



**UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
RADIO STATION AUTHORIZATION**

Name: EchoStar Broadcasting Holding Corporation

Call Sign: E020233

Authorization Type: Modification of License

File Number: SES-MOD-20180410-00333

Non Common Carrier

Grant date: 05/25/2018

Expiration Date: 10/25/2032



Nature of Service: Fixed Satellite Service

Class of Station: Fixed Earth Stations

A) Site Location(s)

#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	NAD	Special Provisions (Refer to Section H)
1)	1	801 NORTH DISH DRIVE GILBERT, MARICOPA, AZ 85233	33°22'0.7"N	111°48'52.9"W	381	83	507

Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209

Subject to the provisions of the Communications Act of 1934, The Communications Satellite Act of 1962, subsequent acts and treaties, and all present and future regulations made by this Commission, and further subject to the conditions and requirements set forth in this license, the grantee is authorized to construct, use and operate the radio facilities described below for radio communications for the term beginning October 25, 2017 (3 AM Eastern Standard Time) and ending October 25, 2032 (3 AM Eastern Standard Time) . The required date of completion of construction and commencement of operation is May 25, 2019 (3 AM Eastern Standard Time) . Grantee must file with the Commission a certification upon completion of construction and commencement of operation.

B) Particulars of Operations

The General Provision 1010 applies to all receiving frequency bands.

The General Provision 1900 applies to all transmitting frequency bands.

For the text of these provisions, refer to Section H.

#	Frequency (MHz)	Polarization Code	Emission	Tx/Rx Mode	Max EIRP /Carrier (dBW)	Max EIRP Density /Carrier (dBW/4kHz)	Associated Antenna	Special Provisions (Refer to Section H)	Modulation/ Services
1)	6424.0000-6425.0000	H,V	750KG7W	Tx	73.53	50.80	GC2		COMMAND RANGING CARRIER
2)	6424.0000-6425.0000	H,V	1M00G2D	Tx	74.77	50.80	GC2		COMMAND CARRIER AND RANGING
3)	6424.0000-6425.0000	H,V	800KG2D	Tx	73.80	50.80	GC2		COMMAND CARRIER AND RANGING
4)	6420.0000-6421.0000	H,V	800KG2D	Tx	73.80	50.80	GC2		COMMAND RANGING CARRIER
5)	6420.0000-6421.0000	H,V	1M00G2D	Tx	74.77	50.80	GC2		COMMAND CARRIER AND RANGING
6)	6420.0000-6421.0000	H,V	750KG2D	Tx	73.53	50.80	GC2		COMMAND CARRIER AND RANGING
7)	6109.0000-6181.0000	H,V	36M0F8W	Tx	77.30	50.80	GC2		ANALOG VIDEO
8)	6109.0000-6181.0000	H,V	1M00G7W	Tx	74.77	50.80	GC2		DATA CARRIER (DIGITAL)



