

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Futaris, Inc.
ANCHORAGE, AK
(3.8 meter)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
November 16, 2015

TABLE OF CONTENTS

1. CONCLUSIONS	3
2. SUMMARY OF RESULTS	4
3. SUPPLEMENTAL SHOWING	5
4. EARTH STATION COORDINATION DATA.....	6
5. CERTIFICATION.....	10

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

Chugach Electric Association, Inc.
GCI Communications Corporation

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 11/13/2015.

Company

ACS Long Distance License Sub, Inc.
ACS Wireless License Sub, Inc.
ACS of Anchorage License Sub, Inc.
Alascom Inc
Alaska Pipeline Company
Alaska Public Telecommunications, Inc.
Alaska Wireless Network, LLC
Chugach Electric Association, Inc.
ENSTAR NATURAL GAS COMPANY
GCI Communications Corporation
Homer Electric Association
MATANUSKA KENAI INC
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

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Date: 11/16/2015
Job Number: 151113COMSGE05

Administrative Information

Status ENGINEER PROPOSAL
Call Sign ANCHORAG
Licensee Code S30800
Licensee Name Futaris, Inc.

Site Information ANCHORAGE, AK

Venue Name
Latitude (NAD 83) 61° 8' 28.4" N
Longitude (NAD 83) 149° 52' 30.7" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 32.0 m / 105.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 90° W to 143° West Longitude
Azimuth Range 116.9° to 172.2°
Corresponding Elevation Angles 5.4° / 20.5°
Antenna Centerline (AGL) 2.74 m / 9.0 ft

Antenna Information

		Receive - FCC32		Transmit - FCC32	
Manufacturer		General Dynamics		General Dynamics	
Model		1383		1383	
Gain / Diameter		42.0 dBi / 3.8 m		46.5 dBi / 3.8 m	
3-dB / 15-dB Beamwidth		1.40° / 3.20°		0.90° / 2.00°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-13.8 10.2	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz) (dBW)			32.7 56.7	
Interference Objectives:	Long Term Short Term	-156.0 dBW/MHz -146.0 dBW/MHz	20% 0.01%	-154.0 dBW/4 kHz -131.0 dBW/4 kHz	20% 0.0025%

Frequency Information

	Receive 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	1M50G7W - 72M0G7W / 3700.0 - 4200.0	1M50G7W - 72M0G7W / 5925.0 - 5948.0 1M50G7W - 72M0G7W / 6045.8 - 6067.0 1M50G7W - 72M0G7W / 6120.0 - 6126.0 1M50G7W - 72M0G7W / 6169.0 - 6319.0 1M50G7W - 72M0G7W / 6372.0 - 6425.0
Max Great Circle Coordination Distance	552.3 km / 343.1 mi	235.7 km / 146.5 mi
Precipitation Scatter Contour Radius	612.2 km / 380.3 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Coordination Values

ANCHORAGE, AK

Licensee Name Futaris, Inc.
Latitude (NAD 83) 61° 8' 28.4" N
Longitude (NAD 83) 149° 52' 30.7" W
Ground Elevation (AMSL) 32.0 m / 105.0 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model General Dynamics 3.8 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 -13.8 (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	116.82	-10.00	285.28	-10.00	133.38
5	0.00	111.84	-10.00	285.28	-10.00	133.38
10	0.00	106.87	-10.00	285.28	-10.00	133.38
15	0.00	101.89	-10.00	285.28	-10.00	133.38
20	0.00	96.91	-10.00	285.28	-10.00	133.38
25	0.24	91.93	-10.00	279.77	-10.00	129.77
30	0.27	86.95	-10.00	276.71	-10.00	127.75
35	0.25	81.97	-10.00	278.43	-10.00	128.89
40	0.22	77.00	-10.00	282.76	-10.00	131.73
45	0.32	72.01	-10.00	270.32	-10.00	123.47
50	0.31	67.04	-10.00	271.57	-10.00	124.31
55	0.53	62.05	-10.00	247.78	-10.00	107.87
60	0.56	57.07	-10.00	245.83	-10.00	106.47
65	0.56	52.10	-10.00	245.78	-10.00	106.43
70	0.66	47.12	-9.83	240.72	-9.83	102.47
75	0.70	42.15	-8.62	245.25	-8.62	103.90
80	0.90	37.17	-7.26	241.00	-7.26	100.00
85	1.18	32.19	-5.69	237.68	-5.69	100.00
90	1.43	27.21	-3.87	240.14	-3.87	100.00
95	1.64	22.24	-1.68	246.63	-1.68	100.00
100	1.81	17.30	1.05	259.07	1.05	100.00
105	1.90	12.43	4.64	282.49	4.64	105.52
110	1.87	7.77	9.75	327.12	9.75	123.84
115	1.92	3.95	17.09	552.28	17.09	235.73
120	1.82	4.50	15.67	498.15	15.67	204.99
125	1.70	6.67	11.40	403.29	11.40	159.15
130	1.65	8.66	8.56	341.57	8.56	131.76
135	1.38	10.73	6.23	316.20	6.23	123.69
140	0.92	12.87	4.26	321.34	4.26	130.94
145	0.78	14.54	2.94	320.12	2.94	132.88
150	0.78	15.92	1.95	311.55	1.95	129.83
155	0.66	17.24	1.09	314.62	1.09	133.06
160	0.64	18.26	0.47	310.30	0.47	131.92
165	0.38	19.31	-0.14	331.54	-0.14	145.67
170	0.32	19.95	-0.50	337.04	-0.50	150.49
175	0.34	20.34	-0.71	332.70	-0.71	147.73
180	0.25	21.64	-1.38	339.68	-1.38	154.46
185	0.00	24.03	-2.52	337.66	-2.52	155.41

