

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
DIRECTV ENTERPRISES, INC.
LONG BEACH, CA
(9.3 Meter)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
November 2, 2010

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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.

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-only earth station.

Company

Bel Air Internet
Long Beach City California
Long Beach City Electronics Div
California, State of
Los Angeles SMSA Ltd. Partnership
Los Angeles County FCC Licensing Section
Union Pacific Railroad Company
Clearwire Spectrum Holdings III, LLC

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 08/30/2010.

Company

ABC Holding Company Inc.
ABC Radio Los Angeles Assets, LLC
AMERIQUEST MORTGAGE COMPANY
ANAHEIM CITY PUBLIC UTILITY DEPARTMENT
AT&T CORP
AT&T California
AirSites2000, LLC
Airband Communications Inc
BEVERLY HILLS, CITY OF
BNSF Railway Company
BP West Coast Products LLC
BURBANK CITY , OF
Bel Air Internet
British American Communications Inc
CARDIOLOGY ASSOCIATES MEDICAL GROUP, INC
CARITAS TELECOMMUNICATIONS
CASTAIC LAKE WATER AGENCY
CBS Broadcasting Inc
CNG Communications, Inc.
COMMUNICATIONS SERVICES
CULVER CITY, CITY OF
California, State of
Cellco Partnership - California
Children's Hospital Orange County (CHOC)
City of Corona
City of Irvine Public Safety
City of Newport Beach
City of Pasadena, California
City of Torrance
Clearwire Spectrum Holdings III, LLC
Color BroadBand Inc.
Community Memorial Health System
Conterra Ultra Broadband, LLC
Cox Communications - Bakersfield/Goleta
DRS Technical Services
EDWARDS LIFESCIENCES
El Monte Police Department
Emend Information & Management Solutions
Energia Costa Azul S. de R.L. de C.V.
Esyon Corporation

FIRST FOURSQUARE CHURCH OF VAN NUYS
FOX TELEVISION STATIONS, INC.
Fireline Network Solutions Inc.
GLENDALE CITY CALIFORNIA
HEARTLAND COMMUNICATIONS FACILITY AUTH
INDYMAC BANK
Intelecom Intelligent Telecommunications
Jack In The Box Inc.
KTLA INC
Kern, County of
LEMON GROVE SCHOOL DISTRICT
LOS ANGELES CITY WATER & POWER
LOS ANGELES UNIFIED SCHOOL DISTRICT
LT-WR, LLC
Las Virgenes Unified School District
Long Beach City California
Long Beach City Electronics Div.
Los Angeles City Info Technology Agency
Los Angeles County FCC Licensing Section
Los Angeles County Metro Transit Auth
Los Angeles SMSA Ltd. Partnership
Los Angeles, City of
METROPOLITAN WATER DIST OF SO CALIFORNIA
MOBILE RELAY ASSOCIATES INC
MONTEBELLO CITY CALIFORNIA
McGraw-Hill Broadcasting Comp - KGTV
MetroConnect Inc
Mike Glaser
Moreno Valley City California
Moulton Niguel Water District
NBC Telemundo License Co - News Burbank
NEXTEL OF CALIFORNIA INC
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC - N CAL
New Cingular Wireless PCS LLC -San Diego
Nextlink Wireless, Inc
Nextweb Inc
Northrop Grumman Information Technology
ORANGE, COUNTY OF, CA
PAGING SYSTEMS INC
QUALCOMM INC.
Quest Diagnostics Incorporated
RIVERSIDE CITY CALIFORNIA
RIVERSIDE CITY CALIFORNIA
Regents of the University of California
Regents of the University of California
Royal Street BTA 262, LLC
SAN DIEGO COUNTY
SAN DIEGO UNIVERSITY
SAN DIEGO, CITY OF
SKYLINK COMMUNICATIONS, L.P.
SKYRIVER COMMUNICATIONS INC
ST. JOSEPH HEALTH SYSTEM
STATION VENTURE OPERATIONS, LP
San Bernardino County of California
San Diego County Water Authority

