Narrative for New Earth Station Authorization

Introduction

Pursuant to Section 25.115 of the Federal Communications Commission's rules,[1] EchoStar Broadcasting Corporation (EBC) submits this application for a new earth station authorization. EBC is a subsidiary of EchoStar Corporation (EchoStar). EchoStar, through other subsidiary companies, operates a fleet of 24 satellites in the Direct Broadcast Satellite Service, the Fixed-Satellite Service, and the Mobile-Satellite Service, making it the largest U.S. commercial geostationary satellite operator and the fourth largest in the world. Through these facilities, EchoStar provides the backbone infrastructure for innovative multi-channel video programming provided by DISH and DISH Mexico, state-of-the art broadband Internet access services and operates a network that provides cutting-edge mobile services.

Operations

We are requesting authority for an earth station that will operate in the 12.2-12.7 GHz (receive) and 17.3-17.8 GHz (transmit) frequency bands and will operate pursuant to the technical parameters provided in schedule B of the attached Form 312. The earth station will operate at the same EBC facility in Summerset, South Dakota as existing earth station antennas licensed under call sign E020248.

Grant of this application is in the public interest as it will allow EBC to enhance network management by increasing the geographical diversity of its earth station network. By increasing network geographical diversity EBC will be able to more precisely determine the orbital locations of EchoStar's satellite fleet. Furthermore, it will help with overall network management when facilities located elsewhere are affected by weather conditions. Accordingly, grant of this application is in the public interest because it will enable EBC to provide improved services to U.S. consumers.

Points of Communication

EBC seeks authorization for the following points of communication -- EchoStar and Dish satellites at the 61.5° W.L. cluster (EchoStar III, EchoStar XII and EchoStar XVI[2]), the 110° W.L. cluster (EchoStar X and EchoStar XI[3]), and the 119° W.L. cluster (EchoStar XIV and EchoStar VII.[4]) and EchoStar 15 at 45.1° W.L. The FCC has previously authorized these points of communications under call sign E020248.[5]

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[1] *See* 47 C.F.R. § 25.115.

[2] *See* FCC Call Signs S2741, S2653 and S2844.

[3] *See* FCC Call Signs S2738 and S2694.

[4] *See* FCC Call Signs S2790 and S2740

[5] *See* Call Sign E020248 (points of communication 9 and 10); *see also* IBFS File No. SES-MOD-20130503-00364 (granted Jun. 26, 2013), IBFS File No. SES-MOD-20120815-00750 (granted Dec. 28, 2012).

FAA Notification

Notification to the FAA is not required for the proposed antenna facility because the structure passes slope. A copy of the TOWAIR report is attached to this application.

Radiation Hazard Study

A copy of the radiation hazard study is attached to this application.

Frequency Coordination

There are no frequency coordination issues with this application, and a copy of the frequency coordination report is attached to this application.

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
EchoStar Corporation
BLACKHAWK, SD
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
May 28, 2015

TABLE OF CONTENTS

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 04/14/2015.

Company
Campbell, County of
Commnet Cellular License Holding LLC-SD
Qwest Corporation
Range Telephone Cooperative, Inc.
West River Electric Association Inc
Western Communications, 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:	04/14/2015
Job Number:	<PCNJobCode>

Administrative Information	
Status	ENGINEER PROPOSAL
Call Sign	<PCNCallSign>
Licensee Code	ZECHOS
Licensee Name	EchoStar Corporation

Site Information	**BLACKHAWK, SD**
Venue Name	
Latitude (NAD 83)	44° 11' 14.2" N
Longitude (NAD 83)	103° 20' 7.5" W
Climate Zone	A
Rain Zone	5
Ground Elevation (AMSL)	1109.4 m / 3639.8 ft

Link Information	
Satellite Type	Geostationary
Mode	TR - Transmit-Receive
Modulation	Digital
Satellite Arc	33° W to 174° West Longitude
Azimuth Range	104.0° to 256.3°
Corresponding Elevation Angles	5.3° / 5.1°
Antenna Centerline (AGL)	5.9 m / 19.4 ft

Antenna Information		**Receive - FCC32**		**Transmit - FCC32**
Manufacturer		General Dynamics		General Dynamics
Model		9.2 Meter		9.2 Meter
Gain / Diameter		58.9 dBi / 9.2 m		61.9 dBi / 9.2 m
3-dB / 15-dB Beamwidth		0.19° / 0.43°		0.13° / 0.32°
Max Available RF Power	(dBW/4 kHz)			-5.8
	(dBW/MHz)			18.2
Maximum EIRP	(dBW/4 kHz)			56.1
	(dBW/MHz)			80.1
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%

