

## **Exhibit A**

### **Frequency Coordination**

Per 47 C.F.R. Ch. 1 §25.130(b), attached is a “Frequency Coordination and Interference Analysis Report” performed pursuant to 47 C.F.R. Ch. 1 §25.203.

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**GCI Communications Corp.**  
**KOTZEBUE, AK**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
October 17, 2018

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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

Unicom, Inc.

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 10/03/2018.

Company

GCI Communications Corp.

Teck Alaska Incorporated

Unicom, Inc.

## **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: 10/03/2018  
Job Number: 181003COMSTC07

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### Administrative Information

Call Sign E960386  
Licensee Code P3203  
Licensee Name GCI Communications Corp.

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### Site Information

#### KOTZEBUE, AK

Latitude (NAD 83) 66° 53' 7.5" N  
Longitude (NAD 83) 162° 36' 46.5" W  
Climate Zone B  
Rain Zone 2  
Ground Elevation (AMSL) 3.29 m / 10.8 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 110° W to 215° West Longitude  
Azimuth Range 125.1° to 234.7°  
Corresponding Elevation Angles 5.1° / 5.2°  
Antenna Centerline (AGL) 6.1 m / 20.0 ft

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### Antenna Information

#### Receive - S40911

Manufacturer SCIENTIFIC-ATLANTA, INC  
Model 8009A 9.1 METER  
Gain / Diameter 50.3 dBi / 9.1 m  
3-dB / 15-dB Beamwidth 0.52° / 1.06°

#### Transmit - S60911

SCIENTIFIC-ATLANTA, INC  
8009A 9.1 METER  
53.8 dBi / 9.1 m  
0.36° / 0.72°

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

45K0G7W - 108MG7W  
45K0D7W - 108MD7W  
-2.7 -18.29  
21.3 5.71

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

51.1 35.51  
61.1 59.51  
61.1 79.82

Interference Objectives: Long Term -158.0 dBW/MHz 20%  
Short Term -148.0 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 - 108MG7W / 3700.0 - 4200.0  
45K0D7W - 108MD7W / 3700.0 - 4200.0

#### Transmit 6.1 GHz

45K0G7W - 108MG7W / 5925.0 - 6425.0  
45K0D7W - 108MD7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance 810.2 km / 503.4 mi  
Precipitation Scatter Contour Radius 620.1 km / 385.3 mi

403.7 km / 250.8 mi  
101.6 km / 63.1 mi



# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

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Antenna Centerline (AGL) 6.1 m / 20.0 ft  
Antenna Model SCIENTIFIC-ATLANTA, INC 8009A 9.1 METER  
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz  
Interference Objectives: Long Term -158.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%  
Short Term -148.0 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	124.94	-15.70	369.06	-17.20	163.34
5	0.00	119.97	-15.67	369.37	-17.20	163.34
10	0.00	115.00	-10.70	428.66	-17.20	163.35
15	0.00	110.02	-10.70	428.66	-11.22	193.52
20	0.00	105.04	-10.70	428.66	-11.25	193.37
25	0.00	100.06	-10.70	428.66	-11.29	193.17
30	0.00	95.08	-10.70	428.66	-11.30	193.12
35	0.00	90.10	-10.70	428.66	-11.28	193.22
40	0.00	85.12	-10.70	428.66	-11.23	193.48
45	0.00	80.14	-10.70	428.66	-11.33	192.95
50	0.22	75.16	-10.70	422.24	-11.46	189.21
55	0.00	70.19	-10.70	428.66	-11.35	192.83
60	0.00	65.21	-10.70	428.66	-11.21	193.59
65	0.26	60.22	-10.70	407.23	-11.46	182.20
70	0.42	55.24	-10.70	356.84	-11.30	159.52
75	0.40	50.27	-9.81	369.96	-11.42	160.49
80	0.45	45.29	-8.76	367.65	-9.44	163.29
85	0.35	40.34	-7.77	411.33	-8.27	183.96
90	0.42	35.38	-5.85	410.14	-6.35	182.39
95	0.59	30.41	-4.78	379.61	-5.28	167.78
100	0.47	25.51	-3.80	421.56	-3.40	191.64
105	0.38	20.63	-1.95	479.74	-3.20	208.53
110	0.35	15.82	-1.70	495.36	-0.69	229.47
115	0.29	11.19	2.11	585.44	2.61	262.67
120	0.46	6.91	7.48	597.28	7.89	264.58
125	0.67	4.46	12.48	715.74	11.98	403.75
130	0.70	5.73	9.84	645.34	9.34	343.60
135	0.68	7.21	7.09	583.74	7.38	295.44
140	0.60	8.64	5.02	543.56	5.16	261.87
145	0.54	9.93	3.37	514.53	3.87	240.53
150	0.60	10.96	2.34	472.80	2.84	215.01
155	0.41	12.08	1.22	513.68	1.72	233.11
160	0.55	12.73	0.57	457.65	1.07	207.64
165	0.54	13.36	-0.06	450.87	0.44	204.75
170	0.33	14.02	-0.72	518.38	-0.20	236.28
175	0.29	14.33	-1.03	530.77	-0.20	244.08
180	0.36	14.34	-1.04	498.98	-0.20	229.76
185	0.26	14.36	-1.06	545.97	-0.20	251.12

