

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
GCI Communications Corp
CHIGNIK LAGO, AK
Satellite Earth Station

Prepared By:
COMSEARCH
21515 Ridgetop Circle, Suite 300
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August 11, 2022

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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.

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 08/11/2022.

<u>Company</u>
Comsearch

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: 08/11/2022
Job Number: 220811COMSPI01

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign:
Licensee Code: P3203
Licensee Name: GCI Communications Corp

Site Information

CHIGNIK LAGO, AK
Venue Name: CHIGNIK LAGOON
Latitude (NAD 83): 56° 18' 35.7" N
Longitude (NAD 83): 158° 32' 20.3" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 4.88 m / 16.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 94° W to 223° West Longitude
Azimuth Range: 111.6° to 248.3°
Corresponding Elevation Angles: 5.1° / 5.2°
Antenna Centerline (AGL): 3.35 m / 11.0 ft

Antenna Information

		Receive - FCC32	Transmit - FCC32
Manufacturer		CPI High Wind	CPI High Wind
Model		2385	2385
Gain / Diameter		42.0 dBi / 3.8 m	46.5 dBi / 3.8 m
3-dB / 15-dB Beamwidth		1.40° / 2.80°	1.00° / 2.00°
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)		-2.7 21.3
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)		43.8 67.8
Interference Objectives:	Long Term Short Term	-156.0 dBW/MHz 20% -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 / 3700.0 - 4200.0 60K0D7W / 3700.0 - 4200.0 108MG7W / 3700.0 - 4200.0 108MD7W / 3700.0 - 4200.0	45K0G7W / 5925.0 - 6425.0 45K0D7W / 5925.0 - 6425.0 108MG7W / 5925.0 - 6425.0 108MD7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	560.8 km / 348.4 mi	329.8 km / 204.9 mi
Precipitation Scatter Contour Radius	617.1 km / 383.4 mi	101.6 km / 63.1 mi

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Coordination Values

CHIGNIK LAGO, AK

Licensee Name	GCI Communications Corp				
Latitude (NAD 83)	56° 18' 35.7" N				
Longitude (NAD 83)	158° 32' 20.3" W				
Ground Elevation (AMSL)	4.88 m / 16.0 ft				
Antenna Centerline (AGL)	3.35 m / 11.0 ft				
Antenna Model	CPI High Wind 2385				
Antenna Mode	Receive 4.0 GHz				
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	Transmit 6.1 GHz	-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	0.66	111.55	-10.00	239.72	-10.00	132.97
5	0.38	106.56	-10.00	262.80	-10.00	149.75
10	0.31	101.57	-10.00	271.62	-10.00	157.16
15	0.00	96.59	-10.00	285.28	-10.00	170.66
20	0.00	91.61	-10.00	285.28	-10.00	170.66
25	0.00	86.63	-10.00	285.28	-10.00	170.66
30	0.00	81.65	-10.00	285.28	-10.00	170.66
35	0.00	76.67	-10.00	285.28	-10.00	170.66
40	0.00	71.69	-10.00	285.28	-10.00	170.66
45	0.46	66.70	-10.00	254.70	-10.00	143.17
50	1.99	61.66	-10.00	194.72	-10.00	100.00
55	3.53	56.63	-10.00	157.60	-10.00	100.00
60	4.51	51.62	-10.00	140.25	-10.00	100.00
65	4.90	46.62	-9.71	136.06	-9.71	100.00
70	4.96	41.62	-8.48	140.32	-8.48	100.00
75	5.62	36.62	-7.09	139.31	-7.09	100.00
80	7.22	31.68	-5.52	130.12	-5.52	100.00
85	9.96	27.02	-3.79	112.22	-3.79	100.00
90	10.93	22.34	-1.73	114.39	-1.73	100.00
95	10.65	17.48	0.94	128.45	0.94	100.00
100	10.91	12.95	4.19	141.27	4.19	100.00
105	11.88	9.44	7.63	153.71	7.63	100.00
110	13.21	7.80	9.70	557.59	9.70	328.85
115	11.86	4.14	16.57	423.27	16.57	234.96
120	11.06	1.07	31.28	380.79	31.28	185.76
125	12.25	0.52	39.20	401.64	39.20	191.22
130	12.54	2.04	24.23	255.82	24.23	105.75
135	10.45	5.99	12.56	198.13	12.56	100.00
140	9.21	9.01	8.13	183.44	8.13	100.00
145	11.60	8.46	8.81	163.77	8.81	100.00
150	12.59	9.02	8.12	151.13	8.12	100.00
155	14.45	8.49	8.78	141.40	8.78	100.00
160	16.46	7.57	10.03	134.63	10.03	100.00
165	16.36	8.46	8.82	130.72	8.82	100.00
170	14.91	10.49	6.48	127.50	6.48	100.00
175	13.78	11.97	5.05	127.46	5.05	100.00
180	13.70	12.19	4.85	127.04	4.85	100.00
185	11.70	14.05	3.31	132.56	3.31	100.00

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Antenna Model	CPI High Wind 2385				
Antenna Mode	Receive 4.0 GHz				
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	Transmit 6.1 GHz	-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	9.49	15.88	1.98	141.19	1.98	100.00
195	7.64	17.08	1.19	156.14	1.19	100.00
200	5.15	18.63	0.24	185.19	0.24	100.00
205	3.10	19.47	-0.23	216.33	-0.23	103.63
210	0.50	20.54	-0.81	311.49	-0.81	177.22
215	0.00	19.36	-0.17	355.29	-0.17	206.83
220	2.04	15.65	2.14	259.01	2.14	132.75
225	2.75	13.01	4.14	253.40	4.14	126.82
230	2.10	11.48	5.51	282.62	5.51	143.44
235	0.63	10.50	6.47	360.59	6.47	201.30
240	0.00	8.65	8.57	440.42	8.57	250.00
245	0.41	5.80	12.92	494.29	12.92	279.80
250	1.05	4.46	15.78	560.83	15.78	329.83
255	1.50	7.62	9.95	343.37	9.95	182.54
260	2.18	12.06	4.97	275.97	4.97	139.60
265	3.24	16.79	1.37	222.64	1.37	107.19
270	3.08	21.78	-1.45	210.20	-1.45	100.00
275	4.00	26.71	-3.67	182.26	-3.67	100.00
280	2.79	31.76	-5.55	198.31	-5.55	100.00
285	2.25	36.78	-7.14	202.44	-7.14	100.00
290	4.29	41.69	-8.50	150.29	-8.50	100.00
295	5.26	46.68	-9.73	133.36	-9.73	100.00
300	4.04	51.69	-10.00	147.28	-10.00	100.00
305	3.20	56.71	-10.00	164.92	-10.00	100.00
310	2.61	61.71	-10.00	180.48	-10.00	100.00
315	2.66	66.71	-10.00	179.37	-10.00	100.00
320	2.40	71.71	-10.00	185.39	-10.00	100.00
325	2.70	76.70	-10.00	178.44	-10.00	100.00
330	2.43	81.69	-10.00	184.64	-10.00	100.00
335	2.22	86.69	-10.00	189.47	-10.00	100.00
340	1.98	91.68	-10.00	195.14	-10.00	100.00
345	1.72	96.67	-10.00	202.00	-10.00	100.00
350	1.35	101.66	-10.00	209.73	-10.00	108.48
355	0.90	106.64	-10.00	225.62	-10.00	122.00

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.

BY: *Pirouz Ebadirad*

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DATED: August 11, 2022