

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

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

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
October 03, 2016

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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 09/09/2016.

#### Company

Amazing Facts, Inc  
CBS Broadcasting Inc  
CNN America, Inc.  
COMCAST OF CALIFORNIA XV, INC.  
Calneva Broadband, LLC  
Cocola Broadcasting Companies LLC  
Comcast Cablevision Corp of California  
Comcast of California/MD/PA/VA/WV, LLC  
Esteem Broadcasting of California LLC  
HORIZON CABLE TV, INC  
Hearst Stations, Inc.  
Hearst Stations, Inc. (KCRA)  
ION MEDIA SACRAMENTO LICENSE, INC.  
KDTV License Partnership, G.P.  
KGO Television, Inc.  
KQED INC  
KTVU, Fox Television Stations Inc.  
KTXL, LLC  
KUVS License Partnership, G.P.  
KVIE, Inc.  
KXTV, LLC  
Lincoln Broadcasting Co, A California LP  
Locuspoint KFTL Licensee, LLC  
Mediacom California LLC  
Midcontinent Communications  
NBC Telemundo License Co. - KNTV  
NBC Telemundo License Co. - KSTS  
NBC Telemundo License LLC  
NRJ TV SF License Co, LLC  
Sacramento Television Stations, Inc  
TTWN Networks, LLC  
Young Broadcasting of San Francisco  
Yuba Community College District

## **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: 09/09/2016  
Job Number: 160909COMSGE03

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### Administrative Information

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

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### Site Information

#### NAPA, CA

Venue Name  
Latitude (NAD 83) 38° 14' 42.7" N  
Longitude (NAD 83) 122° 16' 48.9" W  
Climate Zone A  
Rain Zone 3  
Ground Elevation (AMSL) 11.23 m / 36.8 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 50° W to 194° West Longitude  
Azimuth Range 101.2° to 258.4°  
Corresponding Elevation Angles 5.2° / 5.6°  
Antenna Centerline (AGL) 5.49 m / 18.0 ft

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### Antenna Information

#### Receive - FCC32

#### Transmit - FCC32

Manufacturer	Vertex	Vertex	
Model	8.1 KPK	8.1 KPK	
Gain / Diameter	58.4 dBi / 8.1 m	59.1 dBi / 8.1 m	
3-dB / 15-dB Beamwidth	0.22° / 0.44°	0.20° / 0.38°	
Max Available RF Power (dBW/4 kHz)		-14.0	
(dBW/MHz)		10.0	
Maximum EIRP (dBW/4 kHz)		45.1	
(dBW/MHz)		69.1	
Interference Objectives:	Long Term	-156.0 dBW/MHz 20%	-151.0 dBW/4 kHz 20%
	Short Term	-146.0 dBW/MHz 0.01%	-128.0 dBW/4 kHz 0.0025%

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### Frequency Information

#### Receive 12.0 GHz

#### Transmit 13.0 GHz

Emission / Frequency Range (MHz)	300KG7W / 12747.0 - 12748.0	900KG7W / 13998.0
Max Great Circle Coordination Distance	626.2 km / 389.0 mi	279.8 km / 173.9 mi
Precipitation Scatter Contour Radius	418.5 km / 260.0 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

