

**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: EHOSTAR-15		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	Nature of Service(s): List all that apply to this band	f.
Lower Frequency (Hz)		Upper Frequency (Hz)				
a. Numeric	b. Unit (K/M/G)	c. Numeric	d. Unit (K/M/G)			
17300	M	17800	M	R	Feeder Link for Broadcasting Satellite Service in FSS	
12200	M	12700	M	T	Broadcasting Satellite Service - Video	
12200	M	12700	M	T	Space Operations Service	
17300	M	17800	M	R	Space Operations Service	

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 72.6		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: Collocating with NIMIQ-5 satellite operating under Canadian authority to be used as an in-orbit spare for the EchoStar fleet.	
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:		g. Westernmost:	
	0.05 Degrees	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 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.
CONUS+	S		CONUS, Puerto Rico
CHEYENNE	S		Area around Cheyenne, WY
GILBERT	S		Area around Gilbert, AZ
GLOBAL	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) 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														
OMN	R			1	1	30	N		GLOBAL					-41	-83		
OMN	T			1	1	30	N		GLOBAL			15.2					
TCO	R			0.12	0.2	30	N		CHEYENN					-10	-93		
NA	T			0	0	30			CONUS+			0					
TCO	R			0.12	0.2	30	N		GILBERT					-10	-93		
RR1	R			0.12	0.2	30	N		CHEYENN					7.6	-100.4		
RL1	R			0.12	0.2	30	N		CHEYENN					7.6	-100.4		
RR2	R			0.12	0.2	30	N		GILBERT					7.4	-99.5		
RL2	R			0.12	0.2	30	N		GILBERT					7.4	-99.5		
TEL	T			0.12	0.2	30	N		CONUS+			58.1					
TER	T			0.12	0.2	30	N		CONUS+			58.1					
TMO	T			0.12	0.2	30	N		CONUS+			18					
TMO	T			0.12	0.2	30	N		CONUS+			18					
TWL	T			0.12	0.2	30	N		CONUS+			58.1					
TWR	T			0.12	0.2	30	N		CONUS+			58.1					

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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)
R0001	24000	R	17324	R	C
R0003	24000	R	17353.16	R	C
R0005	24000	R	17382.32	R	C
R0007	24000	R	17411.48	R	C
R0009	24000	R	17440.64	R	C
R0011	24000	R	17469.8	R	C
R0013	24000	R	17498.96	R	C
R0015	24000	R	17528.12	R	C
R0017	24000	R	17557.28	R	C
R0019	24000	R	17586.44	R	C
R0021	24000	R	17615.6	R	C
R0023	24000	R	17644.76	R	C
R0025	24000	R	17673.92	R	C
R0027	24000	R	17703.08	R	C
R0029	24000	R	17732.24	R	C
R0031	24000	R	17761.4	R	C
R0002	24000	R	17338.58	L	C
R0004	24000	R	17367.74	L	C
R0006	24000	R	17396.9	L	C
R0008	24000	R	17426.06	L	C
R0010	24000	R	17455.22	L	C
R0012	24000	R	17484.38	L	C
R0014	24000	R	17513.54	L	C
R0016	24000	R	17542.7	L	C
R0018	24000	R	17571.86	L	C
R0020	24000	R	17601.02	L	C
R0022	24000	R	17630.18	L	C
R0024	24000	R	17659.34	L	C
R0026	24000	R	17688.5	L	C
R0028	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
H0001	1	R0001	RR1	T0001	TER
H0005	1	R0005	RR1	T0005	TER
H0009	1	R0009	RR1	T0009	TER
H0013	1	R0013	RR1	T0013	TER
H0017	1	R0017	RR1	T0017	TER
H0021	1	R0021	RR1	T0021	TER
H0025	1	R0025	RR1	T0025	TER
H0029	1	R0029	RR1	T0029	TER
H0003	1	R0003	RR1	T0003	TWR
H0007	1	R0007	RR1	T0007	TWR
H0011	1	R0011	RR1	T0011	TWR
H0015	1	R0015	RR1	T0015	TWR
H0019	1	R0019	RR1	T0019	TWR
H0023	1	R0023	RR1	T0023	TWR
H0027	1	R0027	RR1	T0027	TWR
H0031	1	R0031	RR1	T0031	TWR
H0002	1	R0002	RL1	T0002	TWL
H0006	1	R0006	RL1	T0006	TWL
H0010	1	R0010	RL1	T0010	TWL
H0014	1	R0014	RL1	T0014	TWL
H0018	1	R0018	RL1	T0018	TWL
H0022	1	R0022	RL1	T0022	TWL
H0026	1	R0026	RL1	T0026	TWL
H0030	1	R0030	RL1	T0030	TWL
H0004	1	R0004	RL1	T0004	TEL
H0008	1	R0008	RL1	T0008	TEL
H0012	1	R0012	RL1	T0012	TEL
H0016	1	R0016	RL1	T0016	TEL
H0020	1	R0020	RL1	T0020	TEL
H0024	1	R0024	RL1	T0024	TEL

