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-8		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: [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
17.3	G	17.8	G	R	Space Operations Service
12.2	G	12.7	G	T	Broadcasting Satellite Service - Video
12.2	G	12.7	G	T	Space Operations Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 76.75 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.
SARX	S		Vicinity of Cheyenne, WY and Gilbert, AZ in CONUS
SAC	S		CONUS
SAM	S		Mexico
SAGBL	S		Visible 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 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
RXG	R			0.12	0.2	30	N		SARX					14	-108		
RXC	R			0.12	0.2	30	N		SARX					14	-108		
TXCH	T			0.12	0.2	30	N		SAC			57.1					
TXC	T			0.12	0.2	30	N		SAC			54.6					
TXM	T			0.12	0.2	30	N		SAM			54.8					
GBL	R			1		30	N		SAGBL					-34.6			
GBL	T			1		30	N		SAGBL			13.5					

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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
RXG	R	C								
RXC	R	C								
TXCH	T	C								
TXC	T	C								
TXM	T	C								
GBL	R	C								
GBL	T	C								

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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
U0002	24000	R	17338.58	L	C
U0004	24000	R	17367.74	L	C
U0006	24000	R	17396.9	L	C
U0008	24000	R	17426.06	L	C
U0010	24000	R	17455.22	L	C
U0012	24000	R	17484.38	L	C
U0014	24000	R	17513.54	L	C
U0016	24000	R	17542.7	L	C
U0018	24000	R	17571.86	L	C
U0020	24000	R	17601.02	L	C
U0022	24000	R	17630.18	L	C
U0024	24000	R	17659.34	L	C
U0026	24000	R	17688.5	L	C
U0028	24000	R	17717.66	L	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	RXG	D0001	TXCM
T0002	1	U0003	RXG	D0003	TXCM
T0003	1	U0005	RXG	D0005	TXCM
T0004	1	U0007	RXG	D0007	TXCM
T0005	1	U0009	RXG	D0009	TXCM
T0006	1	U0011	RXG	D0011	TXCM
T0007	1	U0013	RXG	D0013	TXCM
T0008	1	U0015	RXG	D0015	TXCM
T0009	1	U0017	RXG	D0017	TXCM
T0010	1	U0019	RXG	D0019	TXCM
T0011	1	U0021	RXG	D0021	TXCM
T0012	1	U0023	RXG	D0023	TXCM
T0013	1	U0025	RXG	D0025	TXCM
T0014	1	U0027	RXG	D0027	TXCM
T0015	1	U0029	RXG	D0029	TXCM
T0016	1	U0031	RXG	D0031	TXCM
T0017	1	U0002	RXG	D0002	TXCM
T0018	1	U0004	RXG	D0004	TXCM
T0019	1	U0006	RXG	D0006	TXCM
T0020	1	U0008	RXG	D0008	TXCM
T0021	1	U0010	RXG	D0010	TXCM
T0022	1	U0012	RXG	D0012	TXCM
T0023	1	U0014	RXG	D0014	TXCM
T0024	1	U0016	RXG	D0016	TXCM
T0025	1	U0018	RXG	D0018	TXCM
T0026	1	U0020	RXG	D0020	TXCM
T0027	1	U0022	RXG	D0022	TXCM
T0028	1	U0024	RXG	D0024	TXCM
T0029	1	U0026	RXG	D0026	TXCM
T0030	1	U0028	RXG	D0028	TXCM

U0030	24000	R	17746.82	L	C
U0032	24000	R	17775.98	L	C
D0001	24000	T	12224	L	C
D0003	24000	T	12253.16	L	C
D0005	24000	T	12282.32	L	C
D0007	24000	T	12311.48	L	C
D0009	24000	T	12340.64	L	C
D0011	24000	T	12369.8	L	C
D0013	24000	T	12398.96	L	C
D0015	24000	T	12428.12	L	C
D0017	24000	T	12457.28	L	C
D0019	24000	T	12486.44	L	C
D0021	24000	T	12515.6	L	C
D0023	24000	T	12544.76	L	C
D0025	24000	T	12573.92	L	C
D0027	24000	T	12603.08	L	C
D0029	24000	T	12632.24	L	C
D0031	24000	T	12661.4	L	C
D0002	24000	T	12238.58	L	C
D0004	24000	T	12267.74	L	C
D0006	24000	T	12296.9	L	C
D0008	24000	T	12326.06	L	C
D0010	24000	T	12355.22	L	C
D0012	24000	T	12384.38	L	C
D0014	24000	T	12413.54	L	C
D0016	24000	T	12442.7	L	C
D0018	24000	T	12471.86	L	C
D0020	24000	T	12501.02	L	C
D0022	24000	T	12530.18	L	C
D0024	24000	T	12559.34	L	C
D0026	24000	T	12588.5	L	C
D0028	24000	T	12617.66	L	C
D0030	24000	T	12646.82	L	C
D0032	24000	T	12675.98	L	C
CR001	800	R	17799	R	T
TM001	800	T	12206	L	T
TM002	800	T	12207	L	T

