

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
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

AC BidCO LLC
AT&T Mobility Spectrum LLC - N CA
AT&T Mobility Wireless Operations Hldgs
Alameda County of California
American Tower, LLC
Arizona Nevada Tower Corp
CBS Broadcasting Inc
CBS Communications Services Inc
California Internet, L.P.
California Oregon Broadcasting Inc.
California RSA No. 3 Limited Partnership
California Resources Corporation
California Rural Service Area #1, Inc.
California, State of
Cellco Partnership - Southern California
Citizens Telecommunications of CA Inc.
City & County of San Francisco PUC
City and County of San Francisco
Contra Costa, County of
County of San Mateo
County of Santa Cruz
Crystal Smr Inc.
Cumulus Licensing LLC
DigitalPath, Inc
East Bay Municipal Utility District
Encina Communications Corporation
Etheric Networks, Inc.
Field, David J
Frontier California Inc.
GTE Mobilnet of California LTD Partnersh
Happy Valley Telephone Company
Higher Ground LLC
ICG Telecom Group, Inc. - Debtor in poss
Ion Media Sacramento License, Inc.
Johannesen, Norman A
John K LaRue
KDTV License Partnership, G.P.
KGO Television, Inc.
KQED Inc.
KVIE, Inc.
M.U.T. Licensing, LLC

MHO Networks
Marin, County of
Mendocino County of
Merced Irrigation District
Modesto Irrigation District
Mountain Tower Network Company, LLC
NPG Cable, LLC
Napa, County of
Nevada Bell Tel dba AT&T Nevada
New Cingular Wireless PCS LLC - N CAL
North Coast Internet
Northstar San Francisco License LLC
Olympic Wireless, LLC
Pacific Bell Tel Com dba AT&T California
Pacific Gas and Electric Company
Placer, County of
Plumas County
Proxim Wireless Corporation
Redding MSA Limited Partnership
Ridge Wireless
Sacramento County
Sacramento Municipal Utility District
Sacramento Valley Limited Partnership
San Francisco, City and County of
San Joaquin County
San Jose, City of (ECOMM)
Santa Clara Valley Water District
Santa Clara, County of
Silicon Valley Regional Interop Authorit
Solano, County of
Sonoma, County of ca
Southern California Edison Company
T-Mobile License LLC
The Internet Store, Inc.
Tri-Dam Project
Union Pacific Railroad Company
Velocity Communications, Inc.
Verizon Wireless (VAW) LLC-N CA/NV
Verizon Wireless(VAW) LLC-AZ/CO/NM/NV/UT
Yolo Emergency Communications Agency
Yolo, County of
Your Town Online, Inc
Yuba County Water Agency

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: 171220COMSGE01

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: E950307
Licensee Code: INTELS
Licensee Name: Intelsat License LLC

Site Information NAPA, CA

Venue Name
Latitude (NAD 83): 38° 14' 43.7" N
Longitude (NAD 83): 122° 16' 50.9" W
Climate Zone: B
Rain Zone: 3
Ground Elevation (AMSL): 7.62 m / 25.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Analog and 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): 7.62 m / 25.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	Vertex	Vertex
Model	15.2 KPC	15.2 KPC
Gain / Diameter	54.9 dBi / 15.2 m	58.4 dBi / 15.2 m
3-dB / 15-dB Beamwidth	0.34° / 0.70°	0.22° / 0.44°
Max Available RF Power (dBW/4 kHz)	11.8	
(dBW/MHz)	35.8	
Maximum EIRP (dBW/4 kHz)	70.2	
(dBW/MHz)	94.2	
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

Transmit 6.1 GHz

Emission / Frequency Range (MHz)	1M50FXD / 3700.0 - 4200.0	1M50FXD / 5850.0 - 5853.5 1M50FXD / 6421.5 - 6425.0
Max Great Circle Coordination Distance	783.5 km / 486.8 mi	625.6 km / 388.7 mi
Precipitation Scatter Contour Radius	431.4 km / 268.0 mi	409.5 km / 254.4 mi

