

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**GCI Communication Corporation**  
**EAGLE, AK**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
September 19, 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**

There were no great circle interference cases which exceeded the interference objective on a line-of-sight basis identified during the interference study of the proposed earth station.

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.

Coordination data for this earth station was sent to the below listed carriers.

Company

GCI Communication Corporation

## **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: 09/19/2011  
 Job Number: 110919COMSTC03

**Administrative Information**

Licensee Name: GCI Communication Corporation

**Site Information**

**EAGLE, AK**

Venue Name  
 Latitude (NAD 83): 64° 47' 5.0" N  
 Longitude (NAD 83): 141° 12' 25.5" W  
 Climate Zone: A  
 Rain Zone: 2  
 Ground Elevation (AMSL): 274.0 m / 899.0 ft

**Link Information**

Satellite Type: Geostationary  
 Mode: TR - Transmit-Receive  
 Modulation: Digital  
 Satellite Arc: 91° W to 194° West Longitude  
 Azimuth Range: 127.0° to 235.5°  
 Corresponding Elevation Angles: 7.2° / 6.3°  
 Antenna Centerline (AGL): 2.13 m / 7.0 ft

**Antenna Information**

**Receive**

**Transmit**

Manufacturer		Patriot		Patriot
Model		380AZ		380AZ
Gain / Diameter		42.3 dBi / 3.8 m		46.3 dBi / 3.8 m
3-dB / 15-dB Beamwidth		1.20° / 2.40°		0.60° / 1.20°
				6K72G7W - 36M0G7W
				<u>6K72D7W - 36M0D7W</u>
Max Available RF Power	(dBW/4 kHz)			-2.7
	(dBW/MHz)			-0.45
				-16.53
				7.47
Maximum EIRP	(dBW/4 kHz)			43.6
	(dBW/MHz)			45.85
	(dBW)			45.85
				29.77
				53.77
				69.31
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
				20%
				0.0025%

**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	519.2 km / 322.6 mi	295.2 km / 183.4 mi
Precipitation Scatter Contour Radius	593.6 km / 368.8 mi	100.6 km / 62.5 mi

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## Earth Station Data Sheet

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### Coordination Values

### EAGLE VILLAG, AK

Licensee Name GCI Communication Corporation  
Latitude (NAD 83) 64° 47' 5.0" N  
Longitude (NAD 83) 141° 12' 25.5" W  
Ground Elevation (AMSL) 274.0 m / 899.0 ft  
Antenna Centerline (AGL) 2.13 m / 7.0 ft  
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	0.00	124.25	-10.00	285.28	-10.00	170.66
5	0.00	121.72	-10.00	285.28	-10.00	170.66
10	0.00	116.77	-10.00	285.28	-10.00	170.66
15	0.00	111.82	-10.00	285.28	-10.00	170.66
20	0.00	106.87	-10.00	285.28	-10.00	170.66
25	0.00	101.91	-10.00	285.28	-10.00	170.66
30	0.00	96.95	-10.00	285.28	-10.00	170.66
35	0.00	91.99	-10.00	285.28	-10.00	170.66
40	0.00	87.03	-10.00	285.28	-10.00	170.66
45	0.00	82.07	-10.00	285.28	-10.00	170.66
50	0.00	77.11	-10.00	285.28	-10.00	170.66
55	0.00	72.15	-10.00	285.28	-10.00	170.66
60	0.00	67.20	-10.00	285.28	-10.00	170.66
65	0.00	62.24	-10.00	285.28	-10.00	170.66
70	0.00	57.30	-10.00	285.28	-10.00	170.66
75	0.00	52.36	-10.00	285.28	-10.00	170.66
80	0.00	47.42	-9.90	285.92	-9.90	171.05
85	0.00	42.50	-8.71	293.62	-8.71	175.67
90	0.00	37.60	-7.38	302.50	-7.38	180.82
95	0.00	32.72	-5.87	313.54	-5.87	186.65
100	0.00	27.88	-4.13	325.90	-4.13	193.33
105	0.00	23.09	-2.09	340.85	-2.09	201.14
110	0.00	18.42	0.37	359.42	0.37	208.93
115	0.00	13.97	3.37	383.06	3.37	221.31
120	0.00	10.03	6.97	412.27	6.97	237.55
125	0.00	7.47	10.17	499.05	10.17	282.04
130	0.00	7.79	9.71	472.97	9.71	265.75
135	0.00	9.38	7.69	435.43	7.69	246.19
140	0.00	10.87	6.10	409.37	6.10	234.46
145	0.00	12.22	4.83	394.26	4.83	227.69
150	0.00	13.42	3.81	386.59	3.81	223.20
155	0.00	14.45	3.00	380.09	3.00	219.72
160	0.00	15.32	2.37	375.06	2.37	217.06
165	0.00	16.00	1.90	371.32	1.90	215.09
170	0.00	16.50	1.57	368.73	1.57	213.74
175	0.00	16.79	1.37	367.21	1.37	212.94
180	0.00	16.90	1.31	366.70	1.31	212.68
185	0.00	16.80	1.37	367.19	1.37	212.93



