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:		e. Estimated Date of Placement into Service:	i Will the space station(s) operate on a Common Carrier Basis:
ECHOSTAR-18		2/1/2016	N
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s):	j. Number of transponders offered on a common carrier basis:
6/17/2013		15 Years	0
c. Construction Completion Date:		g. Total Number of Transponders:	k. Total Common Carrier Transponder Bandwidth:
6/29/2015		169	0 MHz
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth)	l. Orbit Type: Mark all boxes that apply:
9/25/2015	12/25/2015	4394 MHz	[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)		
17300	M	17800	M	R	Feeder Link for Broadcasting Satellite Service in FSS
12200	M	12700	M	T	Broadcasting Satellite Service - Video

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W):	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:
109.9 W			Consistent with Region 2 BSS Plan and within the USA's 110 W.L. cluster.
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.
SA1	E		-2 dB contour of each uplink spot beam (beams R01 through R06)
SA2	E		-8 dB contour of each downlink spot beam (beams B01 through B109)
SA3	E		CONUS
SA4	E		-2 dB contour of each RFAT beam (beams RFT1, RFT2 and RFT3)
SA5	E		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
R01R	R	51.7	49.7	0.12		30	N		SA1					12.9	-100	1	1
R01L	R	51.7	49.7	0.12		30	N		SA1					12.8	-100	1	1
R02R	R	50.1	48.1	0.12		30	N		SA1					13.2	-100	1	1
R02L	R	50.1	48.1	0.12		30	N		SA1					13.3	-100	1	1
R03R	R	50.7	48.7	0.12		30	N		SA1					13	-100	1	1
R03L	R	50.7	48.7	0.12		30	N		SA1					12.1	-100	1	1
R04R	R	49.3	47.3	0.12		30	N		SA1					13.1	-100	1	1
R04L	R	49.3	47.3	0.12		30	N		SA1					13.5	-100	1	1
R05R	R	49.4	47.4	0.12		30	N		SA1					11.7	-100	1	1
R05L	R	49.4	47.4	0.12		30	N		SA1					11.5	-100	1	1
R06R	R	51.6	49.6	0.12		30	N		SA1					13	-100	1	1
R06L	R	51.6	49.6	0.12		30	N		SA1					12	-100	1	1
B01L	T	47.4	39.4	0.12		30	N		SA2			56.4					
B02R	T	48.2	40.2	0.12		30	N		SA2			53.9					
B03L	T	47.2	38.8	0.12		30	N		SA2			55.2					
B04R	T	49.5	41.5	0.12		30	N		SA2			54.2					
B05L	T	46.1	38.1	0.12		30	N		SA2			54.6					
B06R	T	46.2	38.2	0.12		30	N		SA2			55.5					
B07L	T	46.5	38.5	0.12		30	N		SA2			54					
B08R	T	49.8	41.8	0.12		30	N		SA2			54.9					
B09L	T	46.6	38.6	0.12		30	N		SA2			56					
B10R	T	49.1	41.1	0.12		30	N		SA2			56.8					
B11L	T	48.6	40.6	0.12		30	N		SA2			54					
B12R	T	50	42	0.12		30	N		SA2			56.8					
B13L	T	50	42	0.12		30	N		SA2			58.2					
B14R	T	47.6	39.6	0.12		30	N		SA2			55.4					
B15L	T	47.2	39.2	0.12		30	N		SA2			55.1					
B16R	T	49.4	41.4	0.12		30	N		SA2			55.7					
B17L	T	50.1	42.1	0.12		30	N		SA2			55.1					