### NAPA, CA

Licensee Name	Intelsat License LLC		
Latitude (NAD 83)	38° 14' 42.7" N		
Longitude (NAD 83)	122° 16' 48.9" W		
Ground Elevation (AMSL)	11.23 m / 36.8 ft		
Antenna Centerline (AGL)	5.49 m / 18.0 ft		
Antenna Model	Vertex 8.1 meter		
Antenna Mode	Receive 12.0 GHz		Transmit 13.0 GHz
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%
	Short Term	-146.0 dBW/MHz	0.01%
Max Available RF Power			-128.0 dBW/4 kHz 0.0025%
			-14.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 12.0 GHz		Transmit 13.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	101.14	-10.00	227.19	-10.00	115.80
5	0.00	96.17	-10.00	227.19	-10.00	115.80
10	0.84	91.19	-10.00	185.46	-10.00	100.00
15	0.69	86.20	-10.00	193.55	-10.00	100.00
20	0.42	81.22	-10.00	207.34	-10.00	100.00
25	0.42	76.24	-10.00	207.35	-10.00	100.00
30	1.17	71.24	-10.00	171.73	-10.00	100.00
35	2.35	66.22	-10.00	135.58	-10.00	100.00
40	1.70	61.25	-10.00	151.90	-10.00	100.00
45	2.75	56.22	-10.00	129.26	-10.00	100.00
50	2.83	51.23	-10.00	127.71	-10.00	100.00
55	3.36	46.22	-9.62	119.73	-9.62	100.00
60	3.71	41.21	-8.38	118.23	-8.38	100.00
65	4.55	36.20	-6.97	111.38	-6.97	100.00
70	4.72	31.19	-5.35	115.12	-5.35	100.00
75	4.44	26.20	-3.46	126.03	-3.46	100.00
80	4.14	21.21	-1.17	138.43	-1.17	100.00
85	4.01	16.23	1.74	154.54	1.74	100.00
90	3.78	11.28	5.70	183.97	5.70	100.00
95	3.03	6.55	11.60	227.20	11.60	100.00
100	3.36	2.16	23.63	626.17	23.63	279.84
105	3.07	4.26	16.25	344.33	16.25	139.38
110	2.79	8.24	9.10	218.52	9.10	100.00
115	3.78	11.32	5.65	183.71	5.65	100.00
120	4.53	14.47	2.99	152.22	2.99	100.00
125	4.86	17.78	0.75	136.28	0.75	100.00
130	4.29	21.61	-1.37	135.37	-1.37	100.00
135	4.60	24.67	-2.80	126.57	-2.80	100.00
140	4.54	27.81	-4.10	122.21	-4.10	100.00
145	4.68	30.58	-5.14	116.50	-5.14	100.00
150	4.73	33.15	-6.01	112.62	-6.01	100.00
155	4.46	35.68	-6.81	113.02	-6.81	100.00
160	3.97	38.08	-7.52	116.92	-7.52	100.00
165	3.34	40.24	-8.12	125.40	-8.12	100.00
170	3.14	41.60	-8.48	127.68	-8.48	100.00
175	2.95	42.50	-8.71	130.31	-8.71	100.00
180	2.85	42.84	-8.80	130.45	-8.80	100.00
185	2.55	42.90	-8.81	136.22	-8.81	100.00



# COMSEARCH

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### Coordination Values

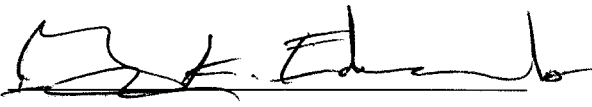
### NAPA, CA

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Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz 20%
	Short Term	-146.0 dBW/MHz	0.01%
Max Available RF Power		-14.0 (dBW/4 kHz)	-128.0 dBW/4 kHz 0.0025%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 12.0 GHz		Transmit 13.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	2.35	42.36	-8.68	141.05	-8.68	100.00
195	1.96	41.53	-8.46	151.33	-8.46	100.00
200	1.32	40.44	-8.17	175.56	-8.17	100.00
205	1.06	38.57	-7.66	186.01	-7.66	100.00
210	0.73	36.40	-7.03	203.36	-7.03	100.00
215	0.45	33.87	-6.25	220.10	-6.25	105.97
220	0.00	31.20	-5.36	249.22	-5.36	127.55
225	0.00	28.00	-4.18	255.05	-4.18	130.59
230	0.00	24.63	-2.79	262.10	-2.79	133.07
235	0.00	21.13	-1.12	270.77	-1.12	137.83
240	0.00	17.51	0.92	281.72	0.92	144.11
245	0.00	13.82	3.48	296.05	3.48	152.74
250	0.23	9.91	7.10	311.89	7.10	164.20
255	0.00	6.57	11.56	419.79	11.56	200.35
260	0.33	5.50	13.49	601.26	13.49	269.24
265	0.42	8.35	8.95	302.33	8.95	150.32
270	0.51	12.62	4.47	270.11	4.47	130.17
275	0.45	17.32	1.04	256.19	1.04	124.50
280	0.46	22.14	-1.63	240.98	-1.63	116.84
285	0.46	27.02	-3.79	230.04	-3.79	111.07
290	0.85	31.88	-5.59	203.63	-5.59	100.00
295	1.19	36.79	-7.14	184.38	-7.14	100.00
300	0.86	41.78	-8.52	191.08	-8.52	100.00
305	1.13	46.72	-9.74	174.27	-9.74	100.00
310	0.77	51.72	-10.00	189.31	-10.00	100.00
315	0.85	56.69	-10.00	185.31	-10.00	100.00
320	0.99	61.66	-10.00	177.82	-10.00	100.00
325	1.16	66.63	-10.00	172.06	-10.00	100.00
330	0.87	71.62	-10.00	184.09	-10.00	100.00
335	0.00	76.62	-10.00	227.19	-10.00	115.80
340	0.00	81.60	-10.00	227.19	-10.00	115.80
345	0.00	86.58	-10.00	227.19	-10.00	115.80
350	0.00	91.55	-10.00	227.19	-10.00	115.80
355	0.00	96.53	-10.00	227.19	-10.00	115.80

## 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: October 03, 2016