

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: TELSTAR 11N		e. Estimated Date of Placement into Service: 9/28/2009		i. Will the space station(s) operate on a Common Carrier Basis: N	
b. Construction Commencement Date: 9/28/2007		f. Estimated Lifetime of Satellite(s): 15 Years		j. Number of transponders offered on a common carrier basis: 0	
c. Construction Completion Date: 4/30/2009		g. Total Number of Transponders: 39		k. Total Common Carrier Transponder Bandwidth: 0 MHz	
d1. Est Launch Date Begin: 6/1/2009	d2. Est Launch Date End: 7/28/2009	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 2106 MHz		l. Orbit Type: Mark all boxes that apply: ☒ 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)		
10.95	G	11.2	G	T	Fixed Satellite Service
11.45	G	11.7	G	T	Fixed Satellite Service
11.7	G	12.2	G	T	Fixed Satellite Service
12.5	G	12.75	G	T	Fixed Satellite Service
13.75	G	14	G	R	Fixed Satellite Service
14	G	14.5	G	R	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 37.55 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: Replacement satllite for Telstar-11.
Longitudinal Tolerance or E/W Station-Keeping:		f. Inclination Excursion or N/S Station-Keeping Tolerance: 0.05 Degrees	Range of orbital are in which adequate service can be provided (Optional): g. Westernmost: h. Easternmost:	
d. Toward West:	0.05 Degrees			
e. Toward East:	0.05 Degrees			
i. Reason for service are selection (Optional):				

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Page 2: NGSO Orbits

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)
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NO NGSO DATA FILED

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Page 3: Service Areas

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.
USA-RH	S		-6 dB contour of beam USARH
EUR- RH	S		-6 dB contour of beam EURRH
AOR-RH	S		-4 dB contour of beam AORRH
SSA-RH	S		-6 dB contour of beam SSARH
USA-TH	S		-6 dB contour of beam USATH
EUR-TH	S		-6 dB contour of beam EURTH
AOR-TH	S		-4 dB contour of beam AORTH
SSA-TH	S		-6 dB contour of beam SSATH
USA-RV	S		-6 dB contour of beam USARV
EUR-RV	S		-6 dB contour of beam EURRV
AOR-RV	S		-4 dB contour of beam AORRV
SSA-RV	S		-6 dB contour of beam SSARV
USA-TV	S		-6 dB contour of beam USATV
EUR-TV	S		-6 dB contour of beam EURTV
AOR-TV	S		-4 dB contour of beam AORTV
SSA-TV	S		-6 dB contour of beam SSATV
GLB	S		Visible earth

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Page 4: Antenna Beams

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				
		(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
USA	R	35.5	29.5	0.13	0	27	N	0	USA-RH				708	7	-101	21	1
USA	R	35.5	29.5	0.13	0	27	N	90	USA-RV				708	7	-101	21	1
USA	T	34	28	0.13	0	27	N	0	USA-TH	2.2	91.2	53.6					
USA	T	34	28	0.13	0	27	N	90	USA-TV	2.2	9.12	53.6					
EUR	R	35.9	29.9	0.13	0	27	N	0	EUR- RH				631	7.9	-102	21	1
EUR	R	35.9	29.9	0.13	0	27	N	90	EUR-RV				631	7.9	-102	21	1
EUR	T	34.9	28.9	0.13	0	27	N	0	EUR-TH	2.2	75.9	53.7					
EUR	T	34.9	28.9	0.13	0	27	N	90	EUR-TV	2.2	75.9	53.7					
SSA	R	34.8	28.8	0.13	0	26	N	0	SSA-RH				708	6.4	-100	21	1
SSA	R	34.8	28.8	0.13	0	26	N	90	SSA-RV				708	6.4	-100	21	1
SSAT	T	32.4	26.4	0.13	0	27	N	0	SSA-TH	2.3	89.1	51.9					
SSAT	T	32.4	26.4	0.13	0	27	N	90	SSA-TV	2.3	89.1	51.9					
AOR	R	31.1	27.4	0.13	0	25	N	0	AOR-RH				646	3	-101	21	1
AOR	R	31.1	27.4	0.13	0	25	N	90	AOR-RV				646	3	-101	21	1
AOR	T	28.3	24.3	0.13	0	25	N	0	AOR-TH	2.2	89.7	47.8					
AOR	T	28.3	24.3	0.13	0	25	N	90	AOR-TV	2.2	89.7	47.8					
OMNI	R	2	0	0.13	0	30	N		GLB				9600	-37.8	-83.5		
GLB1	T	18.6	16.6	0.13	0	30	N	0	GLB			11					
GLB2	T	18.6	16.6	0.13	0	30	N	90	GLB			11					
OMNI	T	2	0	0.13	0	30	N		GLB			8					

