

**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: SES-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: 133		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) 12508 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	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)		
11.7	G	12.2	G	T	Fixed Satellite Service
11.7	G	12.2	G	T	Direct to Home in the Fixed Fixed Satellite Service
10.95	G	11.2	G	T	Fixed Satellite Service
11.45	G	11.7	G	T	Fixed Satellite Service
10.7	G	10.95	G	T	Fixed Satellite Service
11.2	G	11.45	G	T	Fixed Satellite Service
14	G	14.5	G	R	Fixed Satellite Service
18.3	G	18.8	G	T	Fixed Satellite Service
19.7	G	20.2	G	T	Fixed Satellite Service
27.5	G	28.35	G	R	Fixed Satellite Service
28.35	G	28.6	G	R	Fixed Satellite Service
29.25	G	29.5	G	R	Fixed Satellite Service
29.5	G	30	G	R	Fixed Satellite Service
1564.42	M	1586.42	M	T	Radio Navigation Satellite Service
1165.45	M	1187.45	M	T	Radio Navigation Satellite Service
6628.27	M	6650.27	M	R	Fixed Satellite Service
6679.42	M	6701.42	M	R	Fixed Satellite Service

3700	M	3700.4	M	T	Fixed Satellite Service
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S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 129.15 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:
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>Degrees</u> <u>E/W</u>	
d. Toward West:	0.05 Degrees	e. Toward East:	0.1 Degrees	
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.
NA	S		United States, Mexico, Caribbean, Central America, Canada
SW	S		Southwest US, Northwest Mexico
VE	S		Visible Earth down to 5 degrees elevation
CONUS	S		48 lower United States
CO	S		Portion of Colorado & Wyoming
NW	S		Washington State & Southwest Canada
EC	S		East coast of the US

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S7. SPACE STATION ANTENNA BEAM CHARACTERISTICS For each antenna beam provide:

(a) Beam ID	(b) T/R Mode	(c) 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				
		(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)	Input Attenuator (dB)	
																(q) Max. Value	(r) Step Size
NAU	R	1	1	0.08	0.18	22	N	90	NA			1	6.3	-103.3	1	1	
NAU	R	1	1	0.08	0.18	22	N	0	NA			1	6.3	-103.3	1	1	
NAD	T	1	1	0.08	0.18	27	N	90	NA	1	1	50.4					
NAD	T	1	1	0.08	0.18	27	N	0	NA	1	1	50.4					
NAB	T	1	1	0.08	0.18	27	N	0	NA	1	1	50					
NAB	T	1	1	0.08	0.18	27	N	90	NA	1	1	50					
SWU	R	1	1	0.08	0.18	25	N		SW			1	20.6	-113.6	1	1	
SWU	R	1	1	0.08	0.18	25	N		SW			1	20.6	-113.6	1	1	
GPS	T	1	1	0.5	0.18	12.9	N		VE	1	1	35.5					
GPS	R	1	1	0.5	0.18	23	N		VE			1	-4.4	-98	1	1	
GPS	T	1	1	0.5	0.18	30	N	90	VE	1	1	10.5					
COU	R	1	1	0.08	0.18	25	N		CO			1	19.7	-109.7	1	1	
COU	R	1	1	0.08	0.18	25	N		CO			1	19.7	-109.7	1	1	
U1DV	T	1	1	0.08	0.18	18	N	90	NA	1	1	57.1					
U1DH	T	1	1	0.08	0.18	18	N	0	NA	1	1	57.9					
U1UV	R	1	1	0.08	0.18	18	N	90	NA			1	19	-116.9	1	1	
U1UH	R	1	1	0.08	0.18	18	N	0	NA			1	19	-116.9	1	1	
SWD	T	1	1	0.08	0.18	25	N		SW	1	1	58.3					
NWU	R	1	1	0.08	0.18	25	N		NW			1	20.3	-111.5	1	1	
NWU	R	1	1	0.08	0.18	25	N		NW			1	20.3	-111.5	1	1	
NWD	T	1	1	0.08	0.18	25	N		NW	1	1	57.6					
ECU	R	1	1	0.08	0.18	25	N		EC			1	20.8	-110.8	1	1	
ECUL	R	1	1	0.08	0.18	25	N		EC			1	20.8	-110.8	1	1	
ECDL	T	1	1	0.08	0.18	25	N		EC	1	1	56.6					
COD	T	1	1	0.08	0.18	25	N		CO	1	1	55.8					
U2DV	T	1	1	0.08	0.18	20.5	N	90	NA	1	1	54.9					
U2DH	T	1	1	0.08	0.18	20.5	N	0	NA	1	1	57.2					
U2UV	R	1	1	0.08	0.18	16	N	90	NA			1	17.3	-115.5	1	1	
U2UH	R	1	1	0.08	0.18	16	N	0	NA			1	17.3	-115.5	1	1	

