

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.
NOME, 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 10/05/2018.

Company

GCI Communications Corp.

Unicom, Inc.

United2, LLC

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: 10/05/2018
Job Number: 181005COMSTC09

Administrative Information

Call Sign E960387
Licensee Code P3203
Licensee Name GCI Communications Corp.

Site Information NOME, AK

Venue Name
Latitude (NAD 83) 64° 30' 13.5" N
Longitude (NAD 83) 165° 25' 40.4" W
Climate Zone B
Rain Zone 2
Ground Elevation (AMSL) 3.66 m / 12.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 109° W to 222° West Longitude
Azimuth Range 120.9° to 239.2°
Corresponding Elevation Angles 5.1° / 5.1°
Antenna Centerline (AGL) 4.57 m / 15.0 ft

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°

				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)			51.1	35.51
	(dBW/MHz)			61.1	59.21
	(dBW)			61.1	79.82
Interference Objectives:	Long Term	-150.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
	Short Term	-140.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%

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 643.5 km / 399.8 mi 407.0 km / 252.9 mi
Precipitation Scatter Contour Radius 609.9 km / 378.9 mi 101.7 km / 63.2 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

NOME, AK

Licensee Name GCI Communications Corp.
Latitude (NAD 83) 64° 30' 13.5" N
Longitude (NAD 83) 165° 25' 40.4" W
Ground Elevation (AMSL) 3.66 m / 12.0 ft
Antenna Centerline (AGL) 4.57 m / 15.0 ft
Antenna Model SCIENTIFIC-ATLANTA, INC 8009A 9.1 METER
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -150.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -140.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -2.7 (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	1.58	120.73	-15.70	155.20	-17.20	100.00
5	0.78	115.85	-11.55	226.56	-17.20	114.40
10	1.25	110.88	-10.70	195.35	-12.25	110.76
15	2.43	105.91	-10.70	150.15	-11.31	100.00
20	2.52	100.92	-10.70	147.64	-11.37	100.00
25	2.26	95.92	-10.70	154.76	-11.42	100.00
30	1.84	90.93	-10.70	169.13	-11.43	100.00
35	1.10	85.94	-10.70	203.22	-11.43	116.68
40	2.05	80.94	-10.70	161.15	-11.34	100.00
45	1.92	75.95	-10.70	165.96	-11.25	100.00
50	1.46	70.97	-10.70	185.75	-11.37	108.32
55	0.95	65.99	-10.70	213.03	-11.43	119.42
60	0.78	61.02	-10.70	231.79	-11.27	129.47
65	0.70	56.04	-10.70	240.95	-11.50	133.59
70	0.55	51.07	-10.13	261.86	-11.31	144.53
75	0.44	46.11	-8.92	292.36	-10.09	161.61
80	0.54	41.14	-7.93	281.51	-8.43	157.95
85	0.64	36.17	-6.17	281.67	-6.67	157.41
90	0.63	31.22	-4.94	293.02	-5.44	163.65
95	0.47	26.31	-3.96	329.12	-3.72	188.76
100	0.25	21.46	-2.28	415.65	-3.20	232.52
105	0.00	16.71	-1.70	441.78	-1.22	255.82
110	0.00	12.05	1.25	482.25	1.75	275.54
115	0.00	7.82	6.48	564.59	6.17	311.43
120	0.00	5.19	10.92	643.49	10.42	405.82
125	0.00	6.23	8.84	605.69	8.57	368.04
130	0.00	7.97	6.33	561.95	5.85	327.58
135	0.00	9.59	3.71	519.37	4.21	301.97
140	0.00	11.09	2.21	496.45	2.71	284.28
145	0.00	12.45	0.85	476.44	1.35	272.52
150	0.00	13.66	-0.36	459.94	0.14	263.67
155	0.00	14.71	-1.41	445.60	-0.20	261.28
160	0.00	15.59	-1.70	441.78	-0.55	258.80
165	0.00	16.28	-1.70	441.78	-0.97	257.55
170	0.00	16.78	-1.70	441.78	-1.27	255.49
175	0.00	17.09	-1.70	441.78	-1.45	254.24
180	0.00	17.19	-1.70	441.78	-1.52	253.81
185	0.00	17.09	-1.70	441.78	-1.46	254.23

