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:
SES-4		11/1/2011	N
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s):	j. Number of transponders offered on a common carrier basis:
2/27/2008		15 Years	0
c. Construction Completion Date:		g. Total Number of Transponders:	k. Total Common Carrier Transponder Bandwidth:
7/31/2011		86	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:
9/1/2011	9/30/2011	4512 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)		
3625	M	4200	M	T	Fixed Satellite Service
5850	M	6425	M	R	Fixed Satellite Service
10950	M	11200	M	T	Fixed Satellite Service
11450	M	11700	M	T	Fixed Satellite Service
11700	M	12200	M	T	Fixed Satellite Service
12500	M	12750	M	T	Fixed Satellite Service
13750	M	14500	M	R	Fixed Satellite Service

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:
22 W			Replacement of older satellite and expension of capacity at 22W.
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.
EH	S	Service Area EH.gxt	Europe, Africa and Middle East
WH	S	Service Area WH.gxt	North and South America
GB	S	Service Area GLB.gxt	Global
EU	S	Service Area EU.gxt	Europe and Middle East
WA	S	Service Area WA.gxt	West Africa
NA	S	Service Area NA.gxt	North America
SC	S	Service Area SC.gxt	South America

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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
EHA	R	28.2	22.5	0.16	0.41	28	N		EH				600	0.4	-96	15	1
EHB	R	28.2	22.5	0.16	0.41	28	N		EH				600	0.4	-96	15	1
WHA	R	29.4	23.6	0.16	0.41	27.4	N		WH				632	1.4	-96	15	1
WHB	R	29.4	23.6	0.16	0.41	27.4	N		WH				632	1.4	-96	15	1
GBA	R	20.9	17.5	0.16	0.41	30	N		GB				650	-7.23	-93	15	1
GBB	R	20.9	17.5	0.16	0.41	30	N		GB				650	-7.23	-93	15	1
EUA	R	32.3	25.9	0.16	0.41	28	N	0	EU				662	4.1	-97	15	1
EUB	R	32.3	25.9	0.16	0.41	28	N	90	EU				662	4.1	-97	15	1
WAA	R	34.8	27	0.16	0.41	27.2	N	0	WA				674	6.5	-98	15	1
NAA	R	36.6	31.9	0.16	0.41	28	N	0	NA				699	8.1	-101	15	1
NAB	R	36.6	31.9	0.16	0.41	28	N	90	NA				699	8.1	-101	15	1
SCA	R	34.2	26.6	0.16	0.41	27	N	0	SC				653	6.1	-98	15	1
SCB	R	34.2	26.6	0.16	0.41	27	N	90	SC				653	6.1	-98	15	1
EHA	T	26.5	22.8	0.16	0.41	28	N		EH	1.7	43.2	42.8					
CMD	R	11	10	0.16	0.41		N		GB				31622	-34	-90		
EHB	T	26.5	22.8	0.16	0.41	28	N		EH	1.7	43.2	42.8					
WHA	T	26.8	23.6	0.16	0.41	26.3	N		WH	1.7	34.2	42.1					
WHB	T	26.8	23.6	0.16	0.41	26.3	N		WH	1.7	34.2	42.1					
GBA	T	20.9	16.8	0.16	0.41	30	N		GB	1.7	35.4	36.6					
GBB	T	20.9	16.8	0.16	0.41	30	N		GB	1.7	35.4	36.6					
EUA	T	31.6	25.6	0.16	0.41	27	N	90	EU	1.7	84.5	50.9					
EUB	T	31.6	25.6	0.16	0.41	27	N	0	EU	1.7	84.5	50.9					
WAA	T	32.9	26.8	0.16	0.41	27.2	N	90	WA	1.7	78.5	51.9					
NAB	T	35.3	31.9	0.16	0.41	28.9	N	0	NA	1.7	79.3	54.3					
SCA	T	32.3	27.6	0.16	0.41	27.8	N	90	SC	1.7	91.6	51.9					
SCB	T	32.3	27.6	0.16	0.41	27.8	N	0	SC	1.7	91.6	51.9					
TLM	T	11	10	0.16	0.41		N		GB	3	0.6	9					
BNC	T	11	10	0.16	0.41		N	90	GB	3	0.3	6					
BNK	T	11	10	0.16	0.41		N		GB	3	0.6	9					

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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
NAB	T	C	-22		NA Tx.gxt	-150	-149.6	-149.4	-148.8	-148.3
SCA	T	C	-22		SC Tx.gxt	-150.5	-149.7	-148.7	-147.9	-147.5
SCB	T	C	-22		SC Tx.gxt	-150.5	-149.7	-148.7	-147.9	-147.5
SCB	R	C	-22		SC Rx.gxt					
CMD	R	C	-22		CMD Horn.gxt					
TLM	T	C	-22		TLM Horn.gxt	-174.1	-174	-173.7	-173.5	-173.4
BNC	T	C	-22		BNC Horn.gxt	-166.3	-166.2	-165.9	-165.7	-165.6
BNK	T	C	-22		BNK Horn.gxt	-163.3	-163.2	-162.9	-162.7	-162.6
EHA	R	C	-22		EH Rx.gxt					
EHB	R	C	-22		EH Rx.gxt					
WHA	R	C	-22		WH Rx.gxt					
WHB	R	C	-22		WH Rx.gxt					
GBA	R	C	-22		GLB Rx.gxt					
GBB	R	C	-22		GLB Rx.gxt					
EUA	R	C	-22		EU Rx.gxt					
EUB	R	C	-22		EU Rx.gxt					
WAA	R	C	-22		WA Rx.gxt					
NAA	R	C	-22		NA Rx.gxt					
NAB	R	C	-22		NA Rx.gxt					
SCA	R	C	-22		SC Rx.gxt					
EHA	T	C	-22		EH Tx.gxt	-152.1	-152	-151.5	-151	-150.6
EHB	T	C	-22		EH Tx.gxt	-152.1	-152	-151.5	-151	-150.6
WHA	T	C	-22		WH Tx.gxt	-152.1	-151	-150.6	-150.2	-149.6
WHB	T	C	-22		WH Tx.gxt	-152.1	-151	-150.6	-150.2	-149.6
GBA	T	C	-22		GLB Tx.gxt	-156.7	-156.4	-156.1	-155.9	-155.6
GBB	T	C	-22		GLB Tx.gxt	-156.7	-156.4	-156.1	-155.9	-155.6
EUA	T	C	-22		EU Tx.gxt	-150.1	-150	-149.8	-149.2	-148.7
EUB	T	C	-22		EU Tx.gxt	-150.1	-150	-149.8	-149.2	-148.7

