

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Allen Holdings, Inc
KAPOLEI, HI
Satellite Earth Station
Vertex 9.0 Meter

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
July 30, 2010

TABLE OF CONTENTS

| | |
|---|----|
| 1. CONCLUSIONS | 3 |
| 2. SUMMARY OF RESULTS | 4 |
| 3. SUPPLEMENTAL SHOWING | 5 |
| 4. EARTH STATION COORDINATION DATA..... | 6 |
| 5. CERTIFICATION..... | 10 |

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

Clearwire Hawaii Partners Spectrum LLC
Hawaiian Telcom
Hawaii State

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 07/12/2010.

Company

AT&T CORP

Clearwire Hawaii Partners Spectrum LLC

HONOLULU CITY & COUNTY DEPT OF INFO TECH

Hawaii State

Hawaiian Telcom (debtor-in-possession)

MAUI, COUNTY OF

New Cingular Wireless PCS LLC - Hawaii

University of Hawaii

Wireless Infrastructure Services

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: 07/30/2010
Job Number: 100712COMSTC01

Administrative Information

Licensee Name Allen Holdings, Inc

Site Information

KAPOLEI, HI
Latitude (NAD 83) 21° 20' 10.5" N
Longitude (NAD 83) 158° 5' 17.5" W
Climate Zone A
Rain Zone 4
Ground Elevation (AMSL) 38.4 m / 126.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 113°W to 233° West Longitude
Azimuth Range 109.9° to 264.4°
Corresponding Elevation Angles 33.9° / 5.4°
Antenna Centerline (AGL) 6.0 m / 19.7 ft

Antenna Information

| | Receive | Transmit |
|------------------------|------------------|------------------|
| Manufacturer | VERTEX | VERTEX |
| Gain / Diameter | 50.0 dBi / 9.0 m | 53.5 dBi / 9.0 m |
| 3-dB / 15-dB Beamwidth | 0.40° / 0.80° | 0.26° / 0.52° |

Max Available RF Power (dBW/4 kHz)
(dBW/MHz)

51K2G7W - 36M0G7W

-13.0 -13.0
1.93 11.0

Maximum EIRP (dBW/4 kHz)
(dBW/MHz)
(dBW)

40.5 40.5
64.5 64.5
51.57 80.0

Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

-154.0 dBW/4 kHz 20%
-131.0 dBW/4 kHz 0.0025%

Frequency Information

Emission / Frequency Range (MHz)

Receive 4.0 GHz

51K2G7W - 36M0G7W / 3700.0 - 4200.0

Transmit 6.1 GHz

51K2G7W - 36M0G7W / 5850.0 - 6425.0

Max Great Circle Coordination Distance
Precipitation Scatter Contour Radius

656.9 km / 408.1 mi
428.9 km / 266.5 mi

295.7 km / 183.7 mi
100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

KAPOLEI, HI

Licensee Name Allen Holdings, Inc
Latitude (NAD 83) 21° 20' 10.5" N
Longitude (NAD 83) 158° 5' 17.5" W
Ground Elevation (AMSL) 38.4 m / 126.0 ft
Antenna Centerline (AGL) 6.0 m / 19.7 ft
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -13.0 (dBW/4 kHz)