B18R	T	50	42	0.12		30	N		SA2			56.1					
B19L	T	50	42	0.12		30	N		SA2			56.6					
B20R	T	47.7	39.7	0.12		30	N		SA2			53.8					
B21L	T	50	42	0.12		30	N		SA2			58.2					
B22R	T	47.5	39.5	0.12		30	N		SA2			55.7					
B23L	T	48	40	0.12		30	N		SA2			57.8					
B24L	T	49.4	41.4	0.12		30	N		SA2			57.6					
B25R	T	50.1	42.1	0.12		30	N		SA2			57.1					
B26L	T	47.3	39.3	0.12		30	N		SA2			53.8					
B27L	T	46.2	38.2	0.12		30	N		SA2			55.7					
B28R	T	47.6	39.6	0.12		30	N		SA2			54.4					
B29L	T	48.1	40.1	0.12		30	N		SA2			53.7					
B30R	T	47.8	39.8	0.12		30	N		SA2			56.9					
B31L	T	47.5	39.5	0.12		30	N		SA2			55.2					
B32R	T	47.3	39.3	0.12		30	N		SA2			53.9					
B33L	T	44.1	36.1	0.12		30	N		SA2			56.6					
B34R	T	43.5	35.5	0.12		30	N		SA2			54.4					
B35L	T	48.3	40.3	0.12		30	N		SA2			56.7					
B36R	T	46.3	38.3	0.12		30	N		SA2			54.6					
B37L	T	46.5	38.5	0.12		30	N		SA2			55.9					
B38R	T	46.7	38.7	0.12		30	N		SA2			56.4					
B39L	T	47.9	39.9	0.12		30	N		SA2			58.1					
B40R	T	46.8	38.8	0.12		30	N		SA2			57.3					
B41L	T	47.5	39.5	0.12		30	N		SA2			55.1					
B42R	T	47.5	39.5	0.12		30	N		SA2			55.9					
B43L	T	47.6	39.6	0.12		30	N		SA2			56.4					
B44R	T	46.6	38.6	0.12		30	N		SA2			58.3					
B45L	T	48.2	40.2	0.12		30	N		SA2			58.2					
B46R	T	47.2	39.2	0.12		30	N		SA2			57.1					
B47L	T	47.1	39.1	0.12		30	N		SA2			57					
B48R	T	47.6	39.6	0.12		30	N		SA2			57.4					
B49L	T	47.7	39.7	0.12		30	N		SA2			57					
B50L	T	45.6	37.6	0.12		30	N		SA2			58.5					
B51R	T	47.2	39.2	0.12		30	N		SA2			55.9					
B52L	T	48.1	40.1	0.12		30	N		SA2			56.1					
B53R	T	48.3	40.3	0.12		30	N		SA2			56.3					
B54L	T	48.4	40.4	0.12		30	N		SA2			57.2					
B55R	T	46.7	38.7	0.12		30	N		SA2			56.7					
B56L	T	45.3	37.3	0.12		27	N		SA2			54.5					

B57R	T	45.5	37.5	0.12		27	N		SA2			55.7				
B58L	T	48.4	40.4	0.12		30	N		SA2			55.2				
B59R	T	48.4	40.4	0.12		30	N		SA2			55.2				
B60L	T	48	40	0.12		30	N		SA2			55.5				
B61R	T	47.1	39.1	0.12		30	N		SA2			52.7				
B62R	T	47.3	39.3	0.12		30	N		SA2			56.7				
B63R	T	45.1	37.1	0.12		30	N		SA2			55.1				
B64L	T	46.6	38.6	0.12		30	N		SA2			54.2				
B65R	T	47.4	39.4	0.12		30	N		SA2			54.5				
B66L	T	48.5	40.5	0.12		30	N		SA2			56.1				
B67R	T	45	38	0.12		30	N		SA2			56.2				
B68L	T	48.4	40.4	0.12		30	N		SA2			56.5				
B69R	T	48.4	40.4	0.12		30	N		SA2			55				
B70L	T	48	40	0.12		30	N		SA2			56.1				
B71R	T	48.3	40.3	0.12		30	N		SA2			54.4				
B72L	T	48.6	40.6	0.12		30	N		SA2			56.9				
B73R	T	47.7	39.7	0.12		30	N		SA2			56.2				
B74R	T	47.8	39.8	0.12		30	N		SA2			54				
B75L	T	48.1	40.1	0.12		30	N		SA2			58.9				
B76R	T	46.7	38.7	0.12		30	N		SA2			56.4				
B77R	T	48.2	40.2	0.12		30	N		SA2			55.8				
B78L	T	45.8	37.8	0.12		30	N		SA2			57.2				
B79R	T	48.2	40.2	0.12		30	N		SA2			58.6				
B80L	T	48.5	40.5	0.12		30	N		SA2			54.1				
B81R	T	48.2	40.2	0.12		30	N		SA2			55.1				
B82L	T	45.2	37.2	0.12		30	N		SA2			53.8				
B83R	T	43.8	35.8	0.12		30	N		SA2			54.3				
B84L	T	47.3	39.3	0.12		30	N		SA2			55.2				
B85R	T	49.1	41.1	0.12		30	N		SA2			55.6				
B86L	T	46.4	38.4	0.12		30	N		SA2			56.6				
B87R	T	47.7	39.7	0.12		30	N		SA2			57.9				
B88L	T	46.9	38.9	0.12		30	N		SA2			56.7				
B89R	T	47.5	39.5	0.12		30	N		SA2			55.3				
B90L	T	50	42	0.12		30	N		SA2			55.7				
B91R	T	49	41	0.12		30	N		SA2			56.1				
B92L	T	48	40	0.12		30	N		SA2			58.2				
B93L	T	48.9	41.9	0.12		30	N		SA2			56.4				
B94R	T	50	42	0.12		30	N		SA2			57.3				
B95L	T	46.9	38.9	0.12		30	N		SA2			56.7				

