

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**Intelsat License LLC**  
**FILLMORE, CA**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
January 25, 2018

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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.

### 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 12/20/2017.

#### Company

ABC Holding Company Inc.  
AT&T Mobility Spectrum LLC - N CA  
AT&T Mobility Spectrum LLC - Southern CA  
Air Sites 2000 LLC  
American Tower, LLC  
Anaheim City, of  
BNS Electronics, Inc.  
California Internet Solutions, Inc.  
California Internet, L.P.  
California Resources Corporation  
California, State of  
City of Los Angeles Dept Water & Power  
City of Montebello  
Coast Community College District  
Communication Services, Inc.  
Conterra Ultra Broadband, LLC  
DM Ventures, Inc. dba Warp2Biz  
Exxon Communications Company  
Fresno MSA Limited Partnership  
Frontier California Inc.  
GTE Mobilnet of Santa Barbara LTD Ptsh  
Glendale City California  
ION Media Los Angeles License, Inc.  
KTLA, LLC  
Kcindur Communications Inc  
Kern Ed Telecom Consortium  
Kern, County of  
LDM Engineering  
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 Regional Interoperable Comm  
Los Angeles SMSA Ltd. Partnership  
Los Angeles Unified School District  
MHO Networks  
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

Northrop Grumman Systems Corp.  
Nrx TV La License Co, LLC  
Olympic Wireless, LLC  
Orange, County of, CA  
Pacific Bell Tel Com dba AT&T California  
Regents of the University of California  
Santa Barbara Cellular Systems, Ltd.  
Santa Barbara, County of  
Sentinel Peak Resources California LLC  
Skyriver Communications  
Southern California Edison Company  
Southern California Gas Company  
Southern California Regional Rail Auth.  
Spectrum Link, Inc.  
Subrigo Corporation  
T-Mobile License LLC  
TV Microwaves Company  
Turn Wireless, LLC  
Union Pacific Railroad Company  
Vectus, Inc  
Ventura, County of  
Verizon Wireless (VAW) LLC (Southern CA)  
Verizon Wireless (VAW) LLC-N CA/NV  
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: 01/25/2018  
Job Number: 171220COMSGE03

### Administrative Information

Status: ENGINEER PROPOSAL  
Call Sign: KA391  
Licensee Code: INTELS  
Licensee Name: Intelsat License LLC

### Site Information

**FILLMORE, CA**  
Venue Name  
Latitude (NAD 83): 34° 24' 19.0" N  
Longitude (NAD 83): 118° 53' 39.3" W  
Climate Zone: A  
Rain Zone: 4  
Ground Elevation (AMSL): 302.06 m / 991.0 ft

### Link Information

Satellite Type: Geostationary  
Mode: TR - Transmit-Receive  
Modulation: Analog and Digital  
Satellite Arc: 160° W to 192° West Longitude  
Azimuth Range: 237.1° to 260.3°  
Corresponding Elevation Angles: 31.0° / 5.2°  
Antenna Centerline (AGL): 7.13 m / 23.4 ft

### Antenna Information

		Receive - FCC29	Transmit - FCC29
Manufacturer		Universal	Universal
Model		1200 CH	1200 CH
Gain / Diameter		52.2 dBi / 12.0 m	55.6 dBi / 12.0 m
3-dB / 15-dB Beamwidth		0.40° / 0.80°	0.20° / 0.60°
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)		3.0 27.0
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)		58.6 82.6
Interference Objectives:	Long Term Short Term	-155.0 dBW/MHz 20% -144.0 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)	850KFXD / 3700.0 - 4200.0	850KFXD - 1M20FXD / 5850.0 - 5853.5 850KFXD - 1M20FXD / 6173.7 850KFXD - 1M20FXD / 6176.3 850KFXD - 1M20FXD / 6421.5 - 6425.0
Max Great Circle Coordination Distance	667.1 km / 414.4 mi	485.2 km / 301.5 mi
Precipitation Scatter Contour Radius	429.0 km / 266.5 mi	174.3 km / 108.3 mi



