Approved by OMD Control Number 3060-0678
Estimated Burden Hours: 80

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-1		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): 12 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: [X] GSO [ ] 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)		
17.3	G	17.8	G	R	Feeder Link for Broadcasting Satellite Service in FSS
12.2	G	12.7	G	T	Broadcasting Satellite Service - Video
5.926	G	5.927	G	R	Space Operations Service
6.423	G	6.424	G	R	Space Operations Service
4.198	G	4.2	G	T	Space Operations Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 77.25 W	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:
Longitudinal Tolerance or E/W Station-Keeping: d. Toward West: 0.05 Degrees e. Toward East: 0.05 Degrees	f. Inclination Excursion or N/S Station-Keeping Tolerance: 0.05 Degrees	Range of orbital are in which adequate service can be provided (Optional): Degrees E/W 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:

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

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

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.
SAC	S		Partial CONUS
SAM	S		Mexico
SAGBL	S		Visible Earth
SARX	S		Partial CONUS

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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 Isolation (dB)	(h) Polarization Switchable? (Y/N)	(i) Polarization Alignment Rel. Equatorial Plane (Degrees)	(j) Service Area ID	Transmit			Receive				
		(c) Peak (dBi)	(d) Edge (dBi)							(k) Input Losses (dB)	(l) Effective Output Power (W)	(m) Max. EIRP (dBW)	(n) System Noice 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
RXC	R			0.12	0.2	30	N							4.3	-96		
TXC	T			0.12	0.2	30	N					55.1					
TXM	T			0.12	0.2	30	N					55.1					
GBL	R			1		30	N							-12.5			
GBL	T			1		30	N					10.6					
OMN	R			1		30	N							-29.8			
OMN	T			1		30	N					8.9					

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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
RXC	R	C								
TXC	T	C								
TXM	T	C								
GBL	R	C								
OMN	R	C								
OMN	T	C				-169.2	-169	-168.9	-168.7	-168.5

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S9. SPACE STATION CHANNELS For each frequency channel 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)
U0001	24000	R	17324	R	C
U0003	24000	R	17353.16	R	C
U0005	24000	R	17382.32	R	C
U0007	24000	R	17411.48	R	C
U0009	24000	R	17440.64	R	C
U0011	24000	R	17469.8	R	C
U0013	24000	R	17498.96	R	C
U0015	24000	R	17528.12	R	C
U0017	24000	R	17557.28	R	C
U0019	24000	R	17586.44	R	C
U0021	24000	R	17615.6	R	C
U0023	24000	R	17644.76	R	C
U0025	24000	R	17673.92	R	C
U0027	24000	R	17703.08	R	C
U0029	24000	R	17732.24	R	C
U0031	24000	R	17761.4	R	C
D0001	24000	T	12224	R	C
D0003	24000	T	12253.16	R	C
D0005	24000	T	12282.32	R	C
D0007	24000	T	12311.48	R	C
D0009	24000	T	12340.64	R	C
D0011	24000	T	12369.8	R	C
D0013	24000	T	12398.96	R	C
D0015	24000	T	12428.12	R	C
D0017	24000	T	12457.28	R	C
D0019	24000	T	12486.44	R	C
D0021	24000	T	12515.6	R	C
D0023	24000	T	12544.76	R	C
D0025	24000	T	12573.92	R	C
D0027	24000	T	12603.08	R	C

S10. SPACE STATION TRANSPONDERS For each transponder provide:

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
T0001	1	U0001	RXC	D0001	TXC
T0002	1	U0005	RXC	D0005	TXC
T0003	1	U0009	RXC	D0009	TXC
T0004	1	U0013	RXC	D0013	TXC
T0005	1	U0017	RXC	D0017	TXC
T0006	1	U0021	RXC	D0021	TXC
T0007	1	U0025	RXC	D0025	TXC
T0008	1	U0029	RXC	D0029	TXC
T0009	1	U0003	RXC	D0003	TXM
T0010	1	U0007	RXC	D0007	TXM
T0011	1	U0011	RXC	D0011	TXM
T0012	1	U0015	RXC	D0015	TXM
T0013	1	U0019	RXC	D0019	TXM
T0014	1	U0023	RXC	D0023	TXM
T0015	1	U0027	RXC	D0027	TXM
T0016	1	U0031	RXC	D0031	TXM
T0017				TM001	GBLD
T0018				TM002	GBLD
T0019				TM001	OMND
T0020				TM002	OMND
T0021		CR001	GBLU		
T0022		CR002	OMNU		

D0029	24000	T	12632.24	R	C
D0031	24000	T	12661.4	R	C
CR001	800	R	5926.5	H	T
CR002	800	R	6423.5	H	T
TM001	800	T	4198.5	H	T
TM002	800	T	4199.5	H	T

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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)
D1	24M0G7W	24000						
D2	24M0G7W	24000						
D3	25M8G7W	25800						

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S12. ANALOG MODULATION PARAMETERS For each analog emission provide:

(a) Analog Mod. ID	(b) Emission Designator	(c) Assigned Bandwidth (kHz)	(d) Signal Type	(e) Channels per Carrier	Multi-channel Telephony				(j) Video Standard NTSC, PAL, etc.	(k) Video Noise-Weighting (dB)	(l) Video and SCPC/FM Modulation Index	(m) SCPC/FM Compander, Preemphasis, and Noise Weighting (dB)	(n) Total C/N Performance Objective (dB)	(o) Single Entry C/I Objective (dB)
					(f) Ave. Companded Talker Level (dBm0)	(g) Bottom Baseband Freq. (MHz)	(h) Top Baseband Freq. (MHz)	(i) RMS Modulation Index						
CMD	800KG2D	800												
TLM	800KG2D	800												

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S13. TYPICAL EMISSIONS For each planned type of emission provide:

Associated Transponder ID Range		Modulation ID		(e) Carriers per Transponder	(f) Carrier Spacing (kHz)	(g)Noise Budget Reference (Table No.)	(h) Energy Dispersal Bandwidth (kHz)	Receive Band (Assoc. Transmit Stn)			Transmit Band (This Space Station)			
								(i)Assoc. Stn. Max. Antenna Gain (dBi)	Assoc. Station Transmit Power (dBW)		EIRP (dBW)		(n) Max. Power Flux Density (dBW/m2/Hz)	(o)Assoc. Stn Rec. G/T (dB/K)
(a) Start	(b) End	(c) Digital (Table S11)	(d) Analog (Table S12)						(j) Min.	(k) Max.	(l) Min.	(m) Max.		
T0001	T0016	D1										55.1		
T0001	T0016	D2										55.1		
T0001	T0016	D3										55.1		
T0017	T0018		TLM									10.6		
T0019	T0020		TLM									8.9		
T0021	T0021		CMD											
T0022	T0022		CMD											

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): #Error

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	[X]	**YES**	[ ]	**NO**	[ ]	**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?	[ ]	**YES**	[ ]	**NO**	[X]	**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?	[X]	**YES**	[ ]	**NO**	[ ]	**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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