

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

Hawaii Pacific Teleport, L.P.
Kapolei, Hawaii
(Call Sign: E030115)

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
May 29, 2014

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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-receive earth station.

Company

None

No 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.

Expedited coordination data for this earth station was emailed and sent to the below listed carriers with a letter dated May 12, 2014.

Company

AT&T Corporation
Cellco Partnership - Hawaii
Clearwire Hawaii Partners Spectrum LLC
Clearwire Spectrum Holdings III, LLC
Coral Wireless Licenses, LLC
HONOLULU CITY & COUNTY
HONOLULU CITY & COUNTY DEPT OF INFO TECH
Harmer Radio and Electronics, Inc.
Harris Corporation - Orlando, FL
Hawaii Catholic TV, Inc
Hawaii Direct Telephone STS LLC
Hawaii Electric Light Co Inc
Hawaii State
Hawaiian Electric Co Inc
Hawaiian Telcom, Inc.
Honolulu Board of Water Supply
MID PACIFIC COMMUNICATIONS INC
Maui Electric Company Ltd
Maui, County of
New Cingular Wireless PCS LLC - Hawaii
Nextel WIP License Corp.
Oceanic Time Warner Cable
T-Mobile License LLC
Trex Broadband
Verizon Wireless VAW LLC - (Hawaii)

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: 05/29/2014
Job Number: 140512COMSJC03

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: E030115
Licensee Code: HAWPAC
Licensee Name: Hawaii Pacific Teleport, L.P.

Site Information KAPOLEI, HAWAII

Venue Name
Latitude (NAD 83): 21° 20' 8.9" N
Longitude (NAD 83): 158° 5' 17.8" W
Climate Zone: B
Rain Zone: 4
Ground Elevation (AMSL): 36.58 m / 120.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Analog and Digital
Satellite Arc: 176° W to 178° West Longitude
Azimuth Range: 221.6° to 224.9°
Corresponding Elevation Angles: 57.8° / 56.3°
Antenna Centerline (AGL): 3.05 m / 10.0 ft

Antenna Information

	Receive	Transmit
Manufacturer	Vertex	Vertex
Model	4.8 Meter KPK	4.8 Meter KPK
Gain / Diameter	53.0 dBi / 4.8 m	55.0 dBi / 4.8 m
3-dB / 15-dB Beamwidth	0.34° / 0.68°	0.24° / 0.48°

800KF9D, 51K2G7D to 36M0G7D, 51K2G7W to 36M0G7W

Max Available RF Power	(dBW/4 kHz)	-8.0	-14.0	-14.0	-14.0	-14.0
	(dBW/MHz)	16.0	10.0	10.0	10.0	10.0
Maximum EIRP	(dBW/4 kHz)	47.0	41.0	41.0	41.0	41.0
	(dBW/MHz)	71.0	65.0	65.0	65.0	65.0
	(dBW)	70.0	52.1	80.5	52.1	80.5
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

Emission / Frequency Range (MHz)	Receive 11.0 GHz	Transmit 14.0 GHz
	800KF9D / 10950.0 - 11200.0	800KF9D / 14000.0 - 14500.0
	51K2G7D - 36M0G7D / 10950.0 - 11200.0	51K2G7D - 36M0G7D / 14000.0 - 14500.0
	51K2G7W - 36M0G7W / 10950.0 - 11200.0	51K2G7W - 36M0G7W / 14000.0 - 14500.0
	800KF9D / 11450.0 - 11700.0	
	51K2G7D - 36M0G7D / 11450.0 - 11700.0	
	51K2G7W - 36M0G7W / 11450.0 - 11700.0	

Max Great Circle Coordination Distance	307.7 km / 191.2 mi	143.7 km / 89.3 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