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 0 | 8.54 | 95.60 | -10.00 | 100.00 | -10.00 | 100.00 |
| 5 | 8.18 | 100.59 | -10.00 | 102.20 | -10.00 | 100.00 |
| 10 | 7.45 | 98.89 | -10.00 | 109.60 | -10.00 | 100.00 |
| 15 | 6.32 | 94.38 | -10.00 | 121.67 | -10.00 | 100.00 |
| 20 | 5.55 | 89.95 | -10.00 | 129.48 | -10.00 | 100.00 |
| 25 | 5.08 | 85.57 | -10.00 | 134.08 | -10.00 | 100.00 |
| 30 | 5.14 | 81.19 | -10.00 | 133.53 | -10.00 | 100.00 |
| 35 | 5.38 | 76.80 | -10.00 | 131.20 | -10.00 | 100.00 |
| 40 | 4.50 | 72.61 | -10.00 | 140.40 | -10.00 | 100.00 |
| 45 | 3.24 | 68.63 | -10.00 | 164.16 | -10.00 | 100.00 |
| 50 | 2.34 | 64.74 | -10.00 | 186.71 | -10.00 | 100.00 |
| 55 | 1.87 | 60.86 | -10.00 | 198.01 | -10.00 | 100.00 |
| 60 | 3.91 | 56.13 | -10.00 | 149.74 | -10.00 | 100.00 |
| 65 | 3.91 | 52.19 | -10.00 | 149.72 | -10.00 | 100.00 |
| 70 | 1.82 | 49.49 | -10.00 | 199.49 | -10.00 | 100.00 |
| 75 | 2.37 | 45.68 | -9.49 | 188.59 | -9.49 | 100.00 |
| 80 | 2.37 | 42.39 | -8.68 | 192.45 | -8.68 | 100.00 |
| 85 | 1.99 | 39.68 | -7.96 | 204.23 | -7.96 | 100.00 |
| 90 | 1.99 | 37.07 | -7.23 | 205.25 | -7.23 | 100.00 |
| 95 | 1.99 | 34.91 | -6.57 | 208.34 | -6.57 | 100.00 |
| 100 | 0.00 | 35.17 | -6.65 | 307.46 | -6.65 | 144.20 |
| 105 | 0.00 | 34.22 | -6.36 | 309.50 | -6.36 | 145.14 |
| 110 | 0.00 | 33.91 | -6.26 | 310.20 | -6.26 | 145.46 |
| 115 | 0.00 | 34.24 | -6.36 | 309.47 | -6.36 | 145.13 |
| 120 | 0.00 | 35.20 | -6.66 | 307.39 | -6.66 | 144.17 |
| 125 | 0.00 | 36.73 | -7.13 | 304.21 | -7.13 | 142.72 |
| 130 | 0.00 | 38.78 | -7.71 | 300.23 | -7.71 | 140.92 |
| 135 | 0.00 | 41.25 | -8.39 | 295.75 | -8.39 | 138.91 |
| 140 | 0.00 | 44.09 | -9.11 | 291.02 | -9.11 | 136.81 |
| 145 | 0.00 | 47.21 | -9.85 | 286.23 | -9.85 | 134.72 |
| 150 | 0.00 | 50.57 | -10.00 | 285.28 | -10.00 | 134.30 |
| 155 | 0.00 | 54.11 | -10.00 | 285.28 | -10.00 | 134.30 |
| 160 | 0.00 | 57.56 | -10.00 | 285.28 | -10.00 | 134.30 |
| 165 | 0.00 | 60.55 | -10.00 | 285.28 | -10.00 | 134.30 |
| 170 | 0.00 | 62.92 | -10.00 | 285.28 | -10.00 | 134.30 |
| 175 | 0.00 | 64.46 | -10.00 | 285.28 | -10.00 | 134.30 |
| 180 | 0.00 | 65.00 | -10.00 | 285.28 | -10.00 | 134.30 |
| 185 | 0.00 | 64.46 | -10.00 | 285.28 | -10.00 | 134.30 |

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

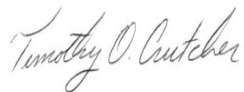
KAPOLEI, HI

Licensee Name Allen Holdings, Inc
Latitude (NAD 83) 21° 20' 10.5" N
Longitude (NAD 83) 158° 5' 17.5" W
Ground Elevation (AMSL) 38.4 m / 126.0 ft
Antenna Centerline (AGL) 6.0 m / 19.7 ft
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -13.0 (dBW/4 kHz)

