

**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: TELSTAR 19 VANTAGE		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	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)		
13.8	G	14	G	R	Fixed Satellite Service
14	G	14.5	G	R	Fixed Satellite Service
10.95	G	11.2	G	T	Fixed Satellite Service
11.2	G	11.45	G	T	Fixed Satellite Service
11.5	G	11.7	G	T	Fixed Satellite Service
11.7	G	12.2	G	T	Fixed Satellite Service
12.75	G	13.25	G	R	Fixed Satellite Service
27.1	G	27.5	G	R	Fixed Satellite Service
29.5	G	30	G	R	Fixed Satellite Service
18.3	G	18.6	G	T	Fixed Satellite Service
18.6	G	18.8	G	T	Fixed Satellite Service
18.8	G	19.3	G	T	Fixed Satellite Service
19.7	G	20.2	G	T	Fixed Satellite Service
27.5	G	29.1	G	R	Fixed Satellite Service
29.25	G	29.5	G	R	Fixed Satellite Service
17.8	G	18.3	G	T	Fixed Satellite Service
27.1	G	27.5	G	R	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 63 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): <u> Degrees </u> <u> E/W </u> 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:

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.
1	S	SA 1.gxt	
2	S	SA 2.gxt	
3	S	SA 3.gxt	
4	S	SA 4.gxt	
5	S	SA 5.gxt	
6	S	SA 6.gxt	
7	S	SA 7.gxt	
8	S	SA 8.gxt	
9	S	SA 9.gxt	
10	S	SA 10.gxt	
11	S	SA 11.gxt	
12	S		
13	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 Iso- lation (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)	
		(c) Peak (dBi)	(d) Edge (dBi)	(q) Max. Value	(r) Step Size												
NATX	T			0.1	0	30			1			50.5					
NAR	R			0.1	0	30			1				5.8	-96.6	1	1	
BTX	T			0.1	0	30			2			54.3					
BRX	R			0.1	0	30			2				7.8	-98.2	1	1	
S1TX	T			0.1	0	30			3			60.7					
S1RX	R			0.1	0	30			3				13.6	-98.6	1	1	
S2TX	T			0.1	0	30			4			60.2					
S2RX	R			0.1	0	30			4				13.3	-98.3	1	1	
S3TX	T			0.1	0	30			5			61					
S3RX	R			0.1	0	30			5				13.9	-102.9	1	1	
S4TX	T			0.1	0	30			6			60					
S4RX	R			0.1	0	30			6				12.8	-97.8	1	1	
S5TX	T			0.1	0	30			7			60.1					
S5RX	R			0.1	0	30			7				13	-102	1	1	
S6TX	T			0.1	0	30			8			60.8					
S6RX	R			0.1	0	30			8				13.4	-102.4	1	1	
S7TX	T			0.1	0	30			9			59.8					
S7RX	R			0.1	0	30			9				13	-102	1	1	
S8TX	T			0.1	0	30			10			60.9					
S8RX	R			0.1	0	30			10				13.7	-102.7	1	1	
S9TX	T			0.1	0	30			11			59.8					
S9RX	R			0.1	0	30			11				13.3	-102.3	1	1	
1TX	T			0.1	0	30			12			67.1					
1RX	R			0.1	0	30			12				21.7	-101.7	1	1	
2TX	T			0.1	0	30			12			67.1					
2RX	R			0.1	0	30			12				21.7	-101.7	1	1	
3TX	T			0.1	0	30			12			67.1					
3RX	R			0.1	0	30			12				21.7	-101.7	1	1	
4TX	T			0.1	0	30			12			67.1					

