

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Vyvx, LLC
STEELE VALLE, CA
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
August 30, 2017

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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. Operation will be limited the frequency shown in Section 4 of this report.

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 receive-only earth station.

Company

Caritas Telecommunications
Los Angeles SMSA Ltd. Partnership

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 07/31/2017.

Company

ABC Holding Company Inc.
AT&T Mobility Spectrum LLC - N CA
AT&T Mobility Spectrum LLC - Southern CA
Aerioconnect Inc
Aerionet, Inc.
Affiniti LLC
Air Sites 2000 LLC
Alarmlink, Inc.
Antilles Wireless, LLC
BNSF Railway Company
Bay City Television, Inc.
Bel Air Internet, LLC
Beta Operating Company LLC
CBS Broadcasting Inc
CBS Radio Stations Inc.
California Internet Solutions, Inc.
California Internet, L.P.
California Water Service Company
California, State of
Caritas Telecommunications
Catalina Broadband Solutions, LLC
Citicasters Licenses, Inc.
City of Los Angeles Dept Water & Power
City of Montebello
City of Newport Beach
City of Oceanside
City of Pasadena, California
City of Torrance
Clearwire Spectrum Holdings III, LLC
Confire, JPA
Conterra Ultra Broadband, LLC
Corona, City of, Dept of Water & Power
Cox Communications - San Diego Mkt
DM Ventures, Inc. dba Warp2Biz
DRS Global Enterprise Solutions, Inc.
Desert Winds Wireless
Eastern Municipal Water District
Financial Partners Credit Union
Fireline Network Solutions Inc.
Franklin Technology Systems, Inc.
Frontier California Inc.

Gilmond, Daniel
Glendale City California
Global Telecom & Technology Americas
Global Telecom & Technology Americas, In
Gulf-California Broadcast Company
Harris Corporation (Virginia)
JetWire, Inc.
Kimtron, Inc.
LT-WR, LLC
Lemon Grove School District
Lightwave Broadband LLC
Long Beach, City of (WCD)
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
Los Angeles, City of
MHO Networks
MJM Telecom Corp
MSD Wireless
Metropolitan Water Dist of So California
Monrovia, City of
NRJ TV III CA License Co, LLC
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC - N CAL
New Cingular Wireless PCS LLC -San Diego
Nextel of California Inc.
Nextlink Wireless, LLC
Nextweb Inc
North County Transit District
Nrj TV La License Co, LLC
Olympic Wireless, LLC
Orange County Public Works
Orange County Transportation Authority
Orange, County of, CA
Pacific Bell Tel Com dba AT&T California
Pacific Lightwave Inc
Pacific Television Center
Palomar Broadband
Polly Butte Networks
Port of Los Angeles
Qualcomm Inc.
RPM Wireless Internet, LLC
Regional 3Cs
Riverside, City of
Riverside, County of
San Antonio Regional Hospital
San Bernardino Community Col Dis KVCR-TV
San Bernardino County of California
San Diego Broadband
San Diego County Super. of Schools
San Diego Gas & Electric Company
San Diego Unified School District

San Diego, City of
San Diego, County of
Sentinel Peak Resources California LLC
Skyriver Communications
South Bay Regional Public Comm Authority
Southern California Edison Company
Southern California Gas Company
Southern California Regional Rail Auth.
Southern California Telephone Company
Sprint Spectrum L.P.
Sprint Telephony PCS, L.P.
Station Venture Operations, LP
T-Mobile License LLC
Temecula Valley Real Estate, Inc
Towerstream Corp.
Trango Systems, Inc.
Turn Wireless, LLC
Ultimate Internet Access, Inc
Union Pacific Railroad Company
United Parcel Service, Inc.
University of California, HPWREN
Vectus, Inc
Venture Technologies Group, LLC
Verizon Wireless (VAW) LLC (Southern CA)
Vernon City of
WT Consulting Group, LLC
West Covina, City of
Western Broadband Inc.
Wiline Spectrum Holdings LLC
Wisprenn
XO Communications, LLC
Zray Technologies Inc.

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: 08/30/2017
Job Number: 170731COMSTC02

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	E950202
Licensee Code	VYVXLL
Licensee Name	Vyvx, LLC

Site Information **STEELE VALLE, CA**

Venue Name	
Latitude (NAD 83)	33° 45' 29.4" N
Longitude (NAD 83)	117° 18' 53.9" W
Climate Zone	A
Rain Zone	4
Ground Elevation (AMSL)	612.65 m / 2010.0 ft

Link Information

Satellite Type	Geostationary
Mode	RO - Receive-Only
Modulation	Digital
Satellite Arc	188° W to 188° West Longitude
Azimuth Range	259.0° to 259.0°
Corresponding Elevation Angles	7.3° / 7.3°
Antenna Centerline (AGL)	3.96 m / 13.0 ft

Antenna Information**Receive**

Manufacturer	Vertex
Gain / Diameter	58.0 dBi / 8.1 m
3-dB / 15-dB Beamwidth	0.28° / 0.56°