WAA	T	C	-22		WA Tx.gxt	-150.4	-149.6	-149.1	-148.1	-147

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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)
WHAUA	72000	R	5887	L	C
WHAUB	72000	R	5966	L	C
WHAUC	54000	R	6036	L	C
WHAUD	54000	R	6096	L	C
WHAUE	54000	R	6156	L	C
WHAUF	54000	R	6216	L	C
WHAU	54000	R	6276	L	C
EHAUA	72000	R	5887	L	C
EHAUB	72000	R	5966	L	C
EHAUC	54000	R	6036	L	C
EHAUD	54000	R	6096	L	C
EHAUE	54000	R	6156	L	C
EHAUF	54000	R	6216	L	C
EHAUG	54000	R	6276	L	C
GBAUI	36000	R	6235	L	C
GBAUJ	36000	R	6365	L	C
GBAUK	36000	R	6405	L	C
GBBUI	36000	R	6235	R	C
GBBUJ	36000	R	6365	R	C
GBBUK	36000	R	6405	R	C
WHBUA	72000	R	5887	R	C
WHBUB	72000	R	5966	R	C
WHBUC	54000	R	6036	R	C
WHBUD	54000	R	6096	R	C
WHBUE	54000	R	6156	R	C
WHBUL	36000	R	6205	R	C
WHBU	36000	R	6245	R	C
WHBUN	36000	R	6285	R	C
EHBUA	72000	R	5887	R	C
EHBUB	72000	R	5966	R	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
1	121.1	WHAUA	WHAU	WHADA	WHAD
2	121.3	WHAUB	WHAU	WHADB	WHAD
3	121.4	WHAUC	WHAU	WHADC	WHAD
4	121.5	WHAUD	WHAU	WHADD	WHAD
5	121.5	WHAUE	WHAU	WHADE	WHAD
6	121.6	WHAUF	WHAU	WHADF	WHAD
7	121.7	WHAUG	WHAU	WHADG	WHAD
8	122.1	EHAUA	EHAU	WHADA	WHAD
9	122.3	EHAUB	EHAU	WHADB	WHAD
10	122.4	EHAUC	EHAU	WHADC	WHAD
11	122.5	EHAUD	EHAU	WHADD	WHAD
12	122.5	EHAUE	EHAU	WHADE	WHAD
13	122.6	EHAUF	EHAU	WHADF	WHAD
14	122.7	EHAUG	EHAU	WHADG	WHAD
15	126.4	EUBUB	EUBU	WHADC	WHAD
16	126.5	EUBUC	EUBU	WHADD	WHAD
17	126.5	EUBUD	EUBU	WHADE	WHAD
18	126.6	GBAUI	GBAU	GBADI	GBAD
19	126.8	GBAUJ	GBAU	GBADJ	GBAD
20	126.9	GBAUK	GBAU	GBADK	GBAD
21	122.2	WHAUA	WHAU	EHADA	EHAD
22	122.4	WHAUB	WHAU	EHADB	EHAD
23	122.5	WHAUC	WHAU	EHADC	EHAD
24	122.6	WHAUD	WHAU	EHADD	EHAD
25	122.6	WHAUE	WHAU	EHADE	EHAD
26	122.7	WHAUF	WHAU	EHADF	EHAD
27	122.8	WHAUG	WHAU	EHADG	EHAD
28	123.2	EHAUA	EHAU	EHADA	EHAD
29	123.4	EHAUB	EHAU	EHADB	EHAD
30	123.5	EHAUC	EHAU	EHADC	EHAD

EHBUC	54000	R	6036	R	C
EHBUD	54000	R	6096	R	C
EHBUE	54000	R	6156	R	C
EHBUL	36000	R	6205	R	C
EHBUM	36000	R	6245	R	C
EHBUN	36000	R	6285	R	C
WHADA	72000	T	3662	R	C
WHADB	72000	T	3741	R	C
WHADC	54000	T	3811	R	C
WHADD	54000	T	3871	R	C
WHADE	54000	T	3931	R	C
WHADF	54000	T	3991	R	C
WHAD	54000	T	4051	R	C
EHADA	72000	T	3662	R	C
EHADB	72000	T	3741	R	C
EHADC	54000	T	3811	R	C
EHADD	54000	T	3871	R	C
EHADE	54000	T	3931	R	C
EHADF	54000	T	3991	R	C
EHADG	54000	T	4051	R	C
GBADI	36000	T	4010	R	C
GBADJ	36000	T	4140	R	C
GBADK	36000	T	4180	R	C
GBBDI	36000	T	4010	L	C
GBBDJ	36000	T	4140	L	C
GBBDK	36000	T	4180	L	C
WHBDA	72000	T	3662	L	C
WHBDB	72000	T	3741	L	C
WHBDC	54000	T	3811	L	C
WHBDD	54000	T	3871	L	C
WHBDE	54000	T	3931	L	C
WHBDL	36000	T	3980	L	C
WHBD	36000	T	4020	L	C
WHBDN	36000	T	4060	L	C
EHBDA	72000	T	3662	L	C
EHBDB	72000	T	3741	L	C
EHBDC	54000	T	3811	L	C
EHBDD	54000	T	3871	L	C
EHBDE	54000	T	3931	L	C

31	123.6	EHAUD	EHAU	EHADD	EHAD
32	123.6	EHAUE	EHAU	EHADE	EHAD
33	123.7	EHAUF	EHAU	EHADF	EHAD
34	123.8	EHAUG	EHAU	EHADG	EHAD
35	127.5	EUBUB	EUBU	EHADC	EHAD
36	127.6	EUBUC	EUBU	EHADD	EHAD
37	127.6	EUBUD	EUBU	EHADE	EHAD
38	121.1	WHBUA	WHBU	WHBDA	WHBD
39	121.3	WHBUB	WHBU	WHBDB	WHBD
40	121.4	WHBUC	WHBU	WHBDC	WHBD
41	121.5	WHBUD	WHBU	WHBDD	WHBD
42	121.5	WHBUE	WHBU	WHBDE	WHBD
43	121.6	WHBUL	WHBU	WHBDL	WHBD
44	121.7	WHBUM	WHBU	WHBDM	WHBD
45	121.7	WHBUN	WHBU	WHBDN	WHBD
46	122.1	EHBUA	EHBU	WHBDA	WHBD
47	122.3	EHBUB	EHBU	WHBDB	WHBD
48	122.4	EHBUC	EHBU	WHBDC	WHBD
49	122.5	EHBUD	EHBU	WHBDD	WHBD
50	122.5	EHBUE	EHBU	WHBDE	WHBD
51	122.6	EHBUL	EHBU	WHBDL	WHBD
52	122.7	EHBUM	EHBU	WHBDM	WHBD
53	122.7	EHBUN	EHBU	WHBDN	WHBD
54	125.4	WAAUB	WAAU	WHBDC	WHBD
55	125.5	WAAUC	WAAU	WHBDD	WHBD
56	125.5	WAAUD	WAAU	WHBDE	WHBD
57	122.2	WHBUA	WHBU	EHBDA	EHBD
58	122.4	WHBUB	WHBU	EHBDB	EHBD
59	122.5	WHBUC	WHBU	EHBDC	EHBD
60	122.6	WHBUD	WHBU	EHBDD	EHBD
61	122.6	WHBUE	WHBU	EHBDE	EHBD
62	122.7	WHBUL	WHBU	EHBDL	EHBD
63	122.8	WHBUM	WHBU	EHBDM	EHBD
64	122.8	WHBUN	WHBU	EHBDN	EHBD
65	123.2	EHBUA	EHBU	EHBDA	EHBD
66	123.4	EHBUB	EHBU	EHBDB	EHBD
67	123.5	EHBUC	EHBU	EHBDC	EHBD
68	123.6	EHBUD	EHBU	EHBDD	EHBD
69	123.6	EHBUE	EHBU	EHBDE	EHBD

EHBDL	36000	T	3980	L	C
EHBDM	36000	T	4020	L	C
EHBDN	36000	T	4060	L	C
EUAUA	62000	R	14036	H	C
EUAUB	54000	R	14101	H	C
EUAUC	54000	R	14161	H	C
EUAUD	54000	R	14221	H	C
EUAUE	54000	R	14281	H	C
EUAUF	54000	R	14341	H	C
EUAUG	54000	R	14401	H	C
EUAUH	54000	R	14461	H	C
EUAUM	36000	R	13778	H	C
EUAUN	36000	R	13818	H	C
EUAUO	36000	R	13858	H	C
EUAUP	36000	R	13898	H	C
EUAUQ	36000	R	13938	H	C
EUAUR	36000	R	13978	H	C
EUBUA	62000	R	14036	V	C
EUBUB	54000	R	14101	V	C
EUBUC	54000	R	14161	V	C
EUBUD	54000	R	14221	V	C
EUBUE	54000	R	14281	V	C
EUBUF	54000	R	14341	V	C
EUBUG	54000	R	14401	V	C
EUBUH	54000	R	14461	V	C
EUBUI	62000	R	13784	V	C
EUBUJ	54000	R	13849	V	C
EUBUK	54000	R	13909	V	C
EUBUL	54000	R	13969	V	C
WAAUA	62000	R	14036	H	C
WAAUB	54000	R	14101	H	C
WAAUC	54000	R	14161	H	C
WAAUD	54000	R	14221	H	C
WAAUE	54000	R	14281	H	C
WAAUF	54000	R	14341	H	C
WAAUG	54000	R	14401	H	C
WAAUH	54000	R	14461	H	C
WAAU	36000	R	13778	H	C
WAAUN	36000	R	13818	H	C