4RX	R			0.1	0	30			12				21.7	-101.7	1	1
5TX	T			0.1	0	30			12		67.1					
5RX	R			0.1	0	30			12				21.7	-101.7	1	1
6TX	T			0.1	0	30			12		67.1					
6RX	R			0.1	0	30			12				21.7	-101.7	1	1
7TX	T			0.1	0	30			12		67.1					
7RX	R			0.1	0	30			12				21.7	-101.7	1	1
8TX	T			0.1	0	30			12		67.1					
8RX	R			0.1	0	30			12				21.7	-101.7	1	1
9TX	T			0.1	0	30			12		67.1					
9RX	R			0.1	0	30			12				21.7	-101.7	1	1
10TX	T			0.1	0	30			12		67.1					
10RX	R			0.1	0	30			12				21.7	-101.7	1	1
11TX	T			0.1	0	30			12		67.1					
11RX	R			0.1	0	30			12				21.7	-101.7	1	1
12TX	T			0.1	0	30			12		67.1					
12RX	R			0.1	0	30			12				21.7	-101.7	1	1
13TX	T			0.1	0	30			12		67.1					
13RX	R			0.1	0	30			12				21.7	-101.7	1	1
14TX	T			0.1	0	30			12		67.1					
14RX	R			0.1	0	30			12				21.7	-101.7	1	1
15TX	T			0.1	0	30			12		67.1					
15RX	R			0.1	0	30			12				21.7	-101.7	1	1
16TX	T			0.1	0	30			12		67.1					
16RX	R			0.1	0	30			12				21.7	-101.7	1	1
17TX	T			0.1	0	30			12		67.1					
17RX	R			0.1	0	30			12				21.7	-101.7	1	1
18TX	T			0.1	0	30			12		67.1					
18RX	R			0.1	0	30			12				21.7	-101.7	1	1
19TX	T			0.1	0	30			12		67.1					
19RX	R			0.1	0	30			12				21.7	-101.7	1	1
20TX	T			0.1	0	30			12		67.1					
20RX	R			0.1	0	30			12				21.7	-101.7	1	1
21TX	T			0.1	0	30			12		67.1					
21RX	R			0.1	0	30			12				21.7	-101.7	1	1
22TX	T			0.1	0	30			12		67.1					
22RX	R			0.1	0	30			12				21.7	-101.7	1	1
23TX	T			0.1	0	30			12		67.1					
23RX	R			0.1	0	30			12				21.7	-101.7	1	1

24TX	T			0.1	0	30			12			67.1					
24RX	R			0.1	0	30			12				21.7	-101.7	1	1	
25TX	T			0.1	0	30			12			67.1					
25RX	R			0.1	0	30			12				21.7	-101.7	1	1	
26TX	T			0.1	0	30			12			67.1					
26RX	R			0.1	0	30			12				21.7	-101.7	1	1	
27TX	T			0.1	0	30			12			67.1					
27RX	R			0.1	0	30			12				21.7	-101.7	1	1	
28TX	T			0.1	0	30			12			67.1					
28RX	R			0.1	0	30			12				21.7	-101.7	1	1	
29TX	T			0.1	0	30			12			67.1					
29RX	R			0.1	0	30			12				21.7	-101.7	1	1	
30TX	T			0.1	0	30			12			67.1					
30RX	R			0.1	0	30			12				21.7	-101.7	1	1	
31TX	T			0.1	0	30			12			67.1					
31RX	R			0.1	0	30			12				21.7	-101.7	1	1	
32TX	T			0.1	0	30			12			67.1					
32RX	R			0.1	0	30			12				21.7	-101.7	1	1	
33TX	T			0.1	0	30			12			67.1					
33RX	R			0.1	0	30			12				21.7	-101.7	1	1	
34TX	T			0.1	0	30			12			67.1					
34RX	R			0.1	0	30			12				21.7	-101.7	1	1	
35TX	T			0.1	0	30			12			67.1					
35RX	R			0.1	0	30			12				21.7	-101.7	1	1	
36TX	T			0.1	0	30			12			67.1					
36RX	R			0.1	0	30			12				21.7	-101.7	1	1	
37TX	T			0.1	0	30			12			67.1					
37RX	R			0.1	0	30			12				21.7	-101.7	1	1	
38TX	T			0.1	0	30			12			67.1					
38RX	R			0.1	0	30			12				21.7	-101.7	1	1	
39TX	T			0.1	0	30			12			67.1					
39RX	R			0.1	0	30			12				21.7	-101.7	1	1	
40TX	T			0.1	0	30			12			67.1					
40RX	R			0.1	0	30			12				21.7	-101.7	1	1	
41TX	T			0.1	0	30			12			67.1					
41RX	R			0.1	0	30			12				21.7	-101.7	1	1	
42TX	T			0.1	0	30			12			67.1					
42RX	R			0.1	0	30			12				21.7	-101.7	1	1	
43TX	T			0.1	0	30			12			67.1					

