

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Intelsat License LLC
PAUMALU, HI
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
January 25, 2018

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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.

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 12/27/2017.

Company

AT&T Corp.
Cellco Partnership - Hawaii
Clearwire Hawaii Partners Spectrum LLC
Clearwire Spectrum Holdings III, LLC
Coral Wireless Licenses, LLC
County of Kauai Department of Police
Hawaii Catholic TV, Inc
Hawaii Dialogix Telecom LLC
Hawaii Public Television Foundation
Hawaii State
Hawaiian Electric Company, Inc
Hawaiian Telcom, Inc.
Honolulu Board of Water Supply
Honolulu City & County Dept of Info Tech
KHNL/KGMB License Subsidiary, LLC
KITV, Inc
Lesea Broadcasting of Hawaii, Inc.
Maui, County of
Mid Pacific Communications Inc.
New Cingular Wireless PCS LLC - Hawaii
NEXSTAR BROADCASTING, INC.
NPCR, Inc.
NRJ TV Hawaii License Co, LLC
Oceanic Time Warner Cable LLC
Oceanic Time Warner Cable LLC
Servpac, 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: 01/25/2018
Job Number: 171227COMSGE02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code INTELS
Licensee Name Intelsat License LLC

Site Information PAUMALU, HI

Venue Name
Latitude (NAD 83) 21° 40' 13.4" N
Longitude (NAD 83) 158° 2' 5.7" W
Climate Zone B
Rain Zone 4
Ground Elevation (AMSL) 133.01 m / 436.4 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 83° W to 233° West Longitude
Azimuth Range 95.6° to 264.3°
Corresponding Elevation Angles 5.2° / 5.3°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

		Receive - FCC32		Transmit - FCC32	
Manufacturer		General Dynamics		General Dynamics	
Model		Satcom Tech		Satcom Tech	
Gain / Diameter		62.1 dBi / 13.1 m		63.3 dBi / 13.1 m	
3-dB / 15-dB Beamwidth		0.10° / 0.26°		0.11° / 0.22°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-3.3 20.7	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			60.0 84.0	
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)	N0N - 72M0G7W / 10700.0 - 12750.0	N0N - 72M0G7W / 12920.0 - 13250.0 N0N - 72M0G7W / 14000.0 - 14500.0
Max Great Circle Coordination Distance	708.4 km / 440.1 mi	417.4 km / 259.4 mi
Precipitation Scatter Contour Radius	420.1 km / 261.0 mi	100.0 km / 62.1 mi

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Coordination Values

PAUMALU, HI

Licensee Name	Intelsat License LLC			
Latitude (NAD 83)	21° 40' 13.4" N			
Longitude (NAD 83)	158° 2' 5.7" W			
Ground Elevation (AMSL)	133.01 m / 436.4 ft			
Antenna Centerline (AGL)	5.49 m / 18.0 ft			
Antenna Model	General Dynamics 13.1 meter			
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
Max Available RF Power			-3.3 (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	0.00	95.62	-10.00	307.68	-10.00	163.15
5	0.00	90.64	-10.00	307.68	-10.00	163.15
10	0.00	85.66	-10.00	307.68	-10.00	163.15
15	0.00	80.68	-10.00	307.68	-10.00	163.15
20	1.69	75.67	-10.00	158.80	-10.00	100.00
25	1.80	70.67	-10.00	154.63	-10.00	100.00
30	2.46	65.67	-10.00	138.01	-10.00	100.00
35	2.61	60.67	-10.00	134.33	-10.00	100.00
40	2.66	55.68	-10.00	133.23	-10.00	100.00
45	2.64	50.69	-10.00	133.69	-10.00	100.00
50	2.23	45.72	-9.50	145.33	-9.50	100.00
55	2.00	40.74	-8.25	155.26	-8.25	100.00
60	2.45	35.73	-6.83	148.75	-6.83	100.00
65	2.03	30.79	-5.21	169.62	-5.21	100.00
70	2.23	25.80	-3.29	173.15	-3.29	100.00
75	1.64	20.93	-1.02	217.24	-1.02	109.96
80	1.66	16.03	1.88	235.12	1.88	119.07
85	1.66	11.21	5.76	258.85	5.76	133.01
90	2.06	6.46	11.74	280.97	11.74	143.72
95	2.25	3.05	19.91	702.87	19.91	415.23
100	2.83	4.97	14.59	266.74	14.59	135.60
105	2.97	9.51	7.55	215.02	7.55	107.37
110	3.07	14.05	3.31	181.29	3.31	100.00
115	3.56	18.42	0.37	151.87	0.37	100.00
120	3.27	23.06	-2.07	148.21	-2.07	100.00
125	3.12	27.60	-4.02	145.28	-4.02	100.00
130	3.37	31.92	-5.60	134.18	-5.60	100.00
135	3.18	36.35	-7.01	132.80	-7.01	100.00
140	2.97	40.68	-8.23	132.61	-8.23	100.00
145	2.26	45.11	-9.36	145.26	-9.36	100.00
150	2.52	48.91	-10.00	136.50	-10.00	100.00
155	2.41	52.62	-10.00	139.16	-10.00	100.00
160	2.55	55.83	-10.00	135.87	-10.00	100.00
165	2.79	58.41	-10.00	130.46	-10.00	100.00
170	2.59	60.54	-10.00	134.88	-10.00	100.00
175	2.85	61.42	-10.00	129.01	-10.00	100.00
180	2.81	61.80	-10.00	129.90	-10.00	100.00
185	2.61	61.65	-10.00	134.43	-10.00	100.00