70	123.7	EHBUL	EHBU	EHBDL	EHBD
71	123.8	EHBUM	EHBU	EHBDM	EHBD
72	123.8	EHBUN	EHBU	EHBDN	EHBD
73	126.5	WAAUB	WAAU	EHBDC	EHBD
74	126.6	WAAUC	WAAU	EHBDD	EHBD
75	126.6	WAAUD	WAAU	EHBDE	EHBD
76	126.6	GBBUI	GBBU	GBBDI	GBBD
77	126.8	GBBUJ	GBBU	GBBDJ	GBBD
78	126.9	GBBUK	GBBU	GBBDK	GBBD
79	130.8	EUBUA	EUBU	EUBDA	EUBD
80	130.8	EUBUB	EUBU	EUBDB	EUBD
81	130.9	EUBUC	EUBU	EUBDC	EUBD
82	130.9	EUBUD	EUBU	EUBDD	EUBD
83	130.9	EUBUE	EUBU	EUBDE	EUBD
84	131	EUBUF	EUBU	EUBDF	EUBD
85	131	EUBUG	EUBU	EUBDG	EUBD
86	131.1	EUBUH	EUBU	EUBDH	EUBD
87	130.6	EUBUI	EUBU	EUBDI	EUBD
88	130.7	EUBUJ	EUBU	EUBDJ	EUBD
89	130.7	EUBUK	EUBU	EUBDK	EUBD
90	130.8	EUBUL	EUBU	EUBDL	EUBD
91	129.8	WAAUA	WAAU	EUBDA	EUBD
92	129.8	WAAUB	WAAU	EUBDB	EUBD
93	129.9	WAAUC	WAAU	EUBDC	EUBD
94	129.9	WAAUD	WAAU	EUBDD	EUBD
95	129.9	WAAUE	WAAU	EUBDE	EUBD
96	130	WAAUF	WAAU	EUBDF	EUBD
97	130	WAAUG	WAAU	EUBDG	EUBD
98	130.1	WAAUH	WAAU	EUBDH	EUBD
99	131.2	NABUE	NABU	EUBDE	EUBD
100	131.3	NABUF	NABU	EUBDF	EUBD
101	131.3	NABUG	NABU	EUBDG	EUBD
102	131.4	NABUH	NABU	EUBDH	EUBD
103	130.9	NABUI	NABU	EUBDI	EUBD
104	131	NABUJ	NABU	EUBDJ	EUBD
105	131	NABUK	NABU	EUBDK	EUBD
106	131.1	NABUL	NABU	EUBDL	EUBD
107	130.8	EUAUA	EUAU	EUBDI	EUBD
108	130.8	EUAUB	EUAU	EUBDJ	EUBD

WAAUO	36000	R	13858	H	C
WAAUP	36000	R	13898	H	C
WAAUQ	36000	R	13938	H	C
WAAUR	36000	R	13978	H	C
NAAUA	62000	R	14036	H	C
NAAUB	54000	R	14101	H	C
NAAUC	54000	R	14161	H	C
NAAUD	54000	R	14221	H	C
NAAUE	54000	R	14281	H	C
NAAUF	54000	R	14341	H	C
NAAUG	54000	R	14401	H	C
NAAUH	54000	R	14461	H	C
NAAUM	36000	R	13778	H	C
NAAUN	36000	R	13818	H	C
NAAUO	36000	R	13858	H	C
NAAUP	36000	R	13898	H	C
NAAUQ	36000	R	13938	H	C
NAAUR	36000	R	13978	H	C
NABUA	62000	R	14036	V	C
NABUB	54000	R	14101	V	C
NABUC	54000	R	14161	V	C
NABUD	54000	R	14221	V	C
NABUE	54000	R	14281	V	C
NABUF	54000	R	14341	V	C
NABUG	54000	R	14401	V	C
NABUH	54000	R	14461	V	C
NABUI	62000	R	13784	V	C
NABUJ	54000	R	13849	V	C
NABUK	54000	R	13909	V	C
NABUL	54000	R	13969	V	C
SCAUA	62000	R	14036	H	C
SCAUB	54000	R	14101	H	C
SCAUC	54000	R	14161	H	C
SCAUD	54000	R	14221	H	C
SCAUE	54000	R	14281	H	C
SCAUF	54000	R	14341	H	C
SCAUG	54000	R	14401	H	C
SCAUH	54000	R	14461	H	C
SCBUA	62000	R	14036	V	C

109	130.9	EUAUC	EUAU	EUBDK	EUBD
110	130.9	EUAUD	EUAU	EUBDL	EUBD
111	125.8	WHAUC	WHAU	EUBDB	EUBD
112	125.9	WHAUD	WHAU	EUBDC	EUBD
113	125.9	WHAUE	WHAU	EUBDD	EUBD
114	126.8	EHAUC	EHAU	EUBDB	EUBD
115	126.9	EHAUD	EHAU	EUBDC	EUBD
116	126.9	EHAUE	EHAU	EUBDD	EUBD
117	130.2	EUAUA	EUAU	WAADA	WAAD
118	130.2	EUAUB	EUAU	WAADB	WAAD
119	130.3	EUAUC	EUAU	WAADC	WAAD
120	130.3	EUAUD	EUAU	WAADD	WAAD
121	130.3	EUAUE	EUAU	WAADE	WAAD
122	130.4	EUAUF	EUAU	WAADF	WAAD
123	130.4	EUAUG	EUAU	WAADG	WAAD
124	130.5	EUAUH	EUAU	WAADH	WAAD
125	130	EUAUM	EUAU	WAADM	WAAD
126	130.1	EUAUN	EUAU	WAADN	WAAD
127	130.1	EUAUO	EUAU	WAADO	WAAD
128	130.1	EUAUP	EUAU	WAADP	WAAD
129	130.1	EUAUQ	EUAU	WAADQ	WAAD
130	130.2	EUAUR	EUAU	WAADR	WAAD
131	129.2	WAAUA	WAAU	WAADA	WAAD
132	129.2	WAAUB	WAAU	WAADB	WAAD
133	129.3	WAAUC	WAAU	WAADC	WAAD
134	129.3	WAAUD	WAAU	WAADD	WAAD
135	129.3	WAAUE	WAAU	WAADE	WAAD
136	129.4	WAAUF	WAAU	WAADF	WAAD
137	129.4	WAAUG	WAAU	WAADG	WAAD
138	129.5	WAAUH	WAAU	WAADH	WAAD
139	129	WAAUM	WAAU	WAADM	WAAD
140	129.1	WAAUN	WAAU	WAADN	WAAD
141	129.1	WAAUO	WAAU	WAADO	WAAD
142	129.1	WAAUP	WAAU	WAADP	WAAD
143	129.1	WAAUQ	WAAU	WAADQ	WAAD
144	129.2	WAAUR	WAAU	WAADR	WAAD
145	130.3	EUBUE	EUBU	WAADE	WAAD
146	130.4	EUBUF	EUBU	WAADF	WAAD
147	130.4	EUBUG	EUBU	WAADG	WAAD