43RX	R			0.1	0	30			12				21.7	-101.7	1	1
44TX	T			0.1	0	30			12		67.1					
44RX	R			0.1	0	30			12				21.7	-101.7	1	1
45TX	T			0.1	0	30			12		67.1					
45RX	R			0.1	0	30			12				21.7	-101.7	1	1
46TX	T			0.1	0	30			12		67.1					
46RX	R			0.1	0	30			12				21.7	-101.7	1	1
47TX	T			0.1	0	30			12		67.1					
47RX	R			0.1	0	30			12				21.7	-101.7	1	1
48TX	T			0.1	0	30			12		67.1					
48RX	R			0.1	0	30			12				21.7	-101.7	1	1
49TX	T			0.1	0	30			12		67.1					
49RX	R			0.1	0	30			12				21.7	-101.7	1	1
50TX	T			0.1	0	30			12		67.1					
50RX	R			0.1	0	30			12				21.7	-101.7	1	1
CDN1	T			0.1	0	30			12		67.1					
CDN1	R			0.1	0	30			12				21.7	-101.7	1	1
CDN2	T			0.1	0	30			12		67.1					
CDN2	R			0.1	0	30			12				21.7	-101.7	1	1
CDN3	T			0.1	0	30			12		67.1					
CDN3	R			0.1	0	30			12				21.7	-101.7	1	1
ATX	T			0.1	0	30			12		67.1					
ARX	R			0.1	0	30			12				21.7	-101.7	1	1
CAM	T			0.1	0	30			12		67.1					
CAM	R			0.1	0	30			12				21.7	-101.7	1	1
MAD	T			0.1	0	30			12		67.1					
MAD	R			0.1	0	30			12				21.7	-101.7	1	1
SAST	T			0.1	0	30			12		67.1					
SAS	R			0.1	0	30			12				21.7	-101.7	1	1
MTJT	T			0.1	0	30			12		67.1					
MTJR	R			0.1	0	30			12				21.7	-101.7	1	1
SPO	T			0.1	0	30			12		67.1					
SPO	R			0.1	0	30			12				21.7	-101.7	1	1
MON	T			0.1	0	30			12		67.1					
MON	R			0.1	0	30			12				21.7	-101.7	1	1
NOR	T			0.1	0	30			12		67.1					
NOR	R			0.1	0	30			12				21.7	-101.7	1	1
ALBT	T			0.1	0	30			12		67.1					
ALBR	R			0.1	0	30			12				21.7	-101.7	1	1

RIVT	T			0.1	0	30			12			67.1					
RIVR	R			0.1	0	30			12				21.7	-101.7		1	1
TTCT	T			0.1	0	30			13			16					
TTCR	R			0.1	0	30			13					-111.2		1	1

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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
NATX	T	C				-151.1	-151.1	-151.1	-151.1	-151.1
BTX	T	C				-167.3	-167.3	-167.3	-167.3	-162.3
S1TX	T	C				-165.9	-165.9	-165.9	-165.9	-165.9
S2TX	T	C				-166.4	-166.4	-166.4	-166.4	-166.4
S3TX	T	C				-165.6	-165.6	-165.6	-165.6	-165.6
S4TX	T	C				-166.6	-166.6	-166.6	-166.6	-166.6
S5TX	T	C				-166.5	-166.5	-166.5	-166.5	-166.5
S6TX	T	C				-165.8	-165.8	-165.8	-165.8	-165.8
S7TX	T	C				-166.8	-166.8	-166.8	-166.8	-166.8
S8TX	T	C				-165.7	-165.7	-165.7	-165.7	-165.7
S9TX	T	C				-166.8	-166.8	-166.8	-166.8	-166.8
1TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
2TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
3TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
4TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
5TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
6TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
7TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
8TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
9TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
10TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
11TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
12TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
13TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
14TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
15TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
16TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
17TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5

18TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
19TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
20TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
21TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
22TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
23TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
24TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
25TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
26TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
27TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
28TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
29TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
30TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
31TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
32TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
33TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
34TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
35TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
36TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
37TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
38TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
39TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
40TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
41TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
42TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
43TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
44TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
45TX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
46TX	T	C				-138.5	-138.5	-138.5	-133.5	-126.5
47TX	T	C				-128.5	-128.5	-128.5	-124.5	-120.5
48TX	T	C				-130.5	-136.5	-142.5	-118.5	-118.5
49TX	T	C				-122.5	-122.5	-118.5	-118.5	-122.5
50TX	T	C				-118.5	-118.5	-118.5	-122.5	-122.5
CDN1	T	C				-124.5	-122.5	-122.5	-122.5	-124.5
CDN2	T	C				-118.5	-118.5	-118.5	-118.5	-126.5
CDN3	T	C				-118.5	-118.5	-118.5	-124.5	-128.5
ATX	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
CAM	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
MAD	T	C				-122.5	-122.5	-118.5	-118.5	-126.5

