FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Emerging Markets Communications, Inc.
KAPOLEI, HI
(E000127)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
July 25, 2017

TABLE OF CONTENTS

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

University of Hawaii
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 06/21/2017.

Company
AT&T Corp.
HAWAII COUNTY OF
Harmer Radio and Electronics, Inc.
Hawaii Electric Light Co Inc
Hawaii State
Hawaiian Electric Company, Inc
Hawaiian Telcom, Inc.
Honolulu City & County Dept of Info Tech
Maui, County of
NEXSTAR BROADCASTING, INC.
New Cingular Wireless PCS LLC - Hawaii
Oceanic Time Warner Cable LLC
Sandwich Isles Communications, Inc
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:	07/25/2017
Job Number:	170621COMSGE01

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	E000127
Licensee Code	EMEMAR
Licensee Name	Emerging Markets Communications, Inc.

Site Information — KAPOLEI, HI

Venue Name	
Latitude (NAD 83)	21° 20' 12.6" N
Longitude (NAD 83)	158° 5' 22.1" W
Climate Zone	C
Rain Zone	4
Ground Elevation (AMSL)	39.6 m / 129.9 ft

Link Information

Satellite Type	Geostationary
Mode	TR - Transmit-Receive
Modulation	Digital
Satellite Arc	83° W to 232° West Longitude
Azimuth Range	95.5° to 264.0°
Corresponding Elevation Angles	5.2° / 6.3°
Antenna Centerline (AGL)	10.2 m / 33.5 ft

Antenna Information		Receive - FCC32		Transmit - FCC32	
Manufacturer		Andrew		Andrew	
Model		ESA91-46		ESA91-46	
Gain / Diameter		50.4 dBi / 9.1 m		53.9 dBi / 9.1 m	
3-dB / 15-dB Beamwidth		0.30° / 0.60°		0.30° / 0.60°	
Max Available RF Power	(dBW/4 kHz)			-9.5	
	(dBW/MHz)			14.5	
Maximum EIRP	(dBW/4 kHz)			44.4	
	(dBW/MHz)			68.4	
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%

Frequency Information	Receive 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	51K2G7D - 36M0G7D / 3700.0 - 4200.0	51K2G7D - 36M0G7W / 5925.0 - 5978.0 51K2G7D - 36M0G7W / 6031.0 - 6097.0 51K2G7D - 36M0G7W / 6169.0 - 6171.0 51K2G7D - 36M0G7W / 6225.0 - 6425.0
Max Great Circle Coordination Distance	1363.6 km / 847.2 mi	542.3 km / 336.9 mi
Precipitation Scatter Contour Radius	430.9 km / 267.7 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	Emerging Markets Communications, Inc.			
Latitude (NAD 83)	21° 20' 12.6" N			
Longitude (NAD 83)	158° 5' 22.1" W			
Ground Elevation (AMSL)	39.6 m / 129.9 ft			
Antenna Centerline (AGL)	10.2 m / 33.5 ft			
Antenna Model	Andrew 9.1 meter			
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			-9.5 (dBW/4 kHz)	

			Receive 4.0 GHz		Transmit 6.1 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	14.99	95.46	-10.00	100.00	-10.00	100.00
5	14.72	90.53	-10.00	100.00	-10.00	100.00
10	14.39	85.59	-10.00	100.00	-10.00	100.00
15	13.64	80.64	-10.00	100.00	-10.00	100.00
20	13.49	75.69	-10.00	100.00	-10.00	100.00
25	13.53	70.75	-10.00	100.00	-10.00	100.00
30	12.82	65.77	-10.00	100.00	-10.00	100.00
35	11.91	60.76	-10.00	100.00	-10.00	100.00
40	11.80	55.80	-10.00	100.00	-10.00	100.00
45	11.23	50.80	-10.00	100.00	-10.00	100.00
50	10.78	45.80	-9.52	100.00	-9.52	100.00
55	9.72	40.74	-8.25	100.00	-8.25	100.00
60	8.85	35.70	-6.82	118.54	-6.82	100.00
65	8.06	30.66	-5.16	139.84	-5.16	100.00
70	7.25	25.61	-3.21	160.57	-3.21	100.00
75	6.37	20.57	-0.83	185.65	-0.83	100.00
80	5.99	15.56	2.20	209.49	2.20	100.00
85	5.16	10.54	6.43	263.18	6.43	100.00
90	4.07	5.65	13.20	338.90	13.20	116.75
95	0.00	5.23	14.03	1363.64	14.03	542.29
100	1.25	5.96	12.61	699.31	12.61	262.01
105	0.37	10.62	6.35	959.74	6.35	358.68
110	0.00	15.33	2.36	1004.01	2.36	375.95
115	0.00	19.92	-0.48	928.25	-0.48	342.95
120	0.00	24.48	-2.72	872.03	-2.72	319.42
125	0.00	29.00	-4.56	828.02	-4.56	303.89
130	0.00	33.46	-6.11	795.58	-6.11	289.66
135	0.00	37.85	-7.45	765.81	-7.45	277.88
140	0.00	42.16	-8.62	740.35	-8.62	267.96
145	0.00	46.33	-9.65	718.40	-9.65	259.54
150	0.00	50.34	-10.00	710.92	-10.00	256.70
155	0.00	54.11	-10.00	710.92	-10.00	256.70
160	0.00	57.56	-10.00	710.92	-10.00	256.70
165	0.00	60.55	-10.00	710.92	-10.00	256.70
170	0.00	62.92	-10.00	710.92	-10.00	256.70
175	0.00	64.46	-10.00	710.92	-10.00	256.70
180	0.00	65.00	-10.00	710.92	-10.00	256.70
185	0.00	64.46	-10.00	710.92	-10.00	256.70