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Coordination Values

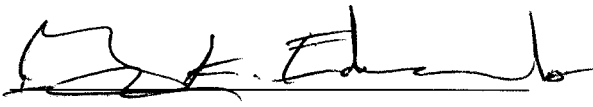
ANCHORAGE, AK

Licensee Name Futaris, Inc.
Latitude (NAD 83) 61° 8' 28.4" N
Longitude (NAD 83) 149° 52' 30.7" W
Ground Elevation (AMSL) 32.0 m / 105.0 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model General Dynamics 3.8 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 -13.8 (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	0.22	26.74	-3.68	325.83	-3.68	148.85
195	0.49	30.00	-4.93	283.39	-4.93	124.07
200	0.00	34.07	-6.31	309.84	-6.31	142.78
205	0.23	37.98	-7.49	297.88	-7.49	136.57
210	0.62	42.03	-8.59	250.43	-8.59	107.50
215	0.64	46.39	-9.66	243.06	-9.66	103.93
220	0.47	50.90	-10.00	253.70	-10.00	112.00
225	0.00	55.54	-10.00	285.28	-10.00	133.38
230	0.00	60.09	-10.00	285.28	-10.00	133.38
235	0.00	64.68	-10.00	285.28	-10.00	133.38
240	0.00	69.30	-10.00	285.28	-10.00	133.38
245	0.00	73.95	-10.00	285.28	-10.00	133.38
250	0.00	78.62	-10.00	285.28	-10.00	133.38
255	0.00	83.29	-10.00	285.28	-10.00	133.38
260	0.00	87.97	-10.00	285.28	-10.00	133.38
265	0.00	92.66	-10.00	285.28	-10.00	133.38
270	0.21	97.35	-10.00	283.49	-10.00	132.22
275	0.34	102.04	-10.00	267.68	-10.00	121.69
280	0.28	106.70	-10.00	275.00	-10.00	126.61
285	0.00	111.32	-10.00	285.28	-10.00	133.38
290	0.00	115.94	-10.00	285.28	-10.00	133.38
295	0.00	120.53	-10.00	285.28	-10.00	133.38
300	0.00	125.07	-10.00	285.28	-10.00	133.38
305	0.00	129.56	-10.00	285.28	-10.00	133.38
310	0.00	133.97	-10.00	285.28	-10.00	133.38
315	0.00	138.29	-10.00	285.28	-10.00	133.38
320	0.00	142.46	-10.00	285.28	-10.00	133.38
325	0.00	146.45	-10.00	285.28	-10.00	133.38
330	0.00	146.56	-10.00	285.28	-10.00	133.38
335	0.00	141.62	-10.00	285.28	-10.00	133.38
340	0.00	136.68	-10.00	285.28	-10.00	133.38
345	0.00	131.72	-10.00	285.28	-10.00	133.38
350	0.00	126.75	-10.00	285.28	-10.00	133.38
355	0.00	121.79	-10.00	285.28	-10.00	133.38

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: November 16, 2015