Interference Objectives:	Long Term	-156.0 dBW/MHz	20%
	Short Term	-146.0 dBW/MHz	0.01%

Frequency Information**Receive 11.0 GHz**

Emission / Frequency Range (MHz)	20M3G7W - 36M0G7W / 11076.926
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Max Great Circle Coordination Distance	482.8 km / 299.9 mi
Precipitation Scatter Contour Radius	398.9 km / 247.8 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values	STEELE VALLE, CA		
Licensee Name	Vyvx, LLC		
Latitude (NAD 83)	33° 45' 29.4" N		
Longitude (NAD 83)	117° 18' 53.9" W		
Ground Elevation (AMSL)	612.65 m / 2010.0 ft		
Antenna Centerline (AGL)	3.96 m / 13.0 ft		
Antenna Mode	Receive 11.0 GHz		
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	
Short Term	-146.0 dBW/MHz	0.01%	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	2.24	100.98	-10.00	141.00
5	1.53	105.94	-10.00	161.03
10	1.84	110.92	-10.00	151.43
15	1.44	115.88	-10.00	164.10
20	0.90	120.81	-10.00	186.82
25	0.84	125.76	-10.00	190.16
30	1.09	130.73	-10.00	178.61
35	1.74	135.74	-10.00	154.30
40	2.43	140.76	-10.00	137.02
45	2.42	145.71	-10.00	137.21
50	3.20	150.76	-10.00	123.76
55	4.12	155.82	-10.00	108.84
60	5.21	160.91	-10.00	100.00
65	4.52	165.75	-10.00	103.75
70	4.40	170.56	-10.00	105.26
75	4.83	175.30	-10.00	100.03
80	6.11	178.40	-10.00	100.00
85	6.73	173.95	-10.00	100.00
90	7.20	168.98	-10.00	100.00
95	8.48	163.94	-10.00	100.00
100	10.41	158.76	-10.00	100.00
105	9.54	153.89	-10.00	100.00
110	10.31	148.85	-10.00	100.00
115	8.77	143.95	-10.00	100.00
120	9.71	138.92	-10.00	100.00
125	9.55	133.94	-10.00	100.00
130	9.59	128.94	-10.00	100.00
135	9.23	123.96	-10.00	100.00
140	8.74	118.97	-10.00	100.00
145	7.61	113.98	-10.00	100.00
150	5.89	108.97	-10.00	100.00
155	4.38	103.96	-10.00	105.48
160	2.61	98.95	-10.00	133.25
165	1.64	93.96	-10.00	157.65
170	0.76	88.98	-10.00	194.10
175	0.00	84.03	-10.00	231.37
180	0.00	79.07	-10.00	231.37
185	0.00	74.11	-10.00	231.37

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Earth Station Data Sheet

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Coordination Values

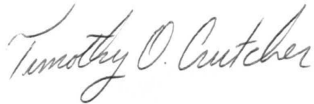
STEELE VALLE, CA

Licensee Name Vyvx, LLC
Latitude (NAD 83) 33° 45' 29.4" N
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Ground Elevation (AMSL) 612.65 m / 2010.0 ft
Antenna Centerline (AGL) 3.96 m / 13.0 ft
Antenna Mode Receive 11.0 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	69.16	-10.00	231.37
195	1.17	64.14	-10.00	175.91
200	1.40	59.16	-10.00	168.40
205	1.76	54.17	-10.00	153.84
210	2.88	49.13	-10.00	129.62
215	3.66	44.10	-9.11	119.08
220	3.38	39.14	-7.82	128.63
225	2.59	34.27	-6.37	149.62
230	3.51	29.21	-4.64	137.86
235	2.84	24.37	-2.67	163.10
240	2.67	19.52	-0.26	182.85
245	2.35	14.82	2.73	203.93
250	2.22	10.32	6.66	223.13
255	2.36	6.36	11.91	250.04
260	3.56	3.91	17.20	482.76
265	4.98	6.47	11.73	201.25
270	3.81	11.57	5.42	186.82
275	3.89	16.38	1.64	161.21
280	4.65	21.19	-1.15	134.23
285	5.37	26.09	-3.41	118.40
290	5.44	31.08	-5.31	110.58
295	5.79	36.05	-6.92	101.62
300	6.01	41.04	-8.33	100.00
305	4.59	46.09	-9.59	104.32
310	3.61	51.12	-10.00	116.80
315	4.09	56.09	-10.00	109.12
320	3.71	61.09	-10.00	115.04
325	4.62	66.05	-10.00	102.53
330	3.08	71.08	-10.00	125.99
335	3.54	76.05	-10.00	117.92
340	3.45	81.04	-10.00	119.48
345	2.78	86.04	-10.00	130.05
350	3.05	91.02	-10.00	126.49
355	3.45	96.01	-10.00	119.51

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.

A handwritten signature in cursive script that reads "Timothy O. Crutcher".

Timothy O. Crutcher
Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: August 30, 2017