FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

Hawaii Pacific Teleport, L.P.
Kapolei, Hawaii

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
October 21, 2013

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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 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.

Expedited coordination data for this earth station was sent to the below listed carriers with a letter dated September 22, 2013, and a modification notice was forwarded on October 7, 2013.

Company

AT&T Corporation
Cellco Parttnership - 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
Harris Corporation - Orlando, FL
Hawaii Direct Telephone STS LLC
Hawaii Electric Light Co Inc
Hawaii State
Hawaiian Electric Co Inc
Hawaiian Telcom, Inc.
Honolulu Board of Water Supply
KAUAI ISLAND UTILITY CO-OP
MAUI ELECTRIC COMPANY LTD
MID PACIFIC COMMUNICATIONS INC
Maui, County of
New Cingular Wireless PCS LLC - Hawaii
Nextel WIP License Corp.
Oceanic Time Warner Cable
Pacific Christian Church
T-Mobile License LLC
Trex Broadband
University of Hawaii
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:	10/21/2013
Job Number:	131007COMSGE02

Administrative Information

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

Site Information — KAPOLEI, HI

Venue Name	
Latitude (NAD 83)	21° 20' 9.2" N
Longitude (NAD 83)	158° 5' 18.1" W
Climate Zone	B
Rain Zone	4
Ground Elevation (AMSL)	46.39 m / 152.2 ft

Link Information

Satellite Type	Geostationary
Mode	TR - Transmit-Receive
Modulation	Analog and Digital
Satellite Arc	120° W to 188° West Longitude
Azimuth Range	114.9° to 237.7°
Corresponding Elevation Angles	40.6° / 48.0°
Antenna Centerline (AGL)	4.88 m / 16.0 ft

Antenna Information		Receive - FCC32		Transmit - FCC32	
Manufacturer		GD Satcom		GD Satcom	
Model		8.1 Meter		8.1 Meter	
Gain / Diameter		58.0 dBi / 8.1 m		59.7 dBi / 8.1 m	
3-dB / 15-dB Beamwidth		0.22° / 0.41°		0.18° / 0.34°	
Max Available RF Power	(dBW/4 kHz)			-8.0	
	(dBW/MHz)			16.0	
Maximum EIRP	(dBW/4 kHz)			51.7	
	(dBW/MHz)			75.7	
	(dBW)			74.7	
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 11.0 GHz	Transmit 14.0 GHz
Emission / Frequency Range (MHz)	150KF9D / 10950.0 - 11200.0 150KF9D / 11450.0 - 11700.0	800KF9D / 14000.0 - 14500.0
Max Great Circle Coordination Distance	323.0 km / 200.7 mi	150.6 km / 93.5 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' 9.2" N			
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Antenna Centerline (AGL)	4.88 m / 16.0 ft			
Antenna Model	GD Satcom 8.1 Meter			
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)	

