

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
December 10, 2015

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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.

Hawaii Pacific Teleport, L.P. agrees to accept all existing interference in the 10950 - 11200 and 11450 - 11700 MHz bands. This applies to all microwave carriers currently licensed in these bands.

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 12/10/2015.

Company

AT&T Corporation
Cellco Partnership - Hawaii
Clearwire Hawaii Partners Spectrum LLC
Clearwire Spectrum Holdings III, LLC
Coral Wireless Licenses, LLC
County of Kauai Department of Police
HONOLULU CITY & COUNTY
HONOLULU CITY & COUNTY DEPT OF INFO TECH
Harmer Radio and Electronics, Inc.
Hawaii Catholic TV, Inc
Hawaii Dialogix Telecom LLC
Hawaii State
Hawaiian Electric Company, Inc
Hawaiian Telcom, Inc.
Honolulu Board of Water Supply
MID PACIFIC COMMUNICATIONS INC
Maui Electric Company Ltd
Maui, County of
NPCR, Inc.
New Cingular Wireless PCS LLC - Hawaii
Oceanic Time Warner Cable LLC
Sprint Spectrum L.P.
Sprintcom, Inc
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: 12/10/2015
Job Number: 151210COMSTC01

Administrative Information

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 / 122.0 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 / 26.2 ft

Antenna Information

Receive

Transmit

| | | |
|------------------------|---------------------|---------------------|
| Manufacturer | Satcom Technologies | Satcom Technologies |
| Gain / Diameter | 58.5 dBi / 9.0 m | 60.1 dBi / 9.0 m |
| 3-dB / 15-dB Beamwidth | 0.21° / 0.42° | 0.16° / 0.34° |

| | | 4M00G7W - 36M0G7W | | | |
|--------------------------|-----------------------------------|----------------------|-----------------------|------------------|---------|
| | | -14.1 | -14.1 | | |
| Max Available RF Power | (dBW/4 kHz) (dBW/MHz) | 9.9 | 9.9 | | |
| Maximum EIRP | (dBW/4 kHz) (dBW/MHz) (dBW) | 46.0 70.0 76.0 | 46.0 70.0 85.54 | | |
| 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) | 4M00G7W - 36M0G7W / 10950.0 - 11200.0 4M00G7W - 36M0G7W / 11450.0 - 11700.0 | 4M00G7W - 36M0G7W / 14000.0 - 14500.0 |
| Max Great Circle Coordination Distance | 231.4 km / 143.7 mi | 115.6 km / 71.8 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 / 122.0 ft
Antenna Centerline (AGL) 8.0 m / 26.2 ft
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 -14.1 (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 | 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 | 100.38 | -10.00 | 100.00 |
| 85 | 4.54 | 130.12 | -10.00 | 103.56 | -10.00 | 100.00 |
| 90 | 3.61 | 127.12 | -10.00 | 116.74 | -10.00 | 100.00 |
| 95 | 2.31 | 123.72 | -10.00 | 139.52 | -10.00 | 100.00 |
| 100 | 0.64 | 120.03 | -10.00 | 200.17 | -10.00 | 100.00 |
| 105 | 0.00 | 116.95 | -10.00 | 231.37 | -10.00 | 115.56 |
| 110 | 0.00 | 114.12 | -10.00 | 231.37 | -10.00 | 115.56 |
| 115 | 0.00 | 111.17 | -10.00 | 231.37 | -10.00 | 115.56 |
| 120 | 0.00 | 108.10 | -10.00 | 231.37 | -10.00 | 115.56 |
| 125 | 0.00 | 104.94 | -10.00 | 231.37 | -10.00 | 115.56 |
| 130 | 0.00 | 101.72 | -10.00 | 231.37 | -10.00 | 115.56 |
| 135 | 0.00 | 98.44 | -10.00 | 231.37 | -10.00 | 115.56 |
| 140 | 0.00 | 95.13 | -10.00 | 231.37 | -10.00 | 115.56 |
| 145 | 0.00 | 91.79 | -10.00 | 231.37 | -10.00 | 115.56 |
| 150 | 0.00 | 88.45 | -10.00 | 231.37 | -10.00 | 115.56 |
| 155 | 0.00 | 85.12 | -10.00 | 231.37 | -10.00 | 115.56 |
| 160 | 0.00 | 81.80 | -10.00 | 231.37 | -10.00 | 115.56 |
| 165 | 0.00 | 78.52 | -10.00 | 231.37 | -10.00 | 115.56 |
| 170 | 0.00 | 75.29 | -10.00 | 231.37 | -10.00 | 115.56 |
| 175 | 0.00 | 72.13 | -10.00 | 231.37 | -10.00 | 115.56 |
| 180 | 0.00 | 69.06 | -10.00 | 231.37 | -10.00 | 115.56 |
| 185 | 0.00 | 66.09 | -10.00 | 231.37 | -10.00 | 115.56 |