B96R	T	49	41	0.12		30	N		SA2			58.2					
B97L	T	47	39	0.12		30	N		SA2			57.1					
B98R	T	50.4	42.4	0.12		30	N		SA2			57.9					
B99R	T	46.5	38.5	0.12		30	N		SA2			53.2					
B100	T	49	41	0.12		30	N		SA2			56.6					
B101	T	49.1	41.1	0.12		30	N		SA2			54.9					
B102	T	46.9	38.9	0.12		30	N		SA2			55.8					
B103	T	49.5	41.5	0.12		30	N		SA2			57					
B104	T	49.2	41.2	0.12		30	N		SA2			57					
B105	T	44.8	36.8	0.12		27	N		SA2			52					
B106	T	44.7	36.7	0.12		27	N		SA2			51.4					
B107	T	47.4	39.4	0.12		27	N		SA2			53.3					
B108	T	47.4	39.4	0.12		27	N		SA2			53.5					
B109	T	46.2	38.2	0.12		30	N		SA2			53.2					
CMD	R	24	22	0.12		30	N		SA3					-17.4	-93		
CMD	R	24	22	0.12		30	N		SA3					-17.4	-93		
TLM	T	22	20	0.12		30	N		SA3			14.3					
TLML	T	22	20	0.12		30	N		SA3			14.3					
RFT1	R	51.2	49.2	0.12		30	N		SA4					8.2	-112		
RFT2	R	50.6	48.6	0.12		30	N		SA4					7.6	-112		
RFT3	R	51.5	49.5	0.12		30	N		SA4					8.5	-112		
OMN	R	7	-4	0.12		30	N		SA5					-29.4	-83		
OMN	R	7	-4	0.12		30	N		SA5					-29.4	-83		
OMN	T	7	-4	0.12		30	N		SA5			14.6					
OMN	T	7	-4	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