SAST	T	C				-124.5	-122.5	-120.5	-120.5	-124.5
MTJT	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
SPO	T	C				-120.5	-120.5	-118.5	-120.5	-128.5
MON	T	C				-138.5	-138.5	-138.5	-138.5	-138.5
NOR	T	C				-138.5	-138.5	-133.5	-128.5	-122.5
ALBT	T	C				-133.5	-133.5	-133.5	-128.5	-120.5
RIVT	T	C				-128.5	-124.5	-120.5	-118.5	-122.5
TTCT	T	C				-167.1	-167.1	-167.1	-167.1	-167.1

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

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)
TC1	800	R	13751	H	T
TC2	800	R	13751	V	T
TC3	800	R	13751	R	T
TC4	800	R	13753	H	T
TC5	800	R	13753	V	T
TC6	800	R	13753	R	T
TM1	512	T	11450	H	T
TM2	512	T	11450	V	T
TM3	512	T	11450	R	T
TM4	512	T	11452	H	T
TM5	512	T	11452	V	T
TM6	512	T	11452	R	T
U1	36000	R	13852	H	C
U2	36000	R	13892	H	C
U3	36000	R	13933.5	H	C
U4	36000	R	13974.5	H	C
U5	72000	R	14126	H	C
U6	72000	R	14206	H	C
D1	36000	T	11552	V	C
D2	36000	T	11592	V	C
D3	36000	T	11633.5	V	C
D4	36000	T	11674.5	V	C
D5	72000	T	11826	V	C
D6	72000	T	11906	V	C
U7V	36000	R	14020	V	C
U7H	36000	R	14020	H	C
U8V	36000	R	14060	V	C
U8H	36000	R	14060	H	C
U9V	36000	R	14104	V	C
U9H	36000	R	14104	H	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
TPTC1		TC1	TTCRX		
TPTC2		TC2	TTCRX		
TPTC3		TC3	TTCRX		
TPTC4		TC4	TTCRX		
TPTC5		TC5	TTCRX		
TPTC6		TC6	TTCRX		
TPTM1				TM1	TTCTX
TPTM2				TM2	TTCTX
TPTM3				TM3	TTCTX
TPTM4				TM4	TTCTX
TPTM5				TM5	TTCTX
TPTM6				TM6	TTCTX
N1	1	U1	NARX	D1	NATX
N2	1	U2	NARX	D2	NATX
N3	1	U3	NARX	D3	NATX
N4	1	U4	NARX	D4	NATX
N5	1	U5	NARX	D5	NATX
N6	1	U6	NARX	D6	NATX
1	1	U7V	BRX	D7H	BTX
2	1	U7H	BRX	D7V	BTX
3	1	U8V	BRX	D8H	BTX
4	1	U8H	BRX	D8V	BTX
5	1	U9V	BRX	D9H	BTX
6	1	U9H	BRX	D9V	BTX
7	1	U10V	BRX	D10H	BTX
8	1	U10H	BRX	D10V	BTX
9	1	U11V	BRX	D11H	BTX
10	1	U11H	BRX	D11V	BTX
11	1	U12V	BRX	D12H	BTX
12	1	U12H	BRX	D12V	BTX

U10V	36000	R	14144	V	C
U10H	36000	R	14144	H	C
U11V	36000	R	14186	V	C
U11H	36000	R	14186	H	C
U12V	36000	R	14226	V	C
U12H	36000	R	14226	H	C
D7V	36000	T	11720	V	C
D7H	36000	T	11720	H	C
D8V	36000	T	11760	V	C
D8H	36000	T	11760	H	C
D9V	36000	T	11804	V	C
D9H	36000	T	11804	H	C
D10V	36000	T	11844	V	C
D10H	36000	T	11844	H	C
D11V	36000	T	11886	V	C
D11H	36000	T	11886	H	C
D12V	36000	T	11926	V	C
D12H	36000	T	11926	H	C
U13V	112500	R	12813	V	C
U13H	112500	R	12813	H	C
U14V	112500	R	12938	V	C
U14H	112500	R	12938	H	C
U15V	112500	R	13063	V	C
U15H	112500	R	13063	H	C
U16V	112500	R	13188	V	C
U16H	112500	R	13188	H	C
D13V	112500	T	12013	V	C
D13H	112500	T	12013	H	C
D14V	112500	T	12138	V	C
D14H	112500	T	12138	H	C
U17V	112500	R	14313	V	C
U17H	112500	R	14313	H	C
U18V	112500	R	14438	V	C
U18H	112500	R	14438	H	C
D15V	112500	T	11013	V	C
D15H	112500	T	11013	H	C
D16V	112500	T	11138	V	C
D16H	112500	T	11138	H	C
D17V	112500	T	11263	V	C