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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 / 122.0 ft | | | | |
| Antenna Centerline (AGL) | 8.0 m / 26.2 ft | | | | |
| 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 | | | | | -14.1 (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) |
| 190 | 0.00 | 63.25 | -10.00 | 231.37 | -10.00 | 115.56 |
| 195 | 0.00 | 60.56 | -10.00 | 231.37 | -10.00 | 115.56 |
| 200 | 0.00 | 58.05 | -10.00 | 231.37 | -10.00 | 115.56 |
| 205 | 0.00 | 55.75 | -10.00 | 231.37 | -10.00 | 115.56 |
| 210 | 0.00 | 53.70 | -10.00 | 231.37 | -10.00 | 115.56 |
| 215 | 0.00 | 51.91 | -10.00 | 231.37 | -10.00 | 115.56 |
| 220 | 0.00 | 50.43 | -10.00 | 231.37 | -10.00 | 115.56 |
| 225 | 0.00 | 49.29 | -10.00 | 231.37 | -10.00 | 115.56 |
| 230 | 0.00 | 48.50 | -10.00 | 231.37 | -10.00 | 115.56 |
| 235 | 0.00 | 48.10 | -10.00 | 231.37 | -10.00 | 115.56 |
| 240 | 0.00 | 48.08 | -10.00 | 231.37 | -10.00 | 115.56 |
| 245 | 0.00 | 48.46 | -10.00 | 231.37 | -10.00 | 115.56 |
| 250 | 0.00 | 49.22 | -10.00 | 231.37 | -10.00 | 115.56 |
| 255 | 0.00 | 50.33 | -10.00 | 231.37 | -10.00 | 115.56 |
| 260 | 0.00 | 51.79 | -10.00 | 231.37 | -10.00 | 115.56 |
| 265 | 0.00 | 53.55 | -10.00 | 231.37 | -10.00 | 115.56 |
| 270 | 0.78 | 55.00 | -10.00 | 192.96 | -10.00 | 100.00 |
| 275 | 0.00 | 57.88 | -10.00 | 231.37 | -10.00 | 115.56 |
| 280 | 0.32 | 60.17 | -10.00 | 220.30 | -10.00 | 106.56 |
| 285 | 0.00 | 63.05 | -10.00 | 231.37 | -10.00 | 115.56 |
| 290 | 0.53 | 65.61 | -10.00 | 205.17 | -10.00 | 100.00 |
| 295 | 1.15 | 68.34 | -10.00 | 176.64 | -10.00 | 100.00 |
| 300 | 1.60 | 71.33 | -10.00 | 158.94 | -10.00 | 100.00 |
| 305 | 2.17 | 74.42 | -10.00 | 142.61 | -10.00 | 100.00 |
| 310 | 2.99 | 77.61 | -10.00 | 127.59 | -10.00 | 100.00 |
| 315 | 3.30 | 81.03 | -10.00 | 122.04 | -10.00 | 100.00 |
| 320 | 4.03 | 84.48 | -10.00 | 109.93 | -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: December 10, 2015