TCHV	R	1	1	0.5	0.18	30	N	90	VE				1	-13.1	0	1	1
TCH	R	1	1	0.5	0.18	30	N	0	VE				1	-12.7	0	1	1
TCPR	R	1	1	0.5	0.18	30	N		VE				1	-13.1	0	1	1
TCPL	R	1	1	0.5	0.18	30	N		VE				1	-13.1	0	1	1
TMH	T	1	1	0.5	0.18	30	N	90	VE	1	1	17					
TMH	T	1	1	0.5	0.18	30	N	0	VE	1	1	18.5					
TMP	T	1	1	0.5	0.18	30	N		VE	1	1	9					
TMPL	T	1	1	0.5	0.18	30	N		VE	1	1	9					
KAB	T	1	1	0.5	0.18	30	N		VE	1	1	21.4					



U2UH	R	C								
TCHV	R	C								
TCH	R	C								
TCPR	R	C								
TCPL	R	C								
TMH	T	C				-167	-166.9	-166.8	-166.7	-163.8
TMH	T	C								
TMP	T	C								
TMPL	T	C								
KAB	T	C								

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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)
F16U	83000	R	28204.5	R	C
F1D	90000	T	11499	V	C
F2D	90000	T	10980	H	C
F3AD	150000	T	10946.5	V	C
F3BD	273000	T	11236	V	C
F4BD	320000	T	11761	H	C
F5AD	200000	T	10822	H	C
F5BD	255000	T	11225	H	C
F6BD	83000	T	11404	V	C
F7AD	140000	T	10788	V	C
F7BD	263000	T	11213	V	C
F8BD	220000	T	11710	V	C
F9D	160000	T	11688	V	C
F10D	120000	T	11350	H	C
F11D	120000	T	11481.5	H	C
F12D	90000	T	11499	H	C
F13D	160000	T	11688	H	C
F14D	144000	T	11468	V	C
F15D	108000	T	11225	H	C
F16D	83000	T	11404.5	H	C
R1U	27000	R	14250.5	H	C
R2U	27000	R	14359.5	V	C
R3U	108000	R	14181	H	C
R4BU	117000	R	14314.5	V	C
R5U	126000	R	14190	V	C
R6BU	54000	R	14346	H	C
R7U	108000	R	14181	H	C
R8BU	90000	R	14328	H	C
R9U	36000	R	14256	H	C
R10U	36000	R	14145	V	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
F11D				F11D	U1DH
F12D				F12D	U1DH
F13D				F13D	U1DH
F14D				F14D	U1DV
F15D				F15D	U1DH
F16D				F16D	U1DH
R1U		R1U	U1UH		
R2U		R2U	U1UV		
R3U		R3U	U1UH		
R4BU		R4BU	U1UV		
R5U		R5U	U1UV		
R6BU		R6BU	U1UH		
R7U		R7U	U1UH		
R8BU		R8BU	U1UH		
R9U		R9U	U1UH		
R10U		R10U	U1UV		
R11U		R11U	U1UV		
R12U		R12U	U1UV		
R13U		R13U	U1UV		
R14U		R14U	U1UH		
R15U		R15U	U1UV		
R16U		R16U	U1UV		
R1D				R1D	SWDL
R2D				R2D	SWDL
R3D				R3D	SWDL
R4BD				R4BD	SWDL
R5D				R5D	SWDL
R6BD				R6BD	SWDL
R7D				R7D	SWDL
R8BD				R8BD	SWDL