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## Earth Station Data Sheet

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### Coordination Values

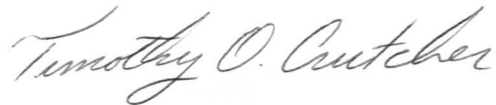
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Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%  
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%  
Max Available RF Power -2.7 (dBW/4 kHz)

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	0.00	16.50	1.56	368.69	1.56	213.72
195	0.00	16.01	1.89	371.31	1.89	215.08
200	0.00	15.32	2.37	375.06	2.37	217.05
205	0.00	14.45	3.00	380.09	3.00	219.72
210	0.00	13.42	3.81	386.59	3.81	223.20
215	0.00	12.22	4.82	394.23	4.82	227.67
220	0.00	10.88	6.09	408.39	6.09	234.16
225	0.00	9.39	7.69	433.74	7.69	245.41
230	0.00	7.78	9.73	470.36	9.73	264.23
235	0.00	6.30	12.01	519.18	12.01	295.24
240	0.00	7.72	9.82	437.32	9.82	250.88
245	0.00	11.36	5.61	400.77	5.61	231.24
250	0.00	15.76	2.06	372.60	2.06	215.76
255	0.00	20.44	-0.76	350.81	-0.76	204.57
260	0.00	25.23	-3.05	333.76	-3.05	197.47
265	0.00	30.09	-4.96	319.96	-4.96	190.14
270	0.00	34.99	-6.60	307.85	-6.60	183.84
275	0.00	39.90	-8.03	298.15	-8.03	178.32
280	0.00	44.84	-9.29	289.83	-9.29	173.41
285	0.00	49.78	-10.00	285.28	-10.00	170.66
290	0.00	54.73	-10.00	285.28	-10.00	170.66
295	0.00	59.69	-10.00	285.28	-10.00	170.66
300	0.00	64.65	-10.00	285.28	-10.00	170.66
305	0.00	69.62	-10.00	285.28	-10.00	170.66
310	0.00	74.58	-10.00	285.28	-10.00	170.66
315	0.00	79.55	-10.00	285.28	-10.00	170.66
320	0.00	84.52	-10.00	285.28	-10.00	170.66
325	0.00	89.49	-10.00	285.28	-10.00	170.66
330	0.00	94.46	-10.00	285.28	-10.00	170.66
335	0.00	99.43	-10.00	285.28	-10.00	170.66
340	0.00	104.40	-10.00	285.28	-10.00	170.66
345	0.00	109.37	-10.00	285.28	-10.00	170.66
350	0.00	114.33	-10.00	285.28	-10.00	170.66
355	0.00	119.29	-10.00	285.28	-10.00	170.66

## 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  
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Ashburn, VA 20147

DATED: September 19 2011