

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**Federal Aviation Administration**  
**TALKEETNA, AK**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
March 11, 2015

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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 01/28/2015.

Company

ACS Long Distance License Sub, Inc.  
ACS Wireless License Sub, Inc.  
ACS of Anchorage License Sub, Inc.  
Alascom Inc  
Alaska Pipeline Company  
Alaska Railroad Corporation  
Alaska Wireless Network, LLC  
Chugach Electric Association, Inc.  
ENSTAR NATURAL GAS COMPANY  
GCI Communications Corporation  
MATANUSKA KENAI INC  
MATANUSKA SUSITNA BOROUGH SCHOOL DIST  
MTA Communications, LLC  
Matanuska Telephone Association, Inc.  
Matanuska-Susitna, Bourough of  
New Cingular Wireless PCS LLC - Alaska  
Norstar Pipeline Company  
State of Alaska  
Verizon Wireless (VAW) LLC - Alaska

## **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

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(703)726-5500 <http://www.comsearch.com>

Date: 03/11/2015  
Job Number: 150128COMSGE01

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E960333  
Licensee Code FEDFAA  
Licensee Name Federal Aviation Administration

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### Site Information TALKEETNA, AK

Venue Name  
Latitude (NAD 83) 62° 17' 56.0" N  
Longitude (NAD 83) 150° 6' 16.0" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 170.0 m / 557.7 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 115° W to 188° West Longitude  
Azimuth Range 141.6° to 221.3°  
Corresponding Elevation Angles 13.9° / 13.0°  
Antenna Centerline (AGL) 2.13 m / 7.0 ft

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### Antenna Information

		Receive - FCC32	Transmit - FCC32		
Manufacturer		Scientific-Atlanta	Scientific-Atlanta		
Model		8136	8136		
Gain / Diameter		41.8 dBi / 3.6 m	45.3 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)		-12.3	11.7	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)		33.0	57.0	
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%

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### Frequency Information

	Receive 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	131KG7D - 153KG7D / 3700.0 - 4200.0	114KG7D - 153KG7D / 5925.0 - 6425.0
Max Great Circle Coordination Distance	388.0 km / 241.0 mi	187.9 km / 116.7 mi
Precipitation Scatter Contour Radius	526.2 km / 326.9 mi	100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

### TALKEETNA, AK

Licensee Name Federal Aviation Administration  
Latitude (NAD 83) 62° 17' 56.0" N  
Longitude (NAD 83) 150° 6' 16.0" W  
Ground Elevation (AMSL) 170.0 m / 557.7 ft  
Antenna Centerline (AGL) 2.13 m / 7.0 ft  
Antenna Model Scientific-Atlanta 3.6 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 -12.3 (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	0.00	137.03	-10.00	285.28	-10.00	136.26
5	0.00	134.81	-10.00	285.28	-10.00	136.26
10	0.00	130.08	-10.00	285.28	-10.00	136.26
15	0.00	125.32	-10.00	285.28	-10.00	136.26
20	0.00	120.53	-10.00	285.28	-10.00	136.26
25	0.00	115.72	-10.00	285.28	-10.00	136.26
30	0.00	110.89	-10.00	285.28	-10.00	136.26
35	0.00	106.06	-10.00	285.28	-10.00	136.26
40	0.00	101.21	-10.00	285.28	-10.00	136.26
45	0.00	96.36	-10.00	285.28	-10.00	136.26
50	0.90	91.52	-10.00	225.69	-10.00	100.00
55	0.84	86.65	-10.00	228.89	-10.00	100.00
60	1.04	81.77	-10.00	219.02	-10.00	100.00
65	0.78	76.91	-10.00	232.67	-10.00	100.58
70	0.78	72.05	-10.00	232.60	-10.00	100.53
75	1.37	67.15	-10.00	209.24	-10.00	100.00
80	1.41	62.29	-10.00	208.11	-10.00	100.00
85	1.71	57.41	-10.00	202.39	-10.00	100.00
90	1.91	52.54	-10.00	197.00	-10.00	100.00
95	2.49	47.62	-9.95	183.67	-9.95	100.00
100	2.37	42.85	-8.80	191.74	-8.80	100.00
105	2.41	38.08	-7.52	197.03	-7.52	100.00
110	1.95	33.53	-6.13	211.48	-6.13	100.00
115	1.62	29.07	-4.59	229.67	-4.59	100.00
120	0.92	25.01	-2.95	266.60	-2.95	113.69
125	0.41	21.24	-1.18	319.83	-1.18	144.46
130	0.00	18.01	0.61	361.31	0.61	174.59
135	0.00	15.35	2.35	374.88	2.35	181.31
140	0.00	14.00	3.35	382.88	3.35	185.18
145	0.00	14.32	3.10	380.87	3.10	184.22
150	0.00	15.64	2.15	373.30	2.15	180.53
155	0.00	16.79	1.37	367.24	1.37	177.55
160	0.00	17.75	0.77	362.53	0.77	175.20
165	0.00	18.52	0.31	359.00	0.31	173.42
170	0.00	19.06	-0.00	356.57	-0.00	172.19
175	0.00	19.39	-0.19	355.14	-0.19	171.47
180	0.00	19.51	-0.25	354.66	-0.25	171.22
185	0.00	19.40	-0.19	355.13	-0.19	171.46