| Azimuth (°) | Receive 4.0 GHz | | Transmit 6.1 GHz | | | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | Horizon Elevation (°) | Antenna Discrimination (°) | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 190 | 0.00 | 62.92 | -10.00 | 285.28 | -10.00 | 134.30 |
| 195 | 0.00 | 60.55 | -10.00 | 285.28 | -10.00 | 134.30 |
| 200 | 0.73 | 57.17 | -10.00 | 235.47 | -10.00 | 100.89 |
| 205 | 0.73 | 53.76 | -10.00 | 235.62 | -10.00 | 101.00 |
| 210 | 0.73 | 50.00 | -10.00 | 235.52 | -10.00 | 100.92 |
| 215 | 1.87 | 45.50 | -9.45 | 200.48 | -9.45 | 100.00 |
| 220 | 0.96 | 41.75 | -8.52 | 230.27 | -8.52 | 100.00 |
| 225 | 0.96 | 37.46 | -7.34 | 236.89 | -7.34 | 100.00 |
| 230 | 0.28 | 33.35 | -6.08 | 300.51 | -6.08 | 138.31 |
| 235 | 0.28 | 28.89 | -4.52 | 311.47 | -4.52 | 143.13 |
| 240 | 0.00 | 24.48 | -2.72 | 336.18 | -2.72 | 157.56 |
| 245 | 0.00 | 19.92 | -0.48 | 352.91 | -0.48 | 165.98 |
| 250 | 0.00 | 15.34 | 2.36 | 374.95 | 2.36 | 178.64 |
| 255 | 0.00 | 10.81 | 6.15 | 405.31 | 6.15 | 193.27 |
| 260 | 0.00 | 6.94 | 10.97 | 447.85 | 10.97 | 210.13 |
| 265 | 0.00 | 5.41 | 13.68 | 656.88 | 13.68 | 295.69 |
| 270 | 0.00 | 7.76 | 9.76 | 436.79 | 9.76 | 205.40 |
| 275 | 0.00 | 11.87 | 5.14 | 396.80 | 5.14 | 189.36 |
| 280 | 0.42 | 16.35 | 1.66 | 341.12 | 1.66 | 151.52 |
| 285 | 0.42 | 21.17 | -1.14 | 319.61 | -1.14 | 141.92 |
| 290 | 2.10 | 25.80 | -3.29 | 222.79 | -3.29 | 100.00 |
| 295 | 1.67 | 30.81 | -5.22 | 224.56 | -5.22 | 100.00 |
| 300 | 2.65 | 35.69 | -6.82 | 195.32 | -6.82 | 100.00 |
| 305 | 2.88 | 40.67 | -8.23 | 183.15 | -8.23 | 100.00 |
| 310 | 3.68 | 45.63 | -9.48 | 156.91 | -9.48 | 100.00 |
| 315 | 4.18 | 50.61 | -10.00 | 145.19 | -10.00 | 100.00 |
| 320 | 7.08 | 55.62 | -10.00 | 113.46 | -10.00 | 100.00 |
| 325 | 7.20 | 60.62 | -10.00 | 112.23 | -10.00 | 100.00 |
| 330 | 9.18 | 65.66 | -10.00 | 100.00 | -10.00 | 100.00 |
| 335 | 9.61 | 70.66 | -10.00 | 100.00 | -10.00 | 100.00 |
| 340 | 8.77 | 75.63 | -10.00 | 100.00 | -10.00 | 100.00 |
| 345 | 7.03 | 80.61 | -10.00 | 114.02 | -10.00 | 100.00 |
| 350 | 7.21 | 85.61 | -10.00 | 112.11 | -10.00 | 100.00 |
| 355 | 7.91 | 90.60 | -10.00 | 104.70 | -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 30, 2010

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Allen Holdings, Inc
KAPOLEI, HI
Satellite Earth Station
Vertex 13.0 Meter Antenna

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
July 30, 2010

TABLE OF CONTENTS

| | |
|---|----|
| 1. CONCLUSIONS | 3 |
| 2. SUMMARY OF RESULTS | 4 |
| 3. SUPPLEMENTAL SHOWING | 5 |
| 4. EARTH STATION COORDINATION DATA..... | 6 |
| 5. CERTIFICATION..... | 10 |

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

Clearwire Hawaii Partners Spectrum LLC
Hawaii State
Hawaiian Telcom

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 07/12/2010.

Company

AT&T CORP

Clearwire Hawaii Partners Spectrum LLC

HONOLULU CITY & COUNTY DEPT OF INFO TECH

Hawaii State

Hawaiian Telcom (debtor-in-possession)

MAUI, COUNTY OF

New Cingular Wireless PCS LLC - Hawaii

University of Hawaii

Wireless Infrastructure Services

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: 07/30/2010
Job Number: 100712COMSTC02

Administrative Information

Licensee Name: Allen Holdings, Inc

Site Information

KAPOLEI, HI

Latitude (NAD 83): 21° 20' 10.5" N
Longitude (NAD 83): 158° 5' 17.5" W
Climate Zone: A
Rain Zone: 4
Ground Elevation (AMSL): 38.4 m / 126.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 113°W to 233° West Longitude
Azimuth Range: 109.9° to 264.4°
Corresponding Elevation Angles: 33.9° / 5.4°
Antenna Centerline (AGL): 7.5 m / 24.6 ft

Antenna Information

Receive

Transmit

| | | |
|------------------------|-------------------|-------------------|
| Manufacturer | Vertex | Vertex |
| Gain / Diameter | 53.5 dBi / 13.0 m | 56.8 dBi / 13.0 m |
| 3-dB / 15-dB Beamwidth | 0.40° / 0.80° | 0.26° / 0.52° |