Frequency Information	**Receive 12.2 GHz**	**Transmit 17.3 GHz**
Emission / Frequency Range (MHz)	300KGXD - 24M0G1W / 12200.0 - 12700.0	1M50F2D - 24M0G1W / 17300.0 - 17800.0
Max Great Circle Coordination Distance	578.0 km / 359.1 mi	339.2 km / 210.8 mi
Precipitation Scatter Contour Radius	417.1 km / 259.1 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Coordination Values	**BLACKHAWK, SD**			
Licensee Name	EchoStar Corporation			
Latitude (NAD 83)	44° 11' 14.2" N			
Longitude (NAD 83)	103° 20' 7.5" W			
Ground Elevation (AMSL)	1109.4 m / 3639.8 ft			
Antenna Centerline (AGL)	5.9 m / 19.4 ft			
Antenna Model	General Dynamics			
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	.0025%
Max Available RF Power		-5.8 (dBW/4 kHz)		

			Receive 12.2 GHz		Transmit 17.3 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	2.00	103.73	-10.00	143.15	-10.00	100.00
5	2.53	98.98	-10.00	132.01	-10.00	100.00
10	2.77	93.99	-10.00	128.87	-10.00	100.00
15	2.67	88.99	-10.00	130.66	-10.00	100.00
20	3.20	83.99	-10.00	121.16	-10.00	100.00
25	3.53	78.99	-10.00	115.49	-10.00	100.00
30	3.47	74.00	-10.00	116.50	-10.00	100.00
35	3.79	69.00	-10.00	111.14	-10.00	100.00
40	4.09	64.00	-10.00	106.61	-10.00	100.00
45	4.30	58.99	-10.00	103.90	-10.00	100.00
50	4.36	53.99	-10.00	103.18	-10.00	100.00
55	4.20	49.00	-10.00	105.15	-10.00	100.00
60	4.22	44.00	-9.09	108.07	-9.09	100.00
65	4.23	39.00	-7.78	112.53	-7.78	100.00
70	4.31	34.00	-6.29	116.96	-6.29	100.00
75	4.30	29.00	-4.56	123.56	-4.56	100.00
80	4.84	23.99	-2.50	124.65	-2.50	100.00
85	5.16	18.99	0.04	130.94	0.04	100.00
90	3.11	14.16	3.23	185.72	3.23	100.00
95	2.02	9.57	7.48	227.25	7.48	118.68
100	2.82	4.70	15.20	255.15	15.20	130.28
105	1.58	3.85	17.35	577.98	17.35	339.23
110	0.00	7.98	9.44	364.27	9.44	219.96
115	0.00	11.39	5.59	305.85	5.59	193.06
120	0.00	14.71	2.81	292.24	2.81	182.50
125	0.00	17.94	0.66	280.30	0.66	174.30
130	0.00	21.05	-1.08	270.97	-1.08	167.70
135	0.00	24.03	-2.52	263.48	-2.52	160.74
140	0.00	26.83	-3.72	257.37	-3.72	156.31
145	0.32	29.17	-4.62	240.39	-4.62	141.82
150	0.83	31.10	-5.32	203.38	-5.32	111.35
155	1.26	32.78	-5.89	187.91	-5.89	100.00
160	1.38	34.42	-6.42	181.87	-6.42	100.00
165	1.55	35.67	-6.81	174.92	-6.81	100.00
170	2.00	36.25	-6.98	157.14	-6.98	100.00
175	2.68	36.19	-6.96	141.35	-6.96	100.00
180	3.33	35.74	-6.83	130.52	-6.83	100.00
185	4.14	34.73	-6.52	118.29	-6.52	100.00

COMSEARCH

Earth Station Data Sheet

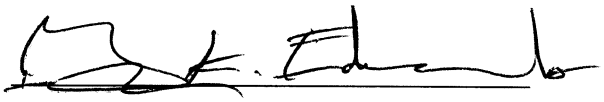
19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Coordination Values	**BLACKHAWK, SD**			
Licensee Name	EchoStar Corporation			
Latitude (NAD 83)	44° 11' 14.2" N			
Longitude (NAD 83)	103° 20' 7.5" W			
Ground Elevation (AMSL)	1109.4 m / 3639.8 ft			
Antenna Centerline (AGL)	5.9 m / 19.4 ft			
Antenna Model	General Dynamics			
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	.0025%
Max Available RF Power		-5.8 (dBW/4 kHz)		

