

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Hawaii Pacific Teleport, L.P.
KAPOLEI, HI
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
July 18, 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.

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.

Coordination data for this earth station was sent to the below listed carriers with a letter dated 06/14/2017.

Company

Cellco Partnership - Hawaii
Clearwire Hawaii Partners Spectrum LLC
Coral Wireless Licenses, LLC
Hawaii State
Hawaiian Telcom, Inc.
Honolulu Board of Water Supply
Honolulu City & County Dept of Info Tech
Mid Pacific Communications Inc.
New Cingular Wireless PCS LLC - Hawaii
Oceanic Time Warner Cable LLC
Sprint Spectrum L.P.
Sprintcom, Inc
T-Mobile Lic LLC - Voicestream PCS BTA I
T-Mobile License LLC
Trex Broadband
US Internet Wireless
Verizon Wireless VAW LLC - (Hawaii)
Wavecom Solutions Corporation

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: 07/18/2017
Job Number: 170614COMSTC02

Administrative Information

Call Sign E150010
Licensee Name Hawaii Pacific Teleport, L.P.

Site Information

KAPOLEI, HI

Latitude (NAD 83) 21° 20' 12.0" N
Longitude (NAD 83) 158° 5' 25.2" W
Climate Zone A
Rain Zone 4
Ground Elevation (AMSL) 37.2 m / 122.1 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 188° W to 188° West Longitude
Azimuth Range 237.7° to 237.7°
Corresponding Elevation Angles 48.0° / 48.0°
Antenna Centerline (AGL) 8.0 m / 26.3 ft

Antenna Information

Receive

Transmit

Manufacturer	GDS Satcom	GDS Satcom
Gain / Diameter	61.5 dBi / 9.2 m	64.1 dBi / 9.2 m
3-dB / 15-dB Beamwidth	0.21° / 0.42°	0.16° / 0.34°

Max Available RF Power	(dBW/4 kHz)	<u>54M0G7W - 140MG7W</u>			
	(dBW/MHz)	-20.7	-28.5		
Maximum EIRP	(dBW/4 kHz)	3.3	-4.5		
	(dBW/MHz)	43.4	35.7		
	(dBW)	67.4	59.7		
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 18.0 GHz

Transmit 28.0 GHz

Emission / Frequency Range (MHz)	54M0G7W / 18400.0 - 19700.0	54M0G7W / 27500.0 - 29500.0
	140MG7W / 18400.0 - 19700.0	140MG7W / 27500.0 - 29500.0

Max Great Circle Coordination Distance	136.2 km / 84.6 mi	100.0 km / 62.1 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' 12.0" N
Longitude (NAD 83) 158° 5' 25.2" W
Ground Elevation (AMSL) 37.2 m / 122.1 ft
Antenna Centerline (AGL) 8.0 m / 26.3 ft
Antenna Mode Receive 18.0 GHz Transmit 28.0 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 -20.7 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	12.27	115.71	-10.00	100.00	-10.00	100.00
5	13.58	119.99	-10.00	100.00	-10.00	100.00
10	14.78	124.26	-10.00	100.00	-10.00	100.00
15	15.21	128.15	-10.00	100.00	-10.00	100.00
20	14.56	131.30	-10.00	100.00	-10.00	100.00
25	14.58	134.60	-10.00	100.00	-10.00	100.00
30	13.32	136.70	-10.00	100.00	-10.00	100.00
35	13.20	139.22	-10.00	100.00	-10.00	100.00
40	12.17	140.54	-10.00	100.00	-10.00	100.00
45	11.12	141.26	-10.00	100.00	-10.00	100.00
50	10.47	141.76	-10.00	100.00	-10.00	100.00
55	8.64	140.53	-10.00	100.00	-10.00	100.00
60	7.53	139.43	-10.00	100.00	-10.00	100.00
65	6.28	137.72	-10.00	100.00	-10.00	100.00
70	5.34	135.89	-10.00	100.00	-10.00	100.00
75	5.19	134.42	-10.00	100.00	-10.00	100.00
80	4.80	132.37	-10.00	100.00	-10.00	100.00
85	4.54	130.12	-10.00	100.00	-10.00	100.00
90	3.61	127.12	-10.00	100.00	-10.00	100.00
95	2.31	123.72	-10.00	100.00	-10.00	100.00
100	0.64	120.03	-10.00	108.30	-10.00	100.00
105	0.00	116.95	-10.00	136.18	-10.00	100.00
110	0.00	114.12	-10.00	136.18	-10.00	100.00
115	0.00	111.17	-10.00	136.18	-10.00	100.00
120	0.00	108.10	-10.00	136.18	-10.00	100.00
125	0.00	104.94	-10.00	136.18	-10.00	100.00
130	0.00	101.72	-10.00	136.18	-10.00	100.00
135	0.00	98.44	-10.00	136.18	-10.00	100.00
140	0.00	95.13	-10.00	136.18	-10.00	100.00
145	0.00	91.79	-10.00	136.18	-10.00	100.00
150	0.00	88.45	-10.00	136.18	-10.00	100.00
155	0.00	85.12	-10.00	136.18	-10.00	100.00
160	0.00	81.80	-10.00	136.18	-10.00	100.00
165	0.00	78.52	-10.00	136.18	-10.00	100.00
170	0.00	75.29	-10.00	136.18	-10.00	100.00
175	0.00	72.13	-10.00	136.18	-10.00	100.00
180	0.00	69.06	-10.00	136.18	-10.00	100.00
185	0.00	66.09	-10.00	136.18	-10.00	100.00

