



19700 Janelia Farm Boulevard
Ashburn, VA 20147
703-726-5500
Fax 703-726-5596

July 28, 2022

Office of the Secretary
Federal Communications Commission
Washington, DC 20554

Re: Call Sign: E070074
Site: Big Lake, MN
Transmit/Receive Earth Station

Dear Sir:

This letter is to confirm that the Transmit/Receive Earth Station located in Big Lake, Minnesota, (45° 19' 40.6" N, 93° 41' 49.3" W - NAD83) and with the technical parameters noted on the attached datasheets and under the ownership of DIRECTV ENTERPRISES, INC, has been under our continuous monitoring and frequency protection service. We have been monitoring all new frequency coordinations on their behalf and maintaining their participation in the frequency coordination process as specified in part 101 of the FCC Rules and Regulations.

We have been protecting this link on behalf of DIRECTV ENTERPRISES, INC. The technical parameters listed (including frequencies) have not changed and have been protected continuously. There are no outstanding protection case issues or objections from any licensed or applied-for licenses in the shared bands of operation.

If you have any questions, or require additional information, please don't hesitate to call me on (703) 726-5656 or by email at DMeyer@Comsearch.com

Sincerely,
COMSEARCH

David E. Meyer
Senior Manager
Frequency Protection Services

COMSEARCH**Earth Station Data Sheet**

21515 Ridgetop Circle, Suite 300, Sterling, VA 20166
(703)726-5662 <http://www.comsearch.com>

Date: 07/28/2022
Job Number:

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E070074
Licensee Code ZDIRTV
Licensee Name DIRECTV Enterprises, LLC

Site Information**BIG LAKE, MN**

Venue Name
Latitude (NAD 83) 45° 19' 40.5" N
Longitude (NAD 83) 93° 41' 49.4" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 283.46 m / 930.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 70° W to 140° West Longitude
Azimuth Range 148.3° to 235.8°
Corresponding Elevation Angles 32.8° / 20.9°
Antenna Centerline (AGL) 7.92 m / 26.0 ft

Antenna Information**Receive - FCC32****Transmit - FCC32**

Manufacturer	Vertex	Vertex
Model	13.2 meter	13.2 meter
Gain / Diameter	65.3 dBi / 13.2 m	70.0 dBi / 13.2 m
3-dB / 15-dB Beamwidth	0.09° / 0.18°	0.06° / 0.12°
Max Available RF Power (dBW/4 kHz)	-24.5	
(dBW/MHz)	-0.5	
Maximum EIRP (dBW/4 kHz)	45.5	
(dBW/MHz)	69.5	
Interference Objectives:	Long Term	-156.0 dBW/MHz 20%
	Short Term	-146.0 dBW/MHz 0.01%
		-151.0 dBW/4 kHz 20%
		-128.0 dBW/4 kHz 0.0025%

Frequency Information**Receive 18.0 GHz****Transmit 29.0 GHz**

Emission / Frequency Range (MHz)	36M0G7W / 18300.0 - 18800.0	36M0G7W / 28300.0 - 30000.0
	36M0G7W / 19700.0 - 20200.0	
Max Great Circle Coordination Distance	164.4 km / 102.1 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

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Coordination Values**BIG LAKE, MN**