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

NOME, AK

Licensee Name GCI Communications Corp.
Latitude (NAD 83) 64° 30' 13.5" N
Longitude (NAD 83) 165° 25' 40.4" W
Ground Elevation (AMSL) 3.66 m / 12.0 ft
Antenna Centerline (AGL) 4.57 m / 15.0 ft
Antenna Model SCIENTIFIC-ATLANTA, INC 8009A 9.1 METER
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -150.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -140.0 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	16.79	-1.70	441.78	-1.27	255.48
195	0.00	16.28	-1.70	441.78	-0.97	257.55
200	0.00	15.59	-1.70	441.78	-0.55	258.80
205	0.00	14.71	-1.41	445.61	-0.20	261.28
210	0.00	13.66	-0.36	459.94	0.14	263.67
215	0.00	12.45	0.85	476.43	1.35	272.52
220	0.00	11.09	2.21	496.41	2.71	284.41
225	0.00	9.60	3.70	519.28	4.20	302.29
230	0.00	7.97	6.33	562.05	5.87	328.30
235	0.32	5.94	9.43	563.72	8.93	363.16
240	0.35	4.77	11.76	590.86	11.26	407.02
245	0.78	7.19	7.11	388.96	7.42	222.24
250	0.78	11.59	1.71	331.64	2.21	190.02
255	1.03	16.28	-1.70	268.06	-0.97	153.74
260	1.05	21.15	-2.16	263.20	-3.20	143.51
265	1.05	26.08	-3.92	251.58	-3.63	141.76
270	1.05	31.02	-4.90	244.42	-5.40	134.90
275	1.05	35.98	-6.09	235.98	-6.59	130.65
280	1.09	40.95	-7.89	221.48	-8.39	123.61
285	1.07	45.92	-8.88	216.05	-9.94	119.52
290	1.07	50.90	-10.06	208.57	-11.35	115.66
295	1.01	55.89	-10.70	207.71	-11.42	116.92
300	1.23	60.86	-10.70	196.54	-11.31	113.83
305	1.23	65.85	-10.70	196.53	-11.48	113.37
310	0.64	70.85	-10.70	248.15	-11.23	138.54
315	0.64	75.83	-10.70	248.17	-11.35	138.11
320	0.40	80.82	-10.70	287.32	-11.45	161.19
325	0.24	85.80	-10.70	327.05	-11.46	184.73
330	0.24	90.79	-10.70	329.08	-11.39	186.33
335	0.25	95.77	-10.70	325.01	-11.42	183.74
340	0.22	100.75	-10.70	332.97	-11.47	188.21
345	0.32	105.73	-10.70	305.78	-11.39	172.39
350	0.49	110.72	-10.70	265.99	-12.06	146.33
355	1.08	115.72	-11.42	199.74	-17.20	101.95

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

BY: _____

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
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NOME, AK
Satellite Earth Station

Prepared By:
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Unicom, Inc.

United2, LLC

4. EARTH STATION COORDINATION DATA

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COMSEARCH

Earth Station Data Sheet

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

Date: 10/05/2018
Job Number: 181005COMSTC08

Administrative Information

Call Sign E960387
Licensee Code P3203
Licensee Name GCI Communications Corp.

Site Information

NOME, AK

Latitude (NAD 83) 64° 30' 13.5" N
Longitude (NAD 83) 165° 25' 40.4" W
Climate Zone B
Rain Zone 2
Ground Elevation (AMSL) 3.66 m / 12.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 109° W to 222° West Longitude
Azimuth Range 120.9° to 239.2°
Corresponding Elevation Angles 5.1° / 5.1°
Antenna Centerline (AGL) 4.57 m / 15.0 ft

Antenna Information

Receive - A40731

Transmit - A60731

Manufacturer	ANDREW CORPORATION	ANDREW CORPORATION
Model	ESA73-46	ESA73-46
Gain / Diameter	48.5 dBi / 7.3 m	51.5 dBi / 7.3 m
3-dB / 15-dB Beamwidth	0.60° / 1.22°	0.44° / 0.88°

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)

48.8 33.21
59.31 57.21
59.31 77.52

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%

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
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Max Great Circle Coordination Distance 793.0 km / 492.7 mi
Precipitation Scatter Contour Radius 618.9 km / 384.5 mi