13		1	U13V	S3RX	D13H	S1TX
14		1	U13H	S3RX	D13V	S1TX
15		1	U13H	BRX	D13V	S1TX
16		1	U14V	S3RX	D14H	S4TX
17		1	U14H	S3RX	D14V	S4TX
18		1	U14H	BRX	D14V	S4TX
19		1	U15V	S3RX	D13H	S3TX
20		1	U15H	S3RX	D13V	S3TX
21		1	U15H	BRX	D13V	S3TX
22		1	U16V	S3RX	D14H	S2TX
23		1	U16V	S3RX	D14H	S5TX
24		1	U16H	S3RX	D14V	S2TX
25		1	U16H	BRX	D14V	S2TX
26		1	U17V	S1RX	D15H	S3TX
27		1	U17H	S1RX	D15V	BTX
28		1	U17V	S3RX	D17H	S3TX
29		1	U17H	S3RX	D17V	BTX
30		1	U18V	S4RX	D16H	S3TX
31		1	U18H	S4RX	D16V	BTX
32		1	U18H	S2RX	D18V	BTX
33		1	U18V	S2RX	D18H	S3TX
34		1	U18V	S5RX	D18H	S3TX
35		1	U19H	S6RX	D19H	S6TX
36		1	U20V	S7RX	D20H	S7TX
37		1	U19H	S8RX	D19H	S9TX
38		1	U20V	S9RX	D20H	S9TX
39		1	U13V	S6RX	D13V	S6TX
40		1	U14V	S6RX	D14V	S6TX
41		1	U15V	S7RX	D13H	S7TX
42		1	U16V	S7RX	D14H	S7TX
43		1	U13V	S9RX	D13V	S8TX
44		1	U14V	S9RX	D14V	S8TX
45		1	U15V	S9RX	D13H	S9TX
46		1	U16V	S9RX	D14V	S9TX
47		1	U17V	S8RX	D13H	S8TX
48		1	U18V	S8RX	D14H	S8TX
49		1	U17H	S9RX	D13V	S9TX
50		1	U18H	S9RX	D14V	S9TX
51		1	U21R	SASRX	D21L	CDN2T

D17H	112500	T	11263	H	C
D18V	112500	T	11388	V	C
D18H	112500	T	11388	H	C
U19V	225000	R	14367.5	V	C
U19H	225000	R	14367.5	H	C
U20V	225000	R	14382.5	V	C
U20H	225000	R	14382.5	H	C
D19V	225000	T	11067.5	V	C
D19H	225000	T	11067.5	H	C
D20V	225000	T	11332.5	V	C
D20H	225000	T	11332.5	H	C
U21R	750000	R	27975	R	C
U21L	750000	R	27975	L	C
U22R	500000	R	28600	R	C
U22L	500000	R	28600	L	C
U23R	250000	R	28975	R	C
U23L	250000	R	28975	L	C
U24R	500000	R	29750	R	C
U24L	500000	R	29750	L	C
D21R	750000	T	18175	R	C
D21L	750000	T	18175	L	C
D22R	500000	T	18800	R	C
D22L	500000	T	18800	L	C
D23R	250000	T	19175	R	C
D23L	250000	T	19175	L	C
D24R	500000	T	19950	R	C
D24L	500000	T	19950	L	C
U25R	250000	R	27725	R	C
U25L	250000	R	27725	L	C
U26R	500000	R	28100	R	C
U26L	500000	R	28100	L	C
U27R	250000	R	28475	R	C
U27L	250000	R	28475	L	C
U28R	500000	R	29500	R	C
U28L	500000	R	29500	L	C
U29R	250000	R	29875	R	C
U29L	250000	R	29875	L	C
U30R	250000	R	29625	R	C
U30L	250000	R	29625	L	C