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Page 5: Beam Diagrams

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
USA	R	C	-37.55		USA-RH.gxt					
USA	R	C	-37.55		USA-RV.gxt					
USA	T	C	-37.55		USA-EH.gxt	-157.3	-157	-156.5	-155.1	-154.6
USA	T	C	-37.55		USA-EV.gxt	-157.3	-157	-156.5	-155.1	-154.6
EUR	R	C	-37.55		EUR-RH.gxt					
EUR	R	C	-37.55		EUR-RV.gxt					
EUR	T	C	-37.55		EUR-EH.gxt	-151.4	-151.2	-150.6	-150.2	-150
EUR	T	C	-37.55		EUR-EV.gxt	-151.4	-151.2	-150.6	-150.2	-150
SSA	R	C	-37.55		SSA-RH.gxt					
SSA	R	C	-37.55		SSA-RV.gxt					
SSAT	T	C	-37.55		SSA-EH.gxt	-153.3	-152.7	-152	-151.8	-151.6
SSAT	T	C	-37.55		SSA-EV.gxt	-153.3	-152.7	-152	-151.8	-151.6
AOR	R	C	-37.55		AOR-RH.gxt					
AOR	R	C	-37.55		AOR-RV.gxt					
AOR	T	C	-37.55		AOR-EH.gxt	-151.8	-151.7	-151.5	-151.4	-151.3
AOR	T	C	-37.55		AOR-EV.gxt	-151.8	-151.7	-151.5	-151.4	-151.3

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Page 6: Channels and Transponders

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)
1_5	54000	R	14279	V	C
1A1	54000	T	10979	H	C
3_6	54000	R	14340	V	C
3A2	54000	T	11040	H	C
5_7	54000	R	14401	V	C
5A3	54000	T	11101	H	C
7_8	54000	R	14462	V	C
7A4	54000	T	11162	H	C
2_5	54000	R	14279	H	C
2A1	54000	T	10979	V	C
4_6	54000	R	14340	H	C
4A2	54000	T	11040	V	C
6A_7	54000	R	14401	H	C
6AA3	54000	T	11101	V	C
6B_7	54000	R	14401	H	C
6BC7	54000	T	12101	V	C
8A_8	54000	R	14462	H	C
8AA4	54000	T	11162	V	C
8B_8	54000	R	14462	H	C
8BC8	54000	T	12162	V	C
9_5	54000	R	14279	V	C
9A1	54000	T	10979	H	C
11_6	54000	R	14340	V	C
11A2	54000	T	11040	H	C
10_5	54000	R	14279	H	C
10A1	54000	T	10979	V	C
W1_1	54000	R	14029	V	C
W1B1	54000	T	11479	H	C
W2_4	27000	R	13857	H	C
W2B2B	27000	T	11557	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
1	131.8	25_3	AORRV	25C3	USATH
2	131.8	21B_1	AORRV	21BC1	USATH
3	131.8	23B_2	AORRV	23BC2	USATH
4	131.8	27_4	AORRV	27C4	USATH
5	129.2	8A_8	EURRH	8AA4	EURTV
6	129.2	6A_7	EURRH	6AA3	EURTV
7	129.2	2_5	EURRH	2A1	EURTV
8	129.2	4_6	EURRH	4A2	EURTV
9	129.2	5_7	EURRV	5A3	EURTH
10	129.2	7_8	EURRV	7A4	EURTH
11	129.2	1_5	EURRV	1A1	EURTH
12	129.2	X1_1V	EURRV	X1D1	EURTH
13	129.2	39A_4	EURRV	39AD4	EURTH
14	129.2	37A_3	EURRV	37AD3	EURTH
15	129.2	35A_3	EURRV	35AD2	EURTH
16	129.2	3_6	EURRV	3A2	EURTH
17	129.9	8A_8	EURRH	8AA4	SSATV
18	129.9	10_5	EURRH	10A1	SSATV
19	129.9	6A_7	EURRH	6AA3	SSATV
20	129.9	5_7	EURRV	5A3	SSATH
21	129.9	11_6	EURRV	11A2	SSATH
22	129.9	7_8	EURRV	7A4	SSATH
23	129.9	9_5	EURRV	9A1	SSATH
24	129.9	38A1V	EURRV	39AD4	SSATV
25	130	6B_7	EURRH	6BC7	USATV
26	130	8B_8	EURRH	8BC8	USATV
27	130	20_1	EURRH	20C1	USATV
28	130	28_6	EURRH	28C6	USATV
29	130	26_4	EURRH	26C4	USATV
30	130	24_3	EURRH	24C3	USATV

