

**FCC 312
 Schedule S**

**FEDERAL COMMUNICATIONS COMMISSION
 SATELLITE SPACE STATION AUTHORIZATIONS
 (Technical and Operational Description)**

**Page 1: General,
 Frequency Bands,
 and GSO Orbit**

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: ECHOSTAR-18		e. Estimated Date of Placement into Service:		i. Will the space station(s) operate on a Common Carrier Basis: N	
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s): 15 Years		j. Number of transponders offered on a common carrier basis:	
c. Construction Completion Date:		g. Total Number of Transponders:		k. Total Common Carrier Transponder Bandwidth: MHz	
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) MHz		l. Orbit Type: Mark all boxes that apply: <input checked="" type="checkbox"/> GSO <input type="checkbox"/> NGSO	

S2. OPERATING FREQUENCY BANDS Identify the frequency range and transmit/receive mode for all frequency bands in which this station will oper
 Also indicate the nature of service(s) for each frequency band.

Frequency Band Limits				e. T/R Mode	f. Nature of Service(s): List all that apply to this band
Lower Frequency (Hz)		Upper Frequency (Hz)			
a. Numeric	b. Unit (K/M/G)	c. Numeric	d. Unit (K/M/G)		
17302.5	M	17303.5	M	R	Space Operations Service
17793	M	17794	M	R	Space Operations Service
17790	M	17800	M	R	Space Operations Service
12202.5	M	12204.5	M	T	Space Operations Service
12690	M	12700	M	T	Space Operations Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 61.35 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:			
Longitudinal Tolerance or E/W Station-Keeping:		f. Inclination Excursion or N/S Station-Keeping Tolerance:				Range of orbital are in which adequate service can be provided (Optional): Degrees E/W	
d. Toward West: 0.05 Degrees	e. Toward East: 0.05 Degrees		g. Westernmost: h. Easternmost:				
i. Reason for service are selection (Optional):							

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S4. ORBITAL INFORMATION FOR NON-GEOSTATIONARY SATELLITES ONLY

S4a. Total Number of Satellites in Network or System:

S4c. Celestial Reference Body (Earth, Sun, Moon, etc.):

S4b. Total Number of Orbital Planes in Network or System:

S4d. Orbit Epoch Date:

For each Orbital Plane Provide:

(e) Orbital Plane No.	(f) No. of Satellites in Plane	(g) Inclination Angle (degrees)	(h) Orbital Period (Seconds)	(i) Apogee (km)	(j) Perigee (km)	(k) Right Ascension of the Ascending Node (Deg.)	(l) Argument of Perigee (Degrees)	Active Service Arc Range (Degrees)		
								(m) Begin Angle	(n) End Angle	(o) Other

S5. INITIAL SATELLITE PHASE ANGLE For each satellite in each orbital plane, provide the intital phase angle.

(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)

NO NGSO DATA FILED

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S6. SERVICE AREA CHARACTERISTICS for each service area provide:

(a) Service Area ID	(b) Type of Associated Station (Earth or Space)	(c) Service Area Diagram File Name (GXT File)	(d) Service Area Description. Provide list of geographic areas (state postal codes or ITU 3-ltr codes), satellites or Figure No. of Service Area Diagram.
SA1	E		CONUS
SA2	E		Visible Earth (Antenna gain varies by less than 8 dB across Earth)

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S7. SPACE STATION ANTENNA BEAM CHARACTERISTICS For each antenna beam provide:

(a) Beam ID	(b) T/R Mode	Isotropic Antenna Gain		(e) Pointing Error (Degrees)	(f) Rotational Error (Degrees)	(g) Min. Cross- Polar Iso- lation (dB)	(h) Polar- ization Switch- able? (Y/N)	(i) Polarization Alignment Rel. Equatorial Plane (Degrees)	(j) Service Area ID	Transmit			Receive				
										(k) Input Losses (dB)	(l) Effective Output Power (W)	(m) Max. EIRP (dBW)	(n) System Noise Temp (k)	(o) G/T Max. Gain Pt. (dB/K)	(p) Min. Saturation Flux Density (dBW/m2)	Input Attenuator (dB)	
		(q) Max. Value	(r) Step Size														
CMD	R			0.12		30	N		SA1					-17.4	-93		
CMD	R			0.12		30	N		SA1					-17.4	-93		
TLMR	T			0.12		30	N		SA1			14.3					
TLML	T			0.12		30	N		SA1			14.3					
OMN	R			0.12		30	N		SA2					-29.4	-83		
OMN	R			0.12		30	N		SA2					-29.4	-83		
OMN	T			0.12		30	N		SA2			14.6					
OMN	T			0.12		30	N		SA5			14.6					

