

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

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

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
November 16, 2012

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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 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.

## **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: 11/16/2012  
Job Number: 121116COMSTC01

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### Administrative Information

Licensee Name GCI Communication Corporation

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### Site Information

#### TAKOTNA, AK

Latitude (NAD 83) 62°59' 14.9" N  
Longitude (NAD 83) 156°3' 57.4" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 128.32 m / 421.0 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 99°W to 194°West Longitude  
Azimuth Range 120.0°to 221.2°  
Corresponding Elevation Angles 5.6°/ 12.5°  
Antenna Centerline (AGL) 3.66 m / 12.0 ft

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### Antenna Information

#### Receive

Manufacturer Skyware Global  
Model 243  
Gain / Diameter 38.0 dBi / 2.4 m  
3-dB / 15-dB Beamwidth 2.10° / 4.00°

#### Transmit

Skyware Global  
243  
42.0 dBi / 2.4 m  
1.30° / 2.60°

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

45K0G7W - 36M0G7W  
45K0D7W - 36M0D7W

-8.1 -16.53  
15.9 7.47

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

33.9 25.47  
57.88 49.45  
44.4 65.01

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

Emission / Frequency Range (MHz)  
45K0G7W - 36M0G7W / 3700.0 - 4200.0  
45K0D7W - 36M0D7W / 3700.0 - 4200.0

#### Transmit 6.1 GHz

45K0G7W - 36M0G7W / 5925.0 - 6425.0  
45K0D7W - 36M0D7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance 498.3 km / 309.6 mi  
Precipitation Scatter Contour Radius 606.2 km / 376.7 mi

239.8 km / 149.0 mi  
100.0 km / 62.1 mi

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### Coordination Values

### TAKOTNA, AK

Licensee Name GCI Communication Corporation  
Latitude (NAD 83) 62°59' 14.9" N  
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Ground Elevation (AMSL) 128.32 m / 421.0 ft  
Antenna Centerline (AGL) 3.66 m / 12.0 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 -8.1 (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)
0	15.37	119.52	-10.00	100.00	-10.00	100.00
5	12.68	114.79	-10.00	100.00	-10.00	100.00
10	12.24	109.85	-10.00	100.00	-10.00	100.00
15	11.75	104.90	-10.00	100.00	-10.00	100.00
20	10.08	99.96	-10.00	100.00	-10.00	100.00
25	9.06	94.98	-10.00	100.00	-10.00	100.00
30	8.55	89.99	-10.00	100.00	-10.00	100.00
35	7.61	85.00	-10.00	107.85	-10.00	100.00
40	5.10	79.99	-10.00	133.88	-10.00	100.00
45	3.85	75.00	-10.00	150.95	-10.00	100.00
50	2.12	70.03	-10.00	191.86	-10.00	100.00
55	1.36	65.07	-10.00	209.45	-10.00	100.00
60	1.08	60.10	-10.00	217.86	-10.00	100.00
65	0.62	55.15	-10.00	241.86	-10.00	118.88
70	0.00	50.22	-10.00	285.28	-10.00	149.26
75	0.00	45.27	-9.39	289.16	-9.39	151.30
80	0.00	40.32	-8.14	297.40	-8.14	155.69
85	0.00	35.39	-6.72	307.00	-6.72	160.87
90	0.00	30.47	-5.10	318.99	-5.10	168.72
95	0.00	25.58	-3.20	332.67	-3.20	176.10
100	0.64	20.58	-0.84	300.47	-0.84	144.70
105	0.74	15.75	2.06	316.19	2.06	150.46
110	0.82	11.08	5.88	341.49	5.88	162.25
115	1.10	6.75	11.28	371.60	11.28	175.98
120	1.40	4.24	16.33	498.34	16.33	239.76
125	1.67	5.58	13.33	428.00	13.33	199.42
130	3.19	5.98	12.58	352.83	12.58	155.40
135	5.58	5.43	13.62	280.48	13.62	110.38
140	5.13	7.39	10.28	245.04	10.28	100.00
145	6.04	7.92	9.53	227.73	9.53	100.00
150	5.82	9.38	7.70	218.34	7.70	100.00
155	6.48	9.80	7.22	206.89	7.22	100.00
160	7.51	9.68	7.36	197.49	7.36	100.00
165	8.29	9.60	7.45	188.87	7.45	100.00
170	6.67	11.71	5.29	195.65	5.29	100.00
175	4.86	13.82	3.49	204.76	3.49	100.00
180	2.93	15.85	2.00	233.83	2.00	100.00
185	2.78	15.90	1.97	237.54	1.97	100.00



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### Coordination Values

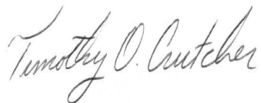
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Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%  
Max Available RF Power -8.1 (dBW/4 kHz)

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	2.28	16.08	1.84	250.17	1.84	107.34
195	2.08	15.75	2.07	257.25	2.07	112.03
200	1.63	15.47	2.26	274.24	2.26	123.34
205	1.26	14.91	2.66	291.37	2.66	133.95
210	0.62	14.42	3.02	332.50	3.02	161.12
215	0.63	13.13	4.04	340.32	4.04	165.25
220	0.33	12.22	4.82	377.39	4.82	194.12
225	0.00	13.06	4.10	388.31	4.10	204.14
230	1.10	14.38	3.06	300.97	3.06	138.38
235	1.75	17.44	0.96	260.46	0.96	115.84
240	2.36	21.29	-1.20	228.12	-1.20	100.00
245	2.58	25.69	-3.25	211.79	-3.25	100.00
250	2.94	30.24	-5.01	197.82	-5.01	100.00
255	4.69	34.61	-6.48	153.62	-6.48	100.00
260	5.90	39.29	-7.86	134.67	-7.86	100.00
265	5.88	44.22	-9.14	129.80	-9.14	100.00
270	5.55	49.19	-10.00	129.48	-10.00	100.00
275	5.78	54.11	-10.00	127.30	-10.00	100.00
280	5.70	59.06	-10.00	128.12	-10.00	100.00
285	4.04	64.13	-10.00	147.35	-10.00	100.00
290	3.23	69.11	-10.00	164.37	-10.00	100.00
295	3.11	74.04	-10.00	168.85	-10.00	100.00
300	3.29	78.97	-10.00	163.02	-10.00	100.00
305	4.96	83.87	-10.00	134.10	-10.00	100.00
310	7.02	88.83	-10.00	114.17	-10.00	100.00
315	7.45	93.81	-10.00	109.57	-10.00	100.00
320	9.16	98.81	-10.00	100.00	-10.00	100.00
325	12.95	103.82	-10.00	100.00	-10.00	100.00
330	12.95	108.82	-10.00	100.00	-10.00	100.00
335	13.27	113.82	-10.00	100.00	-10.00	100.00
340	13.60	118.82	-10.00	100.00	-10.00	100.00
345	13.60	123.81	-10.00	100.00	-10.00	100.00
350	13.22	128.82	-10.00	100.00	-10.00	100.00
355	13.22	124.64	-10.00	100.00	-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.



Timothy O. Crutcher  
Frequency Planner  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147

DATED: November 16, 2012