Approved by OMD Control Number 3060-0678
Estimated Burden Hours: 80

FCC 312 Schedule S	FEDERAL COMMUNICATIONS COMMISSION SATELLITE SPACE STATION AUTHORIZATIONS (Technical and Operational Description)	Page 1: General, Frequency Bands, and GSO Orbit

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: SES-14		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: 248	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) 17604 MHz	l. Orbit Type: Mark all boxes that apply: [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
10.95	G	11.2	G	T	Fixed Satellite Service
11.45	G	11.7	G	T	Fixed Satellite Service
11.70	G	12.2	G	T	Fixed Satellite Service
12.2	G	12.45	G	T	Fixed Satellite Service
13.75	G	14.5	G	R	Fixed Satellite Service
17.3	G	18.05	G	R	Fixed Satellite Service
18.55	G	19.55	G	T	Fixed Satellite Service
19.7	G	20.2	G	T	Fixed Satellite Service
28.0	G	29.5	G	R	Fixed Satellite Service
29.5	G	30	G	R	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 47.5 W	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:
Longitudinal Tolerance or E/W Station-Keeping: d. Toward West: 0.1 Degrees	f. Inclination Excursion or N/S Station-Keeping	Range of orbital are in which adequate service can be provided (Optional): Degrees E/W	

d. Toward West: 0.1 Degrees e. Toward East: 0.1 Degrees	Tolerance: 0.1 Degrees	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.
EURAM	S		Western Europe, North America, South America
VE	S		Visible Earth down to 5 degrees elevation
ATL	S		Eastern United States, Eastern Canada, Caribbean, NEast South America, Atlantic Ocean, Western Europe, We
USE	S		United States East Coast
BRSE	S		SE Brazil
VPEC	S		Venezuela, Peru, Ecuador, Colombia
BR	S		Brazil, Venezuela, Peru, Ecuador, Colombia, Guyana, Suriname, French Guiana
AERO	S		South America, North America, Atlantic Ocean, Western Europe, Western Africa
FL	S		Florida
EC	S		East coast of the US, Pennsylvania, Michigan
WE	S		Portugal, parts of Spain, France, Belgium, Luxembourg
WAC	S		West African coast
AO	S		Atlantic Ocean
SC	S		South Carolina
MA	S		Maine, Eastern Canada
ECA	S		Eastern coast of Canada

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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
EAUL	R	1	1	0.07	0.08	27	N		EURAM				1	1.2	-101.2	1	1
EAU	R	1	1	0.07	0.08	27	N		EURAM				1	1.2	-101.2	1	1
EADL	T	1	1	0.07	0.08	27	N		EURAM	1	1	42.5					
EAD	T	1	1	0.07	0.08	27	N		EURAM	1	1	42.5					
GUL	R	1	1	0.07	0.08	27	N		VE				1	-5.7	-97.3	1	1
GUR	R	1	1	0.07	0.08	27	N		VE				1	-5.7	-97.3	1	1
GDL	T	1	1	0.07	0.08	27	N		VE	1	1	38.3					
GDR	T	1	1	0.07	0.08	27	N		VE	1	1	38.3					
BUH	R	1	1	0.07	0.08	27	N	0	BR				1	6.4	-105.4	1	1
BUV	R	1	1	0.07	0.08	27	N	90	BR				1	6.4	-105.4	1	1
BDH	T	1	1	0.07	0.08	27	N	0	BR	1	1	52.9					
BDV	T	1	1	0.07	0.08	27	N	90	BR	1	1	53					
BSU	R	1	1	0.07	0.08	27	N	0	BRSE				1	6	-102	1	1
BSU	R	1	1	0.07	0.08	27	N	90	BRSE				1	6	-102	1	1
BSD	T	1	1	0.07	0.08	27	N	0	BRSE	1	1	50.5					
BSD	T	1	1	0.07	0.08	27	N	90	BRSE	1	1	50.5					
VUH	R	1	1	0.07	0.08	27	N	0	VPEC				1	6.2	-102.2	1	1
VUV	R	1	1	0.07	0.08	27	N	90	VPEC				1	6.2	-102.2	1	1
VDH	T	1	1	0.07	0.08	27	N	0	VPEC	1	1	50.9					
VDV	T	1	1	0.07	0.08	27	N	90	VPEC	1	1	50.8					
UUV	R	1	1	0.07	0.08	27	N	90	USE				1	6.7	-102.7	1	1
UDH	T	1	1	0.07	0.08	27	N	0	USE	1	1	51.1					
AUV	R	1	1	0.07	0.08	21.5	N	90	ATL				1	-2.6	-107.4	1	1
ADH	T	1	1	0.07	0.08	27	N	0	ATL	1	1	44.3					
TMK	T	1	1	0.07	0.08	25	N	0	VE	1	1	20.5					
TMK	T	1	1	0.07	0.08	25	N	90	VE	1	1	20.5					
TMK	T	1	1	0.07	0.08	18.7	N		VE	1	1	24.5					
TMK	T	1	1	0.07	0.08	18.7	N		VE	1	1	24.5					
TCOL	R	1	1	0.07	0.08	18.7	N		VE				1	-25	-80	1	1