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### Coordination Values

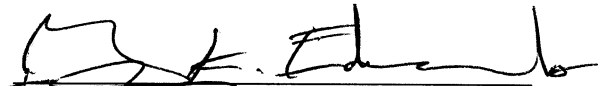
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Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power			-12.3 (dBW/4 kHz)	

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	0.00	19.07	-0.01	356.56	-0.01	172.19
195	0.00	18.51	0.31	359.02	0.31	173.43
200	0.00	17.75	0.77	362.54	0.77	175.21
205	0.00	16.79	1.38	367.25	1.38	177.55
210	0.00	15.63	2.15	373.31	2.15	180.54
215	0.00	14.31	3.11	380.96	3.11	184.26
220	0.00	13.11	4.06	387.96	4.06	187.91
225	0.00	13.55	3.70	385.71	3.70	186.54
230	0.00	15.63	2.15	373.33	2.15	180.55
235	0.00	18.82	0.13	357.63	0.13	172.73
240	0.00	22.65	-1.88	342.41	-1.88	163.30
245	0.00	26.86	-3.73	328.82	-3.73	156.45
250	0.00	31.28	-5.38	316.97	-5.38	150.67
255	0.00	35.84	-6.86	306.04	-6.86	145.78
260	0.00	40.50	-8.19	297.09	-8.19	141.62
265	0.00	45.21	-9.38	289.25	-9.38	138.05
270	0.00	49.97	-10.00	285.28	-10.00	136.26
275	0.00	54.76	-10.00	285.28	-10.00	136.26
280	0.00	59.58	-10.00	285.28	-10.00	136.26
285	0.00	64.41	-10.00	285.28	-10.00	136.26
290	0.00	69.26	-10.00	285.28	-10.00	136.26
295	0.00	74.12	-10.00	285.28	-10.00	136.26
300	0.00	78.98	-10.00	285.28	-10.00	136.26
305	0.00	83.85	-10.00	285.28	-10.00	136.26
310	0.00	88.72	-10.00	285.28	-10.00	136.26
315	0.00	93.59	-10.00	285.28	-10.00	136.26
320	0.00	98.46	-10.00	285.28	-10.00	136.26
325	0.00	103.32	-10.00	285.28	-10.00	136.26
330	0.00	108.18	-10.00	285.28	-10.00	136.26
335	0.00	113.04	-10.00	285.28	-10.00	136.26
340	0.00	117.88	-10.00	285.28	-10.00	136.26
345	0.00	122.70	-10.00	285.28	-10.00	136.26
350	0.00	127.51	-10.00	285.28	-10.00	136.26
355	0.00	132.29	-10.00	285.28	-10.00	136.26

## 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: March 11, 2015