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

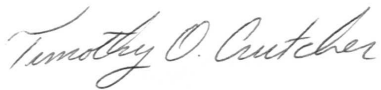
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Antenna Centerline (AGL) 6.1 m / 20.0 ft  
Antenna Model SCIENTIFIC-ATLANTA, INC 8009A 9.1 METER  
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz  
Interference Objectives: Long Term -158.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%  
Short Term -148.0 dBW/MHz 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	14.34	-1.04	572.68	-0.20	261.28
195	0.00	13.89	-0.59	580.43	-0.09	262.04
200	0.00	13.27	0.03	591.30	0.53	266.50
205	0.00	12.48	0.82	605.30	1.32	272.28
210	0.00	11.54	1.76	622.47	2.26	280.26
215	0.00	10.45	2.85	642.19	3.35	291.44
220	0.00	9.22	4.08	665.74	4.58	307.08
225	0.00	7.88	6.42	713.01	6.05	329.43
230	0.00	6.40	8.51	757.21	8.40	363.29
235	0.00	5.21	10.88	810.24	10.38	403.35
240	0.00	7.44	6.86	722.12	6.93	318.12
245	0.00	11.55	1.75	622.31	2.25	279.36
250	0.00	16.16	-1.70	561.51	-0.90	258.05
255	0.00	20.95	-2.08	555.13	-3.20	242.55
260	0.00	25.82	-3.86	526.13	-3.53	240.40
265	0.00	30.73	-4.85	510.78	-5.35	228.72
270	0.00	35.66	-5.96	493.84	-6.46	221.75
275	0.00	40.60	-7.82	466.90	-8.32	210.53
280	0.00	45.56	-8.81	453.77	-9.65	202.80
285	0.00	50.52	-9.91	439.02	-11.47	192.19
290	0.00	55.49	-10.70	428.66	-11.22	193.56
295	0.00	60.46	-10.70	428.66	-11.38	192.66
300	0.00	65.43	-10.70	428.66	-11.45	192.28
305	0.00	70.41	-10.70	428.66	-11.26	193.34
310	0.00	75.39	-10.70	428.66	-11.38	192.68
315	0.00	80.36	-10.70	428.66	-11.47	192.15
320	0.00	85.34	-10.70	428.66	-11.38	192.66
325	0.00	90.32	-10.70	428.66	-11.24	193.44
330	0.00	95.30	-10.70	428.66	-11.21	193.62
335	0.00	100.28	-10.70	428.66	-11.20	193.63
340	0.00	105.26	-10.70	428.66	-11.31	193.05
345	0.00	110.24	-10.70	428.66	-11.48	192.08
350	0.00	115.21	-10.91	425.91	-17.20	163.34
355	0.00	120.19	-15.70	369.06	-17.20	163.34

## 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: October 17, 2018

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**GCI Communications Corp.**  
**KOTZEBUE, AK**  
**Satellite Earth Station**

Prepared By:  
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October 17, 2018

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## 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

Unicom, Inc.

No other carriers reported potential interference cases.

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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 10/03/2018.

Company

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Unicom, Inc.



## **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: 10/03/2018  
Job Number: 181003COMSTC06

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### Administrative Information

Call Sign E960386  
Licensee Code P3203  
Licensee Name GCI Communications Corp.

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### Site Information

**KOTZEBUE, AK**  
Latitude (NAD 83) 66° 53' 7.5" N  
Longitude (NAD 83) 162° 36' 46.5" W  
Climate Zone B  
Rain Zone 2  
Ground Elevation (AMSL) 3.29 m / 10.8 ft

---

### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 110° W to 215° West Longitude  
Azimuth Range 125.1° to 234.7°  
Corresponding Elevation Angles 5.1° / 5.2°  
Antenna Centerline (AGL) 4.1 m / 13.5 ft

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### Antenna Information

	Receive	Transmit
Manufacturer	ViaSat/Scientific-Atlanta	ViaSat/Scientific-Atlanta
Model	8060	8060
Gain / Diameter	46.0 dBi / 6.1 m	49.8 dBi / 6.1 m
3-dB / 15-dB Beamwidth	0.40° / 0.80°	0.25° / 0.50°

		45K0G7W - 108MG7W		
		45K0D7W - 108MD7W		
Max Available RF Power	(dBW/4 kHz)	-2.7	-18.29	
	(dBW/MHz)	21.3	5.71	
Maximum EIRP	(dBW/4 kHz)	47.1	31.51	
	(dBW/MHz)	58.26	55.51	
	(dBW)	58.26	75.82	
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)	45K0G7W - 108MG7W / 3700.0 - 4200.0 45K0D7W - 108MD7W / 3700.0 - 4200.0	45K0G7W - 108MG7W / 5925.0 - 6425.0 45K0D7W - 108MD7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance	840.6 km / 522.3 mi	388.4 km / 241.3 mi
Precipitation Scatter Contour Radius	617.2 km / 383.5 mi	101.6 km / 63.1 mi