Max Available RF Power (dBW/4 kHz)
(dBW/MHz)

51K2G7W - 36M0G7W

| | |
|-------|-------|
| -13.0 | -13.0 |
| 1.93 | 11.0 |

Maximum EIRP (dBW/4 kHz)
(dBW/MHz)
(dBW)

| | |
|-------|-------|
| 43.8 | 43.8 |
| 54.87 | 67.8 |
| 54.87 | 83.34 |

| | | | |
|--------------------------|------------|----------------|-------|
| Interference Objectives: | Long Term | -156.0 dBW/MHz | 20% |
| | Short Term | -146.0 dBW/MHz | 0.01% |

| | |
|------------------|---------|
| -154.0 dBW/4 kHz | 20% |
| -131.0 dBW/4 kHz | 0.0025% |

Frequency Information

Receive 4.0 GHz

Transmit 6.1 GHz

| | | |
|----------------------------------|-------------------------------------|-------------------------------------|
| Emission / Frequency Range (MHz) | 51K2G7W - 36M0G7W / 3700.0 - 4200.0 | 51K2G7W - 36M0G7W / 5850.0 - 6425.0 |
|----------------------------------|-------------------------------------|-------------------------------------|

| | |
|--|---------------------|
| Max Great Circle Coordination Distance | 719.0 km / 446.7 mi |
| Precipitation Scatter Contour Radius | 428.9 km / 266.5 mi |

| |
|---------------------|
| 323.5 km / 201.0 mi |
| 100.0 km / 62.1 mi |

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

KAPOLEI, HI

Licensee Name Allen Holdings, Inc
Latitude (NAD 83) 21° 20' 10.5" N
Longitude (NAD 83) 158° 5' 17.5" W
Ground Elevation (AMSL) 38.4 m / 126.0 ft
Antenna Centerline (AGL) 7.5 m / 24.6 ft
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -13.0 (dBW/4 kHz)

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 0 | 8.39 | 95.60 | -10.00 | 100.37 | -10.00 | 100.00 |
| 5 | 8.02 | 100.59 | -10.00 | 103.60 | -10.00 | 100.00 |
| 10 | 7.24 | 98.87 | -10.00 | 111.72 | -10.00 | 100.00 |
| 15 | 6.12 | 94.37 | -10.00 | 123.89 | -10.00 | 100.00 |
| 20 | 5.35 | 89.95 | -10.00 | 131.43 | -10.00 | 100.00 |
| 25 | 4.88 | 85.58 | -10.00 | 135.21 | -10.00 | 100.00 |
| 30 | 4.93 | 81.21 | -10.00 | 134.47 | -10.00 | 100.00 |
| 35 | 5.17 | 76.83 | -10.00 | 133.15 | -10.00 | 100.00 |
| 40 | 4.30 | 72.65 | -10.00 | 143.35 | -10.00 | 100.00 |
| 45 | 3.04 | 68.68 | -10.00 | 170.63 | -10.00 | 100.00 |
| 50 | 2.14 | 64.79 | -10.00 | 191.34 | -10.00 | 100.00 |
| 55 | 1.67 | 60.93 | -10.00 | 203.47 | -10.00 | 100.00 |
| 60 | 3.30 | 56.36 | -10.00 | 162.67 | -10.00 | 100.00 |
| 65 | 3.30 | 52.46 | -10.00 | 162.66 | -10.00 | 100.00 |
| 70 | 1.21 | 49.82 | -10.00 | 213.93 | -10.00 | 100.00 |
| 75 | 1.76 | 46.05 | -9.58 | 202.92 | -9.58 | 100.00 |
| 80 | 1.76 | 42.80 | -8.79 | 206.47 | -8.79 | 100.00 |
| 85 | 1.38 | 40.14 | -8.09 | 218.17 | -8.09 | 100.00 |
| 90 | 1.38 | 37.57 | -7.37 | 221.87 | -7.37 | 100.00 |
| 95 | 1.38 | 35.45 | -6.74 | 225.24 | -6.74 | 100.00 |
| 100 | 0.00 | 35.17 | -6.65 | 307.46 | -6.65 | 144.20 |
| 105 | 0.00 | 34.22 | -6.36 | 309.50 | -6.36 | 145.14 |
| 110 | 0.00 | 33.91 | -6.26 | 310.20 | -6.26 | 145.46 |
| 115 | 0.00 | 34.24 | -6.36 | 309.47 | -6.36 | 145.13 |
| 120 | 0.00 | 35.20 | -6.66 | 307.39 | -6.66 | 144.17 |
| 125 | 0.00 | 36.73 | -7.13 | 304.21 | -7.13 | 142.72 |
| 130 | 0.00 | 38.78 | -7.71 | 300.23 | -7.71 | 140.92 |
| 135 | 0.00 | 41.25 | -8.39 | 295.75 | -8.39 | 138.91 |
| 140 | 0.00 | 44.09 | -9.11 | 291.02 | -9.11 | 136.81 |
| 145 | 0.00 | 47.21 | -9.85 | 286.23 | -9.85 | 134.72 |
| 150 | 0.00 | 50.57 | -10.00 | 285.28 | -10.00 | 134.30 |
| 155 | 0.00 | 54.11 | -10.00 | 285.28 | -10.00 | 134.30 |
| 160 | 0.00 | 57.56 | -10.00 | 285.28 | -10.00 | 134.30 |
| 165 | 0.00 | 60.55 | -10.00 | 285.28 | -10.00 | 134.30 |
| 170 | 0.00 | 62.92 | -10.00 | 285.28 | -10.00 | 134.30 |
| 175 | 0.00 | 64.46 | -10.00 | 285.28 | -10.00 | 134.30 |
| 180 | 0.00 | 65.00 | -10.00 | 285.28 | -10.00 | 134.30 |
| 185 | 0.00 | 64.46 | -10.00 | 285.28 | -10.00 | 134.30 |