TCO	R	1	1	0.07	0.08	18.7	N		VE				1	-25	-80	1	1
TCH	R	1	1	0.07	0.08	25	N	0	VE				1	-17.5	-90	1	1
TCHV	R	1	1	0.07	0.08	25	N	90	VE				1	-17.5	-90	1	1
UBD	T	1	1	0.07	0.08	19.5	N	0	AERO	1	1	53.4					
UBD	T	1	1	0.07	0.08	19.5	N	90	AERO	1	1	53.1					
UBU	R	1	1	0.07	0.08	18	N	0	AERO				1		-116.5	1	1
UBU	R	1	1	0.07	0.08	18	N	90	AERO				1		-115.2	1	1
A1DH	T	1	1	0.07	0.08	27	N	0	WAC	1	1	51.4					
A2DV	T	1	1	0.07	0.08	27	N	90	WAC	1	1	51.8					
M10D	T	1	1	0.07	0.08	27	N	90	AO	1	1	52.5					
M11D	T	1	1	0.07	0.08	27	N	90	AO	1	1	51.9					
M12D	T	1	1	0.07	0.08	27	N	0	WE	1	1	53.7					
M3D	T	1	1	0.07	0.08	27	N	0	FL	1	1	47.6					
M5D	T	1	1	0.07	0.08	27	N	0	SC	1	1	52.1					
M6D	T	1	1	0.07	0.08	27	N	90	EC	1	1	49.2					
M6B	T	1	1	0.07	0.08	27	N	90	EC	1	1	52.2					
M7D	T	1	1	0.07	0.08	27	N	0	MA	1	1	52.4					
M8D	T	1	1	0.07	0.08	27	N	90	ECA	1	1	52.3					
M9D	T	1	1	0.07	0.08	27	N	90	AO	1	1	53.5					
M12U	R	1	1	0.07	0.08	27	N	90	WE				1	14.3	-111.5	1	1
M3U	R	1	1	0.07	0.08	27	N	90	FL				1	15.3	-112.5	1	1
M6U	R	1	1	0.07	0.08	27	N	0	EC				1	15.2	-109.1	1	1
M6U	R	1	1	0.07	0.08	27	N	90	EC				1	15.3	-106.3	1	1
M6B	R	1	1	0.07	0.08	27	N	0	EC				1	16.6	-110.8	1	1
M3U	R	1	1	0.07	0.08	27	N	0	FL				1	15.3	-112.6	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
EADL	T	C				-162.8	-162.7	-163.6	-161.5	-160.4
EAD	T	C				-162.8	-162.7	-163.6	-161.5	-160.4
EAUL	R	C								
EAU	R	C								
GUL	R	C								
GUR	R	C								
GDL	T	C				-167.5	-167.4	-167.3	-166.7	-166.6
GDR	T	C				-167.5	-167.4	-167.3	-166.7	-166.6
BUH	R	C								
BUV	R	C								
BDH	T	C								
BDV	T	C								
BSU	R	C								
BSU	R	C								
BSD	T	C								
BSD	T	C								
VUH	R	C								
VUV	R	C								
VDH	T	C								
VDV	T	C								
UUV	R	C								
UDH	T	C								
AUV	R	C								
ADH	T	C								
UBD	T	C				-154.6	-153.5	-151.4	-150.3	-149.4
UBD	T	C				-159.6	-157.5	-155.4	-153.3	-151.2
UBU	R	C								
UBU	R	C								

A1DH	T	C								
A2DV	T	C								
M10D	T	C								
M11D	T	C								
M12D	T	C								
M3D	T	C								
M5D	T	C								
M6D	T	C								
M6B	T	C								
M7D	T	C								
M8D	T	C								
M9D	T	C								
M12U	R	C								
M3U	R	C								
M6U	R	C								
M6U	R	C								
M6B	R	C								
M3U	R	C								
TMK	T	C				-155.8	-155.6	-155.5	-155.4	-155.3
TMK	T	C				-155.8	-155.6	-155.5	-155.4	-155.3