# COMSEARCH

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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	124.94	-10.00	412.20	-10.00	200.77
5	0.00	119.97	-10.00	412.20	-10.00	200.77
10	0.00	115.00	-10.00	412.20	-10.00	200.77
15	0.00	110.02	-10.00	412.20	-10.00	200.77
20	0.00	105.04	-10.00	412.20	-10.00	200.77
25	0.00	100.06	-10.00	412.20	-10.00	200.77
30	0.00	95.08	-10.00	412.20	-10.00	200.77
35	0.00	90.10	-10.00	412.20	-10.00	200.77
40	0.00	85.12	-10.00	412.20	-10.00	200.77
45	0.00	80.14	-10.00	412.20	-10.00	200.77
50	0.23	75.16	-10.00	401.00	-10.00	194.76
55	0.00	70.19	-10.00	412.20	-10.00	200.77
60	0.00	65.21	-10.00	412.20	-10.00	200.77
65	0.28	60.22	-10.00	383.45	-10.00	185.89
70	0.45	55.24	-10.00	334.50	-10.00	160.27
75	0.44	50.26	-10.00	338.44	-10.00	162.27
80	0.48	45.29	-9.40	332.62	-9.40	159.08
85	0.38	40.34	-8.14	374.08	-8.14	180.26
90	0.46	35.37	-6.72	364.40	-6.72	174.71
95	0.64	30.41	-5.07	345.33	-5.07	164.42
100	0.51	25.50	-3.16	390.34	-3.16	186.10
105	0.43	20.62	-0.86	448.99	-0.86	214.14
110	0.38	15.82	2.02	508.57	2.02	241.27
115	0.33	11.17	5.80	592.76	5.80	276.23
120	0.52	6.87	11.07	601.33	11.07	277.89
125	0.73	4.40	15.92	627.17	15.92	363.32
130	0.76	5.68	13.15	575.89	13.15	317.97
135	0.74	7.16	10.63	542.81	10.63	281.81
140	0.66	8.59	8.65	523.45	8.65	260.38
145	0.59	9.88	7.13	514.01	7.13	247.42
150	0.65	10.91	6.05	483.72	6.05	228.91
155	0.45	12.04	4.98	524.11	4.98	247.10
160	0.60	12.68	4.42	471.64	4.42	223.16
165	0.58	13.32	3.89	467.36	3.89	221.34
170	0.36	13.99	3.35	541.10	3.35	255.52
175	0.32	14.30	3.11	554.47	3.11	260.06
180	0.40	14.31	3.11	515.93	3.11	244.17
185	0.30	14.32	3.10	564.27	3.10	264.53

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
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### Coordination Values

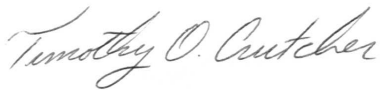
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Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
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190	0.00	14.34	3.08	610.13	3.08	285.84
195	0.00	13.89	3.43	616.41	3.43	288.59
200	0.00	13.27	3.93	625.54	3.93	292.60
205	0.00	12.48	4.59	637.29	4.59	298.05
210	0.00	11.54	5.45	653.52	5.45	305.23
215	0.00	10.45	6.52	674.54	6.52	314.57
220	0.00	9.22	7.88	701.74	7.88	326.71
225	0.00	7.88	9.59	737.55	9.59	342.30
230	0.00	6.40	11.85	786.91	11.85	364.77
235	0.00	5.21	14.08	840.61	14.08	388.43
240	0.00	7.44	10.21	750.88	10.21	348.33
245	0.00	11.55	5.44	653.37	5.44	305.16
250	0.00	16.16	1.79	587.04	1.79	275.81
255	0.00	20.95	-1.03	539.50	-1.03	257.14
260	0.00	25.82	-3.30	503.84	-3.30	241.90
265	0.00	30.73	-5.19	475.90	-5.19	229.72
270	0.00	35.66	-6.80	453.88	-6.80	219.66
275	0.00	40.60	-8.21	434.99	-8.21	211.16
280	0.00	45.56	-9.46	418.90	-9.46	203.85
285	0.00	50.52	-10.00	412.20	-10.00	200.77
290	0.00	55.49	-10.00	412.20	-10.00	200.77
295	0.00	60.46	-10.00	412.20	-10.00	200.77
300	0.00	65.43	-10.00	412.20	-10.00	200.77
305	0.00	70.41	-10.00	412.20	-10.00	200.77
310	0.00	75.39	-10.00	412.20	-10.00	200.77
315	0.00	80.36	-10.00	412.20	-10.00	200.77
320	0.00	85.34	-10.00	412.20	-10.00	200.77
325	0.00	90.32	-10.00	412.20	-10.00	200.77
330	0.00	95.30	-10.00	412.20	-10.00	200.77
335	0.00	100.28	-10.00	412.20	-10.00	200.77
340	0.00	105.26	-10.00	412.20	-10.00	200.77
345	0.00	110.24	-10.00	412.20	-10.00	200.77
350	0.00	115.21	-10.00	412.20	-10.00	200.77
355	0.00	120.19	-10.00	412.20	-10.00	200.77

## 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: October 17, 2018