R11U	27000	R	14299.5	V	C
R12U	27000	R	14329.5	V	C
R13U	36000	R	14227	V	C
R14U	36000	R	14298	H	C
R15U	27000	R	14269.5	V	C
R16U	36000	R	14185	V	C
R1D	27000	T	20075.5	L	C
R2D	27000	T	19934.5	L	C
R3D	108000	T	18356	L	C
R4BD	117000	T	18739.5	L	C
R5D	126000	T	19765	L	C
R6BD	54000	T	20171	L	C
R7D	108000	T	20006	L	C
R8BD	90000	T	18503	L	C
R9D	36000	T	18431	L	C
R10D	36000	T	18570	L	C
R11D	27000	T	19874.5	L	C
R12D	27000	T	19904.5	L	C
R13D	36000	T	18652	L	C
R14D	36000	T	20123	L	C
R15D	27000	T	19844.5	L	C
NA01U	54000	R	14035	V	C
NA03U	54000	R	14095	V	C
NA05U	54000	R	14405	V	C
NA07U	54000	R	14465	V	C
NA02U	36000	R	14025	H	C
NA04U	36000	R	14065	H	C
NA06U	36000	R	14105	H	C
NA08U	36000	R	14395	H	C
NA10U	36000	R	14435	H	C
NA12U	36000	R	14475	H	C
NA01D	54000	T	11985	H	C
NA03D	54000	T	12045	H	C
NA05D	54000	T	12105	H	C
NA07D	54000	T	12165	H	C
NA02D	36000	T	11975	V	C
NA04D	36000	T	12015	V	C
NA06D	36000	T	12055	V	C
NA08D	36000	T	12095	V	C

R9D				R9D	SWDL
R10D				R10D	SWDL
R11D				R11D	SWDL
R12D				R12D	SWDL
R13D				R13D	SWDL
R14D				R14D	SWDL
R15D				R15D	SWDL
R16D				R16D	SWDL
F17U		F17U	NWUR		
F18U		F18U	NWUR		
F19U		F19U	NWUR		
F20U		F20U	NWUR		
F21U		F21U	NWUL		
F22U		F22U	NWUR		
F23U		F23U	NWUL		
F24AU		F24AU	NWUR		
F24BU		F24BU	NWUR		
F24CU		F24CU	NWUR		
F25U		F25U	NWUL		
F26AU		F26AU	NWUL		
F26BU		F26BU	NWUL		
F26CU		F26CU	NWUL		
F27U		F27U	NWUL		
F28AU		F28AU	NWUL		
F29AU		F29AU	NWUL		
F30U		F30U	NWUL		
F31U		F31U	NWUL		
F32U		F32U	NWUL		
F33U		F33U	NWUR		
F34U		F34U	NWUR		
F35U		F35U	NWUR		
F36U		F36U	NWUR		
F37U		F37U	NWUR		
F38U		F38U	NWUR		
F39U		F39U	NWUR		
R17D				R17D	NWDL
R18D				R18D	NWDL
R19D				R19D	NWDL
R20D				R20D	NWDL

NA10D	36000	T	12135	V	C
NA12D	36000	T	12175	V	C
NAB1U	36000	R	27854	R	C
NAB3U	36000	R	28372	R	C
NAB2U	36000	R	27854	L	C
NAB4U	36000	R	28372	L	C
NAB1D	36000	T	11054	H	C
NAB3D	36000	T	11572	H	C
NAB2D	36000	T	11054	V	C
NAB4D	36000	T	11572	V	C
GPS1D	22000	T	1575.42	R	C
GPS5D	22000	T	1176.45	R	C
GPSBD	400	T	3700.2	V	T
GPS1U	22000	R	6639.27	L	C
GPS5U	22000	R	6690.42	L	C
F1U	90000	R	29679	L	C
F2U	90000	R	27780	R	C
F3AU	150000	R	27746.5	L	C
F3BU	273000	R	28036	L	C
F4BU	320000	R	29840	R	C
F5AU	200000	R	27622	R	C
F5BU	255000	R	28025	R	C
F6BU	83000	R	29584	L	C
F7AU	140000	R	27588	L	C
F7BU	263000	R	29393	L	C
F8BU	220000	R	29890	L	C
F9U	160000	R	28488	L	C
F10U	120000	R	29429	R	C
F11U	120000	R	29560.5	R	C
F12U	90000	R	28299	R	C
F13U	160000	R	28488	R	C
F14U	144000	R	28268	L	C
F15U	108000	R	29304	R	C
R16D	36000	T	18610	L	C
F17U	108000	R	28060	R	C
F18U	108000	R	29706.5	R	C
F19U	108000	R	29578	R	C
F20U	108000	R	28188.5	R	C
F21U	90000	R	29654	L	C

