

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  
February 13, 2015

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. Operation will be restricted to the parameters shown in the attached coordination data.

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.

The following company reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. When over-the-horizon losses and local shielding are considered on the interfering path, sufficient blockage exists to negate harmful interference from occurring with the proposed transmit-receive earth station.

Company

California, State of

No other carriers reported potential interference cases.

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  
Federal Communications Commission  
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

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: 02/13/2015  
Job Number: 150211COMSTC07

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### Administrative Information

Status: TEMPORARY (Operation from 02/19/2015 to 08/19/2015)  
Call Sign: E000232  
Licensee Name: Allen Holdings, Inc

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### 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

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### 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

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### Antenna Information

#### Receive - A40931

#### Transmit - A60931

Manufacturer	COMMSCOPE	COMMSCOPE
Model	ESA9.3-46	ESA9.3-46
Gain / Diameter	50.7 dBi / 9.3 m	53.9 dBi / 9.3 m
3-dB / 15-dB Beamwidth	0.52° / 1.00°	0.30° / 0.60°
Max Available RF Power (dBW/4 kHz)		-20.6
(dBW/MHz)		3.4
Maximum EIRP (dBW/4 kHz)		33.3
(dBW/MHz)		57.3
(dBW)		72.8
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%

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### Frequency Information

#### Receive 4.0 GHz

#### Transmit 6.1 GHz

Emission / Frequency Range (MHz)	36M0G7W / 3860.0	36M0G7W / 6085.0
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

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### 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

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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

## 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: February 13, 2015