

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Echostar Licensee Corporation
ST LOUIS, MO
Satellite Earth Station
(13.2 Meter)

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
January 17, 2008

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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. The transmit band of the proposed uplink will be limited around the receive frequencies of a local 18 GHz terrestrial microwave receiver. There will be no other 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, with the exception of the case where the transmit band will be limited to avoid conflict with local 18 GHz terrestrial receivers.

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 12/11/2007.

Company

Alda Gold Inc.

Boeing Company

Cellco Partnership - Southern Illinois

Cybertel Cellular Telephone Company

GILSTER MARY-LEE CORP.

ST. LOUIS COMMUNITY COLLEGE

Sprint Spectrum LP DBA Sprint PCS

The Principia College

Union Pacific Railroad Company

CATERPILLAR OF DELAWARE INC

SOLUTIA 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: 01/17/2008
Job Number: 071211COMSGE03

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign:
Licensee Code: ZECHOS
Licensee Name: Echostar Licensee Corporation

Site Information ST LOUIS, MO

Venue Name:
Latitude (NAD 83): 38° 28' 55.9" N
Longitude (NAD 83): 90° 23' 51.9" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 172.52 m / 566.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 61° W to 129° West Longitude
Azimuth Range: 137.8° to 232.1°
Corresponding Elevation Angles: 36.0° / 30.2°
Antenna Centerline (AGL): 6.4 m / 21.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	Vertex	Vertex
Model	13.2 Meter	13.2 Meter
Gain / Diameter	62.0 dBi / 13.2 m	65.0 dBi / 13.2 m
3-dB / 15-dB Beamwidth	0.10° / 0.30°	0.10° / 0.20°
Max Available RF Power (dBW/4 kHz)	-22.8	-22.8
(dBW/MHz)	1.2	1.2
Maximum EIRP (dBW/4 kHz)	42.2	42.2
(dBW/MHz)	66.2	66.2
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 12.2 GHz

Transmit 17.3 GHz

Emission / Frequency Range (MHz)	1M50G2D - 24M0G1W / 12200.0 - 12700.0	1M50G2D - 24M0G1W / 17300.0 - 17690.0
Max Great Circle Coordination Distance	246.9 km / 153.4 mi	104.5 km / 64.9 mi
Precipitation Scatter Contour Radius	478.7 km / 297.4 mi	100.0 km / 62.1 mi

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Coordination Values

ST LOUIS, MO

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Latitude (NAD 83)	38° 28' 55.9" N				
Longitude (NAD 83)	90° 23' 51.9" W				
Ground Elevation (AMSL)	172.52 m / 566.0 ft				
Antenna Centerline (AGL)	6.4 m / 21.0 ft				
Antenna Model	Vertex 13.2 Meter				
Antenna Mode	Receive 12.2 GHz		Transmit 17.3 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			-22.8 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 12.2 GHz		Transmit 17.3 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.21	122.17	-10.00	226.10	-10.00	100.00
5	0.29	123.53	-10.00	218.93	-10.00	100.00
10	0.31	119.90	-10.00	216.65	-10.00	100.00
15	0.24	116.12	-10.00	223.34	-10.00	100.00
20	0.25	112.28	-10.00	222.39	-10.00	100.00
25	0.30	108.38	-10.00	217.86	-10.00	100.00
30	0.34	104.42	-10.00	214.20	-10.00	100.00
35	0.27	100.40	-10.00	220.74	-10.00	100.00
40	0.33	96.37	-10.00	214.64	-10.00	100.00
45	0.38	92.31	-10.00	210.60	-10.00	100.00
50	0.41	88.25	-10.00	208.13	-10.00	100.00
55	0.27	84.19	-10.00	220.10	-10.00	100.00
60	0.28	80.15	-10.00	219.64	-10.00	100.00
65	0.28	76.14	-10.00	219.66	-10.00	100.00
70	0.31	72.16	-10.00	217.02	-10.00	100.00
75	0.00	68.32	-10.00	227.19	-10.00	100.00
80	0.00	64.49	-10.00	227.19	-10.00	100.00
85	0.00	60.74	-10.00	227.19	-10.00	100.00
90	0.00	57.10	-10.00	227.19	-10.00	100.00
95	0.00	53.60	-10.00	227.19	-10.00	100.00
100	0.00	50.27	-10.00	227.19	-10.00	100.00
105	0.31	46.95	-9.79	217.70	-9.79	100.00
110	0.33	44.06	-9.10	218.67	-9.10	100.00
115	0.00	41.77	-8.52	233.75	-8.52	100.00
120	0.00	39.61	-7.95	236.38	-7.95	100.00
125	0.00	37.90	-7.47	238.60	-7.47	100.64
130	0.00	36.70	-7.12	240.24	-7.12	101.47
135	0.00	36.07	-6.93	241.13	-6.93	101.91
140	0.00	36.03	-6.92	241.19	-6.92	101.94
145	0.00	36.58	-7.08	240.41	-7.08	101.55
150	0.00	37.70	-7.41	238.86	-7.41	100.77
155	0.00	39.35	-7.87	236.71	-7.87	100.00
160	0.00	41.36	-8.41	234.23	-8.41	100.00
165	0.00	43.09	-8.86	232.22	-8.86	100.00
170	0.00	44.37	-9.18	230.80	-9.18	100.00
175	0.00	45.16	-9.37	229.95	-9.37	100.00
180	0.00	45.43	-9.43	229.67	-9.43	100.00
185	0.00	45.16	-9.37	229.95	-9.37	100.00