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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	26000	R	17324	R	C
U0003	26000	R	17353.16	R	C
U0005	26000	R	17382.32	R	C
U0007	26000	R	17411.48	R	C
U0009	26000	R	17440.64	R	C
U0011	26000	R	17469.8	R	C
U0013	26000	R	17498.96	R	C
U0015	26000	R	17528.12	R	C
U0017	26000	R	17557.28	R	C
U0019	26000	R	17586.44	R	C
U0021	26000	R	17615.6	R	C
U0023	26000	R	17644.76	R	C
U0025	26000	R	17673.92	R	C
U0027	26000	R	17703.08	R	C
U0029	26000	R	17732.24	R	C
U0031	26000	R	17761.4	R	C
U0002	26000	R	17338.58	L	C
U0004	26000	R	17367.74	L	C
U0006	26000	R	17396.9	L	C
U0008	26000	R	17426.06	L	C
U0010	26000	R	17455.22	L	C
U0012	26000	R	17484.38	L	C
U0014	26000	R	17513.54	L	C
U0016	26000	R	17542.7	L	C
U0018	26000	R	17571.86	L	C
U0020	26000	R	17601.02	L	C
U0022	26000	R	17630.18	L	C
U0024	26000	R	17659.34	L	C
U0026	26000	R	17688.5	L	C
U0028	26000	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
T001	1	U0001	R01R	D0019	B10R
T002	1	U0003	R01R	D0021	B76R
T003	1	U0005	R01R	D0021	B67R
T004	1	U0007	R01R	D0023	B67R
T005	1	U0009	R01R	D0025	B44R
T006	1	U0011	R01R	D0027	B14R
T007	1	U0013	R01R	D0029	B14R
T008	1	U0015	R01R	D0029	B69R
T009	1	U0017	R01R	D0031	B94R
T010	1	U0019	R01R	D0019	B44R
T011	1	U0021	R01R	D0021	B73R
T012	1	U0023	R01R	D0023	B48R
T013	1	U0025	R01R	D0025	B38R
T014	1	U0027	R01R	D0027	B89R
T015	1	U0029	R01R	D0029	B89R
T016	1	U0031	R01R	D0031	B104R
T017	1	U0002	R01L	D0016	B95L
T018	1	U0004	R01L	D0018	B43L
T019	1	U0006	R01L	D0020	B19L
T020	1	U0008	R01L	D0022	B72L
T021	1	U0010	R01L	D0024	B47L
T022	1	U0012	R01L	D0026	B43L
T023	1	U0014	R01L	D0016	B45L
T024	1	U0016	R01L	D0016	B39L
T025	1	U0018	R01L	D0018	B39L
T026	1	U0020	R01L	D0020	B17L
T027	1	U0022	R01L	D0022	B90L
T028	1	U0024	R01L	D0024	B50L
T029	1	U0026	R01L	D0026	B45L
T030	1	U0028	R01L	D0028	B19L

U0030	26000	R	17746.82	L	C
U0032	26000	R	17775.98	L	C
D0019	26000	T	12486.44	R	C
D0021	26000	T	12515.6	R	C
D0023	26000	T	12544.76	R	C
D0025	26000	T	12573.92	R	C
D0027	26000	T	12603.08	R	C
D0029	26000	T	12632.24	R	C
D0031	26000	T	12661.4	R	C
D0016	26000	T	12442.7	L	C
D0018	26000	T	12471.86	L	C
D0020	26000	T	12501.02	L	C
D0022	26000	T	12530.18	L	C
D0024	26000	T	12559.34	L	C
D0026	26000	T	12588.5	L	C
D0028	26000	T	12617.66	L	C
D0030	26000	T	12646.82	L	C
D0032	26000	T	12675.98	L	C
CMD1	1000	R	17793.5	R	T
CMD2	1000	R	17303	L	T
CMD3	10000	R	17795	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	10000	T	12695	R	T
RFAT	30	R	17308	L	T

T031	1	U0030	R01L	D0030	B95L
T032	1	U0032	R01L	D0032	B50L
T033	1	U0001	R02R	D0019	B46R
T034	1	U0003	R02R	D0019	B98R
T035	1	U0005	R02R	D0021	B96R
T036	1	U0007	R02R	D0023	B46R
T037	1	U0009	R02R	D0025	B25R
T038	1	U0011	R02R	D0027	B18R
T039	1	U0013	R02R	D0029	B96R
T040	1	U0015	R02R	D0031	B79R
T041	1	U0017	R02R	D0031	B103R
T042	1	U0019	R02R	D0019	B77R
T043	1	U0021	R02R	D0021	B53R
T044	1	U0023	R02R	D0023	B55R
T045	1	U0025	R02R	D0025	B77R
T046	1	U0027	R02R	D0027	B16R
T047	1	U0029	R02R	D0029	B16R
T048	1	U0031	R02R	D0031	B100R
T049	1	U0002	R02L	D0016	B23L
T050	1	U0004	R02L	D0018	B23L
T051	1	U0006	R02L	D0021	B79R
T052	1	U0008	R02L	D0022	B97L
T053	1	U0010	R02L	D0024	B75L
T054	1	U0012	R02L	D0026	B93L
T055	1	U0014	R02L	D0025	B79R
T056	1	U0016	R02L	D0016	B24L
T057	1	U0018	R02L	D0018	B49L
T058	1	U0020	R02L	D0020	B24L
T059	1	U0022	R02L	D0022	B52L
T060	1	U0024	R02L	D0024	B54L
T061	1	U0026	R02L	D0026	B23L
T062	1	U0028	R02L	D0028	B23L
T063	1	U0032	R02L	D0032	B75L
T064	1	U0001	R03R	D0019	B85R
T065	1	U0003	R03R	D0019	B87R
T066	1	U0005	R03R	D0019	B108R
T067	1	U0007	R03R	D0021	B108R
T068	1	U0009	R03R	D0023	B87R
T069	1	U0011	R03R	D0025	B74R