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

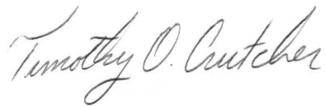
KAPOLEI, HI

| | | | | | | |
|------------------------------------|---------------------|-------|--|--------------------------|--|--|
| Licensee Name | Allen Holdings, Inc | | | Transmit 6.1 GHz | | |
| Latitude (NAD 83) | 21° 20' 10.5" N | | | -154.0 dBW/4 kHz 20% | | |
| Longitude (NAD 83) | 158° 5' 17.5" W | | | -131.0 dBW/4 kHz 0.0025% | | |
| Ground Elevation (AMSL) | 38.4 m / 126.0 ft | | | | | |
| Antenna Centerline (AGL) | 7.5 m / 24.6 ft | | | | | |
| Antenna Mode | Receive 4.0 GHz | | | | | |
| Interference Objectives: Long Term | -156.0 dBW/MHz | 20% | | | | |
| Short Term | -146.0 dBW/MHz | 0.01% | | | | |
| Max Available RF Power | | | | -13.0 (dBW/4 kHz) | | |

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 190 | 0.00 | 62.92 | -10.00 | 285.28 | -10.00 | 134.30 |
| 195 | 0.00 | 60.55 | -10.00 | 285.28 | -10.00 | 134.30 |
| 200 | 0.00 | 57.56 | -10.00 | 285.28 | -10.00 | 134.30 |
| 205 | 0.00 | 54.11 | -10.00 | 285.28 | -10.00 | 134.30 |
| 210 | 0.00 | 50.34 | -10.00 | 285.28 | -10.00 | 134.30 |
| 215 | 1.26 | 45.78 | -9.52 | 214.62 | -9.52 | 100.00 |
| 220 | 0.35 | 42.01 | -8.58 | 275.73 | -8.58 | 127.12 |
| 225 | 0.35 | 37.71 | -7.41 | 283.34 | -7.41 | 130.36 |
| 230 | 0.00 | 33.46 | -6.11 | 311.21 | -6.11 | 145.93 |
| 235 | 0.00 | 29.00 | -4.56 | 322.82 | -4.56 | 151.08 |
| 240 | 0.00 | 24.48 | -2.72 | 336.18 | -2.72 | 157.56 |
| 245 | 0.00 | 19.92 | -0.48 | 352.91 | -0.48 | 165.98 |
| 250 | 0.00 | 15.34 | 2.36 | 374.95 | 2.36 | 178.64 |
| 255 | 0.00 | 10.81 | 6.15 | 405.31 | 6.15 | 193.27 |
| 260 | 0.00 | 6.94 | 10.97 | 447.85 | 10.97 | 210.13 |
| 265 | 0.00 | 5.41 | 13.68 | 718.97 | 13.68 | 323.49 |
| 270 | 0.00 | 7.76 | 9.76 | 436.79 | 9.76 | 205.40 |
| 275 | 0.00 | 11.87 | 5.14 | 396.80 | 5.14 | 189.36 |
| 280 | 0.00 | 16.48 | 1.58 | 368.81 | 1.58 | 175.61 |
| 285 | 0.00 | 21.26 | -1.19 | 347.56 | -1.19 | 163.25 |
| 290 | 1.49 | 25.88 | -3.32 | 241.42 | -3.32 | 100.00 |
| 295 | 1.29 | 30.85 | -5.23 | 236.79 | -5.23 | 100.00 |
| 300 | 2.34 | 35.72 | -6.82 | 201.86 | -6.82 | 100.00 |
| 305 | 2.36 | 40.70 | -8.24 | 194.75 | -8.24 | 100.00 |
| 310 | 3.38 | 45.64 | -9.48 | 163.58 | -9.48 | 100.00 |
| 315 | 3.97 | 50.62 | -10.00 | 148.42 | -10.00 | 100.00 |
| 320 | 6.78 | 55.62 | -10.00 | 116.69 | -10.00 | 100.00 |