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Coordination Values

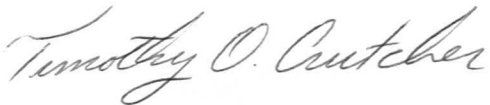
KAPOLEI, HI

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Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power			-20.7 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	63.25	-10.00	136.18	-10.00	100.00
195	0.00	60.56	-10.00	136.18	-10.00	100.00
200	0.00	58.05	-10.00	136.18	-10.00	100.00
205	0.00	55.75	-10.00	136.18	-10.00	100.00
210	0.00	53.70	-10.00	136.18	-10.00	100.00
215	0.00	51.91	-10.00	136.18	-10.00	100.00
220	0.00	50.43	-10.00	136.18	-10.00	100.00
225	0.00	49.29	-10.00	136.18	-10.00	100.00
230	0.00	48.50	-10.00	136.18	-10.00	100.00
235	0.00	48.10	-10.00	136.18	-10.00	100.00
240	0.00	48.08	-10.00	136.18	-10.00	100.00
245	0.00	48.46	-10.00	136.18	-10.00	100.00
250	0.00	49.22	-10.00	136.18	-10.00	100.00
255	0.00	50.33	-10.00	136.18	-10.00	100.00
260	0.00	51.79	-10.00	136.18	-10.00	100.00
265	0.00	53.55	-10.00	136.18	-10.00	100.00
270	0.78	55.00	-10.00	102.25	-10.00	100.00
275	0.00	57.88	-10.00	136.18	-10.00	100.00
280	0.32	60.17	-10.00	127.79	-10.00	100.00
285	0.00	63.05	-10.00	136.18	-10.00	100.00
290	0.53	65.61	-10.00	112.72	-10.00	100.00
295	1.15	68.34	-10.00	100.00	-10.00	100.00
300	1.60	71.33	-10.00	100.00	-10.00	100.00
305	2.17	74.42	-10.00	100.00	-10.00	100.00
310	2.99	77.61	-10.00	100.00	-10.00	100.00
315	3.30	81.03	-10.00	100.00	-10.00	100.00
320	4.03	84.48	-10.00	100.00	-10.00	100.00
325	5.15	88.03	-10.00	100.00	-10.00	100.00
330	6.22	91.73	-10.00	100.00	-10.00	100.00
335	7.78	95.58	-10.00	100.00	-10.00	100.00
340	8.50	99.47	-10.00	100.00	-10.00	100.00
345	9.03	103.37	-10.00	100.00	-10.00	100.00
350	10.35	107.49	-10.00	100.00	-10.00	100.00
355	12.42	111.90	-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.



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

DATED: July 18, 2017