			Receive 12.2 GHz		Transmit 17.3 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	3.64	34.64	-6.49	126.35	-6.49	100.00
195	4.47	32.87	-5.92	116.27	-5.92	100.00
200	5.11	30.94	-5.26	110.94	-5.26	100.00
205	4.03	30.28	-5.03	125.32	-5.03	100.00
210	3.90	28.42	-4.34	130.20	-4.34	100.00
215	2.98	26.92	-3.75	149.61	-3.75	100.00
220	3.44	24.01	-2.51	145.66	-2.51	100.00
225	3.53	21.21	-1.16	150.39	-1.16	100.00
230	3.57	18.27	0.45	157.87	0.45	100.00
235	3.65	15.15	2.49	169.42	2.49	100.00
240	3.64	11.98	5.04	183.42	5.04	100.00
245	3.63	8.70	8.51	201.08	8.51	100.00
250	3.64	5.35	13.79	285.53	13.79	146.09
255	3.65	1.89	25.06	547.59	25.06	313.79
260	3.86	3.94	17.12	243.35	17.12	120.66
265	4.01	8.81	8.38	193.14	8.38	100.00
270	3.41	13.84	3.47	180.18	3.47	100.00
275	3.04	18.85	0.12	171.17	0.12	100.00
280	2.77	23.85	-2.44	161.48	-2.44	100.00
285	2.44	28.86	-4.51	158.67	-4.51	100.00
290	2.49	33.83	-6.23	149.02	-6.23	100.00
295	2.00	38.85	-7.73	153.54	-7.73	100.00
300	2.11	43.83	-9.04	144.82	-9.04	100.00
305	1.55	48.84	-10.00	156.58	-10.00	100.00
310	1.21	53.84	-10.00	170.27	-10.00	100.00
315	0.25	58.87	-10.00	222.22	-10.00	131.54
320	0.00	63.86	-10.00	227.19	-10.00	135.85
325	0.00	68.83	-10.00	227.19	-10.00	135.85
330	0.00	73.81	-10.00	227.19	-10.00	135.85
335	1.15	78.77	-10.00	172.26	-10.00	100.00
340	1.09	83.76	-10.00	174.37	-10.00	100.00
345	1.50	88.75	-10.00	158.01	-10.00	100.00
350	1.54	93.74	-10.00	156.93	-10.00	100.00
355	1.64	98.73	-10.00	153.86	-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: May 28, 2015

Antenna Structure Registration

TOWAIR Determination Results

HELP

New Search Printable Page

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates

Latitude	44-11-14.2 north
Longitude	103-20-07.5 west

Measurements (Meters)

Overall Structure Height (AGL)	10.5
Support Structure Height (AGL)	10.5
Site Elevation (AMSL)	1109.4

Structure Type

GTOWER - Guyed Structure Used for Communication Purposes

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

ASR Help	ASR License Glossary - FAQ - Online Help - Documentation - Technical Support
ASR Online Systems	TOWAIR- CORES - ASR Online Filing - Application Search - Registration Search
About ASR	Privacy Statement - About ASR - ASR Home

Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Phone: 1-877-480-3201
TTY: 1-717-338-2824
Submit Help Request

Analysis of Non-Ionizing Radiation for a 9.1-Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 9.1-meter earth station system. The analysis and calculations performed in this report comply with the methods described in the FCC Office of Engineering and Technology Bulletin, No. 65 first published in 1985 and revised in 1997 in Edition 97-01. The radiation safety limits used in the analysis are in conformance with the FCC R&O 96-326. Bulletin No. 65 and the FCC R&O specifies that there are two separate tiers of exposure limits that are dependant on the situation in which the exposure takes place and/or the status of the individuals who are subject to the exposure. The Maximum Permissible Exposure (MPE) limits for persons in a General Population/Uncontrolled environment are shown in Table 1. The General Population/Uncontrolled MPE is a function of transmit frequency and is for an exposure period of thirty minutes or less. The MPE limits for persons in an Occupational/Controlled environment are shown in Table 2. The Occupational MPE is a function of transmit frequency and is for an exposure period of six minutes or less. The purpose of the analysis described in this report is to determine the power flux density levels of the earth station in the far-field, near-field, transition region, between the subreflector or feed and main reflector surface, at the main reflector surface, and between the antenna edge and the ground and to compare these levels to the specified MPEs.

