

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Intelsat License LLC
Nuevo, California**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
March 13, 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 Edison Company
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 February 9, 2015.

Company

ABC Holding Company Inc.
AT&T California
AirSites2000, 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
LDM Engineering
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

Company (Continued)

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
Time Warner Cable Pacific West LLC
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: 03/13/2015
Job Number: 150209COMSJC05

Administrative Information

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

Site Information

NUEVO, CALIFORNIA
Venue Name:
Latitude (NAD 83): 33° 47' 47.0" N
Longitude (NAD 83): 117° 5' 23.0" W
Climate Zone: A
Rain Zone: 4
Ground Elevation (AMSL): 562.0 m / 1843.8 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 179° W to 180° West Longitude
Azimuth Range: 253.5° to 254.1°
Corresponding Elevation Angles: 14.6° / 13.8°
Antenna Centerline (AGL): 4.27 m / 14.0 ft

Antenna Information

Receive
Manufacturer: Vertex
Model: 6.3 Meter
Gain / Diameter: 46.5 dBi / 6.3 m
3-dB / 15-dB Beamwidth: 0.69° / 1.30°

Transmit

Vertex
6.3 Meter
50.7 dBi / 6.3 m
0.50° / 0.95°

		345KG7W		920KG7W	
Max Available RF Power	(dBW/4 kHz)	-12.0	-12.0	-12.0	-12.0
	(dBW/MHz)	12.0	12.0	12.0	12.0
Maximum EIRP	(dBW/4 kHz)	38.7	38.7	38.7	38.7
	(dBW/MHz)	62.7	62.7	62.7	62.7
	(dBW)	58.1	58.1	62.3	62.3
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

Emission / Frequency Range (MHz)

Receive 4.0 GHz

1M39G7W / 3625.0 - 4200.0
1M73G7W / 3625.0 - 4200.0

Transmit 6.1 GHz

345KG7W / 5850.0 - 6425.0
920KG7W / 5850.0 - 6425.0

Max Great Circle Coordination Distance: 285.3 km / 177.2 mi 137.1 km / 85.2 mi
Precipitation Scatter Contour Radius: 379.6 km / 235.8 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		NUEVO, CA			
Licensee Name		Intelsat License LLC			
Latitude (NAD 83)		33° 47' 47.0" N			
Longitude (NAD 83)		117° 5' 23.0" W			
Ground Elevation (AMSL)		562.0 m / 1843.8 ft			
Antenna Centerline (AGL)		4.27 m / 14.0 ft			
Antenna Model		Vertex 6.3 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				-12.0 (dBW/4 kHz)	

Azimuth (°)	Receive 4.0 GHz			Transmit 6.1 GHz		
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.91	105.47	-10.00	225.20	-10.00	100.00
5	1.97	110.42	-10.00	195.43	-10.00	100.00
10	2.41	115.34	-10.00	185.20	-10.00	100.00
15	2.52	120.23	-10.00	182.63	-10.00	100.00
20	3.14	125.17	-10.00	166.46	-10.00	100.00
25	3.01	130.01	-10.00	171.31	-10.00	100.00
30	3.50	134.94	-10.00	158.33	-10.00	100.00
35	3.35	139.73	-10.00	161.63	-10.00	100.00
40	3.39	144.52	-10.00	160.60	-10.00	100.00
45	3.32	149.22	-10.00	162.21	-10.00	100.00
50	3.17	153.78	-10.00	165.72	-10.00	100.00
55	2.78	158.05	-10.00	176.49	-10.00	100.00
60	2.84	162.18	-10.00	175.28	-10.00	100.00
65	3.52	166.07	-10.00	157.88	-10.00	100.00
70	4.04	168.87	-10.00	147.36	-10.00	100.00
75	3.02	168.30	-10.00	171.04	-10.00	100.00
80	3.71	167.30	-10.00	153.78	-10.00	100.00
85	3.90	164.30	-10.00	149.99	-10.00	100.00
90	3.39	160.10	-10.00	160.72	-10.00	100.00
95	2.56	155.46	-10.00	181.61	-10.00	100.00
100	3.14	151.25	-10.00	166.33	-10.00	100.00
105	3.43	146.73	-10.00	159.85	-10.00	100.00
110	3.60	142.06	-10.00	156.23	-10.00	100.00
115	3.82	137.33	-10.00	151.59	-10.00	100.00
120	3.90	132.52	-10.00	149.84	-10.00	100.00
125	3.91	127.67	-10.00	149.74	-10.00	100.00
130	4.26	122.85	-10.00	143.97	-10.00	100.00
135	3.81	117.91	-10.00	151.67	-10.00	100.00
140	4.14	113.05	-10.00	145.75	-10.00	100.00
145	4.10	108.14	-10.00	146.36	-10.00	100.00
150	4.40	103.25	-10.00	141.84	-10.00	100.00
155	4.28	98.32	-10.00	143.63	-10.00	100.00
160	4.37	93.41	-10.00	142.36	-10.00	100.00
165	4.69	88.49	-10.00	137.72	-10.00	100.00
170	5.51	83.55	-10.00	129.95	-10.00	100.00
175	5.82	78.60	-10.00	126.91	-10.00	100.00
180	6.39	73.64	-10.00	120.95	-10.00	100.00

