

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Emerging Markets Communications, Inc.
KAPOLEI, HI
(E980156)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
August 04, 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.

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

Hawaii State
Hawaiian Telcom, Inc.

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 06/29/2017.

Company

AT&T Corp.
Cellco Partnership - Hawaii
Clearwire Hawaii Partners Spectrum LLC
Clearwire Spectrum Holdings III, LLC
Coral Wireless Licenses, LLC
Harmer Radio and Electronics, Inc.
Harris Corporation - Florida
Hawaii Catholic TV, Inc
Hawaii Dialogix Telecom LLC
Hawaii Electric Light Co Inc
Hawaii State
Hawaiian Electric Company, Inc
Hawaiian Telcom, Inc.
Honolulu Board of Water Supply
Honolulu City & County Dept of Info Tech
Maui Electric Company Ltd
Maui Wellness Group LLC
Maui, County of
Mid Pacific Communications Inc.
NPCR, Inc.
New Cingular Wireless PCS LLC - Hawaii
Oceanic Time Warner Cable LLC
Servpac, Inc
Sprintcom, Inc
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: 08/04/2017
Job Number: 170629COMSGE02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E980156
Licensee Code EMEMAR
Licensee Name Emerging Markets Communications, Inc.

Site Information KAPOLEI, HI

Venue Name
Latitude (NAD 83) 21° 20' 12.1" N
Longitude (NAD 83) 158° 5' 20.3" W
Climate Zone B
Rain Zone 4
Ground Elevation (AMSL) 39.98 m / 131.2 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 83° W to 233° West Longitude
Azimuth Range 95.5° to 264.4°
Corresponding Elevation Angles 5.2° / 5.4°
Antenna Centerline (AGL) 6.71 m / 22.0 ft

Antenna Information

	Receive - FCC32	Transmit - FCC32
Manufacturer	Vertex	Vertex
Model	11 KPC	11 KPC
Gain / Diameter	60.0 dBi / 11.0 m	61.0 dBi / 11.0 m
3-dB / 15-dB Beamwidth	0.26° / 0.50°	0.80° / 1.40°
Max Available RF Power (dBW/4 kHz)		7.1
(dBW/MHz)		31.1
Maximum EIRP (dBW/4 kHz)		68.1
(dBW/MHz)		92.1
Interference Objectives:		
Long Term	-154.1 dBW/MHz 20%	-151.0 dBW/4 kHz 20%
Short Term	-142.8 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)	50K0G1W - 54M0G7W / 10950.0 - 11200.0 50K0G1W - 54M0G7W / 11450.0 - 12750.0	50K0G1W - 54M0G7W / 13750.0 - 14500.0
Max Great Circle Coordination Distance	617.9 km / 383.9 mi	509.4 km / 316.5 mi
Precipitation Scatter Contour Radius	414.2 km / 257.3 mi	382.1 km / 237.4 mi