15A_2	54000	R	14090	V	C
15AB2	54000	T	11540	H	C
15B_4	27000	R	13857	V	C
15B2B	27000	T	11557	H	C
17A_3	54000	R	14151	V	C
17AB3	54000	T	11601	H	C
17B_6	27000	R	13918	V	C
17B3B	27000	T	11618	H	C
19A_4	54000	R	14212	V	C
19AB4	54000	T	11662	H	C
19B_8	27000	R	13979	V	C
19B4B	27000	T	11679	H	C
12_5	54000	R	14279	H	C
12B1	54000	T	11479	V	C
14A_6	54000	R	14340	H	C
14AB2	54000	T	11540	V	C
14B_3	27000	R	13826.5	H	C
14B2A	27000	T	11526.5	V	C
16A_7	54000	R	14401	H	C
16AB3	54000	T	11601	V	C
16B_5	27000	R	13887.5	H	C
16B3A	27000	T	11587.5	V	C
18A_8	54000	R	14462	H	C
18AB4	54000	T	11662	V	C
18B_8	27000	R	13979	H	C
18B4B	27000	T	11679	V	C
21A_7	54000	R	14401	V	C
21AC7	54000	T	12101	H	C
21B_1	54000	R	14029	V	C
21BC1	54000	T	11729	H	C
23A_8	54000	R	14462	V	C
23AC8	54000	T	12162	H	C
23B_2	54000	R	14090	V	C
23BC2	54000	T	11790	H	C
25_3	54000	R	14151	V	C
25C3	54000	T	11851	H	C
27_4	54000	R	14212	V	C
27C4	54000	T	11912	H	C
29_5	54000	R	14279	V	C

31	130	22_2	EURRH	22C2	USATV
32	130	7_8	EURRV	7A4	USATH
33	130	5_7	EURRV	5A3	USATH
34	128.3	X1_1H	SSARH	X1D1	EURTH
35	128.3	2_5	SSARH	2A1	EURTV
36	128.3	4_6	SSARH	4A2	EURTV
37	128.3	3_6	SSARV	3A2	EURTH
38	128.3	1_5	SSARV	1A1	EURTH
39	129	38A1H	SSARH	38AD4	SSATV
40	129	10_5	SSARH	10A1	SSATV
41	129	9_5	SSARV	9A1	SSATH
42	129	11_6	SSARV	11A2	SSATH
43	129.1	25_3	SSARV	25C3	USATH
44	129.1	27_4	SSARV	27C4	USATH
45	129.3	38B_6	USARH	38B3B	AORTV
46	129.3	16B_5	USARH	16B3A	AORTV
47	129.3	18B_8	USARH	18B4B	AORTV
48	129.3	14B_3	USARH	14B2A	AORTV
49	129.3	W2_4	USARH	W2B2B	AORTV
50	129.3	X2_7	USARH	X2B4A	AORTV
51	129.3	39B_7	USARV	39B4A	AORTH
52	129.3	35B_3	USARV	35B2A	AORTH
53	129.3	15B_4	USARV	15B2B	AORTH
54	129.3	17B_6	USARV	17B3B	AORTH
55	129.3	19B_8	USARV	19B4B	AORTH
56	129.3	37B_5	USARV	37B3A	AORTH
57	128.6	8A_8	USARH	8AA4	EURTV
58	128.6	4_6	USARH	4A2	EURTV
59	128.6	6A_7	USARH	6AA3	EURTV
60	128.6	36_4	USARH	36D4	EURTV
61	128.6	12_5	USARH	12B1	EURTV
62	128.6	16A_7	USARH	16AB3	EURTV
63	128.6	34_3	USARH	34D3	EURTV
64	128.6	18A_8	USARH	18AB4	EURTV
65	128.6	32_2	USARH	32D2	EURTV
66	128.6	30_1	USARH	30D1	EURTV
67	128.6	14A_6	USARH	14AB2	EURTV
68	128.6	W1_1	USARV	W1B1	EURTH
69	128.6	15A_2	USARV	15AB2	EURTH