R21D					R21D	NWDL
R22D					R22D	NWDL
R23D					R23D	NWDL
R24D					R24D	NWDL
R25D					R25D	NWDL
R26D					R26D	NWDL
R27D					R27D	NWDL
R28AD					R28AD	NWDL
R29AD					R29AD	NWDL
R30D					R30D	NWDL
R31D					R31D	NWDL
R32D					R32D	NWDL
R33D					R33D	NWDL
R34D					R34D	NWDL
R35D					R35D	NWDL
R36D					R36D	NWDL
R37D					R37D	NWDL
R38D					R38D	NWDL
R39D					R39D	NWDL
F40AU		F40AU	ECUL			
F40BU		F40BU	ECUL			
F40CU		F40CU	ECUL			
F41AU		F41AU	ECUL			
F41BU		F41BU	ECUL			
F42U		F42U	ECUL			
F43AU		F43AU	ECUR			
F43BU		F43BU	ECUR			
F44AU		F44AU	ECUR			
F44BU		F44BU	ECUR			
F45AU		F45AU	ECUR			
F46U		F46U	ECUR			
F47U		F47U	ECUR			
F48U		F48U	ECUR			
F49AU		F49AU	ECUL			
F49BU		F49BU	ECUL			
F40AD				F40AD	U1DV	
F40BD				F40BD	U1DV	
F40CD				F40CD	U1DV	
F41AD				F41AD	U1DV	

F22U	90000	R	29817	R	C
F23U	160000	R	28268	L	C
F24AU	90000	R	29298	R	C
F24BU	90000	R	28299	R	C
F24CU	192000	R	28496.5	R	C
F25U	192000	R	29497.5	L	C
F26AU	140000	R	27558	L	C
F26BU	54000	R	29735.5	L	C
F26CU	54000	R	28558	L	C
F27U	273000	R	28020	L	C
F28AU	160000	R	27751.5	L	C
F29AU	90000	R	29298	L	C
F30U	120000	R	28460	L	C
F31U	90000	R	29817	L	C
F32U	83000	R	29958.5	L	C
F33U	72000	R	27628	R	C
F34U	108000	R	29455	R	C
F35U	108000	R	27937	R	C
F36U	72000	R	27789	R	C
F37U	72000	R	27709	R	C
F38U	72000	R	27547	R	C
F39U	83000	R	29958.5	R	C
R17D	27000	T	19904.5	L	C
R18D	27000	T	18565.5	L	C
R19D	27000	T	19844.5	L	C
R20D	27000	T	18634.5	L	C
R21D	27000	T	20044.5	L	C
R22D	27000	T	19934.5	L	C
R23D	54000	T	20171	L	C
R24D	108000	T	18744	L	C
R25D	72000	T	19988	L	C
R26D	72000	T	18512	L	C
R27D	72000	T	18338	L	C
R28AD	27000	T	18456.5	L	C
R29AD	27000	T	18425.5	L	C
R30D	27000	T	20075.5	L	C
R31D	27000	T	18394.5	L	C
R32D	27000	T	20106.5	L	C
R33D	27000	T	19874.5	L	C

F41BD				F41BD	U1DV
F42D				F42D	U1DV
F43AD				F43AD	U1DH
F43BD				F43BD	U1DH
F44AD				F44AD	U1DH
F44BD				F44BD	U1DH
F45AD				F45AD	U1DH
F46D				F46D	U1DH
F47D				F47D	U1DH
F48D				F48D	U1DH
F49AD				F49AD	U1DV
F49BD				F49BD	U1DV
R40U		R40U	U1UH		
R41U		R41U	U1UH		
R42U		R42U	U1UH		
R43U		R43U	U1UV		
R44U		R44U	U1UV		
R45AU		R45AU	U1UV		
R46U		R46U	U1UV		
R47U		R47U	U1UV		
R48U		R48U	U1UV		
R49U		R49U	U1UH		
R40D				R40D	ECDL
R41D				R41D	ECDL
R42D				R42D	ECDL
R43D				R43D	ECDL
R44D				R44D	ECDL
R45AD				R45AD	ECDL
R46D				R46D	ECDL
R47D				R47D	ECDL
R48D				R48D	ECDL
R49D				R49D	ECDL
F40AC		F40AU	COUL		
F40BC		F40BU	COUL		
F40CC		F40CU	COUL		
F41AC		F41AU	COUL		
F41BC		F41BU	COUL		
F42C		F42U	COUL		
F43AC		F43AU	COUR		