SCBUB	54000	R	14101	V	C
SCBUC	54000	R	14161	V	C
SCBUD	54000	R	14221	V	C
SCBUE	54000	R	14281	V	C
SCBUF	54000	R	14341	V	C
SCBUG	54000	R	14401	V	C
SCBUH	54000	R	14461	V	C
EUBDA	62000	T	10986	H	C
EUBDB	54000	T	11051	H	C
EUBDC	54000	T	11111	H	C
EUBDD	54000	T	11171	H	C
EUBDE	54000	T	11491	H	C
EUBDF	54000	T	11551	H	C
EUBDG	54000	T	11611	H	C
EUBDH	54000	T	11671	H	C
EUBDI	62000	T	12536	H	C
EUBDJ	54000	T	12601	H	C
EUBDK	54000	T	12661	H	C
EUBDL	54000	T	12721	H	C
EUADM	36000	T	12530	V	C
EUADN	36000	T	12570	V	C
EUADO	36000	T	12610	V	C
EUADP	36000	T	12650	V	C
EUADQ	36000	T	12690	V	C
EUADR	36000	T	12730	V	C
WAADA	62000	T	10986	V	C
WAADB	54000	T	11051	V	C
WAADC	54000	T	11111	V	C
WAADD	54000	T	11171	V	C
WAADE	54000	T	11491	V	C
WAADF	54000	T	11551	V	C
WAADG	54000	T	11611	V	C
WAADH	54000	T	11671	V	C
WAAD	36000	T	12530	V	C
WAADN	36000	T	12570	V	C
WAADO	36000	T	12610	V	C
WAADP	36000	T	12650	V	C
WAADQ	36000	T	12690	V	C
WAADR	36000	T	12730	V	C

148	130.5	EUBUH	EUBU	WAADH	WAAD
149	130.6	NABUE	NABU	WAADE	WAAD
150	130.7	NABUF	NABU	WAADF	WAAD
151	130.7	NABUG	NABU	WAADG	WAAD
152	130.8	NABUH	NABU	WAADH	WAAD
153	130.3	NAAUM	NAAU	WAADM	WAAD
154	130.4	NAAUN	NAAU	WAADN	WAAD
155	130.4	NAAUO	NAAU	WAADO	WAAD
156	130.4	NAAUP	NAAU	WAADP	WAAD
157	130.4	NAAUQ	NAAU	WAADQ	WAAD
158	130.5	NAAUR	NAAU	WAADR	WAAD
159	125.2	WHBUC	WHBU	WAADB	WAAD
160	125.3	WHBUD	WHBU	WAADC	WAAD
161	125.3	WHBUE	WHBU	WAADD	WAAD
162	126.2	EHBUC	EHBU	WAADB	WAAD
163	126.3	EHBUD	EHBU	WAADC	WAAD
164	126.3	EHBUE	EHBU	WAADD	WAAD
165	130.6	EUAUM	EUAU	EUADM	EUAD
166	130.7	EUAUN	EUAU	EUADN	EUAD
167	130.7	EUAUO	EUAU	EUADO	EUAD
168	130.7	EUAUP	EUAU	EUADP	EUAD
169	130.7	EUAUQ	EUAU	EUADQ	EUAD
170	130.8	EUAUR	EUAU	EUADR	EUAD
171	129.6	WAAUM	WAAU	EUADM	EUAD
172	129.7	WAAUN	WAAU	EUADN	EUAD
173	129.7	WAAUO	WAAU	EUADO	EUAD
174	129.7	WAAUP	WAAU	EUADP	EUAD
175	129.7	WAAUQ	WAAU	EUADQ	EUAD
176	129.8	WAAUR	WAAU	EUADR	EUAD
177	130.9	NAAUM	NAAU	EUADM	EUAD
178	131	NAAUN	NAAU	EUADN	EUAD
179	131	NAAUO	NAAU	EUADO	EUAD
180	131	NAAUP	NAAU	EUADP	EUAD
181	131	NAAUQ	NAAU	EUADQ	EUAD
182	131.1	NAAUR	NAAU	EUADR	EUAD
183	129.7	SCBUA	SCBU	SCBDS	SCBD
184	129.7	SCBUB	SCBU	SCBDT	SCBD
185	129.8	SCBUC	SCBU	SCBDU	SCBD
186	129.8	SCBUD	SCBU	SCBDV	SCBD

NABDS	62000	T	11736	H	C
NABDT	54000	T	11801	H	C
NABDU	54000	T	11861	H	C
NABDV	54000	T	11921	H	C
NABDW	54000	T	11981	H	C
NABDX	54000	T	12041	H	C
NABDY	54000	T	12101	H	C
NABDZ	54000	T	12161	H	C
SCADS	62000	T	11736	V	C
SCADT	54000	T	11801	V	C
SCADU	54000	T	11861	V	C
SCADV	54000	T	11921	V	C
SCADW	54000	T	11981	V	C
SCADX	54000	T	12041	V	C
SCADY	54000	T	12101	V	C
SCADZ	54000	T	12161	V	C
SCBDS	62000	T	11736	H	C
SCBDT	54000	T	11801	H	C
SCBDU	54000	T	11861	H	C
SCBDV	54000	T	11921	H	C
SCBDW	54000	T	11981	H	C
SCBDX	54000	T	12041	H	C
SCBDY	54000	T	12101	H	C
SCBDZ	54000	T	12161	H	C
TM1	300	T	11451	R	T
TM2	300	T	11454	R	T
TM3	300	T	12500.5	L	T
TM4	300	T	12502	L	T
CM1	800	R	14496	R	T
CM2	800	R	14499	R	T
BNC1	25	T	4199.75	V	T
BNK1	25	T	11451	R	T
BNK2	25	T	11454	R	T
BNK3	25	T	12500.5	L	T
BNK4	25	T	12502	L	T

187	129.8	SCBUE	SCBU	SCBDW	SCBD
188	129.9	SCBUF	SCBU	SCBDX	SCBD
189	129.9	SCBUG	SCBU	SCBDY	SCBD
190	130	SCBUH	SCBU	SCBDZ	SCBD
191	131.1	NAAUA	NAAU	SCBDS	SCBD
192	131.1	NAAUB	NAAU	SCBDT	SCBD
193	131.2	NAAUC	NAAU	SCBDU	SCBD
194	131.2	NAAUD	NAAU	SCBDV	SCBD
195	131.2	NAAUE	NAAU	SCBDW	SCBD
196	131.3	NAAUF	NAAU	SCBDX	SCBD
197	131.3	NAAUG	NAAU	SCBDY	SCBD
198	131.4	NAAUH	NAAU	SCBDZ	SCBD
199	129.4	SCBUA	SCBU	NABDS	NABD
200	129.4	SCBUB	SCBU	NABDT	NABD
201	129.5	SCBUC	SCBU	NABDU	NABD
202	129.5	SCBUD	SCBU	NABDV	NABD
203	129.5	SCBUE	SCBU	NABDW	NABD
204	129.6	SCBUF	SCBU	NABDX	NABD
205	129.6	SCBUG	SCBU	NABDY	NABD
206	129.7	SCBUH	SCBU	NABDZ	NABD
207	130.8	NABUA	NABU	NABDS	NABD
208	130.8	NABUB	NABU	NABDT	NABD
209	130.9	NABUC	NABU	NABDU	NABD
210	130.9	NABUD	NABU	NABDV	NABD
211	130.9	NABUE	NABU	NABDW	NABD
212	131	NABUF	NABU	NABDX	NABD
213	131	NABUG	NABU	NABDY	NABD
214	131.1	NABUH	NABU	NABDZ	NABD
215	129.5	WAAUA	WAAU	NABDS	NABD
216	129.5	WAAUB	WAAU	NABDT	NABD
217	129.6	WAAUC	WAAU	NABDU	NABD
218	129.6	WAAUD	WAAU	NABDV	NABD
219	129.6	WAAUE	WAAU	NABDW	NABD
220	129.7	WAAUF	WAAU	NABDX	NABD
221	129.7	WAAUG	WAAU	NABDY	NABD
222	129.8	WAAUH	WAAU	NABDZ	NABD
223	130.5	EUBUA	EUBU	NABDS	NABD
224	130.5	EUBUB	EUBU	NABDT	NABD
225	130.6	EUBUC	EUBU	NABDU	NABD