29C5	54000	T	11979	H	C
31_6	54000	R	14340	V	C
31C6	54000	T	12040	H	C
20_1	54000	R	14029	H	C
20C1	54000	T	11729	V	C
22_2	54000	R	14090	H	C
22C2	54000	T	11790	V	C
24_3	54000	R	14151	H	C
24C3	54000	T	11851	V	C
26_4	54000	R	14212	H	C
26C4	54000	T	11912	V	C
28_6	54000	R	14340	H	C
28C6	54000	T	12040	V	C
X1_1V	54000	R	14029	V	C
X1_1H	54000	R	14029	H	C
X1D1	54000	T	12529	H	C
X2_7	27000	R	13948.5	H	C
X2B4A	27000	T	11648.5	V	C
35A_3	54000	R	14090	V	C
35AD2	54000	T	12590	H	C
35B_3	27000	R	13826.5	V	C
35B2A	27000	T	11526.5	H	C
37A_3	54000	R	14151	V	C
37AD3	54000	T	12651	H	C
37B_5	27000	R	13887.5	V	C
37B3A	27000	T	11587.5	H	C
39A_4	54000	R	14212.0	V	C
39AD4	54000	T	12712	H	C
39B_7	27000	R	13948.5	V	C
39B4A	27000	T	11648.5	H	C
30_1	54000	R	14029	H	C
30D1	54000	T	12529	V	C
32_2	54000	R	14090	H	C
32D2	54000	T	12590	V	C
34_3	54000	R	14151	H	C
34D3	54000	T	12651	V	C
36_4	54000	R	14212	H	C
36D4	54000	T	12712	V	C
38A1H	54000	R	14029	H	C

70	128.6	17A_3	USARV	17AB3	EURTH
71	128.6	19A_4	USARV	19AB4	EURTH
72	129.3	8A_8	USARH	8AA4	SSATV
73	129.3	6A_7	USARH	6AA3	SSATV
74	129.3	W1_1	USARV	W1B1	SSATH
75	129.3	15A_2	USARV	15AB2	SSATH
76	129.3	19A_4	USARV	19AB4	SSATH
77	129.3	17A_3	USARV	17AB3	SSATH
78	129.4	21A_7	USARV	21AC7	USATH
79	129.4	23A_8	USARV	23AC8	USATH
80	129.4	29_5	USARV	29C5	USATH
81	129.4	31_6	USARV	31C6	USATH
82	129.4	6B_7	USARH	6BC7	USATV
83	129.4	8B_8	USARH	8BC8	USATV
TC1		TTUS1	OMNI1		
TC2		TTUS2	OMNI1		
B1				TTUS3	USATV
B2				TTUS4	USATH
B3				TTUS5	USATV
B4				TTUS6	USATH
B5				TTEU3	EURTV
B6				TTEU4	EURTH
B7				TTEU5	EURTV
B8				TTEU6	EURTH
B9				TTSS3	SSATV
B10				TTSS4	SSATH
B11				TTSS5	SSATV
B12				TTSS6	SSATH
B13				TTOR3	AORTV
B14				TTOR4	AORTH
B15				TTOR5	AORTV
B16				TTOR6	AORTH
TC3		TTUS1	USARH		
TC4		TTUS2	USARV		
TM1				TTUS3	GLB2
TM2				TTUS4	GLB1
TM3				TTUS5	GLB2
TM4				TTUS6	GLB1
TM5				TTUS3	OMNI2

38A1V	54000	R	14029	V	C
38AD4	54000	T	12529	H	C
38B_6	27000	R	13918	H	C
38B3B	27000	T	11618	V	C
TTUS1	1000	R	14499	V	T
TTUS2	1000	R	14497	H	T
TTUS3	200	T	11198.25	V	T
TTUS4	200	T	11199.25	H	T
TTUS5	200	T	11698.5	V	T
TTUS6	200	T	11699.5	H	T
TTEU1	1000	R	14497	H	T
TTEU2	1000	R	14499	V	T
TTEU3	200	T	11198.25	V	T
TTEU4	200	T	11199.25	H	T
TTEU5	200	T	11698.5	V	T
TTEU6	200	T	11699.5	H	T
TTSS1	1000	R	14497	H	T
TTSS2	1000	R	14499	V	T
TTSS3	200	T	11198.25	V	T
TTSS4	200	T	11199.25	H	T
TTSS5	200	T	11698.5	V	T
TTSS6	200	T	11699.5	H	T
TTOR1	1000	R	14497	H	T
TTOR2	1000	R	14499	V	T
TTOR3	10	T	11198.25	V	T
TTOR4	10	T	11199.25	H	T
TTOR5	200	T	11698.5	V	T
TTOR6	200	T	11699.5	H	T