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Coordination Values

KAPOLEI, HI

Licensee Name Emerging Markets Communications, Inc.
Latitude (NAD 83) 21° 20' 12.1" N
Longitude (NAD 83) 158° 5' 20.3" W
Ground Elevation (AMSL) 39.98 m / 131.2 ft
Antenna Centerline (AGL) 6.71 m / 22.0 ft
Antenna Model Vertex 11 Meter
Antenna Mode Receive 11.0 GHz Transmit 14.0 GHz
Interference Objectives: Long Term -154.1 dBW/MHz 20% -151.0 dBW/4 kHz 20%
Short Term -142.8 dBW/MHz 0.01% -128.0 dBW/4 kHz 0.0025%
Max Available RF Power 7.1 (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	14.10	95.47	-10.00	100.00	-10.00	100.00
5	13.97	90.53	-10.00	100.00	-10.00	100.00
10	14.01	85.59	-10.00	100.00	-10.00	100.00
15	13.84	80.64	-10.00	100.00	-10.00	100.00
20	13.12	75.68	-10.00	100.00	-10.00	100.00
25	12.75	70.71	-10.00	100.00	-10.00	100.00
30	12.61	65.75	-10.00	100.00	-10.00	100.00
35	12.35	60.79	-10.00	100.00	-10.00	100.00
40	11.64	55.78	-10.00	100.00	-10.00	100.00
45	10.86	50.77	-10.00	100.00	-10.00	100.00
50	10.44	45.77	-9.51	100.00	-9.51	100.00
55	10.09	40.78	-8.26	100.00	-8.26	100.00
60	9.91	35.81	-6.85	100.00	-6.85	100.00
65	9.17	30.77	-5.20	100.00	-5.20	100.00
70	8.94	25.79	-3.29	100.00	-3.29	100.00
75	8.57	20.80	-0.95	106.09	-0.95	100.00
80	8.43	15.86	1.99	115.15	1.99	100.00
85	7.83	10.86	6.11	128.50	6.11	100.00
90	6.90	5.79	12.94	157.03	12.94	121.77
95	5.40	0.57	38.10	617.88	38.10	509.44
100	4.01	4.60	15.43	209.65	15.43	153.17
105	3.38	9.44	7.63	177.82	7.63	136.76
110	0.67	15.08	2.54	290.20	2.54	227.29
115	0.00	19.92	-0.48	365.01	-0.48	281.01
120	0.00	24.48	-2.72	343.37	-2.72	265.02
125	0.00	29.00	-4.56	326.87	-4.56	252.96
130	0.00	33.46	-6.11	313.42	-6.11	246.68
135	0.00	37.85	-7.45	302.33	-7.45	238.57
140	0.00	42.16	-8.62	293.04	-8.62	231.54
145	0.00	46.33	-9.65	285.18	-9.65	225.41
150	0.00	50.34	-10.00	282.53	-10.00	223.30
155	0.00	54.11	-10.00	282.53	-10.00	223.30
160	0.00	57.56	-10.00	282.53	-10.00	223.30
165	0.00	60.55	-10.00	282.53	-10.00	223.30
170	0.00	62.92	-10.00	282.53	-10.00	223.30
175	0.00	64.46	-10.00	282.53	-10.00	223.30
180	0.00	65.00	-10.00	282.53	-10.00	223.30
185	0.00	64.46	-10.00	282.53	-10.00	223.30

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Coordination Values

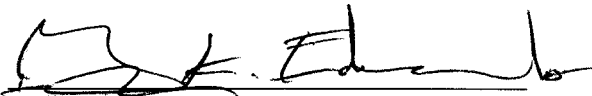
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Max Available RF Power 7.1 (dBW/4 kHz)

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	62.92	-10.00	282.53	-10.00	223.30
195	0.00	60.55	-10.00	282.53	-10.00	223.30
200	0.00	57.56	-10.00	282.53	-10.00	223.30
205	0.00	54.11	-10.00	282.53	-10.00	223.30
210	0.00	50.34	-10.00	282.53	-10.00	223.30
215	0.00	46.33	-9.65	285.18	-9.65	225.41
220	0.00	42.15	-8.62	293.04	-8.62	231.54
225	0.00	37.85	-7.45	302.33	-7.45	238.57
230	0.00	33.46	-6.11	313.42	-6.11	246.68
235	0.00	29.00	-4.56	326.88	-4.56	252.96
240	0.00	24.48	-2.72	343.37	-2.72	265.02
245	0.00	19.92	-0.48	365.00	-0.48	281.00
250	0.00	15.34	2.36	394.50	2.36	303.40
255	0.00	10.81	6.15	435.47	6.15	338.96
260	0.00	6.94	10.97	497.77	10.97	384.50
265	0.00	5.41	13.68	617.62	13.68	507.92
270	0.00	7.76	9.76	481.11	9.76	372.76
275	0.00	11.87	5.13	425.55	5.13	329.69
280	0.00	16.48	1.57	386.16	1.57	297.01
285	0.00	21.26	-1.19	358.01	-1.19	275.79
290	0.62	26.01	-3.38	256.44	-3.38	196.65
295	1.20	30.86	-5.24	189.76	-5.24	143.33
300	5.25	35.60	-6.79	101.29	-6.79	100.00
305	7.13	40.64	-8.22	100.00	-8.22	100.00
310	8.25	45.68	-9.49	100.00	-9.49	100.00
315	9.06	50.70	-10.00	100.00	-10.00	100.00
320	12.16	55.88	-10.00	100.00	-10.00	100.00
325	12.87	60.88	-10.00	100.00	-10.00	100.00
330	13.71	65.88	-10.00	100.00	-10.00	100.00
335	13.62	70.81	-10.00	100.00	-10.00	100.00
340	14.85	75.81	-10.00	100.00	-10.00	100.00
345	14.55	80.73	-10.00	100.00	-10.00	100.00
350	14.50	85.66	-10.00	100.00	-10.00	100.00
355	14.26	90.60	-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.

BY: 

Gary K. Edwards
Senior Manager
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: August 04, 2017