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Coordination Values

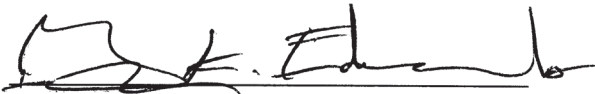
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Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power			-3.3 (dBW/4 kHz)	

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	2.49	60.62	-10.00	137.16	-10.00	100.00
195	2.24	58.78	-10.00	143.29	-10.00	100.00
200	2.22	56.02	-10.00	143.73	-10.00	100.00
205	1.33	53.18	-10.00	174.12	-10.00	100.00
210	1.01	49.63	-10.00	190.00	-10.00	100.00
215	0.80	45.77	-9.51	216.85	-9.51	112.37
220	0.78	41.63	-8.49	225.78	-8.49	116.84
225	0.99	37.28	-7.29	211.61	-7.29	108.79
230	0.95	32.92	-5.94	223.98	-5.94	115.16
235	0.66	28.60	-4.41	263.88	-4.41	138.42
240	0.00	24.36	-2.67	375.31	-2.67	205.17
245	0.00	19.82	-0.43	399.04	-0.43	218.39
250	0.00	15.24	2.42	431.23	2.42	235.42
255	0.00	10.72	6.25	476.99	6.25	255.55
260	0.00	6.83	11.13	547.33	11.13	290.32
265	0.00	5.33	13.83	708.37	13.83	417.45
270	0.00	7.75	9.77	526.70	9.77	279.95
275	0.00	11.89	5.12	462.21	5.12	251.74
280	0.00	16.51	1.55	421.17	1.55	230.19
285	0.00	21.30	-1.21	390.56	-1.21	213.74
290	0.00	26.17	-3.44	367.40	-3.44	200.62
295	0.00	31.08	-5.31	349.13	-5.31	187.42
300	0.00	36.00	-6.91	334.25	-6.91	178.61
305	0.00	40.95	-8.31	322.07	-8.31	171.36
310	0.00	45.90	-9.55	311.46	-9.55	165.29
315	0.00	50.87	-10.00	307.68	-10.00	163.15
320	0.00	55.83	-10.00	307.68	-10.00	163.15
325	0.00	60.80	-10.00	307.68	-10.00	163.15
330	0.00	65.78	-10.00	307.68	-10.00	163.15
335	0.00	70.75	-10.00	307.68	-10.00	163.15
340	0.00	75.73	-10.00	307.68	-10.00	163.15
345	0.00	80.71	-10.00	307.68	-10.00	163.15
350	0.00	85.68	-10.00	307.68	-10.00	163.15
355	0.00	90.66	-10.00	307.68	-10.00	163.15

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: January 25, 2018