| 325 | 7.05 | 60.62 | -10.00 | 113.83 | -10.00 | 100.00 |
| 330 | 9.03 | 65.66 | -10.00 | 100.00 | -10.00 | 100.00 |
| 335 | 9.46 | 70.66 | -10.00 | 100.00 | -10.00 | 100.00 |
| 340 | 8.57 | 75.63 | -10.00 | 100.00 | -10.00 | 100.00 |
| 345 | 6.88 | 80.61 | -10.00 | 115.63 | -10.00 | 100.00 |
| 350 | 6.99 | 85.61 | -10.00 | 114.47 | -10.00 | 100.00 |
| 355 | 7.79 | 90.60 | -10.00 | 105.95 | -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 30, 2010

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Allen Holdings, Inc
KAPOLEI, HI
Satellite Earth Station
Comtech Offsat

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
July 30, 2010

TABLE OF CONTENTS

| | |
|---|----|
| 1. CONCLUSIONS | 3 |
| 2. SUMMARY OF RESULTS | 4 |
| 3. SUPPLEMENTAL SHOWING | 5 |
| 4. EARTH STATION COORDINATION DATA..... | 6 |
| 5. CERTIFICATION..... | 10 |

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

Clearwire Hawaii Partners Spectrum LLC
Hawaiian Telcom
Hawaii State

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 07/12/2010.

Company

AT&T CORP

Clearwire Hawaii Partners Spectrum LLC

HONOLULU CITY & COUNTY DEPT OF INFO TECH

Hawaii State

Hawaiian Telcom (debtor-in-possession)

MAUI, COUNTY OF

New Cingular Wireless PCS LLC - Hawaii

University of Hawaii

Wireless Infrastructure Services

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: 07/12/2010
Job Number: 100712COMSTC03

Administrative Information

Licensee Name: Allen Holdings, Inc

Site Information

KAPOLEI, HI
Latitude (NAD 83): 21° 20' 10.5" N
Longitude (NAD 83): 158° 5' 17.5" W
Climate Zone: A
Rain Zone: 4
Ground Elevation (AMSL): 38.4 m / 126.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 113° W to 233° West Longitude
Azimuth Range: 109.9° to 264.4°
Corresponding Elevation Angles: 33.9° / 5.4°
Antenna Centerline (AGL): 2.44 m / 8.0 ft

Antenna Information

Manufacturer
Model
Gain / Diameter
3-dB / 15-dB Beamwidth

Receive - C40551

COMTECH ANTENNA SYSTEMS
5 METER OFFSAT
42.0 dBi / 5.5 m
1.00° / 2.00°

Transmit - C60551

COMTECH ANTENNA SYSTEMS
5 METER OFFSAT
45.9 dBi / 5.5 m
0.60° / 1.60°

Max Available RF Power (dBW/4 kHz)
(dBW/MHz)

51K2G7W - 36M0G7W

-13.0 -13.0
1.93 11.0

Maximum EIRP (dBW/4 kHz)
(dBW/MHz)
(dBW)

32.9 32.9
43.97 64.9
43.97 72.44

Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

-154.0 dBW/4 kHz 20%
-131.0 dBW/4 kHz 0.0025%

Frequency Information

Emission / Frequency Range (MHz)