226	130.6	EUBUD	EUBU	NABDV	NABD
227	130.6	EUBUE	EUBU	NABDW	NABD
228	130.7	EUBUF	EUBU	NABDX	NABD
229	130.7	EUBUG	EUBU	NABDY	NABD
230	130.8	EUBUH	EUBU	NABDZ	NABD
231	130.5	EUAUA	EUAU	NABDS	NABD
232	130.5	EUAUB	EUAU	NABDT	NABD
233	130.6	EUAUC	EUAU	NABDU	NABD
234	130.6	EUAUD	EUAU	NABDV	NABD
235	130.6	EUAUE	EUAU	NABDW	NABD
236	130.7	EUAUF	EUAU	NABDX	NABD
237	130.7	EUAUG	EUAU	NABDY	NABD
238	130.8	EUAUH	EUAU	NABDZ	NABD
239	129.7	SCAUA	SCAU	SCADS	SCAD
240	129.7	SCAUB	SCAU	SCADT	SCAD
241	129.8	SCAUC	SCAU	SCADU	SCAD
242	129.8	SCAUD	SCAU	SCADV	SCAD
243	129.8	SCAUE	SCAU	SCADW	SCAD
244	129.9	SCAUF	SCAU	SCADX	SCAD
245	129.9	SCAUG	SCAU	SCADY	SCAD
246	130	SCAUH	SCAU	SCADZ	SCAD
247	131.1	NAAUA	NAAU	SCADS	SCAD
248	131.1	NAAUB	NAAU	SCADT	SCAD
249	131.2	NAAUC	NAAU	SCADU	SCAD
250	131.2	NAAUD	NAAU	SCADV	SCAD
251	131.2	NAAUE	NAAU	SCADW	SCAD
252	131.3	NAAUF	NAAU	SCADX	SCAD
253	131.3	NAAUG	NAAU	SCADY	SCAD
254	131.4	NAAUH	NAAU	SCADZ	SCAD
255				TM1	TLM
256				TM2	TLM
257				TM3	TLM
258				TM4	TLM
259		CM1	CMD		
260		CM2	CMD		
261				BNC1	BNC
262				BNK1	BNK
263				BNK2	BNK
264				BNK3	BNK

265				BNK4	BNK

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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	346KG7W	346	4	256	0.5		6	18.2
D2	461KG7W	461	4	512	0.75		9.3	21.5
D3	1M84G7W	1840	4	2048	0.75		9.3	21.5
D4	8M25G7W	8250	4	8448	0.692		6.9	19.1
D5	36M0G7W	36000	4	41470	0.692		6.9	19.1
D6	54M0G7W	54000	4	62200	0.692		6.9	19.1
D7	72M0G7W	72000	8	155000	0.816		12.7	24.9

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SATELLITE SPACE STATION AUTHORIZATIONS

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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	36M0F3F	36000	TV/FM	1					PAL	13.2	1.5		10	24
TTC1	800KF9D	800		1									10	24
TTC2	300KF9D	300		1									0	14
TTC3	25K0N0N	25		1									0	14

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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.		
1	254	D1		104	346	Link Budget W		51.2	-2.1	0.9	13.3	16.3	-164.5	21.8
1	254	D2		78	461	Link Budget W		47	4.9	7.9	16.2	19.2	-162.9	21.8
1	254	D3		19	1894	Link Budget W		54.9	3.1	6.1	22.2	25.2	-162.9	21.8
1	254	D4		4	9000	Link Budget W		51.2	11.8	14.8	27.1	30.1	-164.4	21.8
1	254	D5		1		Link Budget W		56.3	17.2	20.2	36.7	39.7	-161.7	21.8
1	254		A1	1		Link Budget W	2000	56.3	18.8	21.8	37.4	40.4	-149.3	21.8
1	254	D1		156	346	Link Budget W		51.2	-3	0	12.4	15.4	-165.4	21.8
1	254	D2		88	613	Link Budget W		47	4.5	7.5	15.7	18.7	-163.3	21.8
1	254	D3		29	1862	Link Budget W		54.9	1.5	4.5	20.6	23.6	-164.5	23.3
1	254	D4		6	9000	Link Budget W		51.2	11.6	14.6	26.9	29.9	-164.6	21.8
1	254	D6		1		Link Budget W		56.3	18.6	21.6	38.1	41.1	-162.1	21.8
1	254		A1	1		Link Budget W	2000	56.3	18.8	21.8	37.4	40.4	-149.3	21.8
1	254	D1		208	346	Link Budget W		51.2	-3.7	-0.7	11.7	14.7	-166.1	21.8
1	254	D2		133	541	Link Budget W		47	2.7	5.7	14	17	-165	23.3
1	254	D3		33	2181	Link Budget W		54.9	0.9	3.9	20	23	-165	23.3
1	254	D4		8	9000	Link Budget W		51.2	10.4	13.4	25.8	28.8	-165.7	21.8
1	254	D7		1		Link Budget W		56.3	18.6	21.6	38.2	41.2	-163.5	27.4
1	254		A1	2	36000	Link Budget W	2000	56.3	12.7	15.7	34.2	37.2	-152.5	23.3
1	254	D1		104	346	Link Budget EH		51.2	-1.9	1.1	13.6	16.6	-164.1	21.8
1	254	D2		78	461	Link Budget EH		47	4.8	7.8	16.2	19.2	-162.8	21.8
1	254	D3		19	1894	Link Budget EH		54.9	3	6	22.2	25.2	-162.8	21.8
1	254	D4		4	9000	Link Budget EH		51.2	12.9	15.9	28.4	31.4	-163.2	21.8
1	254	D5		1		Link Budget EH		56.3	17.1	20.1	36.8	39.8	-161.7	21.8
1	254		A1	1		Link Budget EH	2000	56.3	16.3	19.3	37	40	-149.7	21.8
1	254	D1		156	346	Link Budget EH		51.2	-2.7	0.3	12.8	15.8	-165	21.8
1	254	D2		87	620	Link Budget EH		47	4.4	7.4	15.8	18.8	-163.2	21.8
1	254	D3		28	1928	Link Budget EH		54.9	1.4	4.4	20.7	23.7	-164.4	23.3
1	254	D4		6	9000	Link Budget EH		51.2	11.3	14.3	26.8	29.8	-164.8	21.8
1	254	D6		1		Link Budget EH		56.3	18.4	21.4	38.1	41.1	-162.1	21.8