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9)	6109.0000-6181.0000	H, V	750KG7W	Tx	73.53	50.80	GC2		DATA CARRIER (DIGITAL)
10)	6109.0000-6181.0000	H, V	36M0G7W	Tx	77.30	37.70	GC2		COMPRESSED VIDEO (DIGITAL)
11)	6040.0000-6077.0000	H, V	36M0F8W	Tx	77.30	50.80	GC2		ANALOG VIDEO
12)	6040.0000-6077.0000	H, V	1M00G7W	Tx	74.77	50.80	GC2		DATA CARRIER (DIGITAL)
13)	6040.0000-6077.0000	H, V	750KG7W	Tx	73.53	50.80	GC2		DATA CARRIER (DIGITAL)
14)	6040.0000-6077.0000	H, V	36M0G7W	Tx	77.30	37.70	GC2		COMPRESSED VIDEO (DIGITAL)
15)	6020.0000-6028.0000	H, V	1M00G7W	Tx	74.77	50.80	GC2		DATA CARRIER (DIGITAL)
16)	6020.0000-6028.0000	H, V	750KG7W	Tx	73.53	50.80	GC2		DATA CARRIER (DIGITAL)
17)	6020.0000-6028.0000	H, V	8M00G7W	Tx	77.30	44.30	GC2		COMPRESSED VIDEO (DIGITAL)
18)	5961.0000-5988.0000	H, V	18M0F8W	Tx	74.30	50.80	GC2		ANALOG VIDEO
19)	5961.0000-5988.0000	H, V	1M00G7W	Tx	74.77	50.80	GC2		DATA CARRIER (DIGITAL)
20)	5961.0000-5988.0000	H, V	750KG7W	Tx	73.53	50.80	GC2		DATA CARRIER (DIGITAL)
21)	5961.0000-5988.0000	H, V	27M0G7W	Tx	77.30	39.00	GC2		COMPRESSED VIDEO (DIGITAL)
22)	5925.0000-5929.0000	H, V	1M00G7W	Tx	74.77	50.80	GC2		DATA CARRIER (DIGITAL)
23)	5925.0000-5929.0000	H, V	750KG7W	Tx	73.53	50.80	GC2		DATA CARRIER (DIGITAL)
24)	5925.0000-5929.0000	H, V	4M00G7W	Tx	77.30	47.30	GC2		COMPRESSED DIGITAL DATA
25)	5925.0000-5929.0000	H, V	800KG2D	Tx	73.80	50.80	GC2		COMMAND AND RANGING CARRIER
26)	3700.0000-4200.0000	H, V	36M0F8W	Rx			GC2		ANALOG VIDEO
27)	3700.0000-4200.0000	H, V	1M00G2D	Rx			GC2	90147	TELEMETRY AND RANGING
28)	3700.0000-4200.0000	H, V	36M0G7W	Rx			GC2		COMPRESSED VIDEO (DIGITAL)
29)	3700.0000-4200.0000	H, V	750KG2D	Rx			GC2	90147	TELEMETRY AND RANGING
30)	3700.0000-3705.0000	H, V	750KG2D	Rx			GC2		TELEMETRY AND RANGING



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C) Frequency Coordination Limits

#	Frequency Limits (MHz)	Satellite Arc (Deg. Long.)		Elevation (Degrees)		Azimuth (Degrees)		Max EIRP Density toward Horizon (dBW/4kHz)	Associated Antenna(s)
		East Limit	West Limit	East Limit	West Limit	East Limit	West Limit		
1)	3700.0000-4200.0000	58.0W	-155.0W	21.5	-30.0	111.9	-239.6		GC2
2)	5925.0000-5929.0000	58.0W	-155.0W	21.5	-30.0	111.9	-239.6	-7.81	GC2
3)	5961.0000-5988.0000	58.0W	-155.0W	21.5	-30.0	111.9	-239.6	-7.81	GC2
4)	6020.0000-6028.0000	58.0W	-155.0W	21.5	-30.0	111.9	-239.6	-7.81	GC2
5)	6040.0000-6077.0000	58.0W	-155.0W	21.5	-30.0	111.9	-239.6	-7.81	GC2
6)	6109.0000-6181.0000	58.0W	-155.0W	21.5	-30.0	111.9	-239.6	-7.81	GC2
7)	6420.0000-6421.0000	58.0W	-155.0W	21.5	-30.0	111.9	-239.6	-7.81	GC2
8)	6424.0000-6425.0000	58.0W	-155.0W	21.5	-30.0	111.9	-239.6	-7.81	GC2

D) Points of Communications

The following stations located in the Satellite orbits consistent with Sections B and C of this Entry:

- 1) 1 to ECHOSTAR 1 @77 W.L. of the Direct Broadcast satellite system (Mexican-licensed)
- 2) 1 to Permitted Space Station List
- 3) 1 to DBSD G-1 (S2651) @ 92.85 W.L. (United Kingdom licensed)

E) Antenna Facilities

Site ID	Antenna ID	Units	Diameter (meters)	Manufacturer	Model number	Site Elevation (Meters)	Max Antenna Height (Meters)	Special Provisions (Refer to Section H)
1	GC2	1	9	VERTEX	9 KPC	381	9 AGL/ 390 AMSL	
Max Gains(s):		50.1 dBi @		4.0000 GHz	53.5 dBi @	6.0000 GHz		
Maximum total input power at antenna flange (Watts) =					933.25			
Maximum aggregate output EIRP for all carriers (dBW) =					83.20			

G) Antenna Structure marking and lighting requirements:

None unless otherwise specified under Special and General Provisions



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H) Special and General Provisions

