30	283.38	-10.10	115.27
320	0.22	57.51	-10.30	280.70	-10.10	113.56
325	0.58	62.50	-10.30	243.20	-10.10	100.00
330	2.92	67.49	-10.30	171.83	-10.10	100.00
335	3.88	72.49	-10.30	148.94	-10.10	100.00
340	2.69	77.49	-10.30	177.22	-10.10	100.00
345	1.57	82.49	-10.30	204.67	-10.10	100.00
350	0.61	87.49	-10.30	240.79	-10.10	100.00
355	0.56	92.48	-10.30	243.95	-10.10	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.



Timothy O. Crutcher
Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: March 12, 2015