R0030	24000	R	17746.82	L	C
R0032	24000	R	17775.98	L	C
T0001	24000	T	12224	R	C
T0003	24000	T	12253.16	R	C
T0005	24000	T	12282.32	R	C
T0007	24000	T	12311.48	R	C
T0009	24000	T	12340.64	R	C
T0011	24000	T	12369.8	R	C
T0013	24000	T	12398.96	R	C
T0015	24000	T	12428.12	R	C
T0017	24000	T	12457.28	R	C
T0019	24000	T	12486.44	R	C
T0021	24000	T	12515.6	R	C
T0023	24000	T	12544.76	R	C
T0025	24000	T	12573.92	R	C
T0027	24000	T	12603.08	R	C
T0029	24000	T	12632.24	R	C
T0031	24000	T	12661.4	R	C
T0002	24000	T	12238.58	L	C
T0004	24000	T	12267.74	L	C
T0006	24000	T	12296.9	L	C
T0008	24000	T	12326.06	L	C
T0010	24000	T	12355.22	L	C
T0012	24000	T	12384.38	L	C
T0014	24000	T	12413.54	L	C
T0016	24000	T	12442.7	L	C
T0018	24000	T	12471.86	L	C
T0020	24000	T	12501.02	L	C
T0022	24000	T	12530.18	L	C
T0024	24000	T	12559.34	L	C
T0026	24000	T	12588.5	L	C
T0028	24000	T	12617.66	L	C
T0030	24000	T	12646.82	L	C
T0032	24000	T	12675.98	L	C
CMD1	1000	R	17791.5	R	T
CMD2	1000	R	17793.5	R	T
TLM1	1000	T	12692	R	T
TLM2	1000	T	12693	R	T
TLM3	1000	T	12694.5	R	T

H0028		1	R0028	RL1	T0028	TEL
H0032		1	R0032	RL1	T0032	TEL
H0033		1	R0001	RR2	T0001	TER
H0037		1	R0005	RR2	T0005	TER
H0041		1	R0009	RR2	T0009	TER
H0045		1	R0013	RR2	T0013	TER
H0049		1	R0017	RR2	T0017	TER
H0053		1	R0021	RR2	T0021	TER
H0057		1	R0025	RR2	T0025	TER
H0061		1	R0029	RR2	T0029	TER
H0035		1	R0003	RR2	T0003	TWR
H0039		1	R0007	RR2	T0007	TWR
H0043		1	R0011	RR2	T0011	TWR
H0047		1	R0015	RR2	T0015	TWR
H0051		1	R0019	RR2	T0019	TWR
H0055		1	R0023	RR2	T0023	TWR
H0059		1	R0027	RR2	T0027	TWR
H0063		1	R0031	RR2	T0031	TWR
H0034		1	R0002	RL2	T0002	TWL
H0038		1	R0006	RL2	T0006	TWL
H0042		1	R0010	RL2	T0010	TWL
H0046		1	R0014	RL2	T0014	TWL
H0050		1	R0018	RL2	T0018	TWL
H0054		1	R0022	RL2	T0022	TWL
H0058		1	R0026	RL2	T0026	TWL
H0062		1	R0030	RL2	T0030	TWL
H0036		1	R0004	RL2	T0004	TEL
H0040		1	R0008	RL2	T0008	TEL
H0044		1	R0012	RL2	T0012	TEL
H0048		1	R0016	RL2	T0016	TEL
H0052		1	R0020	RL2	T0020	TEL
H0056		1	R0024	RL2	T0024	TEL
H0060		1	R0028	RL2	T0028	TEL
H0064		1	R0032	RL2	T0032	TEL
TLMF					TLM4	TMOS1
TLMG					TLM1	TMOS2
TLMH					TLM2	TMOS2
TLMA					TLM1	OMNT
TLMB					TLM2	OMNT

TLM4	1000	T	12698.5	R	T
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TLMC				TLM3	OMNT
TLMD				TLM4	OMNT
TLME				TLM3	TMOS1
CMDA		CMD1	OMNR		
CMDB		CMD2	OMNR		
CMDC		CMD1	TCOS1		
CMDD		CMD1	TCOS2		
CMDE		CMD2	TCOS1		
CMDF		CMD2	TCOS2		

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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)
QPSK1	24M0G7W	24000						
QPSK2	24M0G7W	24000						
8PSK1	25M8G7W	25800						
8PSK2	25M8G7W	25800						

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

Associated Transponder ID Range (a) Start (b) End		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)			
		(c) Digital (Table S11)	(d) Analog (Table S12)					(i) Assoc. Stn. Max. Antenna Gain (dBi)	Assoc. Station Transmit Power (dBW) (j) Min. (k) Max.		EIRP (dBW) (l) Min. (m) Max.		(n) Max. Power Flux Density (dBW/m ² /Hz)
H0001	H0064	QPSK1				QPSK1.doc					58.1		
H0001	H0064	QPSK2				QPSK2.doc					58.1		
H0001	H0064	8PSK1				8PSK1.doc					58.1		
H0001	H0064	8PSK2				8PSK2.doc					58.1		
CMDA	CMDB		CMD			TTC.doc							
CMDC	CMDF		CMD			TTC.doc							
TLMA	TLMD		TLM			TTC.doc					15.2		
TLME	TLMH		TLM			TTC.doc					18		

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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): #Error

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Page 11:
Characteristics and
Certifications

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 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 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 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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