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: O3B		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): 10 Years	j. Number of transponders offered on a common carrier basis:
c. Construction Completion Date:		g. Total Number of Transponders:	k. Total Common Carrier Transponder Bandwidth: MHz
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) MHz	l. Orbit Type: Mark all boxes that apply: [ ] **GSO** [X] **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)		
27.6	G	28.4	G	R	Fixed Satellite Service
28.6	G	29.1	G	R	Fixed Satellite Service
17.8	G	18.6	G	T	Fixed Satellite Service
18.8	G	19.3	G	T	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

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S4. ORBITAL INFORMATION FOR NON-GEOSTATIONARY SATELLITES ONLY

S4a. Total Number of Satellites in Network or System: 20

S4b. Total Number of Orbital Planes in Network or System: 1

S4c. Celestial Reference Body (Earth, Sun, Moon, etc.): E

S4d. Orbit Epoch Date: 1/1/2010

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
1	20	0	17280	8062	8062	0	0	0	360	

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)
1	1	0
1	2	22.5
1	3	45
1	4	67.5
1	5	90
1	6	112.5
1	7	135
1	8	157.5
1	9	180
1	10	202.5
1	11	225
1	12	247.5
1	13	270
1	14	292.5
1	15	315
1	16	337.5
1	17	2.5
1	18	92.5
1	19	182.5
1	20	272.5

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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.
GN	E		Visible Earth with elevation angle at least 5 degrees
GG	E		Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees
UN	E		Visible Earth with elevation angle at least 5 degrees
UG	E		Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees

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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
GT2N	T			0.6	0.5	18.5			GN			49.7					
GT2	T			0.6	0.5	18.5			GG			49.7					
UT1G	T			0.6	0.5	18.5			UG			49.7					
UR1	R			0.6	0.5	18.5			UG					7	-101	1	1
UR2	R			0.6	0.5	18.5			UG					7	-101	1	1
UR3	R			0.6	0.5	18.5			UG					7	-101	1	1
UR4	R			0.6	0.5	18.5			UN					7	-101	1	1
UR5	R			0.6	0.5	18.5			UN					7	-101	1	1
CMD	R			0.6	0.5	20			GN					-20	-92	1	1
TLM	T			0.6	0.5	20			GN			5.2					
TLMS	T			0.6	0.5	20			GN			20.5					
GT1N	T			0.6	0.5	18.5			GN			49.7					
GT1	T			0.6	0.5	18.5			GG			49.7					
GR1	R			0.6	0.5	18.5			GN					7	-98	1	1
GR1	R			0.6	0.5	18.5			GG					7	-98	1	1
GR2	R			0.6	0.5	18.5			GN					7	-98	1	1
GR2	R			0.6	0.5	18.5			GG					7	-98	1	1
UT2G	T			0.6	0.5	18.5			UG			49.7					
UT3G	T			0.6	0.5	18.5			UG			49.7					
UT4N	T			0.6	0.5	18.5			UN			49.7					
UT5N	T			0.6	0.5	18.5			UN			49.7					
UT6G	T			0.6	0.5	18.5			UG			49.7					
UT7G	T			0.6	0.5	18.5			UG			49.7					
UT8G	T			0.6	0.5	18.5			UG			49.7					
UT9N	T			0.6	0.5	18.5			UN			49.7					
UT10	T			0.6	0.5	18.5			UN			49.7					
UR6	R			0.6	0.5	18.5			UG					7	-101	1	1
UR7	R			0.6	0.5	18.5			UG					7	-101	1	1
UR8	R			0.6	0.5	18.5			UG					7	-101	1	1

UR9	R			0.6	0.5	18.5			UN					7	-101	1	1
UR10	R			0.6	0.5	18.5			UN					7	-101	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
GT1N	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
GT1	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
GT2N	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
GT2	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
GR1	R	C		RX antenna pattern equ						
GR1	R	C		RX antenna pattern equ						
GR2	R	C		RX antenna pattern equ						
GR2	R	C		RX antenna pattern equ						
UT1G	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT2G	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT3G	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT4N	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT5N	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT6G	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT7G	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT8G	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT9N	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UT10	T	C		RX antenna pattern equ		-119.2	-118.8	-118.5	-118.2	-118
UR1	R	C		RX antenna pattern equ						
UR2	R	C		RX antenna pattern equ						
UR3	R	C		RX antenna pattern equ						
UR4	R	C		RX antenna pattern equ						
UR5	R	C		RX antenna pattern equ						
UR6	R	C		RX antenna pattern equ						
UR7	R	C		RX antenna pattern equ						
UR8	R	C		RX antenna pattern equ						
UR9	R	C		RX antenna pattern equ						
UR10	R	C		RX antenna pattern equ						