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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)
FD29	54000	T	11918.5	H	C
FD30	54000	T	11732.5	H	C
FD31	170000	T	11860.5	H	C
FD32	170000	T	11040.5	H	C
FD33	54000	T	11168.5	H	C
FD34	170000	T	11040.5	H	C
FD35	54000	T	11168.5	H	C
FD36	54000	T	11732.5	H	C
FD37	170000	T	11860.5	H	C
FD38	54000	T	11732.5	V	C
FD39	170000	T	11860.5	V	C
FD40	114000	T	11762.5	V	C
FD41	54000	T	11858.5	V	C
FD42	54000	T	11918.5	V	C
FD43	54000	T	10982.5	V	C
FD44	54000	T	11042.5	V	C
FD45	114000	T	11138.5	V	C
FD46	54000	T	11732.5	H	C
FD47	54000	T	11792.5	H	C
FD48	114000	T	11888.5	H	C
FD49	54000	T	11108.5	H	C
FD50	54000	T	11168.5	H	C
FD51	54000	T	11108.5	V	C
FD52	54000	T	11168.5	V	C
FD53	54000	T	10982.5	H	C
FD54	54000	T	11042.5	H	C
FD55	54000	T	10982.5	V	C
FD56	54000	T	11042.5	V	C
FD57	114000	T	11762.5	H	C
FD58	54000	T	11858.5	H	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
EA20	1	EA20U	EAUR	EA20D	EADL
G01	1	G01U	GUL	G01D	GDR
G02	1	G02U	GUR	G02D	GDL
G03	1	G03U	GUL	G03D	GDR
G04	1	G04U	GUR	G04D	GDL
TMK01				TMK01	TMKHV
TMK02				TMK02	TMKHH
TMK03				TMK03	TMKOR
TMK04				TMK04	TMKOR
TMK05				TMK05	TMKOL
TMK06				TMK06	TMKOL
TC01		TC01	TCOL		
TC02		TC02	TCOL		
TC03		TC03	TCOR		
TC04		TC04	TCOR		
TC05		TC05	TCHV		
TC06		TC06	TCHV		
TC07		TC07	TCHH		
TC08		TC08	TCHH		
FD1				FD1	A1DH
FD2				FD2	A2DV
FD3				FD3	UBDH
FD4				FD4	UBDH
FD5				FD5	UBDH
FD6				FD6	UBDV
FD7				FD7	UBDV
FD8				FD8	UBDV
FD9				FD9	UBDV
FD10				FD10	UBDV
FD11				FD11	UBDH

FD59	54000	T	11918.5	H	C
FD60	114000	T	11012.5	V	C
FD61	54000	T	11108.5	V	C
FD62	54000	T	11168.5	V	C
FD63	54000	T	10982.5	H	C
FD64	54000	T	11042.5	H	C
FD65	114000	T	11138.5	H	C
FD66	54000	T	11732.5	V	C
FD67	54000	T	11792.5	V	C
FD68	114000	T	11888.5	V	C
FD69	114000	T	11138.5	V	C
FD70	114000	T	11012.5	V	C
FD71	110000	T	12270	V	C
FD72	109000	T	11136	V	C
FD73	110000	T	12394	V	C
FD74	109000	T	11136	H	C
FD75	110000	T	12270	H	C
FD76	114000	T	11508.5	V	C
FD77	54000	T	10982.5	H	C
U01D	72000	T	11995	H	C
U02D	72000	T	12075	H	C
U03D	72000	T	12155	H	C
A01U	36000	R	14436.5	V	C
A02U	36000	R	14476.5	V	C
A03U	15000	R	14125	V	C
A01D	36000	T	11632.5	H	C
A02D	36000	T	11672.5	H	C
A03D	15000	T	11575	H	C
EA01U	72000	R	5888	L	C
EA02U	72000	R	5888	R	C
EA03U	72000	R	5968	L	C
EA04U	72000	R	5968	R	C
EA05U	36000	R	6028	L	C
EA06U	36000	R	6028	R	C
EA07U	36000	R	6068	L	C
EA08U	36000	R	6068	R	C
EA09U	36000	R	6108	L	C
EA10U	36000	R	6108	R	C
EA11U	36000	R	6148	L	C