TM6				TTUS4	OMNI2
TM7				TTUS5	OMNI2
TM8				TTUS6	OMNI2

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Page 7: Digital Modulation

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	56K0G1W	56	4	64	0.682		7.4	19.6
D2	338KG7W	338	4	384	0.682		7.4	19.6
D3	1M06G7W	1060	4	1544	0.875		10.8	23
D4	1M80G7W	1800	4	2048	0.682		7.4	19.6
D5	7M40G7W	7370	4	9216	0.75		9.9	22.1
D6	36M0G7W	36000	4	45000	0.75		5.6	17.8
D7	52M5G7W	52700	4	69640	0.795		8.7	20.9

Page 8: Analog Modulation

[illegible]

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Page 9: Typical Emissions

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)			
		(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)
(a) Start	(b) End								(j) Min.	(k) Max.	(l) Min.	(m) Max.		
17	24	D6		1		EUR-SSA.doc		54.7	22.6	28.6	46.6	52.6	-149.2	18.4
17	24	D7		1		EUR-SSA.doc		58.5	24.2	30.2	48.2	54.2	-149.2	24.4
25	33	D1		803	67.2	EUR-USA.doc		54.7	-5.5	0.5	18.5	21.5	-152.4	18.8
25	33	D2		133	405.6	EUR-USA.doc		46.7	2.3	8.3	23.3	29.3	-152.4	24.8
25	33	D3		42	1272	EUR-USA.doc		43.2	7.3	13.3	28.3	34.3	-152.4	32.8
25	33	D4		25	2160	EUR-USA.doc		49.2	9.6	15.6	30.6	36.6	-152.4	24.8
25	33	D5		6	8844	EUR-USA.doc		49.2	15.7	21.7	36.7	42.7	-152.4	27.3
25	33	D6		1		EUR-USA.doc		54.7	22.6	28.6	46.6	49.6	-152.4	18.8
25	33	D7		1		EUR-USA.doc		58.5	24.2	30.2	45.2	51.2	-152.4	24.8
34	38	D1		803	67.2	SSA-EUR.doc		54.7	-5.5	0.5	18.5	24.5	-149.9	18.5
34	38	D2		133	405.6	SSA-EUR.doc		46.7	2.3	8.3	26.3	32.3	-149.9	24.5
34	38	D3		42	1272	SSA-EUR.doc		43.2	7.3	13.3	31.3	37.3	-149.9	27
34	38	D4		25	2160	SSA-EUR.doc		49.2	9.6	15.6	33.6	39.6	-149.9	21
34	38	D5		6	8844	SSA-EUR.doc		49.2	15.7	21.7	39.7	45.7	-149.9	27
34	38	D6		1		SSA-EUR.doc		54.7	22.6	28.6	46.6	52.6	-149.9	18.5
34	38	D7		1		SSA-EUR.doc		58.5	24.2	30.2	48.2	54.2	-149.9	24.5
39	42	D1		803	67.2	SSA-SSA.doc		54.7	-5.5	0.5	18.5	24.5	-149.2	18.4
39	42	D2		133	405.6	SSA-SSA.doc		46.7	2.3	8.3	26.3	32.3	-149.2	24.4
39	42	D3		42	1272	SSA-SSA.doc		43.2	7.3	13.3	31.3	37.3	-149.2	26.9
39	42	D4		25	2160	SSA-SSA.doc		49.2	9.6	15.6	33.6	39.6	-149.2	20.9
39	42	D5		6	8844	SSA-SSA.doc		49.2	15.7	21.7	39.7	45.7	-149.2	26.9
39	42	D6		1		SSA-SSA.doc		54.7	22.6	28.6	46.6	52.6	-149.2	18.4
39	42	D7		1		SSA-SSA.doc		58.5	24.2	30.2	48.2	54.2	-149.2	24.4
43	44	D1		803	67.2	SSA-USA.doc		54.7	-5.5	0.5	18.5	21.5	-152.4	18.8
43	44	D2		133	405.6	SSA-USA.doc		46.7	2.3	8.3	23.3	29.3	-152.4	24.8
43	44	D3		42	1272	SSA-USA.doc		43.2	7.3	13.3	28.3	34.3	-152.4	32.8
43	44	D4		25	2160	SSA-USA.doc		49.2	9.6	15.6	30.6	36.6	-152.4	24.8
43	44	D5		6	8844	SSA-USA.doc		49.2	15.7	21.7	36.7	42.7	-152.4	27.3
43	44	D6		1		SSA-USA.doc		54.7	22.6	28.6	46.6	49.6	-152.4	18.8