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Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%	
Max Available RF Power			-22.8 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 12.2 GHz		Transmit 17.3 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	44.37	-9.18	230.80	-9.18	100.00
195	0.24	42.87	-8.80	228.67	-8.80	100.00
200	0.31	41.09	-8.34	224.18	-8.34	100.00
205	0.39	38.91	-7.75	218.54	-7.75	100.00
210	0.43	36.43	-7.04	218.53	-7.04	100.00
215	0.46	33.90	-6.26	219.36	-6.26	100.00
220	0.47	31.89	-5.59	221.58	-5.59	100.00
225	0.45	30.51	-5.11	225.30	-5.11	100.00
230	0.47	29.80	-4.86	224.55	-4.86	100.00
235	0.51	29.83	-4.87	221.15	-4.87	100.00
240	0.44	30.71	-5.18	225.78	-5.18	100.00
245	0.00	32.62	-5.84	246.87	-5.84	104.51
250	0.38	34.38	-6.41	226.01	-6.41	100.00
255	0.34	37.00	-7.21	225.74	-7.21	100.00
260	0.25	40.06	-8.07	231.11	-8.07	100.00
265	0.00	43.51	-8.96	231.75	-8.96	100.00
270	0.00	47.03	-9.81	228.01	-9.81	100.00
275	0.00	50.75	-10.00	227.19	-10.00	100.00
280	0.00	54.62	-10.00	227.19	-10.00	100.00
285	0.00	58.61	-10.00	227.19	-10.00	100.00
290	0.00	62.69	-10.00	227.19	-10.00	100.00
295	0.00	66.85	-10.00	227.19	-10.00	100.00
300	0.00	71.06	-10.00	227.19	-10.00	100.00
305	0.00	75.31	-10.00	227.19	-10.00	100.00
310	0.00	79.59	-10.00	227.19	-10.00	100.00
315	0.00	83.90	-10.00	227.19	-10.00	100.00
320	0.00	88.22	-10.00	227.19	-10.00	100.00
325	0.00	92.54	-10.00	227.19	-10.00	100.00
330	0.00	96.85	-10.00	227.19	-10.00	100.00
335	0.00	101.16	-10.00	227.19	-10.00	100.00
340	0.00	105.44	-10.00	227.19	-10.00	100.00
345	0.00	109.68	-10.00	227.19	-10.00	100.00
350	0.00	113.88	-10.00	227.19	-10.00	100.00
355	0.00	118.03	-10.00	227.19	-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.

BY: 

Gary K. Edwards
Senior Manager
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: January 17, 2008