# COMSEARCH

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### Coordination Values

### FILLMORE, CA

Licensee Name	Intelsat License LLC				
Latitude (NAD 83)	34° 24' 19.0" N				
Longitude (NAD 83)	118° 53' 39.3" W				
Ground Elevation (AMSL)	302.06 m / 991.0 ft				
Antenna Centerline (AGL)	7.13 m / 23.4 ft				
Antenna Model	Universal 12 meter				
Antenna Mode	Receive 4.0 GHz		Transmit 6.1 GHz		
Interference Objectives:	Long Term	-155.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
	Short Term	-144.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power	3.0 (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	8.71	99.72	-10.00	100.00	-10.00	100.00
5	8.80	104.71	-10.00	100.00	-10.00	100.00
10	9.51	109.68	-10.00	100.00	-10.00	100.00
15	10.14	114.64	-10.00	100.00	-10.00	100.00
20	11.77	119.53	-10.00	100.00	-10.00	100.00
25	12.27	124.44	-10.00	100.00	-10.00	100.00
30	10.48	129.54	-10.00	100.00	-10.00	100.00
35	9.08	134.61	-10.00	100.00	-10.00	100.00
40	9.96	139.51	-10.00	100.00	-10.00	100.00
45	10.08	144.45	-10.00	100.00	-10.00	100.00
50	9.83	149.42	-10.00	100.00	-10.00	100.00
55	8.95	154.48	-10.00	100.00	-10.00	100.00
60	9.11	157.93	-10.00	100.00	-10.00	100.00
65	9.47	157.13	-10.00	100.00	-10.00	100.00
70	9.19	154.82	-10.00	100.00	-10.00	100.00
75	8.00	151.15	-10.00	100.00	-10.00	100.00
80	6.43	146.89	-10.00	112.46	-10.00	100.00
85	6.74	143.67	-10.00	109.07	-10.00	100.00
90	6.64	139.88	-10.00	110.13	-10.00	100.00
95	6.50	135.87	-10.00	111.75	-10.00	100.00
100	5.24	131.26	-10.00	124.51	-10.00	100.00
105	3.48	126.46	-10.00	149.02	-10.00	100.00
110	3.53	122.34	-10.00	148.00	-10.00	100.00
115	3.09	117.99	-10.00	157.38	-10.00	100.00
120	2.13	113.49	-10.00	181.74	-10.00	107.56
125	1.69	109.13	-10.00	193.76	-10.00	117.96
130	3.05	105.03	-10.00	158.30	-10.00	100.00
135	2.49	100.59	-10.00	173.32	-10.00	100.59
140	2.71	96.22	-10.00	166.25	-10.00	100.00
145	2.90	91.83	-10.00	161.72	-10.00	100.00
150	2.88	87.42	-10.00	162.13	-10.00	100.00
155	3.32	82.98	-10.00	152.53	-10.00	100.00
160	3.51	78.55	-10.00	148.48	-10.00	100.00
165	3.38	74.17	-10.00	151.14	-10.00	100.00
170	3.51	69.78	-10.00	148.41	-10.00	100.00
175	3.35	65.49	-10.00	151.90	-10.00	100.00
180	2.43	61.48	-10.00	174.62	-10.00	101.65
185	2.65	57.25	-10.00	169.31	-10.00	100.00

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Antenna Model	Universal 12 meter			
Antenna Mode	Receive 4.0 GHz		Transmit 6.1 GHz	
Interference Objectives: Long Term	-155.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
Short Term	-144.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power			3.0 (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	2.51	53.23	-10.00	172.83	-10.00	100.19
195	0.89	50.04	-10.00	216.22	-10.00	139.28
200	0.72	46.44	-9.67	226.94	-9.67	148.89
205	1.32	42.58	-8.73	207.26	-8.73	131.49
210	1.03	39.52	-7.92	219.87	-7.92	140.91
215	1.17	36.37	-7.02	220.03	-7.02	140.40
220	0.00	33.92	-6.26	296.58	-6.26	205.33
225	0.00	30.45	-5.09	304.46	-5.09	209.89
230	0.00	26.83	-3.72	314.61	-3.72	215.45
235	0.00	23.09	-2.09	326.23	-2.09	222.35
240	0.00	19.24	-0.11	340.70	-0.11	231.14
245	0.00	15.32	2.37	359.42	2.37	242.81
250	0.00	11.34	5.63	385.17	5.63	258.81
255	0.00	7.40	8.00	407.86	8.00	274.62
260	0.00	5.22	11.06	667.05	11.06	485.25
265	0.00	7.04	8.00	404.02	8.00	271.97
270	0.00	11.03	5.93	387.57	5.93	260.42
275	1.12	15.29	2.39	280.04	2.39	185.52
280	1.15	20.14	-0.60	258.24	-0.60	170.79
285	2.80	24.85	-2.88	201.47	-2.88	120.88
290	4.08	29.76	-4.84	161.92	-4.84	100.00
295	3.77	34.77	-6.53	159.73	-6.53	100.00
300	4.61	39.74	-7.98	138.86	-7.98	100.00
305	4.15	44.75	-9.27	140.08	-9.27	100.00
310	3.56	49.76	-10.00	147.46	-10.00	100.00
315	2.77	54.78	-10.00	164.85	-10.00	100.00
320	3.57	59.75	-10.00	147.37	-10.00	100.00
325	3.94	64.75	-10.00	140.09	-10.00	100.00
330	4.26	69.74	-10.00	135.39	-10.00	100.00
335	5.27	74.74	-10.00	124.24	-10.00	100.00
340	6.16	79.74	-10.00	115.45	-10.00	100.00
345	6.51	84.74	-10.00	111.57	-10.00	100.00
350	7.84	89.74	-10.00	100.00	-10.00	100.00
355	8.93	94.73	-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.

BY: 

Gary K. Edwards  
Senior Manager  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147

DATED: January 25, 2018