Licensee Name	DIRECTV Enterprises, LLC				
Latitude (NAD 83)	45° 19' 40.5" N				
Longitude (NAD 83)	93° 41' 49.4" W				
Ground Elevation (AMSL)	283.46 m / 930.0 ft				
Antenna Centerline (AGL)	7.92 m / 26.0 ft				
Antenna Model	Vertex 13.2 meter				
Antenna Mode	Receive 18.0 GHz		Transmit 29.0 GHz		
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz	20%	
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%	
Max Available RF Power			-24.5 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 29.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.54	121.79	-10.00	112.47	-10.00	100.00
5	0.48	126.31	-10.00	115.73	-10.00	100.00
10	0.00	128.90	-10.00	136.18	-10.00	100.00
15	0.00	125.23	-10.00	136.18	-10.00	100.00
20	0.00	121.43	-10.00	136.18	-10.00	100.00
25	0.00	117.51	-10.00	136.18	-10.00	100.00
30	0.00	113.51	-10.00	136.18	-10.00	100.00
35	0.00	109.44	-10.00	136.18	-10.00	100.00
40	0.00	105.33	-10.00	136.18	-10.00	100.00
45	0.00	101.17	-10.00	136.18	-10.00	100.00
50	0.00	96.99	-10.00	136.18	-10.00	100.00
55	0.00	92.79	-10.00	136.18	-10.00	100.00
60	0.00	88.59	-10.00	136.18	-10.00	100.00
65	0.00	84.39	-10.00	136.18	-10.00	100.00
70	0.00	80.20	-10.00	136.18	-10.00	100.00
75	0.00	76.03	-10.00	136.18	-10.00	100.00
80	0.00	71.90	-10.00	136.18	-10.00	100.00
85	0.00	67.82	-10.00	136.18	-10.00	100.00
90	0.00	63.79	-10.00	136.18	-10.00	100.00
95	0.00	59.85	-10.00	136.18	-10.00	100.00
100	0.00	56.00	-10.00	136.18	-10.00	100.00
105	0.00	52.28	-10.00	136.18	-10.00	100.00
110	0.00	48.72	-10.00	136.18	-10.00	100.00
115	0.00	45.36	-9.42	137.79	-9.42	100.00
120	0.00	42.25	-8.65	139.96	-8.65	100.00
125	0.00	39.45	-7.90	142.10	-7.90	100.00
130	0.00	37.04	-7.22	144.11	-7.22	100.00
135	0.00	35.09	-6.63	145.86	-6.63	100.00
140	0.00	33.69	-6.19	147.19	-6.19	100.00
145	0.00	32.92	-5.94	147.96	-5.94	100.00
150	0.00	32.81	-5.90	148.07	-5.90	100.00
155	0.00	33.37	-6.08	147.51	-6.08	100.00
160	0.00	34.57	-6.47	146.35	-6.47	100.00
165	0.00	35.96	-6.89	145.06	-6.89	100.00
170	0.00	36.98	-7.20	144.16	-7.20	100.00
175	0.00	37.60	-7.38	143.62	-7.38	100.00
180	0.00	37.81	-7.44	143.45	-7.44	100.00
185	0.00	37.60	-7.38	143.62	-7.38	100.00

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Max Available RF Power			-24.5 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 29.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	36.98	-7.20	144.16	-7.20	100.00
195	0.00	35.96	-6.89	145.06	-6.89	100.00
200	0.00	34.57	-6.47	146.35	-6.47	100.00
205	0.00	32.84	-5.91	148.04	-5.91	100.00
210	0.00	30.80	-5.22	150.19	-5.22	100.00
215	0.00	28.50	-4.37	152.84	-4.37	100.00
220	0.00	25.98	-3.36	156.09	-3.36	100.00
225	0.00	23.45	-2.25	160.26	-2.25	100.00
230	0.00	21.69	-1.41	163.09	-1.41	100.00
235	0.00	20.95	-1.03	164.36	-1.03	100.00
240	0.00	21.34	-1.23	163.69	-1.23	100.00
245	0.00	22.79	-1.94	161.30	-1.94	100.00
250	0.00	25.12	-3.00	157.29	-3.00	100.00
255	0.00	28.11	-4.22	153.32	-4.22	100.00
260	0.00	31.58	-5.49	149.34	-5.49	100.00
265	0.00	35.38	-6.72	145.58	-6.72	100.00
270	0.00	39.42	-7.89	142.12	-7.89	100.00
275	0.00	43.63	-9.00	138.97	-9.00	100.00
280	0.00	47.97	-10.00	136.18	-10.00	100.00
285	0.00	52.39	-10.00	136.18	-10.00	100.00
290	0.00	56.88	-10.00	136.18	-10.00	100.00
295	0.00	61.43	-10.00	136.18	-10.00	100.00
300	0.00	66.01	-10.00	136.18	-10.00	100.00
305	0.00	70.63	-10.00	136.18	-10.00	100.00
310	0.00	75.27	-10.00	136.18	-10.00	100.00
315	0.00	79.92	-10.00	136.18	-10.00	100.00
320	0.00	84.58	-10.00	136.18	-10.00	100.00
325	0.00	89.25	-10.00	136.18	-10.00	100.00
330	0.00	93.92	-10.00	136.18	-10.00	100.00
335	0.00	98.59	-10.00	136.18	-10.00	100.00
340	0.00	103.24	-10.00	136.18	-10.00	100.00
345	0.00	107.89	-10.00	136.18	-10.00	100.00
350	0.00	112.51	-10.00	136.18	-10.00	100.00
355	0.63	117.23	-10.00	108.68	-10.00	100.00