1	254		A1	1		Link Budget EH	2000	56.3	16.3	19.3	37	40	-149.7	21.8
1	254	D1		208	346	Link Budget EH		51.2	-4.1	-1.1	11.4	14.4	-166.3	21.8
1	254	D2		126	571	Link Budget EH		47	2.8	5.8	14.2	17.2	-164.8	23.3
1	254	D3		31	2322	Link Budget EH		54.9	1	4	20.2	23.2	-164.8	23.3
1	254	D4		8	9000	Link Budget EH		51.2	10.3	13.3	25.8	28.8	-165.8	21.8
1	254	D7		1		Link Budget EH		56.3	18.5	21.5	38.2	41.2	-163.5	27.4
1	254		A1	2	36000	Link Budget EH	2000	56.3	12.5	15.5	34.2	37.2	-152.5	23.3
1	254	D1		156	346	Link Budget EU		53.1	-7	-1	12	15	-165.8	22.1
1	254	D2		112	482	Link Budget EU		53.1	-4.3	1.7	14.7	17.7	-164.3	25.5
1	254	D3		27	2000	Link Budget EU		53.1	1.8	7.8	20.7	23.7	-164.3	25.5
1	254	D4		6	9000	Link Budget EU		53.1	7.8	13.8	26.8	29.8	-164.8	22.1
1	254	D6		1		Link Budget EU		54.6	19.7	25.7	38.2	41.2	-162.1	22.1
1	254		A1	1		Link Budget EU	2000	54.6	18.7	24.7	37.2	40.2	-149.5	22.1
1	254	D1		156	346	Link Budget W		53.1	-5.4	2.4	12.5	15.5	-165.2	22.1
1	254	D2		105	514	Link Budget W		54.6	-4.5	3.3	14.9	17.9	-164.1	25.5
1	254	D3		26	2076	Link Budget W		54.6	1.5	9.3	21	24	-164.1	25.5
1	254	D4		6	9000	Link Budget W		53.1	9.3	17.1	27.3	30.3	-164.2	22.1
1	254	D6		1		Link Budget W		58.7	15.6	23.4	38.2	41.2	-162	22.1
1	254		A1	1		Link Budget W	2000	58.7	14.5	22.3	37.1	40.1	-149.6	22.1
1	254	D1		104	346	Link Budget GL		51.7	-1	2	10	13	-167.1	22.6
1	254	D2		50	720	Link Budget GL		47.6	6.6	9.6	13.6	16.6	-164.9	24.1
1	254	D3		12	3000	Link Budget GL		55.4	4.8	7.8	19.6	22.6	-164.9	24.1
1	254	D4		3	12000	Link Budget GL		51.7	13.7	16.7	24.8	27.8	-166.2	22.6
1	254	D5		1		Link Budget GL		56.8	19.3	22.3	33.6	36.6	-164.3	22.6
1	254		A1	1		Link Budget GL	2000	56.9	20.3	23.3	33.6	36.6	-152.5	24.1
1	254	D1		104	346	Link Budget W		51.2	-1.6	1.4	14.3	17.3	-163	21.8
1	254	D2		70	514	Link Budget W		47	5.5	8.5	17.2	20.2	-161.3	21.8
1	254	D3		17	2117	Link Budget W		54.9	3.7	6.7	23.3	26.3	-161.3	21.8
1	254	D4		4	9000	Link Budget W		51.2	12.7	15.7	28.6	31.6	-162.5	21.8
1	254	D5		1		Link Budget W		56.3	17.7	20.7	36.7	39.7	-161.2	21.8
1	254		A1	1		Link Budget W	2000	56.3	15.6	18.6	36.7	39.7	-149.5	21.8
1	254	D1		156	346	Link Budget W		51.2	-2.6	0.4	13.3	16.3	-164	21.8
1	254	D2		94	574	Link Budget W		47	4.1	7.1	15.9	18.9	-162.6	21.8
1	254	D3		28	1928	Link Budget W		54.9	1.5	4.5	21.1	24.1	-163.4	23.3
1	254	D4		6	9000	Link Budget W		51.2	11.7	14.7	27.5	30.5	-163.5	21.8
1	254	D6		1		Link Budget W		56.3	19.5	22.5	38.5	41.5	-161.2	21.8
1	254		A1	1		Link Budget W	2000	56.3	15.6	18.6	36.7	39.7	-149.5	21.8
1	254	D1		208	346	Link Budget W		51.2	-3.9	-0.9	11.9	14.9	-165.3	21.8
1	254	D2		144	500	Link Budget W		47	2.4	5.4	14.1	17.1	-164.4	23.3

1	254	D3		36	2000	Link Budget W		54.9	0.6	3.6	20.2	23.2	-164.4	23.3
1	254	D4		8	9000	Link Budget W		51.2	10.4	13.4	26.3	29.3	-164.8	21.8
1	254	D7		1		Link Budget W		56.3	19.6	22.6	38.7	41.7	-162.5	27.4
1	254		A1	2	36000	Link Budget W	2000	56.3	12.7	15.7	34.7	37.7	-151.5	21.8
1	254	D1		104	346	Link Budget EH		51.2	-2	1	14	17	-163.2	21.8
1	254	D2		78	461	Link Budget EH		47	4.6	7.6	16.5	19.5	-162	21.8
1	254	D3		19	1894	Link Budget EH		54.9	2.8	5.8	22.5	25.5	-162	21.8
1	254	D4		4	9000	Link Budget EH		51.2	12.8	15.8	28.8	31.8	-162.3	21.8
1	254	D5		1		Link Budget EH		56.3	17.6	20.6	36.8	39.8	-161.2	21.8
1	254		A1	1		Link Budget EH	2000	56.3	17.4	20.4	36.6	39.6	-149.6	21.8
1	254	D1		156	346	Link Budget EH		51.2	-3	0	13	16	-164.2	21.8
1	254	D2		108	500	Link Budget EH		47	3.4	6.4	15.3	18.3	-163.2	21.8
1	254	D3		29	1862	Link Budget EH		54.9	1.1	4.1	20.8	23.8	-163.7	23.3
1	254	D4		6	9000	Link Budget EH		51.2	11.1	14.1	27.1	30.1	-164	21.8
1	254	D6		1		Link Budget EH		56.3	19.3	22.3	38.4	41.4	-161.3	21.8
1	254		A1	1		Link Budget EH	2000	56.3	17.4	20.4	36.6	39.6	-149.6	21.8
1	254	D1		208	346	Link Budget EH		51.2	-4.2	-1.2	11.8	14.8	-165.5	21.8
1	254	D2		141	510	Link Budget EH		47	2.3	5.3	14.2	17.2	-164.3	23.3
1	254	D3		33	2181	Link Budget EH		54.9	0.7	3.7	20.4	23.4	-164.1	23.3
1	254	D4		8	9000	Link Budget EH		51.2	10.1	13.1	26.1	29.1	-164.9	21.8
1	254	D7		1		Link Budget EH		56.3	19.5	22.5	38.7	41.7	-162.5	27.4
1	254		A1	2	36000	Link Budget EH	2000	56.3	14.5	17.5	34.7	37.7	-151.5	21.8
1	254	D1		156	346	Link Budget EU		49	-3.5	2.5	11.9	14.9	-165.4	22.1
1	254	D2		117	461	Link Budget EU		53.1	-4.7	1.3	14.8	17.8	-163.7	25.5
1	254	D3		29	1862	Link Budget EU		53.1	1.3	7.3	20.8	23.8	-163.7	25.5
1	254	D4		6	9000	Link Budget EU		53.1	7.2	13.2	26.6	29.6	-164.4	22.1
1	254	D6		1		Link Budget EU		54.6	19.4	25.4	38.3	41.3	-161.4	22.1
1	254		A1	1		Link Budget EU	2000	54.6	18.3	24.3	36.9	39.9	-149.3	22.1
1	254	D1		156	346	Link Budget W		53.1	-6.1	1.7	12.4	15.4	-164.9	22.1
1	254	D2		117	461	Link Budget W		54.6	-5.1	2.7	14.9	17.9	-163.6	25.5
1	254	D3		29	1862	Link Budget W		54.6	1	8.8	20.9	23.9	-163.6	25.5
1	254	D4		6	9000	Link Budget W		54.6	7.2	15	27.1	30.1	-163.9	22.1
1	254	D6		1		Link Budget W		58.7	16.5	24.3	38.5	41.5	-161.2	22.1
1	254		A1	1		Link Budget W	2000	54.6	18.2	26	36.9	39.9	-149.3	22.1
1	254	D1		104	346	Link Budget EU		54.4	-6.7	-0.7	20.4	26.4	-154.5	28.4
1	254	D2		78	461	Link Budget EU		54.4	-5.3	0.7	21.8	27.8	-154.3	32.4
1	254	D3		19	1894	Link Budget EU		56.3	-1.1	4.9	27.9	33.9	-154.3	32.4
1	254	D4		3	12000	Link Budget EU		56.3	6.1	12.1	35.1	41.1	-153.5	28.4
1	254	D5		1		Link Budget EU		54.4	18.6	24.6	42.7	48.7	-152.9	28.4