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Coordination Values

KAPOLEI, HI

Licensee Name Hawaii Pacific Teleport, L.P.
Latitude (NAD 83) 21° 20' 8.9" N
Longitude (NAD 83) 158° 5' 17.8" W
Ground Elevation (AMSL) 36.58 m / 120.0 ft
Antenna Centerline (AGL) 3.05 m / 10.0 ft
Antenna Model 4.8 Meter KPK
Antenna Mode Receive 11.0 GHz Transmit 14.0 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 -8.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	8.46	118.39	-10.00	100.00	-10.00	100.00
5	8.21	120.82	-10.00	100.00	-10.00	100.00
10	7.15	122.43	-10.00	100.00	-10.00	100.00
15	6.08	123.64	-10.00	100.00	-10.00	100.00
20	5.86	124.98	-10.00	100.00	-10.00	100.00
25	5.91	126.26	-10.00	100.00	-10.00	100.00
30	6.17	127.46	-10.00	100.00	-10.00	100.00
35	5.61	127.52	-10.00	100.00	-10.00	100.00
40	5.61	127.80	-10.00	100.00	-10.00	100.00
45	5.61	127.74	-10.00	100.00	-10.00	100.00
50	5.24	126.98	-10.00	101.36	-10.00	100.00
55	5.24	126.27	-10.00	101.32	-10.00	100.00
60	5.24	125.24	-10.00	101.33	-10.00	100.00
65	3.14	122.08	-10.00	123.33	-10.00	100.00
70	3.14	120.60	-10.00	123.35	-10.00	100.00
75	3.14	118.89	-10.00	123.35	-10.00	100.00
80	0.36	114.96	-10.00	272.28	-10.00	128.35
85	0.36	113.03	-10.00	272.28	-10.00	128.36
90	0.26	110.89	-10.00	292.94	-10.00	138.61
95	0.00	108.54	-10.00	307.68	-10.00	143.68
100	0.00	106.22	-10.00	307.68	-10.00	143.68
105	0.00	103.81	-10.00	307.68	-10.00	143.68
110	0.00	101.32	-10.00	307.68	-10.00	143.68
115	0.00	98.77	-10.00	307.68	-10.00	143.68
120	0.00	96.16	-10.00	307.68	-10.00	143.68
125	0.00	93.52	-10.00	307.68	-10.00	143.68
130	0.00	90.86	-10.00	307.68	-10.00	143.68
135	0.00	88.20	-10.00	307.68	-10.00	143.68
140	0.00	85.54	-10.00	307.68	-10.00	143.68
145	0.00	82.91	-10.00	307.68	-10.00	143.68
150	0.00	80.32	-10.00	307.68	-10.00	143.68
155	0.00	77.79	-10.00	307.68	-10.00	143.68
160	0.00	75.32	-10.00	307.68	-10.00	143.68
165	0.00	72.94	-10.00	307.68	-10.00	143.68
170	0.00	70.67	-10.00	307.68	-10.00	143.68
175	0.00	68.52	-10.00	307.68	-10.00	143.68
180	0.00	66.52	-10.00	307.68	-10.00	143.68

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Interference Objectives:	Long Term	-156.0 dBW/MHz 20%	-151.0 dBW/4 kHz 20%
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Max Available RF Power	-8.0 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
185	0.00	64.67	-10.00	307.68	-10.00	143.68
190	0.00	62.94	-10.00	307.68	-10.00	143.68
195	0.00	61.26	-10.00	307.68	-10.00	143.68
200	0.00	59.80	-10.00	307.68	-10.00	143.68
205	0.00	58.57	-10.00	307.68	-10.00	143.68
210	0.00	57.60	-10.00	307.68	-10.00	143.68
215	1.83	55.10	-10.00	153.44	-10.00	100.00
220	1.83	54.64	-10.00	153.43	-10.00	100.00
225	1.83	54.50	-10.00	153.44	-10.00	100.00
230	1.83	54.66	-10.00	153.44	-10.00	100.00
235	3.24	53.76	-10.00	121.63	-10.00	100.00
240	1.14	56.56	-10.00	183.42	-10.00	100.00
245	1.14	57.59	-10.00	183.41	-10.00	100.00
250	0.67	59.29	-10.00	228.44	-10.00	104.13
255	0.67	60.80	-10.00	228.44	-10.00	104.12
260	0.00	63.04	-10.00	307.68	-10.00	143.68
265	0.00	64.92	-10.00	307.68	-10.00	143.68
270	0.00	66.97	-10.00	307.68	-10.00	143.68
275	0.00	69.18	-10.00	307.68	-10.00	143.68
280	0.00	71.52	-10.00	307.68	-10.00	143.68
285	0.79	73.63	-10.00	215.62	-10.00	100.00
290	0.97	76.17	-10.00	196.10	-10.00	100.00
295	1.17	78.80	-10.00	181.74	-10.00	100.00
300	2.35	81.32	-10.00	140.53	-10.00	100.00
305	2.82	84.15	-10.00	129.72	-10.00	100.00
310	2.82	87.11	-10.00	129.72	-10.00	100.00
315	4.10	90.08	-10.00	109.60	-10.00	100.00
320	4.10	93.14	-10.00	109.60	-10.00	100.00
325	6.41	96.50	-10.00	100.00	-10.00	100.00
330	7.35	99.86	-10.00	100.00	-10.00	100.00
335	9.54	103.63	-10.00	100.00	-10.00	100.00
340	8.73	106.64	-10.00	100.00	-10.00	100.00
345	7.35	109.24	-10.00	100.00	-10.00	100.00
350	7.41	112.22	-10.00	100.00	-10.00	100.00
355	7.38	115.04	-10.00	100.00	-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.



Jeffrey E. Cowles
Engineer III, Telecommunications
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Va. 20147

DATED: May 29, 2014