COMSEARCH

Earth Station Data Sheet

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Coordination Values

NAPA, CA

Licensee Name Intelsat License LLC
Latitude (NAD 83) 38° 14' 43.7" N
Longitude (NAD 83) 122° 16' 50.9" W
Ground Elevation (AMSL) 7.62 m / 25.0 ft
Antenna Centerline (AGL) 7.62 m / 25.0 ft
Antenna Model Vertex 15.2 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 11.8 (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	0.00	101.14	-10.00	412.20	-10.00	297.29
5	0.00	96.17	-10.00	412.20	-10.00	297.29
10	0.90	91.19	-10.00	264.82	-10.00	192.13
15	0.80	86.20	-10.00	277.19	-10.00	201.99
20	0.47	81.22	-10.00	329.55	-10.00	240.42
25	0.36	76.24	-10.00	358.77	-10.00	260.36
30	0.83	71.25	-10.00	274.09	-10.00	199.63
35	2.06	66.23	-10.00	197.23	-10.00	141.08
40	1.48	61.26	-10.00	226.28	-10.00	161.72
45	2.55	56.23	-10.00	179.55	-10.00	129.11
50	2.84	51.23	-10.00	169.79	-10.00	122.79
55	3.18	46.22	-9.62	161.57	-9.62	117.63
60	3.65	41.21	-8.38	155.47	-8.38	115.75
65	4.36	36.20	-6.97	149.75	-6.97	111.91
70	4.71	31.19	-5.35	153.21	-5.35	114.22
75	4.39	26.20	-3.46	165.94	-3.46	120.03
80	4.21	21.21	-1.16	180.45	-1.16	129.18
85	4.11	16.22	1.75	198.46	1.75	141.43
90	3.72	11.28	5.69	235.55	5.69	167.97
95	3.06	6.54	11.62	310.54	11.62	225.52
100	3.50	2.05	24.22	754.58	24.22	625.55
105	2.95	4.34	16.05	446.58	16.05	346.49
110	2.71	8.29	9.03	306.82	9.03	222.67
115	3.16	11.74	5.25	254.69	5.25	182.23
120	3.45	15.20	2.45	223.72	2.45	159.13
125	4.18	18.26	0.46	189.93	0.46	135.57
130	4.47	21.49	-1.30	176.42	-1.30	126.57
135	4.15	25.00	-2.95	171.44	-2.95	123.45
140	3.41	28.67	-4.43	182.33	-4.43	130.58
145	3.56	31.46	-5.44	172.38	-5.44	124.17
150	4.25	33.55	-6.14	154.38	-6.14	114.98
155	4.31	35.81	-6.85	150.55	-6.85	112.58
160	3.91	38.13	-7.53	152.81	-7.53	114.05
165	3.42	40.16	-8.10	162.59	-8.10	118.17
170	3.06	41.68	-8.50	170.68	-8.50	123.26
175	2.65	42.80	-8.79	182.53	-8.79	130.99
180	2.33	43.36	-8.93	193.31	-8.93	138.28
185	2.03	43.42	-8.94	205.07	-8.94	146.45

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Coordination Values

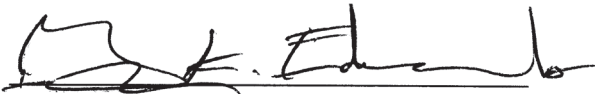
NAPA, CA

Licensee Name	Intelsat License LLC
Latitude (NAD 83)	38° 14' 43.7" N
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Ground Elevation (AMSL)	7.62 m / 25.0 ft
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Antenna Model	Vertex 15.2 meter
Antenna Mode	Receive 4.0 GHz
Interference Objectives: Long Term	-156.0 dBW/MHz 20%
Short Term	-146.0 dBW/MHz 0.01%
Max Available RF Power	Transmit 6.1 GHz -154.0 dBW/4 kHz 20% -131.0 dBW/4 kHz 0.0025% 11.8 (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	1.76	42.94	-8.82	219.28	-8.82	156.47
195	1.37	42.08	-8.60	242.29	-8.60	173.49
200	0.92	40.79	-8.26	276.29	-8.26	201.02
205	0.52	39.03	-7.78	340.35	-7.78	247.61
210	0.00	36.98	-7.20	448.50	-7.20	321.48
215	0.00	34.21	-6.35	460.06	-6.35	329.17
220	0.00	31.20	-5.36	473.50	-5.36	338.52
225	0.00	28.00	-4.18	490.61	-4.18	349.37
230	0.00	24.63	-2.79	511.67	-2.79	363.34
235	0.00	21.13	-1.12	538.04	-1.12	380.84
240	0.00	17.51	0.92	571.97	0.92	403.35
245	0.22	13.67	3.60	607.27	3.60	426.57
250	0.26	9.89	7.12	656.00	7.12	453.60
255	0.21	6.40	11.85	783.55	11.85	548.65
260	0.34	5.49	13.51	751.15	13.51	614.92
265	0.46	8.33	8.98	589.34	8.98	413.20
270	0.49	12.63	4.47	499.92	4.47	353.48
275	0.51	17.30	1.05	444.25	1.05	316.39
280	0.45	22.14	-1.63	429.68	-1.63	306.97
285	0.50	27.01	-3.79	385.55	-3.79	277.31
290	0.88	31.88	-5.59	305.11	-5.59	221.97
295	0.98	36.81	-7.15	277.41	-7.15	201.68
300	0.80	41.79	-8.53	289.70	-8.53	211.14
305	1.18	46.72	-9.74	245.16	-9.74	175.82
310	0.80	51.72	-10.00	277.46	-10.00	202.20
315	0.85	56.69	-10.00	270.66	-10.00	197.01
320	1.00	61.66	-10.00	254.20	-10.00	182.76
325	1.12	66.64	-10.00	246.80	-10.00	177.10
330	0.82	71.63	-10.00	274.92	-10.00	200.26
335	0.00	76.63	-10.00	412.20	-10.00	297.29
340	0.00	81.60	-10.00	412.20	-10.00	297.29
345	0.00	86.58	-10.00	412.20	-10.00	297.29
350	0.00	91.55	-10.00	412.20	-10.00	297.29
355	0.00	96.53	-10.00	412.20	-10.00	297.29

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