T0031	1	U0030	RXG	D0030	TXCM
T0032	1	U0032	RXG	D0032	TXCM
T0033	1	U0001	RXC	D0001	TXCM
T0034	1	U0003	RXC	D0003	TXCM
T0035	1	U0005	RXC	D0005	TXCM
T0036	1	U0007	RXC	D0007	TXCM
T0037	1	U0009	RXC	D0009	TXCM
T0038	1	U0011	RXC	D0011	TXCM
T0039	1	U0013	RXC	D0013	TXCM
T0040	1	U0015	RXC	D0015	TXCM
T0041	1	U0017	RXC	D0017	TXCM
T0042	1	U0019	RXC	D0019	TXCM
T0043	1	U0021	RXC	D0021	TXCM
T0044	1	U0023	RXC	D0023	TXCM
T0045	1	U0025	RXC	D0025	TXCM
T0046	1	U0027	RXC	D0027	TXCM
T0047	1	U0029	RXC	D0029	TXCM
T0048	1	U0031	RXC	D0031	TXCM
T0049	1	U0002	RXC	D0002	TXCM
T0050	1	U0004	RXC	D0004	TXCM
T0051	1	U0006	RXC	D0006	TXCM
T0052	1	U0008	RXC	D0008	TXCM
T0053	1	U0010	RXC	D0010	TXCM
T0054	1	U0012	RXC	D0012	TXCM
T0055	1	U0014	RXC	D0014	TXCM
T0056	1	U0016	RXC	D0016	TXCM
T0057	1	U0018	RXC	D0018	TXCM
T0058	1	U0020	RXC	D0020	TXCM
T0059	1	U0022	RXC	D0022	TXCM
T0060	1	U0024	RXC	D0024	TXCM
T0061	1	U0026	RXC	D0026	TXCM
T0062	1	U0028	RXC	D0028	TXCM
T0063	1	U0030	RXC	D0030	TXCM
T0064	1	U0032	RXC	D0032	TXCM
T0065	1	U0003	RXG	D0003	TXM
T0066	1	U0007	RXG	D0007	TXM
T0067	1	U0011	RXG	D0011	TXM
T0068	1	U0015	RXG	D0015	TXM
T0069	1	U0019	RXG	D0019	TXM

T0070	1	U0023	RXG	D0023	TXM
T0071	1	U0027	RXG	D0027	TXM
T0072	1	U0031	RXG	D0031	TXM
T0073	1	U0002	RXG	D0002	TXM
T0074	1	U0006	RXG	D0006	TXM
T0075	1	U0010	RXG	D0010	TXM
T0076	1	U0014	RXG	D0014	TXM
T0077	1	U0018	RXG	D0018	TXM
T0078	1	U0022	RXG	D0022	TXM
T0079	1	U0026	RXG	D0026	TXM
T0080	1	U0030	RXG	D0030	TXM
T0081	1	U0003	RXC	D0003	TXM
T0082	1	U0007	RXC	D0007	TXM
T0083	1	U0011	RXC	D0011	TXM
T0084	1	U0015	RXC	D0015	TXM
T0085	1	U0019	RXC	D0019	TXM
T0086	1	U0023	RXC	D0023	TXM
T0087	1	U0027	RXC	D0027	TXM
T0088	1	U0031	RXC	D0031	TXM
T0089	1	U0002	RXC	D0002	TXM
T0090	1	U0006	RXC	D0006	TXM
T0091	1	U0010	RXC	D0010	TXM
T0092	1	U0014	RXC	D0014	TXM
T0093	1	U0018	RXC	D0018	TXM
T0094	1	U0022	RXC	D0022	TXM
T0095	1	U0026	RXC	D0026	TXM
T0096	1	U0030	RXC	D0030	TXM
T0097	1	U0001	RXC	D0001	TXCH
T0098	1	U0005	RXC	D0005	TXCH
T0099	1	U0009	RXC	D0009	TXCH
T0100	1	U0013	RXC	D0013	TXCH
T0101	1	U0017	RXC	D0017	TXCH
T0102	1	U0021	RXC	D0021	TXCH
T0103	1	U0025	RXC	D0025	TXCH
T0104	1	U0029	RXC	D0029	TXCH
T0105	1	U0004	RXC	D0004	TXCH
T0106	1	U0008	RXC	D0008	TXCH
T0107	1	U0012	RXC	D0012	TXCH
T0108	1	U0016	RXC	D0016	TXCH

T0109	1	U0020	RXC	D0020	TXCH
T0110	1	U0024	RXC	D0024	TXCH
T0111	1	U0028	RXC	D0028	TXCH
T0112	1	U0032	RXC	D0032	TXCH
T0113	1	U0001	RXG	D0001	TXCH
T0114	1	U0005	RXG	D0005	TXCH
T0115	1	U0009	RXG	D0009	TXCH
T0116	1	U0013	RXG	D0013	TXCH
T0117	1	U0017	RXG	D0017	TXCH
T0118	1	U0021	RXG	D0021	TXCH
T0119	1	U0025	RXG	D0025	TXCH
T0120	1	U0029	RXG	D0029	TXCH
T0121	1	U0004	RXG	D0004	TXCH
T0122	1	U0008	RXG	D0008	TXCH
T0123	1	U0012	RXG	D0012	TXCH
T0124	1	U0016	RXG	D0016	TXCH
T0125	1	U0020	RXG	D0020	TXCH
T0126	1	U0024	RXG	D0024	TXCH
T0127	1	U0028	RXG	D0028	TXCH
T0128	1	U0032	RXG	D0032	TXCH
T0129				TM001	GBLD
T0130				TM002	GBLD
T0131		CR001	GBLU		

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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	T0128	D1										55.1		
T0001	T0128	D2										55.1		
T0001	T0128	D3										55.1		
T0001	T0128	D1										52.3		
T0001	T0128	D2										52.3		
T0001	T0128	D3										52.3		
T0131	T0131		CMD											
T0129	T0130		TLM									16		

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?:		**YES**		**NO**	X	**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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The public reporting estimate for this collection of information includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PERM@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

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THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.