52		1	U21L	SASRX	D21R	CDN3T
53		1	U22R	SASRX	D22R	CDN1T
54		1	U22L	SASRX	D22L	CDN1T
55		1	U23R	SASRX	D23L	CDN2T
56		1	U23L	SASRX	D23R	CDN3T
57		1	U24R	SASRX	D24R	CDN1T
58		1	U24L	SASRX	D24L	CDN1T
59		1	U21R	CDN1R	D21R	SASTX
60		1	U21L	CDN1R	D21L	SASTX
61		1	U22R	CDN2R	D22L	SASTX
62		1	U22L	CDN3R	D22R	SASTX
63		1	U23R	CDN1R	D23R	SASTX
64		1	U23L	CDN1R	D23L	SASTX
65		1	U24R	CDN2R	D24L	SASTX
66		1	U24L	CDN3R	D24R	SASTX
67		1	U25R	MTJRX	D26R	41TX
68		1	U25L	MTJRX	D28R	42TX
69		1	U26R	MTJRX	D24R	37TX
70		1	U26L	MTJRX	D24L	40TX
71		1	U27R	MTJRX	D28R	39TX
72		1	U27L	MTJRX	D28L	36TX
73		1	U28R	MTJRX	D25R	35TX
74		1	U28L	MTJRX	D25L	38TX
75		1	U29R	MTJRX	D27L	36TX
76		1	U29L	MTJRX	D27R	39TX
77		1	U30L	35RX	D27R	MTJTX
78		1	U30R	38RX	D29R	MTJTX
79		1	U30L	39RX	D27L	MTJTX
80		1	U31L	42RX	D31L	MTJTX
81		1	U29R	36RX	D28L	MTJTX
82		1	U29L	37RX	D28R	MTJTX
83		1	U29R	40RX	D30R	MTJTX
84		1	U32L	41RX	D32L	MTJTX
85		1	U25R	MADRX	D26R	44TX
86		1	U25L	MADRX	D26L	47TX
87		1	U33R	MADRX	D33L	49TX
88		1	U33L	MADRX	D33R	46TX
89		1	U34R	MADRX	D27L	45TX
90		1	U34L	MADRX	D27R	50TX

U31L	125000	R	29562.5	L	C
U32L	125000	R	29937.5	L	C
D25R	500000	T	18050	R	C
D25L	500000	T	18050	L	C
D26R	250000	T	17925	R	C
D26L	250000	T	17925	L	C
D27R	250000	T	18425	R	C
D27L	250000	T	18425	L	C
D28R	250000	T	18675	R	C
D28L	250000	T	18675	L	C
D29R	250000	T	19825	R	C
D30R	250000	T	20075	R	C
D31L	125000	T	19762.5	L	C
D32L	125000	T	20137.5	L	C
U33R	250000	R	27975	R	C
U33L	250000	R	27975	L	C
U34R	250000	R	28225	R	C
U34L	250000	R	28225	L	C
U35R	125000	R	29687.5	R	C
U35L	125000	R	29687.5	L	C
U36R	125000	R	29812.5	R	C
U36L	125000	R	29812.5	L	C
D33R	250000	T	18175	R	C
D33L	250000	T	18175	L	C
D34	125000	T	17862.5	R	C
D35	125000	T	17987.5	R	C
D36	125000	T	18112.5	R	C
D37	125000	T	18237.5	R	C
D38	125000	T	18362.5	R	C
D39	125000	T	18487.5	R	C
D40	125000	T	18612.5	R	C
D41	125000	T	18737.5	R	C
U31R	125000	R	29562.5	R	C
U37R	500000	R	27350	R	C
U37L	500000	R	27350	L	C
U38R	250000	R	27225	R	C
U38L	250000	R	27225	L	C
U39R	250000	R	27475	R	C
U39L	250000	R	27475	L	C

91		1	U27R	MADRX	D28L	43TX
92		1	U27L	MADRX	D28R	48TX
93		1	U31R	45RX	D34	MADTX
94		1	U31R	49RX	D38	MADTX
95		1	U35R	43RX	D39	MADTX
96		1	U35R	47RX	D35	MADTX
97		1	U36L	46RX	D36	MADTX
98		1	U36L	50RX	D40	MADTX
99		1	U32L	44RX	D41	MADTX
100		1	U32L	48RX	D37	MADTX
101		1	U37R	CAMRX	D24R	7TX
102		1	U37L	CAMRX	D24L	8TX
103		1	U38R	ARX	D29L	29TX
104		1	U39R	ARX	D30R	28TX
105		1	U37L	ARX	D24R	32TX
106		1	U40R	CAMRX	D42R	5TX
107		1	U25L	CAMRX	D28L	6TX
108		1	U26L	CAMRX	D24L	6TX
109		1	U27L	CAMRX	D28L	11TX
110		1	U33R	SPORX	D29R	9TX
111		1	U34R	SPORX	D30L	10TX
112		1	U27R	SPORX	D28L	18TX
113		1	U26L	SPORX	D24L	18TX
114		1	U26R	NORRX	D24L	16TX
115		1	U26L	NORRX	D24L	20TX
116		1	U26R	ALBRX	D24R	15TX
117		1	U26L	ALBRX	D24L	22TX
118		1	U26R	RIVRX	D24L	13TX
119		1	U26L	RIVRX	D24R	21TX
120		1	U26R	MONRX	D24R	25TX
121		1	U26L	MONRX	D24L	26TX
122		1	U27L	SPORX	D28L	23TX
123		1	U27R	NORRX	D28L	16TX
124		1	U27L	NORRX	D28R	14TX
125		1	U27R	ALBRX	D28L	17TX
126		1	U27L	ALBRX	D28R	12TX
127		1	U27R	RIVRX	D28L	13TX
128		1	U27L	RIVRX	D28R	2TX
129		1	U27R	MONRX	D28R	25TX

