

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
UltiSat
TATALINA, AK
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
July 24, 2013

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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

No great circle interference cases were identified during the interference study of the proposed earth station and there are no unresolved interference objections.

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 07/23/2013.

<u>Company</u>
Comsearch

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: 07/24/2013
Job Number: 130723COMSGE03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign TATALINA
Licensee Code ULITSA
Licensee Name UltiSat

Site Information

TATALINA, AK
Venue Name LRRS
Latitude (NAD 83) 62° 53' 30.0" N
Longitude (NAD 83) 155° 58' 44.0" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 255.42 m / 838.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 177° W to 177° West Longitude
Azimuth Range 203.3° to 203.3°
Corresponding Elevation Angles 16.9° / 16.9°
Antenna Centerline (AGL) 2.74 m / 9.0 ft

Antenna Information

		Receive - FCC32		Transmit - FCC32	
Manufacturer		Prodelin		Prodelin	
Model		2.4 Meter		2.4 Meter	
Gain / Diameter		38.0 dBi / 2.4 m		42.0 dBi / 2.4 m	
3-dB / 15-dB Beamwidth		2.30° / 4.60°		1.30° / 2.60°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-10.0 14.0	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			32.0 56.0	
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)	49K0G7D - 1M85G7D / 3700.0 - 4200.0	49K0G7D - 1M85G7D / 5925.0 - 6425.0
Max Great Circle Coordination Distance	361.0 km / 224.3 mi	183.3 km / 113.9 mi
Precipitation Scatter Contour Radius	512.6 km / 318.4 mi	100.0 km / 62.1 mi

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Coordination Values

TATALINA, AK

Licensee Name	UltiSat				
Latitude (NAD 83)	62° 53' 30.0" N				
Longitude (NAD 83)	155° 58' 44.0" W				
Ground Elevation (AMSL)	255.42 m / 838.0 ft				
Antenna Centerline (AGL)	2.74 m / 9.0 ft				
Antenna Model	Prodelin 2.4 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					-10.0 (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	4.66	153.82	-10.00	138.18	-10.00	100.00
5	3.57	157.48	-10.00	156.86	-10.00	100.00
10	2.15	160.24	-10.00	191.15	-10.00	100.00
15	1.37	162.46	-10.00	209.34	-10.00	100.00
20	1.20	164.01	-10.00	214.05	-10.00	100.00
25	0.96	164.03	-10.00	222.41	-10.00	100.00
30	0.79	162.65	-10.00	231.81	-10.00	106.02
35	0.52	160.03	-10.00	248.28	-10.00	118.39
40	0.30	156.69	-10.00	272.86	-10.00	134.25
45	0.26	152.97	-10.00	277.30	-10.00	137.35
50	0.25	148.93	-10.00	278.81	-10.00	138.42
55	0.45	144.75	-10.00	255.38	-10.00	123.40
60	0.66	140.40	-10.00	239.36	-10.00	111.80
65	0.56	135.82	-10.00	245.93	-10.00	116.67
70	0.00	131.07	-10.00	285.28	-10.00	143.12
75	0.00	126.43	-10.00	285.28	-10.00	143.12
80	0.00	121.74	-10.00	285.28	-10.00	143.12
85	0.00	117.03	-10.00	285.28	-10.00	143.12
90	0.00	112.29	-10.00	285.28	-10.00	143.12
95	0.88	107.62	-10.00	226.61	-10.00	101.91
100	0.76	102.82	-10.00	233.89	-10.00	107.62
105	1.78	98.06	-10.00	200.52	-10.00	100.00
110	1.99	93.24	-10.00	194.80	-10.00	100.00
115	1.94	88.40	-10.00	196.08	-10.00	100.00
120	2.10	83.57	-10.00	192.19	-10.00	100.00
125	2.16	78.73	-10.00	190.90	-10.00	100.00
130	2.95	73.85	-10.00	172.55	-10.00	100.00
135	3.11	69.00	-10.00	168.85	-10.00	100.00
140	2.32	64.26	-10.00	187.23	-10.00	100.00
145	2.20	59.49	-10.00	189.85	-10.00	100.00
150	1.88	54.78	-10.00	197.84	-10.00	100.00
155	1.42	50.16	-10.00	207.79	-10.00	100.00
160	0.42	45.77	-9.51	261.18	-9.51	126.77
165	0.00	41.36	-8.41	295.57	-8.41	148.21
170	0.00	36.92	-7.18	303.84	-7.18	152.38
175	0.00	32.62	-5.84	313.77	-5.84	157.14
180	0.00	28.51	-4.38	324.13	-4.38	162.54
185	0.00	24.71	-2.82	335.42	-2.82	170.18

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Coordination Values

TATALINA, AK

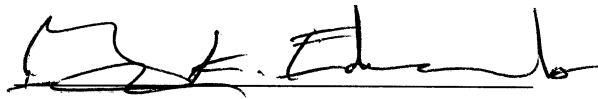
Licensee Name	UltiSat		
Latitude (NAD 83)	62° 53' 30.0" N		
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Antenna Centerline (AGL)	2.74 m / 9.0 ft		
Antenna Model	Prodelin 2.4 Meter		
Antenna Mode	Receive 4.0 GHz		Transmit 6.1 GHz
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz
Max Available RF Power			-10.0 (dBW/4 kHz)
			20%
			0.0025%

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	21.38	-1.25	347.13	-1.25	176.30
195	0.47	18.33	0.42	324.46	0.42	152.66
200	0.31	16.87	1.32	352.33	1.32	174.65
205	0.60	16.33	1.67	323.39	1.67	149.16
210	0.00	18.08	0.57	360.99	0.57	183.33
215	0.00	20.39	-0.74	351.00	-0.74	178.28
220	0.00	23.52	-2.29	339.38	-2.29	172.27
225	0.54	26.87	-3.73	286.70	-3.73	133.99
230	0.47	30.97	-5.27	282.82	-5.27	133.86
235	0.93	35.06	-6.62	242.67	-6.62	109.20
240	1.12	39.45	-7.90	227.49	-7.90	100.00
245	1.15	44.00	-9.09	220.21	-9.09	100.00
250	1.26	48.61	-10.00	212.27	-10.00	100.00
255	1.12	53.33	-10.00	216.61	-10.00	100.00
260	1.47	57.99	-10.00	206.55	-10.00	100.00
265	1.83	62.70	-10.00	199.24	-10.00	100.00
270	2.02	67.47	-10.00	193.98	-10.00	100.00
275	1.27	72.35	-10.00	212.15	-10.00	100.00
280	1.60	77.13	-10.00	205.39	-10.00	100.00
285	1.89	81.94	-10.00	197.55	-10.00	100.00
290	2.14	86.76	-10.00	191.22	-10.00	100.00
295	2.44	91.60	-10.00	184.36	-10.00	100.00
300	2.39	96.44	-10.00	185.54	-10.00	100.00
305	2.32	101.27	-10.00	187.22	-10.00	100.00
310	3.01	106.16	-10.00	171.32	-10.00	100.00
315	4.33	111.11	-10.00	142.82	-10.00	100.00
320	6.05	116.14	-10.00	124.68	-10.00	100.00
325	7.52	121.19	-10.00	108.82	-10.00	100.00
330	8.44	126.19	-10.00	100.00	-10.00	100.00
335	8.40	131.10	-10.00	100.27	-10.00	100.00
340	8.60	136.03	-10.00	100.00	-10.00	100.00
345	6.77	140.55	-10.00	116.79	-10.00	100.00
350	6.48	145.26	-10.00	119.90	-10.00	100.00
355	5.08	149.50	-10.00	134.02	-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 24, 2013