

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Windy City Cellular
Adak, Alaska**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
April 25, 2011

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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

None

No 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.

Expedited coordination data for this earth station was sent to the below listed carriers with a letter dated April 15, 2011.

Company

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: 04/25/2011
Job Number: 110415COMSJC01

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code WINDYC
Licensee Name Windy City Cellular

Site Information ADAK, ALASKA

Venue Name
Latitude (NAD 83) 51° 51' 54.7" N
Longitude (NAD 83) 176° 38' 24.0" W
Climate Zone B
Rain Zone 3
Ground Elevation (AMSL) 6.1 m / 20.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 110° W to 193° West Longitude
Azimuth Range 108.8° to 200.5°
Corresponding Elevation Angles 5.5° / 28.7°
Antenna Centerline (AGL) 6.1 m / 20.0 ft

Antenna Information

	Receive	Transmit
Manufacturer	Scientific-Atlanta	Scientific-Atlanta
Model	11.0 Meter	11.0 Meter
Gain / Diameter	52.0 dBi / 11.0 m	54.4 dBi / 11.0 m
3-dB / 15-dB Beamwidth	0.43° / 0.81°	0.32° / 0.62°

56K0G7W to 36M0G7W

Max Available RF Power	(dBW/4 kHz)		-4.5	-29.5
	(dBW/MHz)		7.0	-5.5
Maximum EIRP	(dBW/4 kHz)		49.9	24.9
	(dBW/MHz)		61.4	48.9

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)	56K0G7W - 36M0G7W / 3700.0 - 4200.0	56K0G7W - 36M0G7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance	633.9 km / 393.9 mi	342.6 km / 212.9 mi
Precipitation Scatter Contour Radius	427.2 km / 265.4 mi	100.0 km / 62.1 mi

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Coordination Values

ADAK, AK

Licensee Name Windy City Cellular
Latitude (NAD 83) 51° 51' 54.7" N
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Ground Elevation (AMSL) 6.1 m / 20.0 ft
Antenna Centerline (AGL) 6.1 m / 20.0 ft
Antenna Model Scientific-Atlanta 11 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 -4.5 (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	11.21	108.67	-10.00	108.33	-10.00	100.00
5	11.21	103.70	-10.00	108.33	-10.00	100.00
10	11.68	98.72	-10.00	106.24	-10.00	100.00
15	11.68	93.74	-10.00	106.25	-10.00	100.00
20	10.47	88.77	-10.00	111.63	-10.00	100.00
25	10.90	83.79	-10.00	109.72	-10.00	100.00
30	10.90	78.82	-10.00	109.72	-10.00	100.00
35	10.90	73.84	-10.00	109.72	-10.00	100.00
40	10.90	68.86	-10.00	109.72	-10.00	100.00
45	11.14	63.90	-10.00	108.68	-10.00	100.00
50	11.14	58.93	-10.00	108.67	-10.00	100.00
55	11.14	53.97	-10.00	108.68	-10.00	100.00
60	9.65	48.90	-10.00	114.54	-10.00	100.00
65	9.65	43.92	-9.07	117.30	-9.07	100.00
70	9.65	38.95	-7.76	119.46	-7.76	100.00
75	10.31	34.07	-6.31	121.74	-6.31	100.00
80	10.31	29.13	-4.61	127.50	-4.61	100.00
85	10.31	24.22	-2.60	134.97	-2.60	100.00
90	8.62	19.01	0.02	152.03	0.02	100.00
95	8.62	14.11	3.27	167.32	3.27	100.00
100	8.62	9.30	7.79	191.97	7.79	100.00
105	8.62	4.88	14.79	236.60	14.79	108.99
110	7.78	1.17	30.25	633.94	30.25	342.62
115	5.98	3.17	19.46	393.62	19.46	190.85
120	5.98	5.92	12.69	236.45	12.69	108.72
125	5.98	8.56	8.69	209.98	8.69	100.00
130	5.98	11.06	5.90	192.90	5.90	100.00
135	5.98	13.43	3.80	180.93	3.80	100.00
140	5.98	15.63	2.15	172.15	2.15	100.00
145	4.41	19.07	-0.01	184.21	-0.01	100.00
150	4.41	20.90	-1.00	178.80	-1.00	100.00
155	4.41	22.49	-1.80	174.41	-1.80	100.00
160	4.37	23.85	-2.44	171.45	-2.44	100.00
165	4.37	24.90	-2.91	168.97	-2.91	100.00
170	4.37	25.67	-3.23	167.26	-3.23	100.00
175	4.29	26.21	-3.46	167.03	-3.46	100.00
180	4.29	26.37	-3.53	166.70	-3.53	100.00
185	4.29	26.21	-3.46	167.04	-3.46	100.00

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Antenna Centerline (AGL)	6.1 m / 20.0 ft			
Antenna Model	Scientific-Atlanta 11 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			-4.5 (dBW/4 kHz)	

Azimuth (°)	Receive 4.0 GHz		Transmit 6.1 GHz			
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	4.62	25.43	-3.13	164.98	-3.13	100.00
195	4.93	24.36	-2.67	163.73	-2.67	100.00
200	4.62	24.10	-2.55	167.98	-2.55	100.00
205	4.78	24.34	-2.66	165.56	-2.66	100.00
210	4.78	25.66	-3.23	162.64	-3.23	100.00
215	4.78	27.78	-4.09	158.40	-4.09	100.00
220	5.98	29.63	-4.79	140.13	-4.79	100.00
225	5.98	32.96	-5.95	135.52	-5.95	100.00
230	5.98	36.63	-7.10	131.17	-7.10	100.00
235	5.98	40.56	-8.20	127.21	-8.20	100.00
240	5.98	44.66	-9.25	123.65	-9.25	100.00
245	5.98	48.89	-10.00	121.22	-10.00	100.00
250	7.26	52.84	-10.00	118.10	-10.00	100.00
255	7.34	57.30	-10.00	117.92	-10.00	100.00
260	7.35	61.83	-10.00	117.92	-10.00	100.00
265	7.34	66.40	-10.00	117.92	-10.00	100.00
270	7.35	71.00	-10.00	117.92	-10.00	100.00
275	8.66	75.50	-10.00	116.74	-10.00	100.00
280	8.66	80.18	-10.00	116.74	-10.00	100.00
285	8.66	84.87	-10.00	116.74	-10.00	100.00
290	8.70	89.56	-10.00	116.66	-10.00	100.00
295	8.70	94.26	-10.00	116.66	-10.00	100.00
300	8.70	98.96	-10.00	116.65	-10.00	100.00
305	9.96	103.75	-10.00	113.83	-10.00	100.00
310	9.96	108.46	-10.00	113.83	-10.00	100.00
315	9.96	113.16	-10.00	113.83	-10.00	100.00
320	9.96	117.83	-10.00	113.83	-10.00	100.00
325	9.96	122.47	-10.00	113.83	-10.00	100.00
330	9.96	127.07	-10.00	113.83	-10.00	100.00
335	9.96	131.62	-10.00	113.83	-10.00	100.00
340	9.92	128.63	-10.00	113.92	-10.00	100.00
345	11.21	123.58	-10.00	108.33	-10.00	100.00
350	11.22	118.61	-10.00	108.32	-10.00	100.00
355	11.21	113.64	-10.00	108.33	-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.



Jeffrey E. Cowles
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DATED: April 25, 2011