FD12				FD12	UBDH
FD13				FD13	UBDH
FD14				FD14	UBDH
FD15				FD15	UBDH
FD16				FD16	UBDH
FD17				FD17	UBDV
FD18				FD18	UBDV
FD19				FD19	UBDV
FD20				FD20	UBDH
FD21				FD21	UBDH
FD22				FD22	UBDV
FD23				FD23	UBDV
FD24				FD24	UBDV
FD25				FD25	UBDV
FD26				FD26	UBDV
FD27				FD27	UBDH
FD28				FD28	UBDH
FD29				FD29	UBDH
B01	1	B01U	BUH	B01D	BDV
B02	1	B02U	BUH	B02D	BDV
B03	1	B03U	BUH	B03D	BDV
B04	1	B04U	BUH	B04D	BDV
B05	1	B05U	BUH	B05D	BDV
B06	1	B06U	BUH	B06D	BDV
B07	1	B07U	BUV	B07D	BDH
B08	1	B08U	BUV	B08D	BDH
B09	1	B09U	BUV	B09D	BDH
B10	1	B10U	BUV	B10D	BDH
B11	1	B11U	BUV	B11D	BDH
B12	1	B12U	BUV	B12D	BDH
BS01	1	BS01U	BSUH	BS01D	BSDV
BS02	1	BS02U	BSUH	BS02D	BSDH
BS03	1	BS03U	BSUH	BS03D	BSDH
BS04	1	BS04U	BSUV	BS04D	BSDV
BS05	1	BS05U	BSUV	BS05D	BSDV
BS06	1	BS05U	BSUV	BS06D	BSDV
U01	1	U01U	UUV	U01D	UDH
U02	1	U02U	UUV	U02D	UDH
U03	1	U03U	UUV	U03D	UDH

EA12U	36000	R	6148	R	C
EA13U	74000	R	6221	L	C
EA14U	74000	R	6221	R	C
EA15U	36000	R	6280	L	C
EA16U	36000	R	6280	R	C
EA17U	36000	R	6320	L	C
EA18U	36000	R	6320	R	C
EA19U	81000	R	6382.5	L	C
EA20U	81000	R	6382.5	R	C
EA01D	72000	R	3663	R	C
EA02D	72000	T	3663	L	C
EA03D	72000	T	3743	R	C
EA04D	72000	T	3743	L	C
EA05D	36000	T	3803	R	C
EA06D	36000	T	3803	L	C
EA07D	36000	T	3843	R	C
EA08D	36000	T	3843	L	C
EA09D	36000	T	3883	R	C
EA10D	36000	T	3883	L	C
EA11D	36000	T	3923	R	C
EA12D	36000	T	3923	L	C
EA13D	74000	T	3996	R	C
EA14D	74000	T	3996	L	C
EA15D	36000	T	4055	R	C
EA16D	36000	T	4055	L	C
EA17D	36000	T	4095	R	C
EA18D	36000	T	4095	L	C
EA19D	81000	T	4157.5	R	C
EA20D	81000	T	4157.5	L	C
G01U	36000	R	6280	L	C
G02U	36000	R	6280	R	C
G03U	36000	R	6320	L	C
G04U	36000	R	6320	R	C
G01D	36000	T	4055	R	C
G02D	36000	T	4055	L	C
G03D	36000	T	4095	R	C
G04D	36000	T	4095	L	C
TMK01	200	T	10953	V	C
TMK02	200	T	12198	H	C

A01	1	A01U	M12UV	A01D	ADH
A02	1	A02U	M12UV	A02D	ADH
A03	1	A03U	AUV	A03D	M12DH
EA01	1	EA01U	EAUL	EA01D	EADR
EA02	1	EA02U	EAUR	EA02D	EADL
EA03	1	EA03U	EAUL	EA03D	EADR
EA04	1	EA04U	EAUR	EA04D	EADL
EA05	1	EA05U	EAUL	EA05D	EADR
EA06	1	EA06U	EAUR	EA06D	EADL
EA07	1	EA07U	EAUL	EA07D	EADR
EA08	1	EA08U	EAUR	EA08D	EADL
EA09	1	EA09U	EAUL	EA09D	EADR
EA10	1	EA10U	EAUR	EA10D	EADL
EA11	1	EA11U	EAUL	EA11D	EADR
EA12	1	EA12U	EAUR	EA12D	EADL
EA13	1	EA13U	EAUL	EA13D	EADR
EA14	1	EA14U	EAUR	EA14D	EADL
EA15	1	EA15U	EAUL	EA15D	EADR
EA16	1	EA16U	EAUR	EA16D	EADL
EA17	1	EA17U	EAUL	EA17D	EADR
EA18	1	EA18U	EAUR	EA18D	EADL
EA19	1	EA19U	EAUL	EA19D	EADR
FD30				FD30	UBDH
FD31				FD31	UBDH
FD32				FD32	UBDH
FD33				FD33	UBDH
FD34				FD34	UBDH
FD35				FD35	UBDH
FD36				FD36	UBDH
FD37				FD37	UBDH
FD38				FD38	UBDV
FD39				FD39	UBDV
FD40				FD40	UBDV
FD41				FD41	UBDV
FD42				FD42	UBDV
FD43				FD43	UBDV
FD44				FD44	UBDV
FD45				FD45	UBDV
FD46				FD46	UBDH

