

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
GCI Communications Corp
GAMBELL, AK
Satellite Earth Station

Prepared By:
COMSEARCH
21515 Ridgetop Circle, Suite 300
Sterling, VA 20166
May 02, 2023

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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 04/12/2023.

<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: 05/02/2023
Job Number: 230412COMSGE01

Administrative Information

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

Site Information

GAMBELL, AK

Venue Name:
Latitude (NAD 83): 63° 46' 45.2" N
Longitude (NAD 83): 171° 43' 42.2" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 4.39 m / 14.4 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 114° W to 229° West Longitude
Azimuth Range: 119.5° to 240.0°
Corresponding Elevation Angles: 5.0° / 5.2°
Antenna Centerline (AGL): 4.57 m / 15.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	GD Satcom	GD Satcom	
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)	-2.7	-2.7	
(dBW/MHz)	21.3	21.3	
Maximum EIRP (dBW/4 kHz)	43.8	43.8	
(dBW/MHz)	67.8	67.8	
(dBW)			
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	45K0G7W - 108MG7W / 5925.0 - 6425.0
	45K0D7W - 108MD7W / 3700.0 - 4200.0	45K0D7W - 108MD7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	568.4 km / 353.2 mi	336.0 km / 208.7 mi
Precipitation Scatter Contour Radius	620.8 km / 385.7 mi	101.7 km / 63.2 mi

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Coordination Values

GAMBELL, AK

Licensee Name GCI Communications Corp
Latitude (NAD 83) 63° 46' 45.2" N
Longitude (NAD 83) 171° 43' 42.2" W
Ground Elevation (AMSL) 4.39 m / 14.4 ft
Antenna Centerline (AGL) 4.57 m / 15.0 ft
Antenna Model GD Satcom 3.8 meter
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	0.00	119.41	-10.00	285.28	-10.00	170.66
5	0.00	114.44	-10.00	285.28	-10.00	170.66
10	0.00	109.46	-10.00	285.28	-10.00	170.66
15	0.00	104.48	-10.00	285.28	-10.00	170.66
20	0.00	99.50	-10.00	285.28	-10.00	170.66
25	0.00	94.52	-10.00	285.28	-10.00	170.66
30	0.00	89.54	-10.00	285.28	-10.00	170.66
35	0.00	84.56	-10.00	285.28	-10.00	170.66
40	0.00	79.57	-10.00	285.28	-10.00	170.66
45	0.00	74.59	-10.00	285.28	-10.00	170.66
50	0.00	69.61	-10.00	285.28	-10.00	170.66
55	0.00	64.64	-10.00	285.28	-10.00	170.66
60	0.00	59.66	-10.00	285.28	-10.00	170.66
65	0.00	54.69	-10.00	285.28	-10.00	170.66
70	0.00	49.72	-10.00	285.28	-10.00	170.66
75	0.00	44.75	-9.27	289.96	-9.27	173.49
80	0.00	39.80	-8.00	298.35	-8.00	178.44
85	0.00	34.85	-6.55	308.15	-6.55	184.01
90	0.00	29.91	-4.90	320.41	-4.90	190.39
95	0.00	25.00	-2.95	334.49	-2.95	197.85
100	0.00	20.13	-0.60	352.04	-0.60	205.18
105	0.00	15.35	2.35	374.91	2.35	216.97
110	0.00	10.75	6.22	405.87	6.22	234.03
115	0.00	6.73	11.30	450.88	11.30	258.62
120	0.00	5.00	14.52	568.42	14.52	335.97
125	0.00	6.66	11.41	498.57	11.41	284.17
130	0.00	8.44	8.84	452.45	8.84	256.17
135	0.00	10.12	6.87	419.57	6.87	239.45
140	0.00	11.66	5.33	398.43	5.33	229.96
145	0.00	13.06	4.10	388.31	4.10	224.47
150	0.00	14.31	3.11	380.95	3.11	220.17
155	0.00	15.39	2.32	374.64	2.32	216.83
160	0.00	16.30	1.70	369.75	1.70	214.27
165	0.00	17.02	1.23	366.10	1.23	212.37
170	0.00	17.54	0.90	363.56	0.90	211.06
175	0.00	17.85	0.71	362.06	0.71	210.28
180	0.00	17.95	0.65	361.59	0.65	210.04
185	0.00	17.84	0.71	362.09	0.71	210.30

COMSEARCH

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Coordination Values

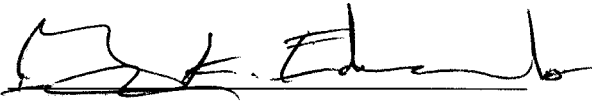
GAMBELL, AK

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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	17.53	0.90	363.58	0.90	211.06
195	0.00	17.02	1.23	366.10	1.23	212.37
200	0.00	16.30	1.69	369.74	1.69	214.26
205	0.00	15.40	2.31	374.62	2.31	216.82
210	0.00	14.31	3.11	380.92	3.11	220.16
215	0.00	13.06	4.10	388.30	4.10	224.46
220	0.00	11.66	5.34	398.46	5.34	229.98
225	0.00	10.11	6.88	421.29	6.88	240.17
230	0.00	8.45	8.83	455.50	8.83	257.88
235	0.00	6.67	11.40	503.64	11.40	287.69
240	0.00	5.16	14.19	562.93	14.19	331.53
245	0.00	7.16	10.63	444.74	10.63	255.10
250	0.00	11.21	5.76	401.99	5.76	231.90
255	0.00	15.81	2.02	372.34	2.02	215.62
260	0.00	20.60	-0.85	350.17	-0.85	205.87
265	0.00	25.46	-3.15	333.04	-3.15	197.09
270	0.00	30.37	-5.06	319.25	-5.06	189.76
275	0.00	35.30	-6.69	307.18	-6.69	183.47
280	0.00	40.24	-8.12	297.54	-8.12	177.97
285	0.00	45.20	-9.38	289.26	-9.38	173.07
290	0.00	50.16	-10.00	285.28	-10.00	170.66
295	0.00	55.13	-10.00	285.28	-10.00	170.66
300	0.00	60.10	-10.00	285.28	-10.00	170.66
305	0.00	65.08	-10.00	285.28	-10.00	170.66
310	0.00	70.05	-10.00	285.28	-10.00	170.66
315	0.00	75.03	-10.00	285.28	-10.00	170.66
320	0.00	80.01	-10.00	285.28	-10.00	170.66
325	0.00	84.99	-10.00	285.28	-10.00	170.66
330	0.00	89.97	-10.00	285.28	-10.00	170.66
335	0.00	94.95	-10.00	285.28	-10.00	170.66
340	0.00	99.93	-10.00	285.28	-10.00	170.66
345	0.00	104.91	-10.00	285.28	-10.00	170.66
350	0.00	109.88	-10.00	285.28	-10.00	170.66
355	0.00	114.86	-10.00	285.28	-10.00	170.66

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: 

Gary K. Edwards
Senior Manager
COMSEARCH
21515 Ridgetop Circle, Suite 300
Sterling, VA 20166

DATED: May 02, 2023