R34D	27000	T	18595.5	L	C
R35D	36000	T	19750	L	C
R36D	27000	T	19814.5	L	C
R37D	27000	T	19715.5	L	C
R38D	27000	T	19784.5	L	C
R39D	27000	T	18664.5	L	C
F40AU	140000	R	27588	L	C
F40BU	165000	R	29539.5	L	C
F40CU	320000	R	29840	L	C
F41AU	165000	R	28260.5	L	C
F41BU	165000	R	28485.5	L	C
F42U	180000	R	29346	L	C
F43AU	90000	R	29679	R	C
F43BU	220000	R	29890	R	C
F44AU	285000	R	27684	R	C
F44BU	305000	R	28035	R	C
F45AU	128000	R	28279	R	C
F46U	335000	R	29429.5	R	C
F47U	108000	R	28536	R	C
F48U	72000	R	28436	R	C
F49AU	160000	R	27751.5	L	C
F49BU	273000	R	28020	L	C
F40AD	140000	T	10788	V	C
F40BD	165000	T	11460.5	V	C
F40CD	320000	T	11761	V	C
F41AD	165000	T	11460.5	V	C
F41BD	165000	T	11685.5	V	C
F42D	180000	T	11267	V	C
F43AD	90000	T	11499	H	C
F43BD	220000	T	11710	H	C
F44AD	285000	T	10884	H	C
F44BD	305000	T	11235	H	C
F45AD	128000	T	11479	H	C
F46D	335000	T	11249.5	H	C
F47D	108000	T	11736	H	C
F48D	72000	T	11636	H	C
F49AD	160000	T	10951.5	V	C
F49BD	273000	T	11220	V	C
R40U	171000	R	14287.5	H	C

F43BC		F43BU	COUR		
F44AC		F44AU	COUR		
F44BC		F44BU	COUR		
F45AC		F45AU	COUR		
F46C		F46U	COUR		
F47C		F47U	COUR		
NA01	1	NA01U	NAUV	NA01D	NADH
NA03	1	NA03U	NAUV	NA03D	NADH
NA05	1	NA05U	NAUV	NA05D	NADH
NA07	1	NA07U	NAUV	NA07D	NADH
NA02	1	NA02U	NAUH	NA02D	NADV
NA04	1	NA04U	NAUH	NA04D	NADV
NA06	1	NA06U	NAUH	NA06D	NADV
NA08	1	NA08U	NAUH	NA08D	NADV
NA10	1	NA10U	NAUH	NA10D	NADV
NA12	1	NA12U	NAUH	NA12D	NADV
NAB1	1	NAB1U	SWUR	NAB1D	NABH
NAB3	1	NAB3U	SWUR	NAB3D	NABH
NAB2	1	NAB2U	SWUL	NAB2D	NABV
NAB4	1	NAB4U	SWUL	NAB4D	NABV
GPS1	1	GPS1U	GPSU	GPS1D	GPSD
GPS5	1	GPS5U	GPSU	GPS5D	GPSD
GPSB				GPSBD	GPSB
F1U		F1U	SWUL		
F2U		F2U	SWUR		
F3AU		F3AU	SWUL		
F3BU		F3BU	SWUL		
F4BU		F4BU	SWUR		
F5AU		F5AU	SWUR		
F5BU		F5BU	SWUR		
F6BU		F6BU	SWUL		
F7AU		F7AU	SWUL		
F7BU		F7BU	SWUL		
F8BU		F8BU	SWUL		
F9U		F9U	SWUL		
F10U		F10U	SWUR		
F11U		F11U	SWUR		
F12U		F12U	SWUR		
F13U		F13U	SWUR		