TMK03	200	T	10953	R	C
TMK04	200	T	12198	R	C
TMK05	200	T	10953	L	C
TMK06	200	T	12198	L	C
TMC01	0.001	T	4198	V	C
TMKA1	0.001	T	20199	L	C
GLD01	10000	T	11675	V	C
TC01	1200	R	14002	L	C
TC02	1200	R	14498	L	C
TC03	1200	R	14002	R	C
TC04	1200	R	14498	R	C
TC05	1200	R	14002	V	C
TC06	1200	R	14498	V	C
TC07	1200	R	14002	H	C
TC08	1200	R	14498	H	C
FD1	54000	T	12422	H	C
FD2	54000	T	12362	V	C
FD3	54000	T	10982.5	H	C
FD4	114000	T	11012.5	H	C
FD5	54000	T	11042.5	H	C
FD6	54000	T	10982.5	V	C
FD7	114000	T	11012.5	V	C
FD8	54000	T	11042.5	V	C
FD9	170000	T	11040.5	V	C
FD10	54000	T	11168.5	V	C
FD11	54000	T	11732.5	H	C
FD12	54000	T	11792.5	H	C
FD13	114000	T	11888.5	H	C
FD14	114000	T	11012.5	H	C
FD15	54000	T	11108.5	H	C
FD16	54000	T	11168.5	H	C
FD17	54000	T	10982.5	V	C
FD18	54000	T	11042.5	V	C
FD19	114000	T	11138.5	V	C
FD20	170000	T	11040.5	H	C
FD21	54000	T	11168.5	H	C
FD22	170000	T	11790.5	V	C
FD23	54000	T	11918.5	V	C
FD24	54000	T	10982.5	V	C

FD47				FD47	UBDH
FD48				FD48	UBDH
FD49				FD49	UBDH
FD50				FD50	UBDH
FD51				FD51	UBDV
FD52				FD52	UBDV
FD53				FD53	UBDH
FD54				FD54	UBDH
FD55				FD55	UBDV
FD56				FD56	UBDV
FD57				FD57	UBDH
FD58				FD58	UBDH
FD59				FD59	UBDH
FD60				FD60	UBDV
FD61				FD61	UBDV
FD62				FD62	UBDV
FD63				FD63	UBDH
FD64				FD64	UBDH
FD65				FD65	UBDH
FD66				FD66	UBDV
FD67				FD67	UBDV
FD68				FD68	UBDV
FD69				FD69	UBDV
FD70				FD70	UBDV
FD71				FD71	M10DV
FD72				FD72	UBDV
FD73				FD73	M11DV
FD74				FD74	UBDH
FD75				FD75	M12DH
FD76				FD76	UBDV
FD77				FD77	UBDH
FD78				FD78	UBDH
FD79				FD79	UBDV
FD80				FD80	UBDV
FD81				FD81	UBDH
FD82				FD82	M5DH
FD83				FD83	UBDV
FD84				FD84	M6BDV
FD85				FD85	UBDH