San Diego Gas & Electric Company
San Diego Unified School District
San Diego, Port of - Harbor Police
Santa Barbara Cellular Systems, Ltd.
Sky Valley Network LLC
Southern California Edison Company
Southern California Gas Company
Southern California Telephone Company
Sprint Spectrum LP DBA Sprint PCS
Sprint Telephony PCS, L.P.
Sprintcom, Inc. Puerto Rico
T-MOBILE LIC LLC - VOICESTREAM PCS BTA I
T-Mobile License LLC
T-Mobile License LLC
THUMS Long Beach Company
TOM FADGEN
Time Warner Cable LLC
Time Warner NY Cable LLC
Towerstream Corp
Trango Systems, Inc.
Trillion Partners, Inc.
Turn Wireless, LLC
UCSD Healthcare
UNIVERSITY OF SOUTHERN CALIFORNIA
Union Pacific Railroad Company
Ventura County Office of Education
Verizon California Inc.
Verizon Wireless (VAW) LLC (CA)
WEST COVINA, CITY OF
WEST END COMMUNICATIONS AUTHORITY
WT Consulting Group, LLC

3G Wireless, LLC
Broadcast Sports Corp
Broadcast Sports Enterprises Inc.
Casper, John
Citywide News Network, Inc.
Cohen, Elana
FISHMAN BROTHERS ENTERPRISES
GOODYEAR TIRE AND RUBBER COMPANY
Heiden Mr, William
Information Super Station LLC
NSM Surveillance
Onboard Images
Production & Satellite Services, Inc.
Regulus Media Services, Inc.
REMOTE FACILITIES CONSULTING SERVICES
RF Film, Inc
RF Technology, LLC
Total RF Marketing Inc
Universal Satellite Communications Inc.
Village Video Productions 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: 10/19/2010
Job Number: 100830COMSGE02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code ZDIRTV
Licensee Name DIRECTV ENTERPRISES, INC.

Site Information LONG BEACH, CA

Venue Name
Latitude (NAD 83) 33° 49' 45.9" N
Longitude (NAD 83) 118° 12' 37.1" W
Climate Zone B
Rain Zone 4
Ground Elevation (AMSL) 9.6 m / 31.5 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 60° W to 143° West Longitude
Azimuth Range 109.0° to 219.7°
Corresponding Elevation Angles 17.7° / 42.6°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	Vertex/RSI	Vertex/RSI	
Model	930KS	930KS	
Gain / Diameter	59.0 dBi / 9.3 m	62.0 dBi / 9.3 m	
3-dB / 15-dB Beamwidth	0.19° / 0.40°	0.14° / 0.29°	
Max Available RF Power (dBW/4 kHz)		2.4	
(dBW/MHz)		26.4	
Maximum EIRP (dBW/4 kHz)		64.4	
(dBW/MHz)		88.4	
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%

Frequency Information

Receive 12.2 GHz

Transmit 17.3 GHz

Emission / Frequency Range (MHz)	800KF2D - 24M0G7W / 12200.0 - 12700.0	800KF2D - 24M0G7W / 17300.0 - 17800.0
Max Great Circle Coordination Distance	247.3 km / 153.6 mi	175.0 km / 108.7 mi
Precipitation Scatter Contour Radius	362.3 km / 225.1 mi	190.7 km / 118.5 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

LONG BEACH, CA

Licensee Name DIRECTV ENTERPRISES, INC.
Latitude (NAD 83) 33° 49' 45.9" N
Longitude (NAD 83) 118° 12' 37.1" W
Ground Elevation (AMSL) 9.6 m / 31.5 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model Vertex 9.3 Meter
Antenna Mode Receive 12.2 GHz Transmit 17.3 GHz
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%
Max Available RF Power 2.4 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 12.2 GHz		Transmit 17.3 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	108.11	-10.00	227.19	-10.00	164.97
5	0.00	103.36	-10.00	227.19	-10.00	164.97
10	0.00	98.61	-10.00	227.19	-10.00	164.97
15	0.00	93.85	-10.00	227.19	-10.00	164.97
20	0.00	89.08	-10.00	227.19	-10.00	164.97
25	0.00	84.32	-10.00	227.19	-10.00	164.97
30	0.00	79.56	-10.00	227.19	-10.00	164.97
35	0.00	74.81	-10.00	227.19	-10.00	164.97
40	0.00	70.07	-10.00	227.19	-10.00	164.97
45	0.00	65.35	-10.00	227.19	-10.00	164.97
50	0.33	60.59	-10.00	215.11	-10.00	150.27
55	0.59	55.85	-10.00	198.30	-10.00	130.51
60	0.67	51.18	-10.00	194.65	-10.00	128.50
65	0.83	46.52	-9.69	187.63	-9.69	122.24
70	0.89	41.95	-8.57	189.13	-8.57	122.64
75	0.92	37.49	-7.35	193.16	-7.35	125.12
80	0.97	33.13	-6.01	196.70	-6.01	127.14
85	0.98	28.98	-4.55	202.13	-4.55	129.80
90	0.82	25.22	-3.04	213.81	-3.04	142.63
95	0.83	21.79	-1.46	220.47	-1.46	148.11
100	0.83	19.04	0.01	227.21	0.01	153.93
105	0.73	17.40	0.99	237.69	0.99	165.51
110	0.65	17.04	1.21	243.98	1.21	171.16
115	0.53	18.11	0.55	247.26	0.55	174.96
120	0.65	20.15	-0.61	234.10	-0.61	163.12
125	0.80	23.06	-2.07	218.88	-2.07	147.00
130	0.73	26.70	-3.66	215.39	-3.66	144.75
135	0.33	30.60	-5.14	236.61	-5.14	170.17
140	0.33	34.10	-6.32	231.08	-6.32	165.53
145	0.33	37.40	-7.32	226.52	-7.32	160.10
150	0.37	40.44	-8.17	219.00	-8.17	152.78
155	0.37	43.21	-8.89	215.95	-8.89	150.17
160	0.25	45.73	-9.50	224.71	-9.50	160.28
165	0.25	47.71	-9.97	222.74	-9.97	158.54
170	0.00	49.42	-10.00	227.19	-10.00	164.97
175	0.00	50.36	-10.00	227.19	-10.00	164.97
180	0.39	50.29	-10.00	209.84	-10.00	144.63
185	0.29	50.08	-10.00	218.98	-10.00	154.46

