

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**WATERFALL GROUP, LTD.**  
**WATERFALL, AK**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
June 09, 2010

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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

ALASCOM, 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 06/09/2010.

Company

ALASCOM, INC.

AP&T Wireless, Inc.

## **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: 06/09/2010

Job Number: 100609COMSTC16

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### Administrative Information

Licensee Name WATERFALL GROUP, LTD.

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### Site Information

#### WATERFALL, AK

Latitude (NAD 83) 55° 17' 47.8" N  
Longitude (NAD 83) 133° 14' 36.0" W  
Climate Zone B  
Rain Zone 3  
Ground Elevation (AMSL) 11.1 m / 36.4 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Analog and Digital  
Satellite Arc 69° W to 143° West Longitude  
Azimuth Range 111.6° to 191.8°  
Corresponding Elevation Angles 5.7° / 26.3°  
Antenna Centerline (AGL) 2.44 m / 8.0 ft

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### Antenna Information

#### Receive - S40362

#### Transmit - S60362

Manufacturer	SCIENTIFIC-ATLANTA, INC	SCIENTIFIC-ATLANTA, INC
Model	8136	8136
Gain / Diameter	41.8 dBi / 3.6 m	45.6 dBi / 3.6 m
3-dB / 15-dB Beamwidth	1.40° / 3.00°	0.90° / 1.70°

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

6K72G7W - 36M0G7W  
6K72D7W - 36M0D7W  
-2.7 -16.53  
-0.45 7.47

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

42.9 29.07  
45.15 53.07  
45.15 68.61

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%

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### Frequency Information

#### Receive 4.0 GHz

#### Transmit 6.1 GHz

Emission / Frequency Range (MHz)	6K72G7W - 36M0G7W / 3700.0 - 4200.0	6K72G7W - 36M0G7W / 5925.0 - 6425.0
	6K72D7W - 36M0D7W / 3700.0 - 4200.0	6K72D7W - 36M0D7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance 511.1 km / 317.5 mi  
Precipitation Scatter Contour Radius 425.4 km / 264.3 mi

295.7 km / 183.7 mi  
100.0 km / 62.1 mi

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### Coordination Values

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Longitude (NAD 83) 133° 14' 36.0" W  
Ground Elevation (AMSL) 11.1 m / 36.4 ft  
Antenna Centerline (AGL) 2.44 m / 8.0 ft  
Antenna Model SCIENTIFIC-ATLANTA, INC 8136  
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 -2.7 (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	8.40	111.61	-10.20	116.73	-10.40	100.00
5	8.99	106.61	-10.20	115.41	-10.40	100.00
10	9.25	101.62	-10.20	114.84	-10.40	100.00
15	8.87	96.63	-10.20	115.67	-10.40	100.00
20	8.39	91.64	-10.20	116.75	-10.40	100.00
25	8.30	86.64	-10.20	116.95	-10.40	100.00
30	7.39	81.64	-10.20	118.98	-10.40	100.00
35	6.63	76.64	-10.20	118.96	-10.40	100.00
40	5.36	71.64	-10.20	126.79	-10.40	100.00
45	5.96	66.64	-10.20	120.79	-10.40	100.00
50	6.56	61.64	-10.20	119.11	-10.40	100.00
55	6.56	56.64	-10.20	119.10	-10.40	100.00
60	7.09	51.65	-10.20	117.91	-10.40	100.00
65	7.09	46.66	-9.53	119.94	-9.73	100.00
70	7.58	41.67	-8.53	121.92	-8.73	100.00
75	7.58	36.68	-6.87	127.51	-7.07	100.00
80	7.79	31.70	-5.54	131.79	-5.74	100.00
85	9.25	26.86	-3.94	133.72	-4.14	100.00
90	10.46	22.14	-1.48	138.60	-1.68	100.00
95	13.69	18.42	0.75	128.74	0.55	100.00
100	13.68	14.10	2.80	136.25	3.50	100.00
105	13.69	10.40	6.40	150.73	6.20	100.00
110	18.93	12.20	4.60	511.07	4.60	295.73
115	18.98	9.79	7.01	353.32	6.81	207.86
120	18.20	6.74	8.32	206.94	8.12	134.04
125	22.47	8.33	7.80	111.95	7.60	100.00
130	22.46	6.25	9.31	116.34	9.11	100.00
135	19.96	2.05	21.50	176.92	21.30	100.00
140	23.20	3.25	16.30	133.13	16.10	100.00
145	19.42	1.97	21.97	183.68	21.77	100.00
150	17.15	5.61	10.58	146.50	10.38	100.00
155	17.17	6.83	8.14	136.63	7.94	100.00
160	14.86	10.15	6.65	144.50	6.45	100.00
165	12.57	13.27	3.53	145.96	4.33	100.00
170	8.74	17.70	1.18	156.83	0.98	100.00
175	5.26	21.56	-1.14	166.87	-1.34	100.00
180	3.05	23.90	-2.54	205.19	-2.74	100.00
185	4.40	22.42	-1.65	175.37	-1.85	100.00