43	44	D7		1		SSA-USA.doc		58.5	24.2	30.2	45.2	51.2	-152.4	24.8
45	56	D1		401	67.2	USA-AOR.doc		54.5	-8.5	-2.5	20.5	24.5	-149.1	18.5
45	56	D2		66	405.6	USA-AOR.doc		46.6	-0.7	5.3	28.3	32.3	-149.1	24.5
45	56	D3		21	1272	USA-AOR.doc		43	7.3	10.3	33.3	37.3	-149.1	27
45	56	D4		12	2160	USA-AOR.doc		46.6	6.6	12.6	35.6	39.6	-149.1	21
45	56	D5		3	8844	USA-AOR.doc		49.1	12.7	18.7	41.7	45.7	-149.1	27
57	71	D1		803	67.2	USA-EUR.doc		54.5	-8.5	-2.5	18.5	24.5	-149.9	18.5
57	71	D2		133	405.6	USA-EUR.doc		46.6	-0.7	5.3	26.3	32.3	-149.9	24.5
57	71	D3		42	1272	USA-EUR.doc		43	7.3	10.3	31.3	37.3	-149.9	27
57	71	D4		25	2160	USA-EUR.doc		46.6	6.6	12.6	33.6	39.6	-149.9	21
57	71	D5		6	8844	USA-EUR.doc		49.1	12.7	18.7	39.7	45.7	-149.9	27
57	71	D6		1		USA-EUR.doc		54.5	19.6	25.6	46.6	52.6	-149.9	18.5
57	71	D7		1		USA-EUR.doc		58.4	21.2	27.2	48.2	54.2	-149.9	24.5
72	77	D1		803	67.2	USA-SSA.doc		54.5	-8.5	-2.5	18.5	24.5	-149.2	18.4
72	77	D2		133	405.6	USA-SSA.doc		46.6	-0.7	5.3	26.3	32.3	-149.2	24.4
72	77	D3		42	1272	USA-SSA.doc		43	7.3	10.3	31.3	37.3	-149.2	26.9
72	77	D4		25	2160	USA-SSA.doc		46.6	6.6	12.6	33.6	39.6	-149.2	20.9
72	77	D5		6	8844	USA-SSA.doc		49.1	12.7	18.7	39.7	45.7	-149.2	26.9
72	77	D6		1		USA-SSA.doc		54.5	19.6	25.6	46.6	52.6	-149.2	18.4
72	77	D7		1		USA-SSA.doc		58.4	21.2	27.2	48.2	54.2	-149.2	24.4
78	83	D1		803	67.2	USA-USA.doc		54.5	-8.5	-2.5	15.5	21.5	-152.4	18.8
78	83	D2		133	405.6	USA-USA.doc		46.6	-0.7	5.3	23.3	29.3	-152.4	24.8
78	83	D3		42	1272	USA-USA.doc		43	7.3	10.3	28.3	34.3	-152.4	32.8
78	83	D4		25	2160	USA-USA.doc		46.6	6.6	12.6	30.6	36.6	-152.4	24.8
78	83	D5		6	8844	USA-USA.doc		49.1	12.7	18.7	36.7	42.7	-152.4	27.3
78	83	D6		1		USA-USA.doc		54.5	19.6	25.6	43.6	49.6	-152.4	18.8
78	83	D7		1		USA-USA.doc		58.4	21.2	27.2	45.2	51.2	-152.4	24.8
5	16		A1	1		EUR-EUR TV-F	2000	54.5	44	50	40.3	42.3	-147.6	32.4
17	24		A1	1		EUR-SSA TV-F	2000	54.5	44	50	40.7	44.7	-144.5	32.4
34	38		A1	1		SSA-EUR TV-F	2000	54.5	44	50	40.3	42.3	-147.6	32.4
39	42		A1	1		SSA-SSA TV-F	2000	54.5	44	50	40.7	44.7	-144.5	32.4
TC1	TC4		A2			Telecommand.		55.4	2.6	26.6				
1	4	D1		803	67.2	AOR-USA.doc		54.5	-3.5	0.5	18.5	21.5	-152.4	18.8
1	4	D2		133	405.6	AOR-USA.doc		46.6	4.3	8.3	23.3	29.3	-152.4	24.8
1	4	D3		42	1272	AOR-USA.doc		43.1	9.3	13.3	28.3	34.3	-152.4	32.8
1	4	D4		25	2160	AOR-USA.doc		49.1	11.6	15.6	30.6	36.6	-152.4	24.8
1	4	D5		6	8844	AOR-USA.doc		49.1	17.7	21.7	36.7	42.7	-152.4	27.3
1	4	D6		1		AOR-USA.doc		54.6	24.6	28.6	46.6	49.6	-152.4	18.8
1	4	D7		1		AOR-USA.doc		58.4	26.2	30.2	45.2	51.2	-152.4	24.8