T070	1	U0013	R03R	D0025	B34R
T071	1	U0015	R03R	D0027	B34R
T072	1	U0017	R03R	D0031	B91R
T073	1	U0019	R03R	D0019	B106R
T074	1	U0021	R03R	D0021	B106R
T075	1	U0023	R03R	D0023	B106R
T076	1	U0025	R03R	D0025	B106R
T077	1	U0025	R03R	D0025	B108R
T078	1	U0027	R03R	D0027	B106R
T079	1	U0027	R03R	D0027	B108R
T080	1	U0029	R03R	D0029	B81R
T081	1	U0031	R03R	D0031	B06R
T082	1	U0002	R03L	D0016	B101L
T083	1	U0004	R03L	D0018	B05L
T084	1	U0006	R03L	D0020	B29L
T085	1	U0008	R03L	D0022	B82L
T086	1	U0010	R03L	D0022	B101L
T087	1	U0012	R03L	D0024	B05L
T088	1	U0014	R03L	D0026	B27L
T089	1	U0016	R03L	D0016	B105L
T090	1	U0016	R03L	D0016	B107L
T091	1	U0018	R03L	D0018	B105L
T092	1	U0018	R03L	D0018	B107L
T093	1	U0020	R03L	D0020	B105L
T094	1	U0020	R03L	D0020	B107L
T095	1	U0022	R03L	D0022	B105L
T096	1	U0024	R03L	D0024	B105L
T097	1	U0024	R03L	D0024	B107L
T098	1	U0026	R03L	D0026	B105L
T099	1	U0026	R03L	D0026	B107L
T100	1	U0028	R03L	D0028	B105L
T101	1	U0028	R03L	D0028	B107L
T102	1	U0030	R03L	D0030	B05L
T103	1	U0032	R03L	D0032	B27L
T104	1	U0001	R04R	D0019	B83R
T105	1	U0003	R04R	D0021	B30R
T106	1	U0005	R04R	D0023	B83R
T107	1	U0007	R04R	D0025	B62R
T108	1	U0009	R04R	D0027	B30R

T109	1	U0011	R04R	D0029	B30R
T110	1	U0013	R04R	D0029	B20R
T111	1	U0015	R04R	D0031	B36R
T112	1	U0017	R04R	D0019	B02R
T113	1	U0019	R04R	D0019	B109R
T114	1	U0021	R04R	D0021	B32R
T115	1	U0023	R04R	D0023	B109R
T116	1	U0025	R04R	D0025	B99R
T117	1	U0027	R04R	D0027	B32R
T118	1	U0029	R04R	D0029	B61R
T119	1	U0031	R04R	D0031	B63R
T120	1	U0002	R04L	D0018	B03L
T121	1	U0004	R04L	D0020	B11L
T122	1	U0006	R04L	D0022	B07L
T123	1	U0008	R04L	D0024	B84L
T124	1	U0010	R04L	D0021	B28R
T125	1	U0012	R04L	D0023	B02R
T126	1	U0014	R04L	D0025	B04R
T127	1	U0016	R04L	D0016	B01L
T128	1	U0018	R04L	D0018	B31L
T129	1	U0020	R04L	D0020	B60L
T130	1	U0022	R04L	D0022	B01L
T131	1	U0024	R04L	D0024	B03L
T132	1	U0026	R04L	D0026	B64L
T133	1	U0001	R05R	D0016	B13L
T134	1	U0003	R05R	D0018	B13L
T135	1	U0005	R05R	D0020	B70L
T136	1	U0007	R05R	D0021	B102R
T137	1	U0009	R05R	D0023	B42R
T138	1	U0013	R05R	D0024	B21L
T139	1	U0015	R05R	D0029	B71R
T140	1	U0017	R05R	D0031	B51R
T141	1	U0019	R05R	D0019	B22R
T142	1	U0021	R05R	D0021	B12R
T143	1	U0023	R05R	D0023	B08R
T144	1	U0025	R05R	D0025	B40R
T145	1	U0027	R05R	D0027	B40R
T146	1	U0029	R05R	D0029	B65R
T147	1	U0031	R05R	D0031	B40R