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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 -2.7 (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	3.74	22.68	-1.81	187.54	-2.01	100.00
195	4.36	22.20	-1.52	176.60	-1.72	100.00
200	5.81	22.04	-1.43	157.22	-1.63	100.00
205	6.21	23.91	-2.55	148.86	-2.75	100.00
210	6.87	26.40	-3.76	141.52	-3.96	100.00
215	7.67	29.45	-4.98	134.26	-5.18	100.00
220	7.41	33.52	-5.90	131.50	-6.10	100.00
225	7.61	37.58	-7.23	126.19	-7.43	100.00
230	7.19	42.06	-8.61	122.62	-8.81	100.00
235	6.73	46.62	-9.52	120.81	-9.72	100.00
240	6.39	51.20	-10.20	119.50	-10.40	100.00
245	5.92	55.84	-10.20	121.15	-10.40	100.00
250	5.09	60.58	-10.20	129.75	-10.40	100.00
255	3.61	65.42	-10.20	148.39	-10.40	100.00
260	1.79	70.25	-10.20	208.47	-10.40	103.01
265	1.38	74.80	-10.20	230.45	-10.40	112.72
270	2.10	79.24	-10.20	194.66	-10.40	100.00
275	3.08	83.75	-10.20	161.55	-10.40	100.00
280	3.25	88.33	-10.20	156.92	-10.40	100.00
285	3.21	92.93	-10.20	158.17	-10.40	100.00
290	2.97	97.51	-10.20	164.51	-10.40	100.00
295	2.64	102.06	-10.20	175.12	-10.40	100.00
300	2.15	106.54	-10.20	192.75	-10.40	100.00
305	1.32	110.90	-10.20	233.98	-10.40	114.20
310	1.03	115.28	-10.20	250.40	-10.40	119.11
315	0.00	119.38	-10.20	409.73	-10.40	198.50
320	0.00	123.65	-10.20	409.73	-10.40	198.50
325	0.00	127.83	-10.20	409.73	-10.40	198.50
330	0.00	131.91	-10.20	409.73	-10.40	198.50
335	0.37	136.03	-10.20	355.45	-10.40	170.79
340	2.32	131.55	-10.20	186.58	-10.40	100.00
345	4.71	126.63	-10.20	133.17	-10.40	100.00
350	6.08	121.64	-10.20	120.25	-10.40	100.00
355	7.28	116.63	-10.20	117.48	-10.40	100.00