1	254		A1	1		Link Budget EU	2000	54.5	10	16	35.2	41.2	-148.6	37.1
1	254	D1		156	346	Link Budget EU		54.6	-8.5	-2.5	18.8	24.8	-156	29.5
1	254	D2		101	534	Link Budget EU		54.6	-6.4	-0.4	20.9	26.9	-155.2	33
1	254	D3		25	2160	Link Budget EU		56.5	-2.3	3.7	26.9	32.9	-155.2	33
1	254	D4		5	10800	Link Budget EU		56.5	4.3	10.3	33.5	39.5	-155.1	29.5
1	254	D6		1		Link Budget EU		54.6	18.5	24.5	43.9	49.9	-153.5	27.6
1	254		A1	1		Link Budget EU	2000	54.5	10	16	35.2	41.2	-148.6	36.2
1	254	D1		104	346	Link Budget W		54.4	-6.8	1	20.3	26.3	-154.6	28.4
1	254	D2		78	461	Link Budget W		54.4	-5.2	2.6	21.8	27.8	-154.3	32.4
1	254	D3		19	1894	Link Budget W		56.3	-1.1	6.7	27.9	33.9	-154.3	32.4
1	254	D4		4	9000	Link Budget W		56.3	6	13.8	35	41	-153.7	28.4
1	254	D5		1		Link Budget W		56.3	16.5	24.3	42.5	48.5	-153	28.4
1	254		A1	1		Link Budget W	2000	56.4	9.4	17.2	34.6	40.6	-149.2	37.1
1	254	D1		156	346	Link Budget W		54.6	-8.8	-1	18.5	24.5	-156.3	29.5
1	254	D2		96	562	Link Budget W		54.6	-6.2	1.6	21.1	27.1	-155	33
1	254	D3		24	2250	Link Budget W		56.5	-2.1	5.7	27.2	33.2	-155	33
1	254	D4		5	10800	Link Budget W		56.5	4	11.8	33.3	39.3	-155.4	29.5
1	254	D6		1		Link Budget W		56.5	16.7	24.5	43.9	49.9	-153.4	27.6
1	254		A1	1		Link Budget W	2000	56.4	9.4	17.2	34.6	40.6	-149.2	36.2
1	254	D1		156	346	Link Budget W		51.3	-2.6	0.4	18.8	24.8	-156.1	27.3
1	254	D2		117	461	Link Budget W		47.2	2.9	5.9	20.2	26.2	-155.9	31.3
1	254	D3		29	1862	Link Budget W		55.1	1.1	4.1	26.2	32.2	-155.9	31.3
1	254	D4		5	10800	Link Budget W		51.3	12.2	15.2	33.5	39.5	-155.1	27.3
1	254	D6		1		Link Budget W		55.1	20.8	23.8	43.9	49.9	-153.4	27.3
1	254		A1	1		Link Budget W	2000	55.1	11.7	14.7	34.8	40.8	-149	32.7
1	254	D1		156	346	Link Budget EH		51.3	-2.7	0.3	18.8	24.8	-156.1	27.3
1	254	D2		117	461	Link Budget EH		47.2	2.9	5.9	20.3	26.3	-155.9	31.3
1	254	D3		29	1862	Link Budget EH		55.1	1.1	4.1	26.3	32.3	-155.9	31.3
1	254	D4		5	10800	Link Budget EH		51.3	12.1	15.1	33.6	39.6	-155.1	27.3
1	254	D6		1		Link Budget EH		55.1	20.7	23.7	43.9	49.9	-153.4	27.3
1	254		A1	1		Link Budget EH	2000	55.1	11.6	14.6	34.9	40.9	-148.8	32.7
1	254	D1		104	346	Link Budget NA		54.4	-5.2	-0.5	20.2	26.2	-154.6	30.3
1	254	D2		72	500	Link Budget NA		54.4	-3	1.7	22.5	28.5	-153.7	33.9
1	254	D3		18	2000	Link Budget NA		54.4	3.1	7.8	28.5	34.5	-153.7	33.9
1	254	D4		4	9000	Link Budget NA		54.4	9.5	14.2	34.9	40.9	-153.7	30.3
1	254	D5		1		Link Budget NA		54.4	20	24.7	42.4	48.4	-153.1	28.4
1	254		A1	1		Link Budget NA	2000	56.4	11.1	15.8	35.2	41.2	-148.6	37.1
1	254	D1		156	346	Link Budget NA		54.6	-6.9	-2.2	18.8	24.8	-156.1	31.6
1	254	D2		90	600	Link Budget NA		54.6	-4.2	0.5	21.5	27.5	-154.6	34.9

1	254	D3		22	2454	Link Budget NA		54.6	1.8	6.5	27.5	33.5	-154.6	34.9
1	254	D4		5	10800	Link Budget NA		54.6	7.8	12.5	33.5	39.5	-155.2	31.6
1	254	D6		1		Link Budget NA		54.6	20.2	24.9	43.9	49.9	-153.4	29.5
1	254		A1	1		Link Budget NA	2000	56.4	11.1	15.8	35.2	41.2	-148.6	36.2
1	254	D1		104	346	Link Budget EU		54.4	-7.9	-1.9	20.3	26.3	-154	28.4
1	254	D2		73	493	Link Budget EU		54.4	-4.8	1.2	23.4	29.4	-152.1	30.3
1	254	D3		18	2000	Link Budget EU		54.4	1.3	7.3	29.4	35.4	-152.1	30.3
1	254	D4		4	9000	Link Budget EU		54.4	6.8	12.8	35	41	-153.1	28.4
1	254	D5		1		Link Budget EU		54.4	18.3	24.3	42.5	48.5	-152.4	28.4
1	254		A1	1		Link Budget EU	2000	54.7	14.4	20.4	40.9	46.9	-142.3	28.4
1	254	D1		150	360	Link Budget EU		53.1	-6.7	-0.7	20.3	26.3	-154	27.6
1	254	D2		100	540	Link Budget EU		53.1	-4.8	1.2	22.1	28.1	-153.4	31.6
1	254	D3		24	2250	Link Budget EU		53.1	1.2	7.2	28.1	34.1	-153.4	31.6
1	254	D4		6	9000	Link Budget EU		53.1	6.5	12.5	33.5	39.5	-154.5	29.5
1	254	D6		1		Link Budget EU		53.1	20.4	26.4	44.3	50.3	-152.4	27.6
1	254		A1	1		Link Budget EU	2000	54.7	14.4	20.4	40.9	46.9	-142.3	27.6
1	254	D1		102	352	Link Budget W		54.4	-6	1.8	22	28	-152.2	25.9
1	254	D2		75	480	Link Budget W		54.4	-4.7	3.1	23.4	29.4	-152.2	30.3
1	254	D3		18	2000	Link Budget W		54.4	1.3	9.1	29.4	35.4	-152.2	30.3
1	254	D4		4	9000	Link Budget W		54.4	6.9	14.7	34.9	40.9	-153.1	28.4
1	254	D5		1		Link Budget W		56.3	16.8	24.6	42.8	48.8	-152.2	28.4
1	254		A1	1		Link Budget W	2000	56.6	14.5	22.3	40.8	46.8	-142.4	28.4
1	254	D1		145	372	Link Budget W		54.6	-7.8	0	20.5	26.5	-153.8	27.6
1	254	D2		100	540	Link Budget W		54.6	-6.2	1.6	22.1	28.1	-153.4	31.6
1	254	D3		25	2160	Link Budget W		54.6	-0.2	7.6	28.1	34.1	-153.4	31.6
1	254	D4		6	9000	Link Budget W		54.6	5.3	13.1	33.6	39.6	-154.4	29.5
1	254	D6		1		Link Budget W		56.5	18.3	26.1	44.5	50.5	-152.2	27.6
1	254		A1	1		Link Budget W	2000	56.6	14.5	22.3	40.8	46.8	-142.4	27.6
1	254	D1		156	346	Link Budget W		51.3	-3.2	-0.2	19.3	25.3	-155	27.3
1	254	D2		117	461	Link Budget W		47.2	2.5	5.5	20.8	26.8	-154.7	31.3
1	254	D3		29	1862	Link Budget W		55.1	0.7	3.7	26.8	32.8	-154.7	31.3
1	254	D4		6	9000	Link Budget W		51.3	11.6	14.6	34	40	-154	27.3
1	254	D6		1		Link Budget W		55.1	20.3	23.3	44.5	50.5	-152.2	27.3
1	254		A1	1		Link Budget W	2000	53.6	20	23	40.7	46.7	-142.5	27.3
1	254	D1		156	346	Link Budget EH		51.3	-3.3	-0.3	19.3	25.3	-155	27.3
1	254	D2		117	461	Link Budget EH		47.2	2.4	5.4	20.9	26.9	-154.6	31.3
1	254	D3		29	1862	Link Budget EH		55.1	0.6	3.6	27	33	-154.6	31.3
1	254	D4		6	9000	Link Budget EH		51.3	11.5	14.5	34.1	40.1	-154	27.3
1	254	D6		1		Link Budget EH		55.1	20.2	23.2	44.5	50.5	-152.2	27.3

