

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

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

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
August 13, 2019

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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

DRS Technical Services, Inc.
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 08/05/2019.

Company

DRS Global Enterprise Solutions, Inc.

DRS Technical Services, Inc.

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: 08/13/2019
Job Number: 190805COMSTC08

Administrative Information

Licensee Code P3203
Licensee Name GCI Communications Corp.

Site Information

HUSLIA, AK

Latitude (NAD 83) 64° 41' 54.9" N
Longitude (NAD 83) 156° 23' 59.4" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 60.96 m / 200.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 101° W to 212° West Longitude
Azimuth Range 122.0° to 238.2°
Corresponding Elevation Angles 5.4° / 5.3°
Antenna Centerline (AGL) 5.18 m / 17.0 ft

Antenna Information

Receive

Transmit

Manufacturer	Viasat	Viasat
Model	8345	8345
Gain / Diameter	43.5 dBi / 4.5 m	46.8 dBi / 4.5 m
3-dB / 15-dB Beamwidth	1.20° / 2.60°	0.80° / 1.60°

		<u>45K0G7W - 36M0G7W</u>		<u>60K0D7W - 36M0D7W</u>	
Max Available RF Power	(dBW/4 kHz)	-2.7	-16.53	-2.7	-16.53
	(dBW/MHz)	7.81	7.47	9.34	7.47
Maximum EIRP	(dBW/4 kHz)	43.2	29.37	43.2	29.37
	(dBW/MHz)	43.2	53.37	43.2	53.37
	(dBW)	53.71	68.91	54.96	68.91

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 - 36M0G7W / 3700.0 - 4200.0	45K0G7W - 36M0G7W / 5925.0 - 6425.0
	60K0D7W - 36M0D7W / 3700.0 - 4200.0	60K0D7W - 36M0D7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance	554.5 km / 344.5 mi	322.6 km / 200.4 mi
Precipitation Scatter Contour Radius	613.2 km / 381.0 mi	101.4 km / 63.0 mi

COMSEARCH

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Coordination Values

HUSLIA, AK

Licensee Name GCI Communications Corp.
Latitude (NAD 83) 64° 41' 54.9" N
Longitude (NAD 83) 156° 23' 59.4" W
Ground Elevation (AMSL) 60.96 m / 200.0 ft
Antenna Centerline (AGL) 5.18 m / 17.0 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	42.12	114.92	-10.00	100.00	-10.00	100.00
5	42.57	111.17	-10.00	100.00	-10.00	100.00
10	42.56	107.33	-10.00	100.00	-10.00	100.00
15	43.04	103.35	-10.00	100.00	-10.00	100.00
20	43.04	99.44	-10.00	100.00	-10.00	100.00
25	43.48	95.47	-10.00	100.00	-10.00	100.00
30	43.48	91.54	-10.00	100.00	-10.00	100.00
35	43.48	87.60	-10.00	100.00	-10.00	100.00
40	43.88	83.71	-10.00	100.00	-10.00	100.00
45	43.87	79.82	-10.00	100.00	-10.00	100.00
50	44.29	76.05	-10.00	100.00	-10.00	100.00
55	44.71	72.37	-10.00	100.00	-10.00	100.00
60	44.70	68.67	-10.00	100.00	-10.00	100.00
65	44.71	65.05	-10.00	100.00	-10.00	100.00
70	44.71	61.53	-10.00	100.00	-10.00	100.00
75	44.71	58.13	-10.00	100.00	-10.00	100.00
80	45.45	55.31	-10.00	100.00	-10.00	100.00
85	45.46	52.30	-10.00	100.00	-10.00	100.00
90	45.46	49.51	-10.00	100.00	-10.00	100.00
95	45.45	46.99	-9.80	100.00	-9.80	100.00
100	45.46	44.78	-9.28	100.00	-9.28	100.00
105	45.38	42.87	-8.80	100.00	-8.80	100.00
110	45.37	41.19	-8.37	100.00	-8.37	100.00
115	45.38	39.59	-7.94	100.00	-7.94	100.00
120	45.37	38.06	-7.51	548.10	-7.51	318.97
125	45.38	36.61	-7.09	460.36	-7.09	267.96
130	45.52	35.40	-6.72	327.07	-6.72	199.14
135	45.51	34.15	-6.33	220.78	-6.33	150.09
140	45.52	33.01	-5.97	135.47	-5.97	114.27
145	45.31	31.79	-5.56	100.00	-5.56	100.00
150	45.32	30.89	-5.25	100.00	-5.25	100.00
155	45.31	30.11	-4.97	100.00	-4.97	100.00
160	45.11	29.29	-4.67	100.00	-4.67	100.00
165	45.11	28.78	-4.48	100.00	-4.48	100.00
170	44.97	28.28	-4.29	100.00	-4.29	100.00
175	44.98	28.07	-4.20	100.00	-4.20	100.00
180	44.94	27.95	-4.16	100.00	-4.16	100.00
185	44.94	28.02	-4.19	100.00	-4.19	100.00

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Coordination Values

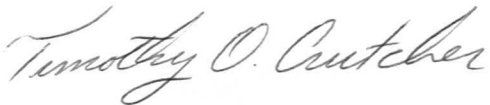
HUSLIA, AK

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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)
190	44.77	28.07	-4.21	100.00	-4.21	100.00
195	44.77	28.44	-4.35	100.00	-4.35	100.00
200	44.44	28.61	-4.41	100.00	-4.41	100.00
205	44.44	29.25	-4.65	100.00	-4.65	100.00
210	44.44	30.03	-4.94	100.00	-4.94	100.00
215	43.98	30.49	-5.10	100.00	-5.10	100.00
220	43.98	31.53	-5.47	138.54	-5.47	115.52
225	43.98	32.67	-5.86	224.62	-5.86	151.78
230	43.49	33.48	-6.12	331.79	-6.12	201.42
235	42.93	34.32	-6.39	466.30	-6.39	271.19
240	42.93	35.79	-6.84	554.47	-6.84	322.60
245	42.50	36.94	-7.19	100.00	-7.19	100.00
250	42.49	38.58	-7.66	100.00	-7.66	100.00
255	42.50	40.28	-8.13	100.00	-8.13	100.00
260	41.87	41.76	-8.52	100.00	-8.52	100.00
265	41.87	44.17	-9.13	100.00	-9.13	100.00
270	41.87	46.93	-9.79	100.00	-9.79	100.00
275	41.87	49.95	-10.00	100.00	-10.00	100.00
280	41.87	53.19	-10.00	100.00	-10.00	100.00
285	41.12	56.25	-10.00	100.00	-10.00	100.00
290	41.12	59.87	-10.00	100.00	-10.00	100.00
295	41.12	63.61	-10.00	100.00	-10.00	100.00
300	41.44	67.53	-10.00	100.00	-10.00	100.00
305	41.44	71.42	-10.00	100.00	-10.00	100.00
310	41.44	75.36	-10.00	100.00	-10.00	100.00
315	41.14	79.30	-10.00	100.00	-10.00	100.00
320	41.14	83.33	-10.00	100.00	-10.00	100.00
325	41.15	87.37	-10.00	100.00	-10.00	100.00
330	41.42	91.42	-10.00	100.00	-10.00	100.00
335	41.42	95.46	-10.00	100.00	-10.00	100.00
340	41.42	99.48	-10.00	100.00	-10.00	100.00
345	41.75	103.41	-10.00	100.00	-10.00	100.00
350	41.76	107.35	-10.00	100.00	-10.00	100.00
355	42.12	111.13	-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: August 13, 2019