

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

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: EHOSTAR-6		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: 0	
c. Construction Completion Date:		g. Total Number of Transponders: 32		k. Total Common Carrier Transponder Bandwidth: 0 MHz	
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 768 MHz		i. 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)		
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

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 77 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: To expand DBS service to the U.S. from 77 W.L.	
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): <u> </u> Degrees <u> </u> E/W	
d. Toward West:	0.05 Degrees	e. Toward East:		g. Westernmost:	
	0.05 Degrees			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 initial 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		CONUS
SATX	S		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 Iso- lation (dB)	(h) Polar- ization Switch- able? (Y/N)	(i) Polarization Alignment Rel. Equatorial Plane (Degrees)	(j) Service Area ID	Transmit			Receive			Input Attenuator (dB)	
		(c) Peak (dBi)	(d) Edge (dBi)							(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)	(q) Max. Value	(r) Step Size
RXLC	R	33.8	29.8	0.12		30	N		SARX				590	6.1	-94.7	1	20
RXR	R	33.8	29.8	0.12		30	N		SARX				590	6.1	-94.7	1	20
TXLC	T	35.5	28.8	0.12		30	N		SATX	2.3	148	57.2					
TXR	T	35.5	28.8	0.12		30	N		SATX	2.3	148	57.2					
TXLC	T	35.5	28.8	0.12		30	N		SATX	1.8	83	54.7					
TXR	T	35.5	28.8	0.12		30	N		SATX	1.8	83	54.7					

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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
RXLC	R	C	-129.15		RXLC.gxt					
TXLC	T	C	-129.15		TXLCH.gxt					
TXR	T	C	-129.15		TXRCH.gxt					
RXR	R	C	-129.15		RXRC.gxt					
TXLC	T	C	-129.15		TXLCM.gxt					
TXR	T	C	-129.15		TXRCM.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)
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

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
T0001	129.1	U0001	RXRC	D0001	TXRCH
T0003	129.1	U0003	RXRC	D0003	TXRCH
T0005	129.1	U0005	RXRC	D0005	TXRCH
T0007	129.1	U0007	RXRC	D0007	TXRCH
T0009	129.1	U0009	RXRC	D0009	TXRCH
T0011	129.1	U0011	RXRC	D0011	TXRCH
T0013	129.1	U0013	RXRC	D0013	TXRCH
T0015	129.1	U0015	RXRC	D0015	TXRCH
T0017	129.1	U0017	RXRC	D0017	TXRCH
T0019	129.1	U0019	RXRC	D0019	TXRCH
T0021	129.1	U0021	RXRC	D0021	TXRCH
T0023	129.1	U0023	RXRC	D0023	TXRCH
T0025	129.1	U0025	RXRC	D0025	TXRCH
T0027	129.1	U0027	RXRC	D0027	TXRCH
T0029	129.1	U0029	RXRC	D0029	TXRCH
T0031	129.1	U0031	RXRC	D0031	TXRCH
T0002	129.1	U0002	RXLC	D0002	TXLCH
T0004	129.1	U0004	RXLC	D0004	TXLCH
T0006	129.1	U0006	RXLC	D0006	TXLCH
T0008	129.1	U0008	RXLC	D0008	TXLCH
T0010	129.1	U0010	RXLC	D0010	TXLCH
T0012	129.1	U0012	RXLC	D0012	TXLCH
T0014	129.1	U0014	RXLC	D0014	TXLCH
T0016	129.1	U0016	RXLC	D0016	TXLCH
T0018	129.1	U0018	RXLC	D0018	TXLCH
T0020	129.1	U0020	RXLC	D0020	TXLCH
T0022	129.1	U0022	RXLC	D0022	TXLCH
T0024	129.1	U0024	RXLC	D0024	TXLCH
T0026	129.1	U0026	RXLC	D0026	TXLCH
T0028	129.1	U0028	RXLC	D0028	TXLCH

U0030	24000	R	17746.82	L	C
U0032	24000	R	17775.98	L	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
D0029	24000	T	12632.24	R	C
D0031	24000	T	12661.4	R	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	1000	R	17305	L	T
TM001	300	T	12203	L	T
TM002	300	T	12202	L	T