A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

- 4 --- Licensee must ensure that a current listing of the name, title, mailing address, email address, and telephone number of the responsible point of contact are on file at the FCC. Any changes must be filed electronically in the International Bureau Filing System (IBFS) in the "Other Filings" tab within 10 days of the change.
- 5 --- Licensee must notify the Commission when this earth station is no longer operational or when it has not been used to provide any service during any 6-month operation.
- 6 --- Licensee must comply with the license modification and notification requirements of 47 CFR § 25.118 to change the coordinates of its authorized earth station.
- 507 --- At 04:01 UTC, September 22, 2010 authority to communicate with the U.S.-licensed EchoStar 1 is terminated. At 04:01 UTC, September 22, 2010 is authorized to communicate with the Mexican-licensed EchoStar 1 satellite.
- 509 --- Operations shall be consistent with applicable coordination agreements; to the extent such agreements have not been reached, operations: a) shall not exceed, under any conditions and taking into account all variations in satellite attitude, the parameters specified in Attachment A of the Letter, dated May 10, 2005, from Pantelis Michalopoulos to the Secretary, FCC, See File No. SAT-STA-20050321-00068 and; b) shall be on a non-harmful interference basis, i.e., operations of the EchoStar 1 satellite shall not cause interference to, and shall not claim protection from, interference caused to it by any other lawfully operating satellites.
- 2914 --- This station operating a Tracking, Telemetry and Command (TT&C) antenna.
- 9662 --- The 17.8 - 20.2 GHz band is shared with U.S. Government space stations and associated earth stations in the fixed-Satellite Services. Services within the United States over the satellite network of which this is a cooperating earth station are subject to coordination under US334 and operation of the earth station(s) authorized herein will be subject to any technical constraints resulting from this coordination. See 47 C.F.R. Section 2.106, Footnote US334.
- 90147 --- EchoStar is authorized to perform TT&C operations with the DBSD G-1 satellite at 92.85° W.L. on an unprotected and non-harmful interference basis within coordinated emission and power limits in the 3700-3705 MHz and 4195-4200 MHz bands and on the following center frequencies: 5925.0 MHz, 5925.5 MHz, 6420.0 MHz, and 6424.5 MHz. For these operations, EchoStar shall not cause harmful interference to, and shall not claim protection from interference caused to it by, any other lawfully operating station. In the event of any harmful interference caused by EchoStar's TT&C operations with the DBSD G-1 satellite, EchoStar shall cease operations immediately upon notification of such interference, and shall inform the Commission, in writing, immediately of such an event.
- 90148 --- EchoStar is authorized, for a period of up to five consecutive days, to perform annual reliability testing for TT&C operations with the DBSD G-1 satellite on EchoStar's authorized frequencies within the 5925-5930 MHz, 6420-6425 MHz, 3700-3705 MHz, and 4195-4200 MHz bands.
- 90149 --- Other than for annual reliability testing, EchoStar's use of frequencies within the 5925-5930 MHz, 6420-6425 MHz, 3700-3705 MHz, and 4195-4200 MHz bands to communicate with the DBSD G-1 satellite is limited to TT&C operations that cannot be accommodated within DBSD G-1's service bands for on-station TT&C: 29.9955 GHz and 29.9995 GHz (command) and 20.1965 GHz and 20.1985 GHz (telemetry).



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H) Special and General Provisions