R41U	108000	R	14319	H	C
R42U	63000	R	14158.5	H	C
R43U	108000	R	14319	V	C
R44U	156000	R	14205	V	C
R45AU	54000	R	14346	V	C
R46U	90000	R	14172	V	C
R47U	27000	R	14301.5	V	C
R48U	27000	R	14239.5	V	C
R49U	126000	R	14190	H	C
R40D	171000	T	18462.5	L	C
R41D	108000	T	20144	L	C
R42D	63000	T	18333.5	L	C
R43D	108000	T	18744	L	C
R44D	156000	T	19780	L	C
R45AD	54000	T	19921	L	C
R46D	90000	T	18597	L	C
R47D	27000	T	19876.5	L	C
R48D	27000	T	18664.5	L	C
R49D	126000	T	20015	L	C
R40C	171000	T	18462.5	R	C
R41C	108000	T	20144	R	C
R42C	63000	T	18333.5	R	C
R43C	108000	T	18744	R	C
R44C	156000	T	19780	R	C
R45AC	54000	T	19921	R	C
R46C	90000	T	18597	R	C
R47C	27000	T	19876.5	R	C
R48C	27000	T	18664.5	R	C
R49C	126000	T	20015	R	C
F21D	90000	T	11336	V	C
F33D	72000	T	10828	H	C
F34D	108000	T	11137	H	C
F35D	108000	T	11137	H	C
F36D	72000	T	10989	H	C
F37D	72000	T	10909	H	C
F38D	72000	T	10747	H	C
F39D	83000	T	11640.5	H	C
R21U	27000	R	14219.5	H	C
R33U	27000	R	14299.5	V	C

F14U		F14U	SWUL		
F15U		F15U	SWUR		
F16U		F16U	SWUR		
F1D				F1D	U1DV
F2D				F2D	U1DH
F3AD				F3AD	U1DV
F3BD				F3BD	U1DV
F4BD				F4BD	U1DH
F5AD				F5AD	U1DH
F6BD				F6BD	U1DV
F7AD				F7AD	U1DV
F7BD				F7BD	U1DV
F8BD				F8BD	U1DV
F9D				F9D	U1DV
F10D				F10D	U1DH
F48C		F48U	COUR		
F49AC		F49AU	COUL		
F49BC		F49BU	COUL		
R40C				R40C	CODR
R41C				R41C	CODR
R42C				R42C	CODR
R43C				R43C	CODR
R44C				R44C	CODR
R45AC				R45AC	CODR
R46C				R46C	CODR
R47C				R47C	CODR
R48C				R48C	CODR
R49C				R49C	CODR
F21D				F21D	U2DV
F33D				F33D	U2DH
F34D				F34D	U2DH
F35D				F35D	U2DH
F36D				F36D	U2DH
F37D				F37D	U2DH
F38D				F38D	U2DH
F39D				F39D	U2DH
R21U		R21U	U2UH		
R33U		R33U	U2UV		
R34U		R34U	U2UV		

R34U	27000	R	14170.5	V	C
R35U	36000	R	14175	V	C
R36U	27000	R	14239.5	V	C
R37U	27000	R	14140.5	V	C
R38U	27000	R	14209.5	V	C
R39U	27000	R	14239.5	V	C
TC1	1200	R	14001	V	T
TC2	1200	R	13999	V	T
TC3	1200	R	14499	H	T
TM1	300	T	10700.5	V	T
TM2	300	T	12199.5	H	T
KAB1	0.001	T	20199.5	R	T
TCR1	1200	R	14001	R	T
TCL1	1200	R	14001	L	T
TCR2	1200	R	13999	R	T
TCL2	1200	R	13999	L	T
TCR3	1200	R	14499	R	T
TCL3	1200	R	14499	L	T
TMR1	300	T	10700.5	R	T
TML1	300	T	10700.5	L	T
TMR2	300	T	12199.5	R	T
TML2	300	T	12199.5	L	T

R35U			R35U	U2UV		
R36U			R36U	U2UV		
R37U			R37U	U2UV		
R38U			R38U	U2UV		
R39U			R39U	U2UV		
TC1			TC1	TCHV		
TC2			TC2	TCHV		
TC3			TC3	TCHH		
TM1					TM1	TMHV
TM2					TM2	TMHH
KAB1					KAB1	KABR
TCR1			TCR1	TCPR		
TCL1			TCL1	TCPL		
TCR2			TCR2	TCPR		
TCL2			TCL2	TCPL		
TCR3			TCR3	TCPR		
TCL3			TCL3	TCPL		
TMR1					TMR1	TMPR
TML1					TML1	TMPL
TMR2					TMR2	TMPR
TML2					TML2	TMPL









**FEDERAL COMMUNICATIONS COMMISSION  
SATELLITE SPACE STATION AUTHORIZATIONS  
FCC Form 312 - Schedule S: (Technical and Operational Description)**

**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

**FEDERAL COMMUNICATIONS COMMISSION  
SATELLITE SPACE STATION AUTHORIZATIONS  
FCC Form 312 - Schedule S: (Technical and Operational Description)**

**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 checked="" 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 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
<b>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.</b>						

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