T148	1	U0002	R05L	D0018	B78L
T149	1	U0004	R05L	D0020	B80L
T150	1	U0006	R05L	D0020	B15L
T151	1	U0008	R05L	D0022	B86L
T152	1	U0010	R05L	D0024	B09L
T153	1	U0012	R05L	D0024	B92L
T154	1	U0014	R05L	D0026	B88L
T155	1	U0016	R05L	D0016	B33L
T156	1	U0018	R05L	D0018	B33L
T157	1	U0020	R05L	D0020	B41L
T158	1	U0022	R05L	D0022	B88L
T159	1	U0024	R05L	D0024	B66L
T160	1	U0026	R05L	D0026	B68L
T161	1	U0028	R05L	D0028	B33L
T162	1	U0030	R05L	D0030	B88L
T163	1	U0019	R06R	D0019	B59R
T164	1	U0019	R06R	D0021	B57R
T165	1	U0021	R06R	D0021	B59R
T166	1	U0021	R06R	D0023	B57R
T167	1	U0023	R06R	D0023	B59R
T168	1	U0023	R06R	D0025	B57R
T169	1	U0025	R06R	D0025	B59R
T170	1	U0025	R06R	D0027	B57R
T171	1	U0027	R06R	D0027	B59R
T172	1	U0029	R06R	D0029	B59R
T173	1	U0016	R06L	D0016	B37L
T174	1	U0018	R06L	D0018	B35L
T175	1	U0020	R06L	D0020	B56L
T176	1	U0020	R06L	D0022	B58L
T177	1	U0022	R06L	D0022	B56L
T178	1	U0022	R06L	D0024	B58L
T179	1	U0024	R06L	D0024	B56L
T180	1	U0026	R06L	D0026	B26L
T181	1	U0032	R06L	D0032	B35L
CMD1		CMD1	CMDR		
CMD2		CMD2	CMDL		
CMD3		CMD3	CMDR		
CMD4		CMD1	OMNUR		
CMD5		CMD2	OMNUL		

CMD6		CMD3	OMNUR		
TLM1				TLM1	TLMR
TLM2				TLM2	TLMR
TLM3				TLM3	TLML
TLM4				TLM4	TLML
TLM5				TLM5	TLMR
TLM6				TLM1	OMNDR
TLM7				TLM2	OMNDR
TLM8				TLM3	OMNDL
TLM9				TLM4	OMNDL
TLM10				TLM5	OMNDR
RFT1		RFAT	RFT1		
RFT2		RFAT	RFT2		
RFT3		RFAT	RFT3		

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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	27M0G7W	27000	4	36035	0.8008		5.8	18
D2	27M0G7W	27000	4	37837	0.8408		6.5	18.7
D3	25M8G7W	25800	8	41160	0.6406		7.5	19.7
D4	25M8G7W	25800	8	46485	0.7207		8.3	20.5

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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						
A1	1M00F2D	1000		1									10	22.2
A2	1M00G2D	1000		1									9	21.2
A3	30K0N0N	30		1									25	35

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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.		
T001	T181	D1		1		LB1.doc		65.8	7	19.2	43.4	58.9		13.2
T001	T181	D2		1		LB2.doc		65.8	7	19.2	43.4	58.9		13.2
T001	T181	D3		1		LB3.doc		65.8	7	19.2	43.4	58.9		13.2
T001	T181	D4		1		LB4.doc		65.8	7	19.2	43.4	58.9		13.2
CMD1	CMD3		A1	1		CMD1.doc		64	3.5	21				
CMD4	CMD6		A1	1		CMD2.doc		64	5.2	29				
TLM1	TLM5		A2	1		TLM1.doc					12.3	14.3		38.7
TLM6	TLM10		A2	1		TLM2.doc					7	14.6		38.7
RFT1	RFT3		A3	1		RFAT.doc		63.8	-16.2	3.7				

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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: 85223
S14f. Telephone Number: 480-558-2778	S14g. Call Sign of Control Station (if appropriate):		

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.