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Coordination Values

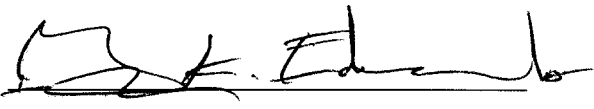
LONG BEACH, CA

Licensee Name	DIRECTV ENTERPRISES, INC.		
Latitude (NAD 83)	33° 49' 45.9" N		
Longitude (NAD 83)	118° 12' 37.1" W		
Ground Elevation (AMSL)	9.6 m / 31.5 ft		
Antenna Centerline (AGL)	5.49 m / 18.0 ft		
Antenna Model	Vertex 9.3 Meter		
Antenna Mode	Receive 12.2 GHz		Transmit 17.3 GHz
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%
Max Available RF Power			2.4 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 12.2 GHz		Transmit 17.3 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.26	49.18	-10.00	220.89	-10.00	156.55
195	0.00	47.93	-10.00	227.19	-10.00	164.97
200	0.00	46.08	-9.59	228.98	-9.59	166.53
205	0.00	44.55	-9.22	230.60	-9.22	167.93
210	0.00	43.44	-8.95	231.83	-8.95	168.97
215	0.00	42.76	-8.78	232.59	-8.78	169.62
220	0.00	42.56	-8.72	232.83	-8.72	169.82
225	0.00	42.82	-8.79	232.52	-8.79	169.56
230	0.00	43.56	-8.98	231.70	-8.98	168.86
235	0.00	44.73	-9.27	230.41	-9.27	167.76
240	0.00	46.31	-9.64	228.75	-9.64	166.33
245	0.00	48.25	-10.00	227.19	-10.00	164.97
250	0.00	50.52	-10.00	227.19	-10.00	164.97
255	0.00	53.06	-10.00	227.19	-10.00	164.97
260	0.00	55.83	-10.00	227.19	-10.00	164.97
265	0.00	58.81	-10.00	227.19	-10.00	164.97
270	0.00	61.95	-10.00	227.19	-10.00	164.97
275	0.00	65.22	-10.00	227.19	-10.00	164.97
280	0.00	68.61	-10.00	227.19	-10.00	164.97
285	0.00	72.09	-10.00	227.19	-10.00	164.97
290	0.00	75.64	-10.00	227.19	-10.00	164.97
295	0.00	79.24	-10.00	227.19	-10.00	164.97
300	0.00	82.89	-10.00	227.19	-10.00	164.97
305	0.00	86.56	-10.00	227.19	-10.00	164.97
310	0.00	90.24	-10.00	227.19	-10.00	164.97
315	0.30	93.94	-10.00	217.62	-10.00	152.99
320	0.50	97.65	-10.00	202.76	-10.00	134.78
325	0.60	101.34	-10.00	197.67	-10.00	129.93
330	0.64	104.98	-10.00	196.01	-10.00	129.70
335	0.68	108.57	-10.00	194.11	-10.00	128.02
340	0.69	112.08	-10.00	193.56	-10.00	127.54
345	0.24	115.31	-10.00	223.29	-10.00	159.19
350	0.00	117.55	-10.00	227.19	-10.00	164.97
355	0.00	112.84	-10.00	227.19	-10.00	164.97

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: November 2, 2010