

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
KVH Industries, Inc.
NUEVO, CA
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
September 30, 2019

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.

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 08/19/2019.

Company

ABC Holding Company Inc.
AT&T Mobility Spectrum LLC - Southern CA
Air Sites 2000 LLC
Anaheim City, of
BNSF Railway Company
California Internet Solutions, Inc.
California Internet, L.P
California, State of
Calvary Chapel of Costa Mesa
Cellco Partnership - Southern California
City of Los Angeles Dept Water & Power
City of Montebello
City of West Covina
Coachella Valley Water District
Coast Community College District
DRS Global Enterprise Solutions, Inc.
Entravision Holdings, LLC
Frontier California Inc.
Glendale City California
Global Telecom & Technology Americas, In
Imperial Irrigation District
KTLA, LLC
Lightwave Broadband LLC
Los Angeles County FCC Licensing Section
Los Angeles Regional Interoperable Comm
Los Angeles SMSA Ltd. Partnership
MHO Networks
Metropolitan Water Dist of So California
Mobile Relay Associates Inc.
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC -San Diego
Norris, Samuel O
Olympic Wireless, LLC
Orange, County of, CA
Pacific Bell Tel Com dba AT&T California
Pacific Lightwave Inc
Regional 3Cs
Riverside, County of
San Bernardino County of California
San Diego Broadband
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 Company
Time Warner Cable Pacific West LLC
Turn Wireless, LLC
Ultimate Internet Access, Inc
Union Pacific Railroad Company
University of California, HPWREN
Verizon Wireless (VAW) LLC (Southern CA)
Western Broadband Inc.
Wiline Spectrum Holdings LLC
Wisprenn

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: 09/30/2019
Job Number: 190819COMSGE02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E120107
Licensee Code KVHIND
Licensee Name KVH Industries, Inc.

Site Information

NUEVO, CA

Venue Name
Latitude (NAD 83) 33° 47' 46.3" N
Longitude (NAD 83) 117° 5' 20.7" W
Climate Zone A
Rain Zone 4
Ground Elevation (AMSL) 562.97 m / 1847.0 ft

Link Information

Satellite Type Geostationary
Mode TO - Transmit-Only
Modulation Digital
Satellite Arc 53° W to 180° West Longitude
Azimuth Range 105.1° to 254.1°
Corresponding Elevation Angles 12.8° / 13.8°
Antenna Centerline (AGL) 2.74 m / 9.0 ft

Antenna Information

Transmit - FCC32

Manufacturer KVH
Model TracPhone V11
Gain / Diameter 42.2 dBi / 1.0 m
3-dB / 15-dB Beamwidth 3.50° / 7.90°

Max Available RF Power (dBW/4 kHz) -24.1
(dBW/MHz) -0.1

Maximum EIRP (dBW/4 kHz) 18.1
(dBW/MHz) 42.1

Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%

Frequency Information

Transmit 6.1 GHz

Emission / Frequency Range (MHz) 18M0G7D - 36M0F8W / 5925.0 - 6425.0

Max Great Circle Coordination Distance 106.7 km / 66.3 mi
Precipitation Scatter Contour Radius 100.0 km / 62.1 mi

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Coordination Values

NUEVO, CA

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Ground Elevation (AMSL) 562.97 m / 1847.0 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model KVH 1.0 meter
Antenna Mode Transmit 6.1 GHz
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -24.1 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	1.15	104.80	-10.00	100.00
5	2.62	99.96	-10.00	100.00
10	2.02	95.03	-10.00	100.00
15	2.85	90.12	-10.00	100.00
20	3.24	85.19	-10.00	100.00
25	3.08	80.27	-10.00	100.00
30	3.77	75.31	-10.00	100.00
35	3.44	70.40	-10.00	100.00
40	3.43	65.48	-10.00	100.00
45	3.48	60.56	-10.00	100.00
50	3.26	55.68	-10.00	100.00
55	2.68	50.87	-10.00	100.00
60	2.73	46.00	-9.57	100.00
65	3.42	41.03	-8.33	100.00
70	3.59	36.16	-6.96	100.00
75	3.09	31.51	-5.46	100.00
80	3.71	26.62	-3.63	100.00
85	3.66	22.03	-1.57	100.00
90	3.69	17.61	0.86	100.00
95	2.87	14.15	3.23	100.00
100	3.06	11.00	5.96	100.00
105	3.40	9.42	7.65	100.00
110	3.79	10.24	6.74	100.00
115	3.92	13.26	3.93	100.00
120	4.05	17.06	1.20	100.00
125	3.73	21.09	-1.10	100.00
130	4.09	24.58	-2.76	100.00
135	3.82	28.34	-4.31	100.00
140	4.02	31.62	-5.50	100.00
145	4.09	34.77	-6.53	100.00
150	3.21	38.37	-7.60	100.00
155	4.30	40.14	-8.09	100.00
160	4.47	42.21	-8.63	100.00
165	5.06	43.42	-8.94	100.00
170	5.11	44.62	-9.24	100.00
175	5.77	44.70	-9.26	100.00
180	6.11	44.60	-9.23	100.00
185	6.63	43.85	-9.05	100.00

COMSEARCH

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19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values

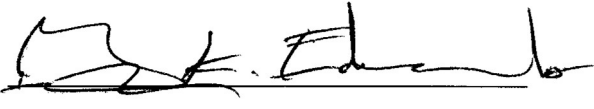
NUEVO, CA

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Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	6.38	43.39	-8.94	100.00
195	5.95	42.60	-8.74	100.00
200	6.30	40.61	-8.22	100.00
205	5.72	38.98	-7.77	100.00
210	6.44	35.88	-6.87	100.00
215	7.40	32.32	-5.74	100.00
220	6.26	30.04	-4.94	100.00
225	6.17	26.75	-3.68	100.00
230	6.19	23.20	-2.14	100.00
235	5.93	19.69	-0.36	100.00
240	5.94	15.89	1.97	100.00
245	5.76	12.13	4.91	100.00
250	5.39	9.35	7.73	100.00
255	4.96	8.87	8.30	100.00
260	4.84	10.70	6.27	100.00
265	4.86	14.05	3.31	100.00
270	4.75	18.22	0.49	100.00
275	5.05	22.56	-1.83	100.00
280	3.95	27.57	-4.01	100.00
285	3.31	32.45	-5.78	100.00
290	1.54	37.65	-7.39	100.00
295	1.28	42.43	-8.69	100.00
300	0.45	47.37	-9.89	100.00
305	0.00	52.21	-10.00	106.70
310	0.00	57.00	-10.00	106.70
315	0.00	61.80	-10.00	106.70
320	0.00	66.62	-10.00	106.70
325	0.00	71.46	-10.00	106.70
330	0.00	76.30	-10.00	106.70
335	0.00	81.15	-10.00	106.70
340	0.00	86.00	-10.00	106.70
345	0.00	90.86	-10.00	106.70
350	0.00	95.71	-10.00	106.70
355	0.41	100.59	-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: September 30, 2019