Table 1. Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Power Density (mW/cm^2)
30-300	0.2
300-1500	Frequency (MHz)*(0.8/1200)
1500-100,000	1.0

Table 2. Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Power Density (mW/cm^2)
30-300	1.0
300-1500	Frequency (MHz)*(4.0/1200)
1500-100,000	5.0

Table 3. Formulas and Parameters Used for Determining Power Flux Densities

Parameter	Symbol	Formula	Value	Units
Antenna Diameter	D	Input	9.1	m
Antenna Surface Area	$A_{surface}$	$\pi D^2 / 4$	65.04	m^2
Subreflector Diameter	D_{sr}	Input	116.8	cm
Area of Subreflector	A_{sr}	$\pi D_{sr}{}^2/4$	10714.59	cm^2
Frequency	F	Input	17550	MHz
Wavelength	λ	300 / F	0.017094	m
Transmit Power	P	Input	1600.00	W
Antenna Gain (dBi)	G_{es}	Input	62.9	dBi
Antenna Gain (factor)	G	$10^{Ges/10}$	1949844.6	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2D^2)$	0.70	n/a

1. Far Field Distance Calculation

The distance to the beginning of the far field can be determined from the following equation:

Distance to the Far Field Region

$$R_{ff} = 0.60\ D^2 / \lambda \quad (1)$$
$$= 2906.6\ \text{m}$$

The maximum main beam power density in the far field can be determined from the following equation:

On-Axis Power Density in the Far Field

$$S_{ff} = G\ P / (4\ \pi\ R_{ff}^{\ 2}) \quad (2)$$
$$= 29.385\ \text{W/m}^2$$
$$= 2.939\ \text{mW/cm}^2$$

2. Near Field Calculation

Power flux density is considered to be at a maximum value throughout the entire length of the defined Near Field region. The region is contained within a cylindrical volume having the same diameter as the antenna. Past the boundary of the Near Field region, the power density from the antenna decreases linearly with respect to increasing distance.

The distance to the end of the Near Field can be determined from the following equation:

Extent of the Near Field

$$R_{nf} = D^2 / (4\ \lambda) \quad (3)$$
$$= 1211.1\ \text{m}$$

The maximum power density in the Near Field can be determined from the following equation:

Near Field Power Density

$$S_{nf} = 16.0\ \eta\ P / (\pi\ D^2) \quad (4)$$
$$= 68.598\ \text{W/m}^2$$
$$= 6.860\ \text{mW/cm}^2$$

3. Transition Region Calculation

The Transition region is located between the Near and Far Field regions. The power density begins to decrease linearly with increasing distance in the Transition region. While the power density decreases inversely with distance in the Transition region, the power density decreases inversely with the square of the distance in the Far Field region. The maximum power density in the Transition region will not exceed that calculated for the Near Field region. The power density calculated in Section 1 is the highest power density the antenna can produce in any of the regions away from the antenna. The power density at a distance R_t can be determined from the following equation:

Transition Region Power Density

$$S_t = S_{nf}\ R_{nf} / R_t \quad (5)$$
$$= 6.860\ \text{mW/cm}^2$$

4. Region between the Main Reflector and the Subreflector

Transmissions from the feed assembly are directed toward the subreflector surface, and are reflected back toward the main reflector. The most common feed assemblies are waveguide flanges, horns or subreflectors. The energy between the subreflector and the reflector surfaces can be calculated by determining the power density at the subreflector surface. This can be determined from the following equation:

Power Density at the Subreflector

$$S_{sr} = 4000\ P / A_{sr} \quad (6)$$
$$= 597.316\ mW/cm^2$$

5. Main Reflector Region

The power density in the main reflector is determined in the same manner as the power density at the subreflector. The area is now the area of the main reflector aperture and can be determined from the following equation:

Power Density at the Main Reflector Surface

$$S_{surface} = 4\ P / A_{surface} \quad (7)$$
$$= 98.403\ W/m^2$$
$$= 9.840\ mW/cm^2$$

6. Region between the Main Reflector and the Ground

Assuming uniform illumination of the reflector surface, the power density between the antenna and the ground can be determined from the following equation:

Power Density between Reflector and Ground

$$S_g = P / A_{surface} \quad (8)$$
$$= 24.601\ W/m^2$$
$$= 2.460\ mW/cm^2$$

7. Summary of Calculations

Table 4. Summary of Expected Radiation levels for Uncontrolled Environment

Region		Calculated Maximum Radiation Power Density Level (mW/cm^2)	Hazard Assessment
1. Far Field (R_{ff} = 2906.6 m)	S_{ff}	2.939	Potential Hazard
2. Near Field (R_{nf} = 1211.1 m)	S_{nf}	6.860	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	6.860	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	597.316	Potential Hazard
5. Main Reflector	$S_{surface}$	9.840	Potential Hazard
6. Between Main Reflector and Ground	S_g	2.460	Potential Hazard