382.8 km / 237.8 mi
101.7 km / 63.2 mi

COMSEARCH

Earth Station Data Sheet

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Coordination Values

NOME, AK

Licensee Name GCI Communications Corp.
Latitude (NAD 83) 64° 30' 13.5" N
Longitude (NAD 83) 165° 25' 40.4" W
Ground Elevation (AMSL) 3.66 m / 12.0 ft
Antenna Centerline (AGL) 4.57 m / 15.0 ft
Antenna Model Andrew Corporation ESA73-46
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 (°)	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	1.58	120.73	-15.50	186.89	-20.50	100.00
5	0.78	115.85	-13.01	258.60	-16.35	116.60
10	1.25	110.88	-10.85	232.95	-11.38	113.07
15	2.43	105.91	-10.50	180.84	-10.50	100.00
20	2.52	100.92	-10.50	177.71	-10.50	100.00
25	2.26	95.92	-10.50	186.87	-10.50	100.00
30	1.84	90.93	-9.69	209.46	-10.50	101.70
35	1.10	85.94	-9.59	251.14	-10.50	117.28
40	2.05	80.94	-9.63	199.92	-10.50	100.00
45	1.92	75.95	-9.63	205.91	-10.50	100.00
50	1.46	70.97	-9.62	230.12	-10.50	110.62
55	0.95	65.99	-9.55	261.43	-10.50	122.14
60	0.78	61.02	-9.52	284.11	-10.50	132.09
65	0.70	56.04	-9.58	294.74	-10.50	137.21
70	0.55	51.07	-9.60	317.09	-10.50	147.79
75	0.44	46.11	-7.94	357.62	-10.50	159.73
80	0.54	41.14	-5.95	354.90	-10.50	148.99
85	0.64	36.17	-3.97	357.90	-10.50	141.53
90	0.63	31.22	-1.99	381.50	-10.50	142.01
95	0.47	26.31	-0.02	442.76	-10.50	155.17
100	0.25	21.46	2.63	577.28	-10.50	188.84
105	0.00	16.71	4.82	641.55	-7.21	217.21
110	0.00	12.05	6.50	674.06	-2.55	246.87
115	0.00	7.82	7.50	694.06	5.87	308.83
120	0.00	5.19	12.12	792.97	11.12	381.88
125	0.00	6.23	9.81	742.12	9.04	350.78
130	0.00	7.97	7.50	694.06	5.55	314.63
135	0.00	9.59	7.50	694.06	-0.87	269.79
140	0.00	11.09	7.41	692.30	-2.50	249.74
145	0.00	12.45	6.50	674.06	-2.95	244.20
150	0.00	13.66	5.84	661.07	-4.16	236.26
155	0.00	14.71	5.50	654.56	-5.21	229.55
160	0.00	15.59	5.26	650.03	-6.09	224.05
165	0.00	16.28	4.99	644.75	-6.78	219.78
170	0.00	16.78	4.79	640.95	-7.28	216.73
175	0.00	17.09	4.66	638.64	-7.59	214.89
180	0.00	17.19	4.62	637.85	-7.69	214.26
185	0.00	17.09	4.66	638.62	-7.59	214.87

COMSEARCH

Earth Station Data Sheet

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Coordination Values

NOME, AK

Licensee Name GCI Communications Corp.
Latitude (NAD 83) 64° 30' 13.5" N
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Ground Elevation (AMSL) 3.66 m / 12.0 ft
Antenna Centerline (AGL) 4.57 m / 15.0 ft
Antenna Model Andrew Corporation ESA73-46
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)
190	0.00	16.79	4.79	640.93	-7.29	216.72
195	0.00	16.28	4.99	644.74	-6.78	219.78
200	0.00	15.59	5.26	650.03	-6.09	224.05
205	0.00	14.71	5.50	654.56	-5.21	229.55
210	0.00	13.66	5.84	661.08	-4.16	236.26
215	0.00	12.45	6.50	674.06	-2.95	244.19
220	0.00	11.09	7.41	692.24	-2.50	249.97
225	0.00	9.60	7.50	694.06	-0.89	270.12
230	0.00	7.97	7.50	694.06	5.57	315.20
235	0.32	5.94	10.63	691.64	9.63	346.03
240	0.35	4.77	12.96	724.57	11.96	382.81
245	0.78	7.19	7.50	472.91	7.12	220.31
250	0.78	11.59	6.91	464.95	-2.50	165.05
255	1.03	16.28	4.99	390.98	-6.78	130.62
260	1.05	21.15	2.81	363.92	-10.50	118.45
265	1.05	26.08	0.07	336.67	-10.50	118.45
270	1.05	31.02	-1.91	317.25	-10.50	118.45
275	1.05	35.98	-3.89	298.79	-10.50	118.45
280	1.09	40.95	-5.88	278.80	-10.50	117.45
285	1.07	45.92	-7.87	264.17	-10.50	117.94
290	1.07	50.90	-9.63	252.46	-10.50	117.94
295	1.01	55.89	-9.55	256.68	-10.50	119.47
300	1.23	60.86	-9.52	243.71	-10.50	115.96
305	1.23	65.85	-9.61	243.03	-10.50	115.96
310	0.64	70.85	-9.61	303.32	-10.50	141.34
315	0.64	75.83	-9.60	303.47	-10.50	141.34
320	0.40	80.82	-9.60	352.34	-10.50	165.61
325	0.24	85.80	-9.62	401.30	-10.50	189.87
330	0.24	90.79	-9.66	403.40	-10.50	191.12
335	0.25	95.77	-10.50	388.36	-10.50	188.63
340	0.22	100.75	-10.50	398.02	-10.50	193.51
345	0.32	105.73	-10.50	365.17	-10.50	176.86
350	0.49	110.72	-10.79	316.26	-11.22	149.66
355	1.08	115.72	-12.93	228.50	-16.22	104.50

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

BY: _____

Timothy O. Crutcher
Frequency Planner
COMSEARCH
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DATED: October 17, 2018