			Receive 11.0 GHz		Transmit 14.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	7.42	110.65	-10.00	100.00	-10.00	100.00
5	7.05	106.49	-10.00	100.00	-10.00	100.00
10	6.21	102.26	-10.00	100.00	-10.00	100.00
15	4.68	98.01	-10.00	105.70	-10.00	100.00
20	4.52	93.96	-10.00	106.76	-10.00	100.00
25	4.40	89.92	-10.00	107.56	-10.00	100.00
30	4.53	85.88	-10.00	106.71	-10.00	100.00
35	3.94	81.91	-10.00	111.27	-10.00	100.00
40	2.26	78.20	-10.00	142.68	-10.00	100.00
45	1.37	74.55	-10.00	172.21	-10.00	100.00
50	1.09	70.88	-10.00	185.69	-10.00	100.00
55	0.64	67.38	-10.00	231.22	-10.00	105.48
60	0.54	63.87	-10.00	243.26	-10.00	111.54
65	0.54	60.44	-10.00	243.25	-10.00	111.53
70	0.00	57.44	-10.00	307.68	-10.00	143.68
75	0.00	54.35	-10.00	307.68	-10.00	143.68
80	0.00	51.45	-10.00	307.68	-10.00	143.68
85	0.00	48.80	-10.00	307.68	-10.00	143.68
90	0.00	46.43	-9.67	310.42	-9.67	144.88
95	0.00	44.40	-9.19	314.51	-9.19	146.71
100	0.00	42.75	-8.77	318.02	-8.77	148.29
105	0.00	41.54	-8.46	320.72	-8.46	149.52
110	0.00	40.80	-8.27	322.43	-8.27	150.30
115	0.00	40.55	-8.20	323.00	-8.20	150.56
120	0.00	40.81	-8.27	322.38	-8.27	150.28
125	0.00	41.58	-8.47	320.63	-8.47	149.48
130	0.00	42.81	-8.79	317.89	-8.79	148.23
135	0.00	44.47	-9.20	314.36	-9.20	146.64
140	0.00	46.52	-9.69	310.25	-9.69	144.81
145	0.00	48.90	-10.00	307.68	-10.00	143.68
150	0.00	51.56	-10.00	307.68	-10.00	143.68
155	0.00	54.46	-10.00	307.68	-10.00	143.68
160	0.00	57.56	-10.00	307.68	-10.00	143.68
165	0.00	60.55	-10.00	307.68	-10.00	143.68
170	0.00	62.92	-10.00	307.68	-10.00	143.68
175	0.00	64.46	-10.00	307.68	-10.00	143.68
180	0.00	65.00	-10.00	307.68	-10.00	143.68
185	0.00	64.46	-10.00	307.68	-10.00	143.68

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Max Available RF Power			-8.0 (dBW/4 kHz)	

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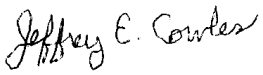
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	62.92	-10.00	307.68	-10.00	143.68
195	0.00	60.56	-10.00	307.68	-10.00	143.68
200	0.00	58.05	-10.00	307.68	-10.00	143.68
205	0.00	55.75	-10.00	307.68	-10.00	143.68
210	0.00	53.70	-10.00	307.68	-10.00	143.68
215	0.00	51.91	-10.00	307.68	-10.00	143.68
220	0.00	50.43	-10.00	307.68	-10.00	143.68
225	0.00	49.28	-10.00	307.68	-10.00	143.68
230	0.00	48.50	-10.00	307.68	-10.00	143.68
235	0.00	48.10	-10.00	307.68	-10.00	143.68
240	0.00	48.08	-10.00	307.68	-10.00	143.68
245	0.00	48.46	-10.00	307.68	-10.00	143.68
250	0.00	49.21	-10.00	307.68	-10.00	143.68
255	0.00	50.33	-10.00	307.68	-10.00	143.68
260	0.00	51.79	-10.00	307.68	-10.00	143.68
265	0.00	53.55	-10.00	307.68	-10.00	143.68
270	0.00	55.59	-10.00	307.68	-10.00	143.68
275	0.00	57.87	-10.00	307.68	-10.00	143.68
280	0.00	60.37	-10.00	307.68	-10.00	143.68
285	0.00	63.04	-10.00	307.68	-10.00	143.68
290	0.24	65.75	-10.00	298.08	-10.00	141.10
295	0.73	68.52	-10.00	221.42	-10.00	100.76
300	1.34	71.42	-10.00	173.55	-10.00	100.00
305	2.10	74.44	-10.00	145.02	-10.00	100.00
310	2.64	77.68	-10.00	133.77	-10.00	100.00
315	3.24	81.03	-10.00	121.57	-10.00	100.00
320	3.73	84.51	-10.00	114.64	-10.00	100.00
325	4.42	88.05	-10.00	107.45	-10.00	100.00
330	7.16	91.75	-10.00	100.00	-10.00	100.00
335	8.39	95.62	-10.00	100.00	-10.00	100.00
340	7.97	99.39	-10.00	100.00	-10.00	100.00
345	6.58	102.89	-10.00	100.00	-10.00	100.00
350	6.56	106.53	-10.00	100.00	-10.00	100.00
355	6.33	110.03	-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
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DATED: October 21, 2013