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

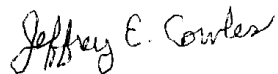
NUEVO, CA

Licensee Name	Intelsat License LLC		
Latitude (NAD 83)	33° 47' 47.0" N		
Longitude (NAD 83)	117° 5' 23.0" W		
Ground Elevation (AMSL)	562.0 m / 1843.8 ft		
Antenna Centerline (AGL)	4.27 m / 14.0 ft		
Antenna Model	Vertex 6.3 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			-12.0 (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)
185	6.39	68.70	-10.00	120.92	-10.00	100.00
190	6.12	63.78	-10.00	123.95	-10.00	100.00
195	5.78	58.88	-10.00	127.33	-10.00	100.00
200	5.87	53.96	-10.00	126.47	-10.00	100.00
205	7.62	48.84	-10.00	107.80	-10.00	100.00
210	7.26	43.96	-9.08	115.20	-9.08	100.00
215	6.33	39.21	-7.83	130.16	-7.83	100.00
220	6.13	34.40	-6.41	136.93	-6.41	100.00
225	6.10	29.61	-4.79	144.67	-4.79	100.00
230	6.17	24.86	-2.89	153.06	-2.89	100.00
235	5.94	20.34	-0.71	170.06	-0.71	100.00
240	6.10	15.89	1.97	183.70	1.97	100.00
245	5.47	12.32	4.73	204.44	4.73	100.00
250	4.90	9.79	7.23	227.06	7.23	100.00
255	4.83	9.01	8.13	234.74	8.13	100.00
260	4.76	10.77	6.20	222.67	6.20	100.00
265	4.96	13.98	3.36	204.98	3.36	100.00
270	5.23	17.99	0.62	186.44	0.62	100.00
275	5.25	22.49	-1.80	172.32	-1.80	100.00
280	4.32	27.45	-3.96	175.12	-3.96	100.00
285	3.78	32.31	-5.73	176.01	-5.73	100.00
290	1.83	37.57	-7.37	208.84	-7.37	100.00
295	1.10	42.47	-8.70	223.62	-8.70	100.00
300	0.34	47.39	-9.89	268.34	-9.89	126.81
305	0.30	52.16	-10.00	272.42	-10.00	129.73
310	0.00	57.00	-10.00	285.28	-10.00	137.12
315	0.00	61.80	-10.00	285.28	-10.00	137.12
320	0.00	66.62	-10.00	285.28	-10.00	137.12
325	0.00	71.46	-10.00	285.28	-10.00	137.12
330	0.00	76.30	-10.00	285.28	-10.00	137.12
335	0.00	81.15	-10.00	285.28	-10.00	137.12
340	0.00	86.00	-10.00	285.28	-10.00	137.12
345	0.00	90.86	-10.00	285.28	-10.00	137.12
350	0.00	95.71	-10.00	285.28	-10.00	137.12
355	0.29	100.58	-10.00	274.28	-10.00	130.98

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
Engineer III, Telecommunications
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: March 13, 2015