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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)
R1L	300000	R	27750	L	C
R1R	300000	R	27750	R	C
R2L	260000	R	28020	L	C
R2R	260000	R	28020	R	C
R3L	260000	R	28270	L	C
R3R	260000	R	28270	R	C
R4L	250000	R	28725	L	C
R4R	250000	R	28725	R	C
R5L	250000	R	28962.5	L	C
R5R	250000	R	28962.5	R	C
T1L	300000	T	17950	L	C
T1R	300000	T	17950	R	C
T2L	260000	T	18220	L	C
T2R	260000	T	18220	R	C
T3L	260000	T	18470	L	C
T3R	260000	T	18470	R	C
T4L	250000	T	18925	L	C
T4R	250000	T	18925	R	C
T5L	250000	T	19162.5	L	C
T5R	250000	T	19162.5	R	C
TM1	1000	T	19296.6	R	T
TM2	1000	T	19296.8	R	T
TM3	1000	T	19297	R	T
TM4	1000	T	19297.2	R	T
TM5	1000	T	19297.4	R	T
TM6	1000	T	19297.6	R	T
TM7	1000	T	19297.8	R	T
TM8	1000	T	19298	R	T
TM9	1000	T	19298.2	R	T
TM10	1000	T	19298.4	R	T

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
TMS14				TMS14	TLMS
TMS15				TMS15	TLMS
TMS16				TMS16	TLMS
F1	1	R1R	GR1G	T1L	UT1G
F2	1	R2R	GR1G	T2L	UT2G
F3	1	R3R	GR1G	T3L	UT3G
F4	1	R4R	GR1N	T4L	UT4N
F5	1	R5R	GR1N	T5L	UT5N
F6	1	R1L	GR2G	T1R	UT6G
F7	1	R2L	GR2G	T2R	UT7G
F8	1	R3L	GR2G	T3R	UT8G
F9	1	R4L	GR2N	T4R	UT9N
F10	1	R5L	GR2N	T5R	UT10N
R1	1	R1L	UR1G	T1R	GT1G
R2	1	R2L	UR2G	T2R	GT1G
R3	1	R3L	UR3G	T3R	GT1G
R4	1	R4L	UR4N	T4R	GT1N
R5	1	R5L	UR5N	T5R	GT1N
R6	1	R1R	UR6G	T1L	GT2G
R7	1	R2R	UR7G	T2L	GT2G
R8	1	R3R	UR8G	T3L	GT2G
R9	1	R4R	UR9N	T4L	GT2G
R10	1	R5R	UR10N	T5L	GT2G
TMN1				TM1	TLMN
TMN2				TM2	TLMN
TMN3				TM3	TLMN
TMN4				TM4	TLMN
TMN5				TM5	TLMN
TMN6				TM6	TLMN
TMN7				TM7	TLMN

TM11	1000	T	19298.6	R	T
TM12	1000	T	19298.8	R	T
TM13	1000	T	19299	R	T
TM14	1000	T	19299.2	R	T
TM15	1000	T	19299.4	R	T
TM16	1000	T	19299.6	R	T
TC1	1200	R	29088.5	L	T
TMS1	1000	T	19296.6	L	T
TMS2	1000	T	19296.8	L	T
TMS3	1000	T	19297	L	T
TMS4	1000	T	19297.2	L	T
TMS5	1000	T	19297.4	L	T
TMS6	1000	T	19297.6	L	T
TMS7	1000	T	19297.8	L	T
TMS8	1000	T	19298	L	T
TMS9	1000	T	19298.2	L	T
TMS10	1000	T	19298.4	L	T
TMS11	1000	T	19298.6	L	T
TMS12	1000	T	19298.8	L	T
TMS13	1000	T	19299	L	T
TMS14	1000	T	19299.2	L	T
TMS15	1000	T	19299.4	L	T
TMS16	1000	T	19299.6	L	T

TMN8				TM8	TLMN
TMN9				TM9	TLMN
TMN10				TM10	TLMN
TMN11				TM11	TLMN
TMN12				TM12	TLMN
TMN13				TM13	TLMN
TMN14				TM14	TLMN
TMN15				TM15	TLMN
TMN16				TM16	TLMN
TC		TC1	CMD		
TMS1				TMS1	TLMS
TMS2				TMS2	TLMS
TMS3				TMS3	TLMS
TMS4				TMS4	TLMS
TMS5				TMS5	TLMS
TMS6				TMS6	TLMS
TMS7				TMS7	TLMS
TMS8				TMS8	TLMS
TMS9				TMS9	TLMS
TMS10				TMS10	TLMS
TMS11				TMS11	TLMS
TMS12				TMS12	TLMS
TMS13				TMS13	TLMS

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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	216MX7D	216000						
D2	40M0X7D	40000						
D3	307KX7D	1000						
D4	250MX7D	250000						
D5	260MX7D	260000						
D6	300MX7D	300000						
CMD	500KG2D	1200						
TLM	300KG1D	1000						

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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						

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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.		
F1	F10	D1										47.7		
F1	F10	D2										47.7		
F1	F10	D3										25.5		
F1	F10	D4										47.7		
F1	F10	D5										47.7		
F1	F10	D6										47.7		
R1	R10	D1										37.9		
R1	R10	D2										37.9		
R1	R10	D3										15.5		
R1	R10	D4										37.9		
R1	R10	D5										37.9		
R1	R10	D6										37.9		
TC	TC	CMD												
TMN1	TMN16	TLM										5.2		
TMS1	TMS16	TLM										20.5		

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**	X	**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?	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.

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