A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

- 90150 --- In the event that on-station TT&C operations cannot be conducted in the 29.9955 GHz, 29.9995 GHz, 20.1965 GHz, and 20.1985 GHz frequency bands, EchoStar may use its authorized frequencies within the 5925-5930 MHz, 6420-6425 MHz, 3700-3705 MHz, and 4195-4200 MHz bands for TT&C operations, for five consecutive days, ending at 12:00 p.m. on the fifth day. If additional time is needed, EchoStar must file a request with the Commission for special temporary authority to continue its operations for communicating with the DBSD G-1 satellite.
- 90151 --- EchoStar has two days to notify the Commission, in writing, once it begins use of its authorized frequencies within these bands indicating the basis for commencing communications with the DBSD G-1 satellite.
- 90152 --- EchoStar must coordinate its TT&C operations for the DBSD G-1 satellite, including any annual reliability testing, with any authorized satellites within two degrees of the 92.85° W.L. orbital location.
- 90153 --- If the DBSD G-1 satellite moves from the 92.85° W.L. orbital location or the technical information on file for the DBSD G-1 satellite for the frequencies authorized to EchoStar within the 3700-3705 MHz, 4195-4200 MHz, 5925-5930 MHz, or 6420-6425 MHz bands is modified, EchoStar must file an application to modify this authorization.
- 90398 --- Changes to previously authorized transmitting facilities, operations and devices regulated by the Commission that may have significant environmental impact, and are not excluded by §1.1306, require the preparation of an Environmental Assessment (EA) by the licensee. (See 47 C.F.R. §§1.1307, 1.1308 and 1.1311)
- 90399 --- The licensee shall, at all times, take all necessary measures to ensure that operation of this (these) authorized earth station(s) does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR §§ 1.1307(b) and 1.1310. Physical measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Compliance can be accomplished in most cases by appropriate restrictions, such as fencing. Requirements for restrictions can be determined by predictions based on calculations, modeling, or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for workers.



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A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

900407 --- The Permitted Space Station List (Permitted List) is a list of all geostationary space stations providing fixed-satellite service pursuant to a Commission license or grant of U.S. market access. The Permitted List currently includes the following frequency bands per §25.103 and §25.115(k)(1):

3600-4200 MHz (space-to-Earth)

5850-6725 MHz (Earth-to-space)

10.95-11.2 GHz (space-to-Earth)

11.45-12.2 GHz (space-to-Earth)

13.75-14.5 GHz (Earth-to-space)

18.3-18.8 GHz (space-to-Earth)

19.7-20.2 GHz (space-to-Earth)

24.75-25.25 GHz (Earth-to-space)

28.35-28.6 GHz (Earth-to-space)

29.25-30.0 GHz (Earth-to-space).

Earth stations with "Permitted List" designated as a point of communication may access any space station on the Permitted List, provided the operations comply with the applicable "routine" uplink and downlink limits, are within the specific frequency bands authorized in the earth station license, have completed coordination with terrestrial stations pursuant to §25.203, and otherwise comply with all terms and conditions of both the earth station license and the space station grant.



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B) This RADIO STATION AUTHORIZATION is granted subject to the additional conditions specified below:

This authorization is issued on the grantee's representation that the statements contained in the application are true and that the undertakings described will be carried out in good faith.

This authorization shall not be construed in any manner as a finding by the Commission on the question of marking or lighting of the antenna system should future conditions require. The grantee expressly agrees to install such marking or lighting as the Commission may require under the provisions of Section 303(q) of the Communications Act. 47 U.S.C. § 303(q).

Neither this authorization nor the right granted by this authorization shall be assigned or otherwise transferred to any person, firm, company or corporation without the written consent of the Commission. This authorization is subject to the right of use or control by the government of the United States conferred by Section 706 of the Communications Act. 47 U.S.C. § 706. Operation of this station is governed by Part 25 of the Commission's Rules. 47 C.F.R. Part 25.

This authorization shall not vest in the licensee any right to operate this station nor any right in the use of the designated frequencies beyond the term of this license, nor in any other manner than authorized herein.

This authorization is issued on the grantee's representation that the station is in compliance with environmental requirements set forth in Section 1.1307 of the Commission's Rules. 47 C.F.R. § 1.1307.

This authorization is issued on the grantee's representation that the station is in compliance with the Federal Aviation Administration (FAA) requirements as set forth in Section 17.4 of the Commission's Rules. 47 C.F.R. § 17.4.

The following condition applies when this authorization permits construction of or modifies the construction permit of a radio station.

This authorization shall be automatically forfeited if the station is not ready for operation by the required date of completion of construction unless an application for modification of authorization to request additional time to complete construction is filed by that date, together with a showing that failure to complete construction by the required date was due to factors not under control of the grantee.

Licensees are required to pay annual regulatory fees related to this authorization. The requirement to collect annual regulatory fees from regulatees is contained in Public Law 103-66, "The Omnibus Budget Reconciliation Act of 1993." These regulatory fees, which are likely to change each fiscal year, are used to offset costs associated with the Commission's enforcement, public service, international and policy and rulemaking activities. The Commission issues a Report and Order each year, setting the new regulatory fee rates. Receive only earth stations are exempt from payment of regulatory fees.