U40R	1000000	R	28100	R	C
U40L	1000000	R	28100	L	C
U41R	500000	R	28350	R	C
U41L	500000	R	28350	L	C
U42R	500000	R	28850	R	C
U42L	500000	R	28850	L	C
D42R	1000000	T	18300	R	C
D42L	1000000	T	18300	L	C
D43R	500000	T	18550	R	C
D43L	500000	T	18550	L	C
D44R	500000	T	19050	R	C
D44L	500000	T	19050	L	C
D29L	250000	T	19825	L	C
D30L	250000	T	20075	L	C
U43R	750000	R	29625	R	C
U43L	750000	R	29625	L	C
U44R	325000	R	29666.6	R	C
U44L	325000	R	29666.6	L	C
U45R	325000	R	29833.3	R	C
U45L	325000	R	29833.3	L	C
U46R	158300	R	29583.3	R	C
U46L	158300	R	29583.3	L	C
U47R	158300	R	29916.6	R	C
U47L	158300	R	29916.6	L	C
U48R	158300	R	29666.6	R	C
U48L	158300	R	29666.6	L	C
U49R	75000	R	29541.7	R	C
U49L	75000	R	29541.7	L	C
U50R	75000	R	29625	R	C
U50L	75000	R	29625	L	C
U51R	75000	R	29708.3	R	C
U51L	75000	R	29708.3	L	C
U52R	75000	R	29875	R	C
U52L	75000	R	29875	L	C
U53R	75000	R	29958.3	R	C
U53L	75000	R	29958.3	L	C
D48R	158300	T	18383.3	R	C
D48L	158300	T	18383.3	L	C
D49R	325000	T	18633.3	R	C

130		1	U27L	MONRX	D28L	26TX
131		1	U21R	ARX	D21L	33TX
132		1	U25L	ARX	D26L	30TX
133		1	U33L	ARX	D33R	34TX
134		1	U41L	ARX	D43R	32TX
135		1	U27R	ARX	D28L	31TX
136		1	U42R	CAMRX	D44L	5TX
137		1	U42L	CAMRX	D44L	7TX
138		1	U42R	SPORX	D44L	10TX
139		1	U41L	SPORX	D44R	10TX
140		1	U42R	RIVRX	D44R	2TX
141		1	U42L	RIVRX	D44L	2TX
142		1	U42R	ARX	D44L	3TX
143		1	U43R	CAMRX	D21L	4TX
144		1	U43L	CAMRX	D21R	3TX
145		1	U28R	SPORX	D25R	24TX
146		1	U29R	SPORX	D27L	18TX
147		1	U43L	SPORX	D21L	23TX
148		1	U28R	NORRX	D25L	20TX
149		1	U29R	NORRX	D27L	16TX
150		1	U43L	NORRX	D21L	14TX
151		1	U43R	ALBRX	D21R	17TX
152		1	U43L	ALBRX	D21R	12TX
153		1	U28R	RIVRX	D25R	21TX
154		1	U29R	RIVRX	D27R	2TX
155		1	U28L	RIVRX	D25L	1TX
156		1	U29L	RIVRX	D27L	13TX
157		1	U43R	MONRX	D21R	19TX
158		1	U43L	MONRX	D21L	27TX
159		1	U42R	2RX	D44L	RIVTX
160		1	U55R	3RX	D56R	ATX
161		1	U54R	5RX	D55L	CAMTX
162		1	U55R	7RX	D56L	CAMTX
163		1	U42L	10RX	D44R	SPOTX
164		1	U46R	1RX	D48L	RIVTX
165		1	U46L	2RX	D57L	RIVTX
166		1	U30L	3RX	D26L	CAMTX
167		1	U29R	4RX	D33L	CAMTX
168		1	U45L	5RX	D49L	CAMTX