T0030	129.1	U0030	RXLC	D0030	TXLCH
T0032	129.1	U0032	RXLC	D0032	TXLCH
C001		CR001	RXLC		
T001				TM001	TXLCH
T002				TM002	TXLCH
T0033	126.6	U0001	RXRC	D0001	TXRCM
T0035	126.6	U0003	RXRC	D0003	TXRCM
T0037	126.6	U0005	RXRC	D0005	TXRCM
T0039	126.6	U0007	RXRC	D0007	TXRCM
T0041	126.6	U0009	RXRC	D0009	TXRCM
T0043	126.6	U0011	RXRC	D0011	TXRCM
T0045	126.6	U0013	RXRC	D0013	TXRCM
T0047	126.6	U0015	RXRC	D0015	TXRCM
T0049	126.6	U0017	RXRC	D0017	TXRCM
T0051	126.6	U0019	RXRC	D0019	TXRCM
T0053	126.6	U0021	RXRC	D0021	TXRCM
T0055	126.6	U0023	RXRC	D0023	TXRCM
T0057	126.6	U0025	RXRC	D0025	TXRCM
T0059	126.6	U0027	RXRC	D0027	TXRCM
T0061	126.6	U0029	RXRC	D0029	TXRCM
T0063	126.6	U0031	RXRC	D0031	TXRCM
T0034	126.6	U0002	RXLC	D0002	TXLCM
T0036	126.6	U0004	RXLC	D0004	TXLCM
T0038	126.6	U0006	RXLC	D0006	TXLCM
T0040	126.6	U0008	RXLC	D0008	TXLCM
T0042	126.6	U0010	RXLC	D0010	TXLCM
T0044	126.6	U0012	RXLC	D0012	TXLCM
T0046	126.6	U0014	RXLC	D0014	TXLCM
T0048	126.6	U0016	RXLC	D0016	TXLCM
T0050	126.6	U0018	RXLC	D0018	TXLCM
T0052	126.6	U0020	RXLC	D0020	TXLCM
T0054	126.6	U0022	RXLC	D0022	TXLCM
T0056	126.6	U0024	RXLC	D0024	TXLCM
T0058	126.6	U0026	RXLC	D0026	TXLCM
T0060	126.6	U0028	RXLC	D0028	TXLCM
T0062	126.6	U0030	RXLC	D0030	TXLCM
T0064	126.6	U0032	RXLC	D0032	TXLCM
T003				TM001	TXLCM
T004				TM002	TXLCM

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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	4	27647	0.691		5.7	17.9
D2	24M0G7W	24000	4	30719	0.768		6.6	18.8
D3	25M8G7W	25800	8	41200	0.639		7.5	19.7

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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	1M00F2D	1000		1									9	21.2
TLM	300KG2D	300		1									9	21.2

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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)			
(a) Start	(b) End	(c) Digital (Table S11)	(d) Analog (Table S12)					(i) Assoc. Stn. Max. Antenna Gain (dBi)	Assoc. Station Transmit Power (dBW)		EIRP (dBW)		(n) Max. Power Flux Density (dBW/m ² /Hz)	(o) Assoc. Stn Rec. G/T (dB/K)
									(j) Min.	(k) Max.	(l) Min.	(m) Max.		
T0001	T0032	D1		1		DBS_QPSK1_	65.7	-0.2	19.5	51	57.1		13.2	
C001	C001		CMD	1		CMD LB.doc	65	-14.5	9.5					
T001	T002		TLM	1		TLM LB.doc				10	16		36.7	
T0001	T0032	D2		1		DBS_QPSK2_	65.7	-0.2	19.5	51	57.1		13.2	
T0001	T0032	D3		1		DBS_8PSK_H	65.7	-0.2	19.5	51	57.1		13.2	
T0033	T0064	D1		1		DBS_QPSK1_	65.7	-0.2	19.5	49	54.6		13.2	
T0033	T0064	D2		1		DBS_QPSK2_	65.7	-0.2	19.5	49	54.6		13.2	
T0033	T0064	D3		1		DBS_8PSK_M	65.7	-0.2	19.5	49	54.6		13.2	

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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): Yes

Remote Control (TT C) Location(s):

S14a: Street Address: 530 Echostar Drive			
S14b. City: Cheyenne	S14c. County: Laramie	S14d. State/Country WY	S14e. Zip Code: 82007
S14f. Telephone Number: 307-633-5460		S14g. Call Sign of Control Station (if appropriate):	

Remote Control (TT C) Location(s):

S14a: Street Address: 801 North Dish Drive			
S14b. City: Gilbert	S14c. County: Maricopa	S14d. State/Country AZ	S14e. Zip Code: 85233
S14f. Telephone Number: 480-558-2778		S14g. Call Sign of Control Station (if appropriate):	

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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a. Mass of spacecraft without fuel (kg): 1480.6	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 2219.8		
S15c. Mass of spacecraft and fuel at launch (kg): 3700.4	S15f. Length (m): 31.1	S15i. Payload: 0.83
S15d. Mass of fuel, in orbit, at beginning of life (kg): 548.2	S15g. Width (m): 8	S15j. Bus: 0.84
S15e. Deployed Area of Solar Array (square meters): 68.9	S15h. Height (m): 8.8	S15k. Total: 0.7

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

Spacecraft Subsystem	Electrical Power (Watts) At Beginning of Life		Electrical Power (Watts) At End of Life	
	At Equinox	At Solstice	At Equinox	At Solstice
Payload (Watts):	(a): 6807	(f): 6826	(k): 6807	(p): 6826
Bus (Watts):	(b): 2212	(g): 1222	(l): 2212	(q): 1222
Total (Watts):	(c): 9019	(h): 8048	(m): 9019	(r): 8048
Solar Array (Watts):	(d): 11274	(i): 10110	(n): 7865	(s): 7130
Depth of Battery Discharge (%):	(e) 74.9 %	(j) %	(o) 74.9 %	(t) %

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.