## 5. CERTIFICATION

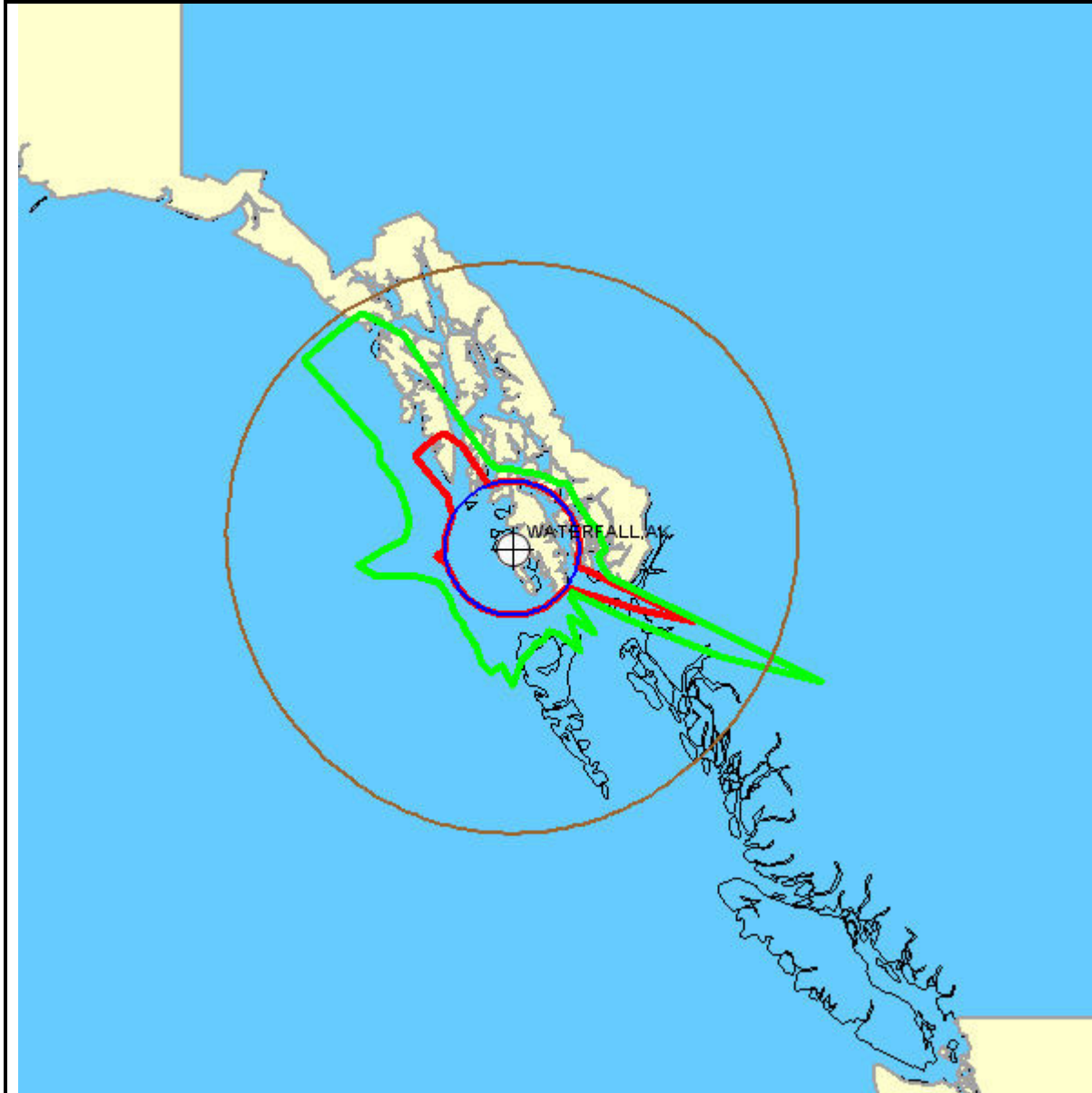
I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA 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: June 09, 2010

# WATERFALL GROUP, LTD.



**Legend:**

Scale: 1:10,000,000

Great Circle: 6.1 GHz 

4.0 GHz 

Precipitation Scatter: 6.1 GHz 

4.0 GHz 

Earth Station Site: 



**COMSEARCH®**  
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