



312 File Number: **SESMFS2016091900792**

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## Filing Description

Question	Response
Description	EHOSTAR-23 DBS satellite network

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**Satellite  
Information**

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	ECHOSTAR-23
Estimated Lifetime of Satellite(s) From Date of Launch	15 Years
Will the space station(s) operate on a Common Carrier basis?	No

**Operating  
Frequency  
Bands (2)**

<b>Nature of service</b>	<b>Description</b>	<b>Frequency Band (s)</b>	<b>Mode Type</b>
<b>Direct Broadcast Satellite (DBS) Service</b>		12200.0 MHz -12700.0 MHz	Transmit
<b>Fixed-Satellite Service</b>		17300.0 MHz -17800.0 MHz	Receive

## Orbital Information For Geostationary Satellites

Section	Question	Response
<b>Orbital Longitude Information</b>	Orbital Longitude	45.0 degrees
	Hemisphere of Orbital Longitude	W
<b>Longitudinal Tolerance or East /West Station-Keeping</b>	Toward West	0.05 degrees
	Toward East	0.05 degrees
<b>Inclination Excursion or North /South Station-Keeping Tolerance</b>	Inclination Excursion or North /South Station-Keeping Tolerance	0.07 degrees
<b>Eccentricity</b>	Max. Eccentricity	4.6E-4
<b>Antenna Axis Attitude Accuracy</b>	Roll	0.12 degrees
	Pitch	0.12 degrees
	Yaw	0.12 degrees

## Receiving Beams 1:

Question	Response
Beam ID	CMDL
Receive Beam Frequency	17300.0 MHz -17310.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	30.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	3.8 dB/K
Min. Saturation Flux Density	-93.0 dBW/m <sup>2</sup>
Max. Saturation Flux Density	-73.0 dBW/m <sup>2</sup>
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth (command beam)

## Receiving Beams 2:

Question	Response
Beam ID	CMDR
Receive Beam Frequency	17790.5 MHz -17791.5 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees

Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	30.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	3.8 dB/K
Min. Saturation Flux Density	-93.0 dBW/m <sup>2</sup>
Max. Saturation Flux Density	-73.0 dBW/m <sup>2</sup>
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth (command beam)

### Receiving Beams 3:

Question	Response
Beam ID	RX2L
Receive Beam Frequency	17300.0 MHz -17800.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	31.6 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	12.6 dB/K
Min. Saturation Flux Density	-100.0 dBW/m <sup>2</sup>
Max. Saturation Flux Density	-79.0 dBW/m <sup>2</sup>

Co- or Cross Polar Mode	C
Service Area Description	-2 dB contour

**Receiving  
Beams 4:**

Question	Response
Beam ID	RX2R
Receive Beam Frequency	17300.0 MHz -17800.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	31.6 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	12.4 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-79.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	-2 dB contour

**Receiving  
Beams 5:**

Question	Response
Beam ID	RX1L
Receive Beam Frequency	17300.0 MHz -17800.0 MHz
Beam Type	Fixed

Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	31.6 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	13.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m <sup>2</sup>
Max. Saturation Flux Density	-79.0 dBW/m <sup>2</sup>
Co- or Cross Polar Mode	C
Service Area Description	-2 dB contour

**Receiving  
Beams 6:**

Question	Response
Beam ID	RX1R
Receive Beam Frequency	17300.0 MHz -17800.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	31.6 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	13.0 dB/K



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Min. Saturation Flux Density	-100.0 dBW/m <sup>2</sup>
Max. Saturation Flux Density	-79.0 dBW/m <sup>2</sup>
Co- or Cross Polar Mode	C
Service Area Description	-2 dB contour

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## Receiving Channels (34)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
U02	26.0	17338.58	Feeder Link
U01	26.0	17324.0	Feeder Link
CMD1	1.0	17791.0	TT&C
U028	26.0	17688.5	Feeder Link
U03	26.0	17353.16	Feeder Link
U04	26.0	17367.74	Feeder Link
U05	26.0	17382.32	Feeder Link
U06	26.0	17396.9	Feeder Link
U07	26.0	17411.48	Feeder Link
U08	26.0	17426.06	Feeder Link
U09	26.0	17440.64	Feeder Link
U10	26.0	17455.22	Feeder Link
U11	26.0	17469.8	Feeder Link
U12	26.0	17484.38	Feeder Link
U13	26.0	17498.96	Feeder Link
U14	26.0	17513.54	Feeder Link
U15	26.0	17528.12	Feeder Link
CMD2	10.0	17305.0	TT&C
U16	26.0	17542.7	Feeder Link
U17	26.0	17557.28	Feeder Link
U18	26.0	17571.86	Feeder Link
U19	26.0	17586.44	Feeder Link
U20	26.0	17601.02	Feeder Link
U21	26.0	17615.6	Feeder Link