FD25	54000	T	11042.5	V	C
FD26	114000	T	11138.5	V	C
FD27	114000	T	11762.5	H	C
FD28	54000	T	11858.5	H	C
B01U	36000	R	14275	H	C
B02U	36000	R	14315	H	C
B03U	36000	R	14355	H	C
B04U	36000	R	14395	H	C
B05U	36000	R	14435	H	C
B06U	36000	R	14475	H	C
B07U	36000	R	14275	V	C
B08U	36000	R	14315	V	C
B09U	36000	R	14355	V	C
B10U	36000	R	14395	V	C
B11U	36000	R	14435	V	C
B12U	36000	R	14475	V	C
B01D	36000	T	11975	V	C
B02D	36000	T	12015	V	C
B03D	36000	T	12055	V	C
B04D	36000	T	12095	V	C
B05D	36000	T	12135	V	C
B06D	36000	T	12175	V	C
B07D	36000	T	11975	V	C
B08D	36000	T	12015	V	C
B09D	36000	T	12055	V	C
B10D	36000	T	12095	V	C
B11D	36000	T	12135	V	C
B12D	36000	T	12175	V	C
BS01U	72000	R	14295	H	C
BS02U	72000	R	14375	H	C
BS03U	72000	R	14455	H	C
BS04U	72000	R	14295	V	C
BS05U	72000	R	14375	V	C
BS06U	72000	R	14455	V	C
BS01D	72000	T	11995	H	C
BS02D	72000	T	12075	H	C
BS03D	72000	T	12155	H	C
BS04D	72000	T	11995	V	C
BS05D	72000	T	12075	V	C

FD86				FD86	M7DH
FD87				FD87	UBDV
FD88				FD88	M8DV
FD89				FD89	UBDV
FD90				FD90	M9DV
FD91				FD91	UBDH
FD92				FD92	UBDH
FD93				FD93	UBDH
FD94				FD94	UBDV
FD95				FD95	UBDV
FD96				FD96	UBDV
FD97				FD97	UBDH
FD98				FD98	UBDH
FD99				FD99	UBDH
FD100				FD100	UBDH
FD101				FD101	UBDH
FD102				FD102	UBDH
RD01				RD01	M3DH
RD02				RD02	M6DV
RD03				RD03	M6DV
RD04				RD04	M6DV
RD05				RD05	M6DV
RU01		RU01	UBUV		
RU02		RU02	UBUH		
RU03		RU03	UBUV		
RU04		RU04	UBUH		
RU05		RU05	UBUH		
RU06		RU06	UBUH		
RU07		RU07	UBUV		
RU08		RU08	UBUV		
RU09		RU09	UBUV		
RU10		RU10	UBUV		
RU11		RU11	UBUH		
RU12		RU12	UBUH		
RU13		RU13	UBUV		
RU14		RU14	UBUV		
RU15		RU15	UBUH		
RU16		RU16	UBUH		
RU17		RU17	UBUH		

BS06D	72000	T	12155	V	C
V01U	72000	R	14295	H	C
V02U	72000	R	14375	H	C
V03U	72000	R	14455	H	C
V04U	72000	R	14295	V	C
V05U	72000	R	14375	V	C
V06U	72000	R	14455	V	C
V01D	72000	T	11995	V	C
V02D	72000	T	12075	V	C
V03D	72000	T	12155	V	C
V04D	72000	T	11995	H	C
V05D	72000	T	12075	H	C
V06D	72000	T	12155	H	C
U01U	72000	R	14295	V	C
U02U	72000	R	14375	V	C
U03U	72000	R	14455	V	C
FD78	54000	T	11042.5	H	C
FD79	54000	T	10982.5	V	C
FD80	54000	T	11042.5	V	C
FD81	114000	T	11138.5	H	C
FD82	110000	T	12394	H	C
FD83	225000	T	11071	V	C
FD84	225000	T	12325	V	C
FD85	225000	T	11071	H	C
FD86	110000	T	12270	H	C
FD87	114000	T	11012.5	V	C
FD88	110000	T	12270	V	C
FD89	109000	T	11136	V	C
FD90	110000	T	12394	V	C
FD91	114000	T	11762.5	H	C
FD92	54000	T	11858.5	H	C
FD93	54000	T	11918.5	H	C
FD94	54000	T	10982.5	V	C
FD95	54000	T	11042.5	V	C
FD96	114000	T	11138.5	V	C
FD97	114000	T	11012.5	H	C
FD98	54000	T	11108.5	H	C
FD99	54000	T	11168.5	H	C
FD100	114000	T	11762.5	H	C