5	16	D1		803	67.2	EUR-EUR.doc		54.7	-5.5	0.5	18.5	24.5	-149.9	18.5
5	16	D2		133	405.6	EUR-EUR.doc		46.7	2.3	8.3	26.3	32.3	-149.9	24.5
5	16	D3		42	1272	EUR-EUR.doc		43.2	7.3	13.3	31.3	37.3	-149.9	27
5	16	D4		25	2160	EUR-EUR.doc		49.2	9.6	15.6	33.6	39.6	-149.9	21
5	16	D5		6	8844	EUR-EUR.doc		49.2	15.7	21.7	39.7	45.7	-149.9	27
5	16	D6		1		EUR-EUR.doc		54.7	22.6	28.6	46.6	52.6	-149.9	18.5
5	16	D7		1		EUR-EUR.doc		58.5	24.2	30.2	48.2	54.2	-149.9	24.5
17	24	D1		803	67.2	EUR-SSA.doc		54.7	-5.5	0.5	18.5	24.5	-149.2	18.4
17	24	D2		133	405.6	EUR-SSA.doc		46.6	2.3	8.3	26.3	32.3	-149.2	24.4
17	24	D3		42	1272	EUR-SSA.doc		43.2	7.3	13.3	31.3	37.3	-149.2	26.9
17	24	D4		25	2160	EUR-SSA.doc		49.2	9.6	15.6	33.6	39.6	-149.2	20.9
17	24	D5		6	8844	EUR-SSA.doc		49.2	15.7	21.7	39.7	45.7	-149.2	26.9
TM1	TM8		A3			Telemetry.doc					7	7	-168.7	32.7

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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): Yes

Remote Control (TT C) Location(s):

S14a. Street Address: RR #1, Box 672			
S14b. City: Hawley	S14c. County: Pike	S14d. State/Country PA	S14e. Zip Code: 18428
S14f. Telephone Number: 570-226-6650		S14g. Call Sign of Control Station (if appropriate): E990216	

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**Page 11:
Characteristics and
Certifications**

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a. Mass of spacecraft without fuel (kg): 1752	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 2242		
S15c. Mass of spacecraft and fuel at launch (kg): 3994	S15f. Length (m): 31	S15i. Payload: 0.8469
S15d. Mass of fuel, in orbit, at beginning of life (kg): 462.9	S15g. Width (m): 8.83	S15j. Bus: 0.8347
S15e. Deployed Area of Solar Array (square meters): 59.6	S15h. Height (m): 6.05	S15k. Total: 0.7069

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): 7234	(f): 7234	(k): 7234	(p): 7234
Bus (Watts):	(b): 2030	(g): 1064	(l): 2030	(q): 1064
Total (Watts):	(c): 9264	(h): 8298	(m): 9264	(r): 8298
Solar Array (Watts):	(d): 11914	(i): 10535	(n): 10556	(s): 9559
Depth of Battery Discharge (%):	(e) 73 %	(j) %	(o) 73 %	(t) %

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	☒ YES	☐ NO	☐ 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	☒ 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?	☒ 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.