<b>U22</b>	26.0	17630.18	Feeder Link
<b>U23</b>	26.0	17644.76	Feeder Link
<b>U24</b>	26.0	17659.34	Feeder Link
<b>U25</b>	26.0	17673.92	Feeder Link
<b>U26</b>	26.0	17688.5	Feeder Link
<b>U27</b>	26.0	17703.08	Feeder Link
<b>U29</b>	26.0	17732.24	Feeder Link
<b>U30</b>	26.0	17746.82	Feeder Link
<b>U31</b>	26.0	17761.4	Feeder Link
<b>U32</b>	26.0	17775.98	Feeder Link

## Transmitting Beams 1:

Question	Response
Beam ID	TLM
Transmit Beam Frequency	12200.0 MHz -12210.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-42.2 dBW/Hz
Max. Transmit EIRP	14.8 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth (telemetry beam)

## Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
Hz	-50.0	-50.0	-50.0	-50.0	-50.0	-50.0

## Transmitting Beams 2:

Question	Response
Beam ID	TXL
Transmit Beam Frequency	12200.0 MHz -12700.0 MHz

Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-14.7 dBW/Hz
Max. Transmit EIRP	59.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	Brazil

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
Hz	-50.0	-50.0	-50.0	-50.0	-50.0	-50.0

### Transmitting Beams 3:

Question	Response
Beam ID	TXR
Transmit Beam Frequency	12200.0 MHz -12700.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees



## Transmitting Channels (33)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
D27	26.0	12603.08	Service Link
D26	26.0	12588.5	Service Link
D25	26.0	12573.92	Service Link
D24	26.0	12559.34	Service Link
TLM1	10.0	12205.0	TT&C
D32	26.0	12675.98	Service Link
D31	26.0	12661.4	Service Link
D30	26.0	12646.82	Service Link
D29	26.0	12632.24	Service Link
D28	26.0	12617.66	Service Link
D23	26.0	12544.76	Service Link
D22	26.0	12530.18	Service Link
D21	26.0	12515.6	Service Link
D20	26.0	12501.02	Service Link
D19	26.0	12486.44	Service Link
D18	26.0	12471.86	Service Link
D17	26.0	12457.28	Service Link
D16	26.0	12442.7	Service Link
D15	26.0	12428.12	Service Link
D14	26.0	12413.54	Service Link
D13	26.0	12398.96	Service Link
D12	26.0	12384.38	Feeder Link
D11	26.0	12369.8	Service Link
D10	26.0	12355.22	Service Link

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<b>D09</b>	26.0	12340.64	Service Link
<b>D08</b>	26.0	12326.06	Service Link
<b>D07</b>	26.0	12311.48	Service Link
<b>D06</b>	26.0	12296.9	Service Link
<b>D05</b>	26.0	12282.32	Service Link
<b>D04</b>	26.0	12267.74	Service Link
<b>D03</b>	26.0	12253.16	Service Link
<b>D02</b>	26.0	12238.58	Service Link
<b>D01</b>	26.0	12224.0	Service Link

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## Certification Questions

Question	Response
Are the applicable service area coverage requirements of 25.143(b)(2) (ii) and (iii), or 25.144(a)(3)(i), or 25.145 (c)(1) and (2), or 25.146(i)(1) and (2), or 25.148(c), or 25.225 met?	N/A
Are the applicable frequency tolerances of 25.202(e) and out-of-band emission limits of 25.202(f)(1),(2), and (3) met?	Yes
Are the cessation of emissions requirements of 25.207 met?	Yes
Are the applicable power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?	
For NGSO applications, are the applicable equivalent-power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?	N/A
Are the applicable full-frequency-reuse requirements of 25.210 met?	Yes
If the application is for a 17/24 GHz BSS space station, will it be operated at an offset location with full power and interference protection in accordance with 25.262(b)?	

**Attachments**

Information not provided.