RU18		RU18	UBUH		
RU19		RU19	UBUV		
RU20		RU20	UBUV		
RU21		RU21	UBUV		
RU22		RU22	UBUV		
RU23		RU23	UBUV		
RU24		RU24	UBUV		
RU25		RU25	UBUV		
RU26		RU26	UBUV		
RU27		RU27	UBUV		
RU28		RU28	UBUV		
RU29		RU29	UBUH		
RU30		RU30	UBUH		
RU31		RU31	UBUH		
RU32		RU32	UBUH		
RU33		RU33	UBUH		
RU34		RU34	UBUH		
RU35		RU35	UBUV		
RU36		RU36	UBUV		
RU37		RU37	UBUV		
RU38		RU38	UBUH		
RU39		RU39	UBUV		
RU40		RU40	UBUH		
RU41		RU41	UBUV		
RU42		RU42	UBUV		
RU43		RU43	UBUH		
RU44		RU44	UBUH		
RU45		RU45	UBUV		
RU46		RU46	UBUV		
RU47		RU47	UBUH		
RU48		RU48	UBUH		
RU49		RU49	UBUH		
RU50		RU50	UBUH		
RU51		RU51	UBUH		
RU52		RU52	UBUV		
RU53		RU53	UBUH		
RU54		RU54	UBUV		
RU55		RU55	UBUH		
RU56		RU56	UBUV		

FD101	54000	T	11858.5	H	C
FD102	54000	T	11918.5	H	C
RD01	114000	T	11825.5	H	C
RD02	65000	T	11738	V	C
RD03	43000	T	11799	V	C
RD04	86000	T	11872	V	C
RD05	22000	T	11934.5	V	C
RU01	22000	R	14016.5	V	C
RU02	22000	R	14042.5	H	C
RU03	22000	R	14147.5	V	C
RU04	43000	R	14176	H	C
RU05	54000	R	14032.5	H	C
RU06	54000	R	14092.5	H	C
RU07	54000	R	14158.5	V	C
RU08	54000	R	14218.5	V	C
RU09	52000	R	14033.5	V	C
RU10	54000	R	14092.5	V	C
RU11	54000	R	14032.5	H	C
RU12	54000	R	14092.5	H	C
RU13	54000	R	14032.5	V	C
RU14	54000	R	14092.5	V	C
RU15	54000	R	14158.5	H	C
RU16	54000	R	14218.5	H	C
RU17	52000	R	14033.5	H	C
RU18	54000	R	14092.5	H	C
RU19	54000	R	14158.5	V	C
RU20	54000	R	14218.5	V	C
RU21	54000	R	14158.5	V	C
RU22	54000	R	14218.5	V	C
RU23	54000	R	14032.5	V	C
RU24	54000	R	14092.5	V	C
RU25	52000	R	14033.5	V	C
RU26	54000	R	14092.5	V	C
RU27	54000	R	14158.5	V	C
RU28	54000	R	14218.5	V	C
RU29	54000	R	14158.5	H	C
RU30	54000	R	14218.5	H	C
RU31	54000	R	14158.5	H	C
RU32	54000	R	14218.5	H	C

RU57		RU57	UBUH		
RU58		RU58	UBUV		
RU59		RU59	UBUH		
RU60		RU60	UBUH		
RU61		RU61	UBUV		
RU62		RU62	UBUV		
RU63		RU63	UBUH		
RU64		RU64	UBUH		
RU65		RU65	UBUV		
RU66		RU66	UBUV		
RU67		RU67	UBUV		
RU68		RU68	UBUV		
FU01		FU01	M12UV		
FU02		FU02	M12UV		
FU03		FU03	M12UV		
FU04		FU04	M12UV		
FU05		FU05	M12UV		
FU06		FU06	M12UV		
FU07		FU07	M12UV		
FU08		FU08	M3UV		
FU09		FU09	M3UV		
FU10		FU10	M3UH		
FU11		FU11	M3UH		
FU12		FU12	M3UV		
FU13		FU13	M6UH		
FU14		FU14	M6UV		
FU15		FU15	M6UH		
FU16		FU16	M6UH		
FU17		FU17	M6BUH		
FU18		FU18	M6BUH		
FU19		FU19	M6BUH		
V01	1	V01U	VUH	V01D	VDV
V02	1	V02U	VUH	V02D	VDV
V03	1	V03U	VUH	V03D	VDV
V04	1	V04U	VUV	V04D	VDH
V05	1	V05U	VUV	V05D	VDH
V06	1	V06U	VUV	V06D	VDH