D49L	325000	T	18633.3	L	C
D50R	325000	T	18466.7	R	C
D50L	325000	T	18466.7	L	C
D51R	158300	T	18716.7	R	C
D51L	158300	T	18716.7	L	C
D52R	75000	T	18341.7	R	C
D52L	75000	T	18341.7	L	C
D53R	75000	T	18425	R	C
D53L	75000	T	18425	L	C
D54R	75000	T	18508.3	R	C
D54L	75000	T	18508.3	L	C
D55R	225000	T	18925	R	C
D55L	225000	T	18925	L	C
D56R	225000	T	19175	R	C
D56L	225000	T	19175	L	C
D57R	158300	T	19783.3	R	C
D57L	158300	T	19783.3	L	C
D58R	158300	T	20116.7	R	C
D58L	158300	T	20116.7	L	C
D59R	75000	T	19741.7	R	C
D59L	75000	T	19741.7	L	C
D60R	75000	T	20075	R	C
D60L	75000	T	20075	L	C
D61R	75000	T	20158.3	R	C
D61L	75000	T	20158.3	L	C
U54R	225000	R	28725	R	C
U54L	225000	R	28725	L	C
U55R	225000	R	28975	R	C
U55L	225000	R	28975	L	C
D62R	158300	T	19866.7	R	C
D62L	158300	T	19866.7	L	C
D63R	325000	T	19866.7	R	C
D63L	325000	T	19866.7	L	C
D64R	325000	T	20033.3	R	C
D64L	325000	T	20033.3	L	C
D45R	75000	T	17841.7	R	C
D45L	75000	T	17841.7	L	C
D46R	75000	T	17925	R	C
D46L	75000	T	17925	L	C

169		1	U29R	6RX	D30L	CAMTX
170		1	U46L	7RX	D48L	CAMTX
171		1	U48R	8RX	D62L	CAMTX
172		1	U52L	9RX	D60R	SPOTX
173		1	U53R	10RX	D61R	SPOTX
174		1	U49R	11RX	D59L	CAMTX
175		1	U44L	12RX	D50R	ALBTX
176		1	U45R	13RX	D49L	RIVTX
177		1	U45L	14RX	D49L	NORTX
178		1	U46L	15RX	D57R	ALBTX
179		1	U46R	16RX	D48L	NORTX
180		1	U47R	16RX	D58L	NORTX
181		1	U45L	17RX	D64R	ALBTX
182		1	U45R	18RX	D49R	SPOTX
183		1	U30L	19RX	D29R	MONTX
184		1	U44R	20RX	D63L	NORTX
185		1	U45L	21RX	D64L	RIVTX
186		1	U47R	22RX	D51R	ALBTX
187		1	U44R	23RX	D63R	SPOTX
188		1	U46L	24RX	D48R	SPOTX
189		1	U29L	25RX	D28R	MONTX
190		1	U30R	26RX	D27R	MONTX
191		1	U29R	27RX	D30R	MONTX
192		1	U49L	28RX	D45R	ATX
193		1	U51R	29RX	D54R	ATX
194		1	U50R	30RX	D46R	ATX
195		1	U49R	31RX	D52R	ATX
196		1	U45L	32RX	D47R	ATX
197		1	U29R	33RX	D28R	ATX
198		1	U50L	34RX	D53R	ATX

D47R	325000	T	18133.3	R	C
D47L	325000	T	18133.3	L	C

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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)
1	800KG2D	800						
2	512KG2D	512						
3	36M0G7W	36000						
4	113MG7W	112500						
5	225MG7W	225000						
6	125MG7W	125000						
7	75M0G7W	75000						
8	10M0G7W	10000						
9	10M0D7W	10000						

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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)		EIRP (dBW)		(n) Max. Power Flux Density (dBW/m ² /Hz)
						(j) Min.	(k) Max.		(l) Min.	(m) Max.			
TPTC1	TPTC6	1											
TPTM1	TPTM6	2									16		
N1	N6	3									50.5		
1	12	3									54.3		
13	50	4									61		
51	79	5									67.1		
80	84	6									64.5		
85	92	5									67.1		
93	100	6									64.5		
101	158	5									67.1		
159	198	7									62.3		
N1	N6	8									44.9		
1	12	8									48.7		
13	50	8									50.5		
51	198	8									53.6		
N1	N6	9									44.9		
1	12	9									48.7		
13	50	9									50.5		
51	198	9									53.6		

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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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Characteristics and
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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
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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