

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
GCI Communications Corp.
CHEVAK, AK
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
May 30, 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 several cases. There are two cases that were cleared by agreement between United2, LLC and GCI Communications Corp.

The following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis.

Company

United2, LLC

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 04/27/2018.

Company

United Utilities, 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: 05/30/2018
Job Number: 180427COMSTC06

Administrative Information

Licensee Code P3203
Licensee Name GCI Communications Corp.

Site Information

CHEVAK, AK

Latitude (NAD 83) 61° 31' 47.8" N
Longitude (NAD 83) 165° 34' 51.1" W
Climate Zone B
Rain Zone 2
Ground Elevation (AMSL) 13.41 m / 44.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 91° W to 194° West Longitude
Azimuth Range 103.6° to 211.6°
Corresponding Elevation Angles -1.4° / 16.4°
Antenna Centerline (AGL) 2.13 m / 7.0 ft

Antenna Information

Receive - S40362

Transmit - S60362

Manufacturer	SCIENTIFIC-ATLANTA, INC	SCIENTIFIC-ATLANTA, INC	
Model	8136	8136	
Gain / Diameter	41.8 dBi / 3.6 m	45.6 dBi / 3.6 m	
3-dB / 15-dB Beamwidth	1.40° / 3.00°	0.90° / 1.70°	
Max Available RF Power (dBW/4 kHz)		-2.7	
(dBW/MHz)		21.3	
Maximum EIRP (dBW/4 kHz)		42.9	
(dBW/MHz)		66.9	
(dBW)		0.0	
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 - 72M0G7W / 3700.0 - 4200.0	45K0G7W - 72M0G7W / 5925.0 - 6425.0
	45K0D7W - 72M0D7W / 3700.0 - 4200.0	45K0D7W - 72M0D7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	1385.0 km / 860.5 mi	714.6 km / 444.0 mi
Precipitation Scatter Contour Radius	1141.6 km / 709.2 mi	123.4 km / 76.7 mi

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Coordination Values

CHEVAK, AK

Licensee Name GCI Communications Corp.
Latitude (NAD 83) 61° 31' 47.8" N
Longitude (NAD 83) 165° 34' 51.1" W
Ground Elevation (AMSL) 13.41 m / 44.0 ft
Antenna Centerline (AGL) 2.13 m / 7.0 ft
Antenna Model SCIENTIFIC-ATLANTA, INC 8136
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	2.62	103.60	-10.20	175.92	-10.40	100.00
5	2.21	98.61	-10.20	190.28	-10.40	100.00
10	2.21	93.62	-10.20	190.27	-10.40	100.00
15	1.81	88.63	-10.20	207.76	-10.40	102.68
20	1.81	83.64	-10.20	207.74	-10.40	102.68
25	1.81	78.65	-10.20	207.74	-10.40	102.68
30	2.74	73.68	-10.20	171.87	-10.40	100.00
35	2.74	68.69	-10.20	171.87	-10.40	100.00
40	2.58	63.70	-10.20	177.32	-10.40	100.00
45	2.58	58.72	-10.20	177.32	-10.40	100.00
50	0.63	53.66	-10.20	299.53	-10.40	142.40
55	0.63	48.66	-9.93	301.91	-10.13	143.46
60	0.00	43.65	-8.93	425.70	-9.13	205.78
65	0.00	38.65	-7.66	442.29	-7.86	213.26
70	0.00	33.66	-5.93	465.34	-6.13	223.80
75	0.00	28.66	-4.67	483.46	-4.87	231.76
80	0.00	23.67	-2.40	517.65	-2.60	246.50
85	0.00	18.68	0.59	566.41	0.39	265.49
90	0.00	13.70	3.10	610.35	3.90	292.35
95	0.00	8.75	7.80	700.16	7.60	324.18
100	0.00	3.90	14.21	843.76	14.01	387.71
105	0.00	0.65	34.40	1385.01	34.20	714.57
110	0.00	1.65	23.93	1086.79	23.73	507.04
115	0.00	3.83	14.48	850.07	14.28	390.64
120	0.00	5.95	9.90	744.09	9.70	343.32
125	0.00	7.99	7.80	700.16	7.60	324.18
130	0.00	9.93	6.87	681.42	6.67	315.86
135	0.00	11.74	5.06	646.16	4.86	300.29
140	0.00	13.42	3.38	615.43	4.18	294.63
145	0.00	14.96	2.80	605.00	2.64	282.36
150	0.00	16.33	2.00	590.84	1.80	275.93
155	0.00	17.51	1.29	578.42	1.09	270.61
160	0.00	18.50	0.70	568.23	0.50	266.26
165	0.00	19.29	0.23	560.28	0.03	262.89
170	0.00	19.86	-0.11	554.57	-0.31	260.48
175	0.00	20.20	-0.32	551.11	-0.52	259.02
180	0.00	20.32	-0.39	549.95	-0.59	258.53
185	0.00	20.20	-0.32	551.13	-0.52	259.03

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Coordination Values

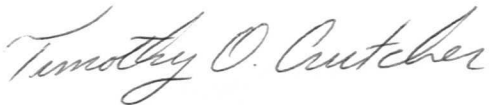
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Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -2.7 (dBW/4 kHz)

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	19.86	-0.11	554.57	-0.31	260.48
195	0.00	19.29	0.23	560.26	0.03	262.88
200	0.00	18.51	0.70	568.20	0.50	266.25
205	0.00	17.52	1.29	578.39	1.09	270.59
210	0.00	16.52	1.89	588.76	1.69	275.04
215	0.00	16.78	1.73	586.04	1.53	273.87
220	0.00	18.41	0.75	569.20	0.55	266.67
225	0.00	21.09	-0.85	542.38	-1.05	256.98
230	0.00	24.48	-2.89	510.13	-3.09	243.29
235	0.92	27.83	-4.33	310.60	-4.53	145.63
240	0.92	32.05	-5.61	298.91	-5.81	140.47
245	0.92	36.44	-6.78	288.67	-6.98	136.06
250	0.92	40.96	-8.39	275.18	-8.59	130.33
255	0.92	45.56	-9.31	267.85	-9.51	127.26
260	2.58	49.85	-10.17	177.48	-10.37	100.00
265	2.58	54.62	-10.20	177.32	-10.40	100.00
270	2.58	59.41	-10.20	177.32	-10.40	100.00
275	2.58	64.22	-10.20	177.32	-10.40	100.00
280	2.58	69.05	-10.20	177.31	-10.40	100.00
285	2.58	73.89	-10.20	177.31	-10.40	100.00
290	2.90	78.71	-10.20	166.64	-10.40	100.00
295	2.90	83.57	-10.20	166.65	-10.40	100.00
300	2.90	88.43	-10.20	166.65	-10.40	100.00
305	2.90	93.29	-10.20	166.65	-10.40	100.00
310	2.90	98.15	-10.20	166.65	-10.40	100.00
315	3.02	103.02	-10.20	162.96	-10.40	100.00
320	3.02	107.87	-10.20	162.95	-10.40	100.00
325	2.94	112.70	-10.20	165.36	-10.40	100.00
330	2.94	117.53	-10.20	165.36	-10.40	100.00
335	2.94	122.35	-10.20	165.36	-10.40	100.00
340	2.62	123.54	-10.20	175.93	-10.40	100.00
345	2.62	118.55	-10.20	175.95	-10.40	100.00
350	2.62	113.57	-10.20	175.95	-10.40	100.00
355	2.62	108.58	-10.20	175.95	-10.40	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.

A handwritten signature in cursive script that reads "Timothy O. Crutcher".

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

DATED: May 30, 2018