Table 5. Summary of Expected Radiation levels for Controlled Environment

Region		Calculated Maximum Radiation Power Density Level (mW/cm^2)	Hazard Assessment
1. Far Field (R_{ff} = 2906.6 m)	S_{ff}	2.939	Satisfies FCC MPE
2. Near Field (R_{nf} = 1211.1 m)	S_{nf}	6.860	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	6.860	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	597.316	Potential Hazard
5. Main Reflector	$S_{surface}$	9.840	Potential Hazard
6. Between Main Reflector and Ground	S_g	2.460	Satisfies FCC MPE

It is the applicant's responsibility to ensure that the public and operational personnel are not exposed to harmful levels of radiation.

8. Conclusions

Based on the above analysis it is concluded that the FCC MPE guidelines have been exceeded (or met) in the regions of Table 4 and 5. The applicant proposes to comply with the MPE limits by one or more of the following methods.

The earth station will be located in a Gated and Fenced facility, at least 50 feet inside the fence perimeter, with secured access in and around the proposed antenna. Since the proposed earth station will not transmit at an antenna elevation of less than 13 degrees, or across a populated area, and since at one diameter removed from the center of main beam the levels are down at least 20 dB, or by a factor of 100, public safety will be ensured for the near and far field regions.

Finally, occupational exposure will be limited, and the transmitter will be turned off during periods of maintenance, so that the MPE standard of 5.0 mw/cm**2 will be complied with for those regions in close proximity to the main reflector, and subreflector, which could be occupied by operating personnel.

Response to Question 36

On July 26, 2011, the FCC declared null and void an authorization of EchoStar Corporation, the parent company of EchoStar Broadcasting Corporation (together with their affiliates, "EchoStar"), to construct, launch, and operate a new Direct Broadcast Satellite at 86.5º W.L. for failure to meet the critical design review milestone, and rejected EchoStar's request to modify its 86.5º W.L. authorization to allow the in-orbit EchoStar 8 satellite to provide service from that orbital location.[1]

The FCC also has denied a few of EchoStar's applications for initial license or modification.[2]

The FCC has dismissed, but not denied on the merits, a few of EchoStar's license applications without prejudice to refiling.[3]

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[1] *See EchoStar Corporation*, Memorandum Opinion and Order, 26 FCC Rcd 10,442 (IB 2011).

[2] *See Satellite Communications Services Information Re: Actions Taken*, Public Notice, Rpt. No. SES-00847 (IB rel. Aug. 16, 2006) (denying HNS License Sub, LLC's, request for extension of construction milestones regarding File Nos. SES-MOD-20060404-00560 and SES-MOD-20060404-00561); *EchoStar Satellite LLC*, Memorandum Opinion and Order, 19 FCC Rcd 7846 (IB 2004) (denying applications to launch and operate four geostationary satellites because of interference concerns); *EchoStar Satellite LLC*, Order, 20 FCC Rcd 12,027 (IB 2005); *EchoStar Satellite Corporation*, Memorandum Opinion and Order, 17 FCC Rcd 8831 (IB 2002) (denying request to extend construction milestone dates); *EchoStar Satellite Corporation*, Memorandum Opinion and Order, 16 FCC Rcd 14,300 (IB 2001).

[3] *See, e.g.*, Letter from Robert G. Nelson, Chief, Satellite Division, to Pantelis Michalopoulos, Counsel for EchoStar Corporation, 24 FCC Rcd 7132 (IB 2009); *EchoStar Corporation, Application to Operate a C-Band Geostationary Satellite Orbit Satellite in the Fixed-Satellite Service at the 84.9º W.L. Orbital Location*, Memorandum Opinion and Order, 25 FCC Rcd 10,193 (IB 2010); Letter from Paul E. Blais, Chief, Systems Analysis Branch, Satellite Division, to Alison Minea, Corporate Counsel, EchoStar Broadcasting Corporation, 28 FCC Rcd 10,214 (IB 2013); Letter from Paul E. Blais, Chief, Systems Analysis Branch, Satellite Division, to Alison Minea, Corporate Counsel, EchoStar Broadcasting Corporation, 28 FCC Rcd 10,216 (IB 2013).