Receive 4.0 GHz

51K2G7W - 36M0G7W / 3700.0 - 4200.0

Transmit 6.1 GHz

51K2G7W - 36M0G7W / 5850.0 - 6425.0

Max Great Circle Coordination Distance
Precipitation Scatter Contour Radius

553.9 km / 344.1 mi
428.9 km / 266.5 mi

239.7 km / 148.9 mi
100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

KAPOLEI, HI

Licensee Name Allen Holdings, Inc
Latitude (NAD 83) 21° 20' 10.5" N
Longitude (NAD 83) 158° 5' 17.5" W
Ground Elevation (AMSL) 38.4 m / 126.0 ft
Antenna Centerline (AGL) 2.44 m / 8.0 ft
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -13.0 (dBW/4 kHz)

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 0 | 8.89 | 95.59 | -8.01 | 103.91 | -8.16 | 100.00 |
| 5 | 8.65 | 100.59 | -8.12 | 105.53 | -8.10 | 100.00 |
| 10 | 7.92 | 98.93 | -8.01 | 112.54 | -8.18 | 100.00 |
| 15 | 6.80 | 94.40 | -8.02 | 124.38 | -8.18 | 100.00 |
| 20 | 6.03 | 89.95 | -8.06 | 132.56 | -8.11 | 100.00 |
| 25 | 5.56 | 85.55 | -8.05 | 135.97 | -8.16 | 100.00 |
| 30 | 5.61 | 81.15 | -8.04 | 135.45 | -8.23 | 100.00 |
| 35 | 5.85 | 76.74 | -8.03 | 134.44 | -8.20 | 100.00 |
| 40 | 4.98 | 72.53 | -8.07 | 141.86 | -8.19 | 100.00 |
| 45 | 3.72 | 68.52 | -8.06 | 163.24 | -8.15 | 100.00 |
| 50 | 2.82 | 64.60 | -8.02 | 185.50 | -8.25 | 100.00 |
| 55 | 2.35 | 60.69 | -8.04 | 195.88 | -8.25 | 100.00 |
| 60 | 5.34 | 55.58 | -8.09 | 137.93 | -8.20 | 100.00 |
| 65 | 5.34 | 51.56 | -8.07 | 138.00 | -8.14 | 100.00 |
| 70 | 3.26 | 48.73 | -8.09 | 175.32 | -8.27 | 100.00 |
| 75 | 3.80 | 44.83 | -8.08 | 161.29 | -8.15 | 100.00 |
| 80 | 3.81 | 41.44 | -8.02 | 161.53 | -8.14 | 100.00 |
| 85 | 3.43 | 38.61 | -8.01 | 171.82 | -8.22 | 100.00 |
| 90 | 3.43 | 35.89 | -8.06 | 171.59 | -8.28 | 100.00 |
| 95 | 3.43 | 33.63 | -8.00 | 171.88 | -8.26 | 100.00 |
| 100 | 0.00 | 35.17 | -8.03 | 298.10 | -8.17 | 139.54 |
| 105 | 0.00 | 34.22 | -8.00 | 298.32 | -8.12 | 139.71 |
| 110 | 0.00 | 33.91 | -8.00 | 298.32 | -8.19 | 139.50 |
| 115 | 0.00 | 34.24 | -8.00 | 298.32 | -8.12 | 139.71 |
| 120 | 0.00 | 35.20 | -8.04 | 298.07 | -8.23 | 139.38 |
| 125 | 0.00 | 36.73 | -8.05 | 298.00 | -8.11 | 139.73 |
| 130 | 0.00 | 38.78 | -8.01 | 298.24 | -8.23 | 139.38 |
| 135 | 0.00 | 41.25 | -8.02 | 298.18 | -8.10 | 139.76 |
| 140 | 0.00 | 44.09 | -8.05 | 298.01 | -8.10 | 139.75 |
| 145 | 0.00 | 47.21 | -8.06 | 297.91 | -8.11 | 139.74 |
| 150 | 0.00 | 50.57 | -8.02 | 298.21 | -8.14 | 139.64 |
| 155 | 0.00 | 54.11 | -8.05 | 298.01 | -8.14 | 139.64 |
| 160 | 0.00 | 57.56 | -8.00 | 298.30 | -8.23 | 139.36 |
| 165 | 0.00 | 60.55 | -8.13 | 297.46 | -9.10 | 136.84 |
| 170 | 0.00 | 62.92 | -9.12 | 290.91 | -9.22 | 136.48 |
| 175 | 0.00 | 64.46 | -10.24 | 283.75 | -10.22 | 133.70 |
| 180 | 0.00 | 65.00 | -12.12 | 272.18 | -11.22 | 132.26 |
| 185 | 0.00 | 64.46 | -13.11 | 266.27 | -12.21 | 129.60 |