RU33	54000	R	14032.5	H	C
RU34	54000	R	14092.5	H	C
RU35	54000	R	14158.5	V	C
RU36	54000	R	14218.5	V	C
RU37	54000	R	14092.5	V	C
RU38	54000	R	14218.5	H	C
RU39	54000	R	14032.5	V	C
RU40	54000	R	14032.5	H	C
RU41	54000	R	14158.5	V	C
RU42	54000	R	14218.5	V	C
RU43	54000	R	14032.5	H	C
RU44	54000	R	14092.5	H	C
RU45	54000	R	14032.5	V	C
RU46	54000	R	14092.5	V	C
RU47	54000	R	14158.5	H	C
RU48	54000	R	14218.5	H	C
RU49	54000	R	14158.5	H	C
RU50	43000	R	14128	H	C
RU51	43000	R	14224	H	C
RU52	43000	R	14080	V	C
RU53	22000	R	14234.5	H	C
RU54	54000	R	14032.5	V	C
RU55	54000	R	14158.5	H	C
RU56	43000	R	14099	V	C
RU57	86000	R	14172	H	C
RU58	65000	R	14038	V	C
RU59	43000	R	14027	H	C
RU60	43000	R	14080	H	C
RU61	54000	R	14158.5	V	C
RU62	54000	R	14218.5	V	C
RU63	54000	R	14032.5	H	C
RU64	54000	R	14092.5	H	C
RU65	54000	R	14032.5	V	C
RU66	54000	R	14092.5	V	C
RU67	54000	R	14158.5	V	C
RU68	54000	R	14218.5	V	C
FU01	110000	R	17370	V	C
FU02	110000	R	17494	V	C
FU03	110000	R	17620	V	C

FU04	110000	R	17744	V	C
FU05	110000	R	17870	V	C
FU06	54000	R	17962	V	C
FU07	54000	R	18022	V	C
FU08	54000	R	13786.5	V	C
FU09	54000	R	13846.5	V	C
FU10	54000	R	13846.5	H	C
FU11	114000	R	13942.5	H	C
FU12	54000	R	13972.5	V	C
FU13	225000	R	13875	H	C
FU14	225000	R	13875	V	C
FU15	114000	R	14312.5	H	C
FU16	114000	R	14438.5	H	C
FU17	225000	R	17425	H	C
FU18	110000	R	17620	H	C
FU19	110000	R	17744	H	C

FEDERAL COMMUNICATIONS COMMISSION
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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	1M44G7W	1440						
D2	1M80G7W	1800						
D3	2M40G7W	2400						
D4	9M00G7W	9000						
D5	35M4G7W	35400						
D6	36M0G7W	36000						
D7	54M0G7W	54000						
D8	4M80G7W	4800						

FEDERAL COMMUNICATIONS COMMISSION **Page 8: Analog Modulation**

SATELLITE SPACE STATION AUTHORIZATIONS

FCC Form 312 - Schedule S: (Technical and Operational Description)

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	800KF9D	800												
A2	200KF9D	200												
A3	K001N0D	0.001												

FEDERAL COMMUNICATIONS COMMISSION **Page 9: Typical Emissions**

SATELLITE SPACE STATION AUTHORIZATIONS

FCC Form 312 - Schedule S: (Technical and Operational Description)

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)			
(a) Start	(b) End	(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/m2/Hz)	(o)Assoc. Stn Rec. G/T (dB/K)
									(j) Min.	(k) Max.	(l) Min.	(m) Max.		
EA01	EA20	D1										19.1		
EA01	EA20	D3										19.1		
EA01	EA20	D4										27.4		
EA01	EA20	D6										37		
G01	G04	D2										17.3		
G01	G04	D4										25.4		
G01	G04	D6										35		
B01	B12	D3										34.3		
B01	B12	D3										33.5		
B01	B12	D2										34.4		
B01	B12	D4										38		
B01	B12	D6										48		
B01	B12	D6										50		
U01	U03	D3										31.7		
U01	U03	D3										30.8		
U01	U03	D2										32.8		
U01	U03	D4										35.9		
U01	U03	D5										43.7		
V01	V06	D3										33.4		
V01	V06	D3										33.5	0	
V01	V06	D2										32.1		
V01	V06	D4										34.9		
V01	V06	D5										45.7		
BS01	BS06	D3										31.2		
BS01	BS06	D3										30.4		
BS01	BS06	D2										31.4		
BS01	BS06	D4										37		
BS01	BS06	D5										44.6		
FD1	FD102	D7										47		

FD1	FD102	D7										47		
FU01	FU19	D7												
RD01	RD05	D3										34		
RD01	RD05	D8										37		
RU01	RU68	D3												
RU01	RU08	D8												
A01	A03	D6										41.5		
A01	A03	D3										34.9		
TMK01	TMK06		A1									13		
TC01	TC08		A2											

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

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

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**	[#]	**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.

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The public reporting estimate for this collection of information includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PERM@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

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