COMSEARCH

Earth Station Data Sheet

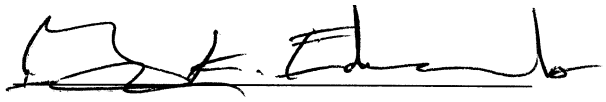
19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Coordination Values	**KAPOLEI, HI**			
Licensee Name	Emerging Markets Communications, Inc.			
Latitude (NAD 83)	21° 20' 12.6" N			
Longitude (NAD 83)	158° 5' 22.1" W			
Ground Elevation (AMSL)	39.6 m / 129.9 ft			
Antenna Centerline (AGL)	10.2 m / 33.5 ft			
Antenna Model	Andrew 9.1 meter			
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			-9.5 (dBW/4 kHz)	

			Receive 4.0 GHz		Transmit 6.1 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	62.92	-10.00	710.92	-10.00	256.70
195	0.00	60.55	-10.00	710.92	-10.00	256.70
200	0.00	57.56	-10.00	710.92	-10.00	256.70
205	0.00	54.11	-10.00	710.92	-10.00	256.70
210	0.00	50.34	-10.00	710.92	-10.00	256.70
215	0.00	46.33	-9.65	718.40	-9.65	259.54
220	0.00	42.15	-8.62	740.35	-8.62	267.96
225	0.00	37.85	-7.45	765.81	-7.45	277.88
230	0.00	33.46	-6.11	795.58	-6.11	289.66
235	0.00	29.00	-4.56	828.04	-4.56	303.90
240	0.00	24.48	-2.72	872.03	-2.72	319.42
245	0.00	19.92	-0.48	928.23	-0.48	342.94
250	0.00	15.34	2.36	1003.94	2.36	375.92
255	0.00	10.98	5.98	1107.08	5.98	423.05
260	0.00	7.47	10.16	1237.30	10.16	485.57
265	0.00	6.39	11.86	1293.44	11.86	510.19
270	0.00	8.70	8.52	1184.69	8.52	462.10
275	0.00	12.66	4.44	1062.00	4.44	402.34
280	0.00	17.16	1.13	970.79	1.13	361.31
285	1.55	21.50	-1.31	418.99	-1.31	142.73
290	3.11	26.18	-3.45	255.37	-3.45	100.00
295	4.07	31.07	-5.31	201.86	-5.31	100.00
300	4.13	36.05	-6.92	190.52	-6.92	100.00
305	4.94	41.01	-8.32	171.41	-8.32	100.00
310	6.10	45.99	-9.57	138.98	-9.57	100.00
315	7.04	51.00	-10.00	126.36	-10.00	100.00
320	8.05	56.01	-10.00	115.59	-10.00	100.00
325	9.63	61.05	-10.00	100.00	-10.00	100.00
330	12.57	66.15	-10.00	100.00	-10.00	100.00
335	13.81	71.16	-10.00	100.00	-10.00	100.00
340	14.34	76.13	-10.00	100.00	-10.00	100.00
345	14.51	81.09	-10.00	100.00	-10.00	100.00
350	15.27	86.04	-10.00	100.00	-10.00	100.00
355	15.24	90.98	-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: July 25, 2017