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

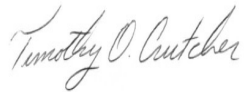
KAPOLEI, HI

Licensee Name Allen Holdings, Inc
Latitude (NAD 83) 21° 20' 10.5" N
Longitude (NAD 83) 158° 5' 17.5" W
Ground Elevation (AMSL) 38.4 m / 126.0 ft
Antenna Centerline (AGL) 2.44 m / 8.0 ft
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -13.0 (dBW/4 kHz)

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 190 | 0.64 | 62.45 | -12.66 | 226.36 | -11.76 | 100.19 |
| 195 | 0.64 | 60.16 | -11.65 | 231.65 | -10.93 | 102.36 |
| 200 | 2.18 | 56.36 | -9.99 | 190.46 | -10.09 | 100.00 |
| 205 | 2.17 | 53.03 | -9.14 | 194.65 | -9.24 | 100.00 |
| 210 | 2.18 | 49.32 | -8.29 | 198.53 | -9.10 | 100.00 |
| 215 | 3.32 | 44.85 | -8.03 | 174.26 | -8.51 | 100.00 |
| 220 | 2.41 | 41.13 | -8.06 | 194.58 | -8.14 | 100.00 |
| 225 | 2.40 | 36.86 | -8.03 | 194.77 | -8.13 | 100.00 |
| 230 | 1.73 | 32.77 | -8.00 | 208.62 | -8.11 | 100.00 |
| 235 | 1.73 | 28.31 | -7.33 | 211.92 | -7.10 | 100.00 |
| 240 | 0.53 | 24.28 | -5.71 | 274.06 | -6.81 | 118.36 |
| 245 | 0.53 | 19.72 | -3.77 | 287.10 | -5.10 | 123.06 |
| 250 | 0.00 | 15.34 | -0.27 | 354.53 | -5.10 | 149.26 |
| 255 | 0.00 | 10.81 | 4.19 | 389.03 | 1.28 | 174.46 |
| 260 | 0.00 | 6.94 | 8.06 | 421.73 | 8.96 | 204.00 |
| 265 | 0.30 | 5.11 | 10.78 | 553.91 | 12.56 | 239.69 |
| 270 | 0.30 | 7.56 | 7.44 | 403.65 | 8.90 | 194.43 |
| 275 | 0.30 | 11.74 | 3.26 | 369.49 | 0.16 | 158.12 |
| 280 | 1.86 | 15.99 | -0.79 | 244.84 | -5.10 | 100.00 |
| 285 | 1.86 | 20.89 | -4.36 | 223.55 | -5.46 | 100.00 |
| 290 | 3.54 | 25.67 | -6.27 | 178.52 | -7.10 | 100.00 |
| 295 | 3.11 | 30.68 | -8.00 | 179.14 | -7.37 | 100.00 |
| 300 | 3.36 | 35.65 | -8.07 | 172.99 | -8.10 | 100.00 |
| 305 | 4.32 | 40.62 | -8.10 | 151.72 | -8.28 | 100.00 |
| 310 | 4.40 | 45.61 | -8.06 | 150.61 | -8.26 | 100.00 |
| 315 | 4.76 | 50.61 | -8.03 | 145.19 | -8.23 | 100.00 |
| 320 | 7.79 | 55.64 | -8.10 | 113.48 | -8.13 | 100.00 |
| 325 | 7.79 | 60.63 | -8.09 | 113.59 | -8.22 | 100.00 |
| 330 | 9.53 | 65.67 | -8.06 | 100.00 | -8.11 | 100.00 |
| 335 | 9.96 | 70.67 | -8.08 | 100.00 | -8.18 | 100.00 |
| 340 | 9.24 | 75.64 | -8.05 | 100.69 | -8.19 | 100.00 |
| 345 | 7.80 | 80.61 | -8.03 | 113.67 | -8.11 | 100.00 |
| 350 | 8.63 | 85.61 | -8.02 | 106.13 | -8.13 | 100.00 |
| 355 | 8.20 | 90.60 | -8.03 | 109.89 | -8.12 | 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 30, 2010