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S8. ANTENNA BEAM DIAGRAMS For each beam pattern provide the reference to the graphic image and numerical data:
 Also provide the power flux density levels in each beam that result from the emission with the highest power flux density.

(a) Beam ID	(b) T/R Mode	(c) Co-or Cross Polar Mode ("C" or" X")	(d) GSO Ref. Orbital Longitude (Deg. E/W)	(e) NGSO Antenna Gain Contour Description (Figure/Table/ Exhibit)	(f) GSO Antenna Gain Contour Data (GXT File)	Max. Power Flux Density (dBW/M2/Hz)				
						At Angle of Arrival above horizontal (for emission with highest PFD)				
						(g) 5 Deg	(h) 10 Deg	(i) 15 Deg	(j) 20 Deg	(k) 25 Deg
CMD	R	C	-61.35		CMDR.gxt					
CMD	R	C	-61.35		CMDL.gxt					
TLMR	T	C	-61.35		TLMR.gxt					
TLML	T	C	-61.35		TLML.gxt					

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S9. SPACE STATION CHANNELS For each frequency channel provide: S10. SPACE STATION TRANSPONDERS For each transponder provide:

(a) Channel No.	(B) Assigned Bandwidth (kHz)	(c) T/R Mode	(d) Center Frequency (MHz)	(e) Polarization (H, V, L, R)	(f) TTC or Comm Channel (T or C)
CMD1	1000	R	17793.5	R	T
CMD2	1000	R	17303	L	T
CMD3	5000	R	17792.5	R	T
CMD4	5000	R	17797.5	R	T
TLM1	1000	T	12695	R	T
TLM2	1000	T	12696	R	T
TLM3	1000	T	12203	L	T
TLM4	1000	T	12204	L	T
TLM5	5000	T	12692.5	R	T
TLM6	5000	T	12697.5	R	T

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
CMD1		CMD1	CMDR		
CMD2		CMD2	CMDL		
CMD3		CMD3	CMDR		
CMD4		CMD4	CMDR		
CMD5		CMD1	OMNUR		
CMD6		CMD2	OMNUL		
CMD7		CMD3	OMNUR		
CMD8		CMD4	OMNUR		
TLM1				TLM1	TLMR
TLM2				TLM2	TLMR
TLM3				TLM3	TLML
TLM4				TLM4	TLML
TLM5				TLM5	TLMR
TLM6				TLM6	TLMR
TLM7				TLM1	OMNDR
TLM8				TLM2	OMNDR
TLM9				TLM3	OMNDL
TLM10				TLM4	OMNDL
TLM11				TLM5	OMNDR
TLM12				TLM6	OMNDR

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S11. DIGITAL MODULATION PARAMETERS For each digital emission provide:

(a) Digital Mod. ID	(b) Emission Designator	(c) Assigned Bandwidth (kHz)	(d) No. of Phases	(e) Uncoded Data Rate (kbps)	(f) FEC Error Correction Coding Rate	(g) CDMA Processing Gain (dB)	(h) Total C/N Performance Objective (dB)	(i) Single Entry C/I Objective (dB)
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Page 10: TT and C

S14. Is the space station(s) controlled and monitored remotely? If Yes, provide the location and telephone number of the TT and C control point(s): No

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Characteristics and
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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>	N/A
b. Are the appropriate service area coverage requirements of § 25.143(b)(ii) and (iii), or § 25.145(c)(1) and (2) met?	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>	N/A
c. Are the frequency tolerances of § 25.202(e) and the out-of-band emission limits of § 25.202(f)(1), (2) and (3) met?	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
In addition to the information required in this Form, the space station applicant is required to provide all the information specified in Section 25.114 of the Commission's rules, 47 C.F.R § 25.114.						

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