1	254		A1	1		Link Budget EH	2000	53.6	19.9	22.9	40.7	46.7	-142.5	27.3
1	254	D1		104	346	Link Budget NA		54.4	-4.6	0.1	21.9	27.9	-152.4	28.4
1	254	D2		78	461	Link Budget NA		54.4	-3.7	1	22.8	28.8	-152.7	33.9
1	254	D3		19	1894	Link Budget NA		54.4	2.8	7.5	29.3	35.3	-152.2	32.4
1	254	D4		4	9000	Link Budget NA		54.4	9.3	14	35.8	41.8	-152.2	28.4
1	254	D5		1		Link Budget NA		54.4	19.1	23.8	42.6	48.6	-152.3	28.4
1	254		A1	1		Link Budget NA	2000	56.6	15.5	20.2	40.3	46.3	-142.9	32.4
1	254	D1		145	372	Link Budget NA		53.1	-4.8	-0.1	20.5	26.5	-153.8	29.5
1	254	D2		103	524	Link Budget NA		54.6	-4.8	-0.1	22	28	-153.6	34.9
1	254	D3		25	2160	Link Budget NA		54.6	1.2	5.9	28	34	-153.6	34.9
1	254	D4		6	9000	Link Budget NA		53.1	8.5	13.2	33.8	39.8	-154.2	31.6
1	254	D6		1		Link Budget NA		53.1	21.2	25.9	44.5	50.5	-152.2	27.6
1	254		A1	1		Link Budget NA	2000	56.6	15.5	20.2	40.3	46.3	-142.9	31.6
1	254	D1		156	346	Link Budget SC		53.1	-5.7	1.9	20.6	25.3	-155.2	27.9
1	254	D2		100	540	Link Budget SC		54.6	-4.8	2.8	23	27.7	-154.1	31.9
1	254	D3		28	1928	Link Budget SC		54.6	0.6	8.2	28.4	33.1	-154.7	33.4
1	254	D4		5	10800	Link Budget SC		53.1	9	16.6	35.4	40.1	-154.3	27.9
1	254	D6		1		Link Budget SC		56.5	18.1	25.7	45.8	50.5	-152.5	25.4
1	254		A1	1		Link Budget SC	2000	54.6	13.5	21.1	38.3	43	-146.5	33.4
1	254	D1		156	346	Link Budget NA		53.1	-5.4	-0.7	20.8	25.5	-155.1	29.9
1	254	D2		110	490	Link Budget NA		54.6	-5.1	-0.4	22.5	27.2	-154.6	35.3
1	254	D3		27	2000	Link Budget NA		54.6	0.9	5.6	28.6	33.3	-154.6	35.3
1	254	D4		6	9000	Link Budget NA		53.1	8	12.7	34.2	38.9	-155.5	31.9
1	254	D6		1		Link Budget NA		53.1	21.7	26.4	45.8	50.5	-152.5	27.9
1	254		A1	1		Link Budget NA	2000	56.5	10.8	15.5	38.3	43	-146.5	35.3
1	254	D1		156	346	Link Budget SC		53.1	-6.6	1	23.7	27.1	-153.7	25.4
1	254	D2		117	461	Link Budget SC		54.6	-5.9	1.7	25.9	29.3	-152.8	29.9
1	254	D3		29	1862	Link Budget SC		54.6	0.1	7.7	31.9	35.3	-152.8	29.9
1	254	D4		6	9000	Link Budget SC		53.1	8.1	15.7	38.4	41.8	-152.8	25.4
1	254	D6		1		Link Budget SC		53.1	18.8	26.4	47.1	50.5	-152.8	25.4
1	254		A1	1		Link Budget SC	2000	61	1.8	9.4	37.9	41.3	-148.4	41.1
1	254	D1		156	346	Link Budget NA		49.1	-1.7	3	23.6	27	-153.9	25.4
1	254	D2		117	461	Link Budget NA		53.1	-3.7	1	25.7	29.1	-153.1	27.9
1	254	D3		29	1862	Link Budget NA		53.1	2.3	7	31.7	35.1	-153.1	27.9
1	254	D4		6	9000	Link Budget NA		49.1	13	17.7	38.3	41.7	-152.9	25.4
1	254	D6		1		Link Budget NA		53.1	19.7	24.4	47	50.4	-152.9	25.4
1	254		A1	1		Link Budget NA	2000	61	0.6	5.3	37.7	41.1	-148.7	41.1
1	254	D1		156	346	Link Budget W		49.1	-3.7	4.1	24	27.4	-153.5	25.4
1	254	D2		117	461	Link Budget W		53.1	-5.8	2	25.9	29.3	-152.8	29.9

1	254	D3		29	1862	Link Budget W		53.1	0.2	8	31.9	35.3	-152.8	29.9
1	254	D4		6	9000	Link Budget W		49.1	10.7	18.5	38.4	41.8	-152.8	25.4
1	254	D6		1		Link Budget W		53.1	18.3	26.1	47	50.4	-152.9	25.4
1	254		A1	1		Link Budget W	2000	61	2	9.8	37.5	40.9	-148.9	41.1
1	254	D1		156	346	Link Budget EU		49.1	-3.6	2.4	24.1	27.5	-153.4	25.4
1	254	D2		117	461	Link Budget EU		53.1	-5.8	0.2	25.9	29.3	-152.8	29.9
1	254	D3		29	1862	Link Budget EU		53.1	0.2	6.2	31.9	35.3	-152.8	29.9
1	254	D4		6	9000	Link Budget EU		49.1	10.8	16.8	38.5	41.9	-152.8	25.4
1	254	D6		1		Link Budget EU		53.1	19.4	25.4	47.1	50.5	-152.8	25.4
1	254		A1	1		Link Budget EU	2000	61	2.5	8.5	38	41.4	-148.3	41.1
255	258		TTC2	1		Link Budget TE					8	9	-171.9	38.4
259	260		TTC1	1		Link Budget TE		64	19	23.2				
261	261		TTC3	1		Link Budget BE					5	6	-164.1	27.1
262	265		TTC3	1		Link Budget BE					8	9	-161.1	38.4

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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: Manassas Teleport			
S14b. City: Bristow	S14c. County:	S14d. State/Country VA	S14e. Zip Code: 20136
S14f. Telephone Number: +1 703 367 7300	S14g. Call Sign of Control Station (if appropriate):		

Remote Control (TT C) Location(s):

S14a: Street Address: Arqiva Teleport			
S14b. City: London	S14c. County:	S14d. State/Country	S14e. Zip Code:
S14f. Telephone Number:	S14g. Call Sign of Control Station (if appropriate):		

FEDERAL COMMUNICATIONS COMMISSION
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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a: Mass of spacecraft without fuel (kg): 3065	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 3105		
S15c. Mass of spacecraft and fuel at launch (kg): 6170	S15f. Length (m): 32.4	S15i. Payload: 0.81
S15d. Mass of fuel, in orbit, at beginning of life (kg): 706	S15g. Width (m): 9.3	S15j. Bus: 0.84
S15e. Deployed Area of Solar Array (square meters): 89.3	S15h. Height (m): 7.8	S15k. Total: 0.65

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): 13725	(f): 13725	(k): 13725	(p): 13725
Bus (Watts):	(b): 3468	(g): 1798	(l): 3468	(q): 1798
Total (Watts):	(c): 17193	(h): 15523	(m) 17193	(r): 15523
Solar Array (Watts):	(d): 21646	(i): 18894	(n): 19416	(s): 17314
Depth of Battery Discharge (%):	(e) 64 %	(j) %	(o) 64 %	(t) %

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	X	**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**	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.