FCC	312	
Sche	dule	S

FEDERAL COMMUNICATIONS COMMISSION SATELLITE SPACE STATION AUTHORIZATIONS (Technical and Operational Description)

Page 1: General, Frequency Bands, and GSO Orbit

a. Space Station or Satellite N @CONTACT NGSO	etwork Name:	e. Estimated Date of Placement into Service:	i Will the space station(s) operate on a Common Carrier Basis:			
b. Construction Commenceme	ent Date:	f. Estimated Lifetime of Satellite(s): Years	j. Number of transponders offered on a common carrier basis:			
c. Construction Completion Da	ate:	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	I. Orbit Type: Mark all boxes that apply:			

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							
Lower Frequency (_Hz) Upper Frequency (_Hz)		e. T/R Mode	f. Nature of Service(s): List all that apply to this band						
a. Numeric	b. Unit (K/M/G)	c. Numeric	d. Unit (K/M/G)		in italian of Got Hookey, East an inal apply to the Saint				
29.097	G	29.099	G	R	Telecommand				
28.601	G	28.603	G	R	Telecommand				
19.297	G	19.299	G	Т	Telemetry				
18.801	G	18.803	G	Τ	Telemetry				

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude 130 E	(Degrees E/W):	b. Alternate Orbital Longitude (Degrees E/W):				c. Reason for orbital location selection:
Longitudinal Tolerance or E/V d. Toward West: e. Toward East:	1 0		Range of orbital are in which provided (Optional): g. Westernmost: h. Easternmost:	ch adequate serv <u>Degrees</u>	rice can be <u>E/W</u>	
i. Reason for service are	selection (Optional):					

Page 2: NGSO Orbits

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

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	(f) No. of	(g) Inclination	(h) Orbital	(i) Apogee (km)	(j) Perigee (km)	(k) Right Ascension	(I) Argument of	Active Service Arc Range (Degr		e (Degrees)
Plane No.	Satellites in	Angle (degrees)	Period			of the Ascending	Perigee	(m) Begin	(n) End	(o) Other
	Plane		(Seconds)			Node (Deg.)	(Degrees)	Angle	Ångle	. ,
			(=====)			(9-)	(5,000)	,g.o	gio	

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

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

S6. SERVICE AREA CHARACTERISTICS for each service area provide:

(a) Service Area	(b) Type of Associated Station (Earth or Space)	(d) Service Area Description. Provide list of geographic areas (state postal codes or ITU 3-ltr codes), satellites or Figure No. of Service Area Diagram.
1	S	AAA

Page 3: Service Areas

Page 4: Antenna Beams

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

S7. SPACE STATION ANTENNA BEAM CHARACTERISTICS For each antenna beam provide:

(a)	(b)	Isotropic	Antenna	(e)	(f)	(g) Min.	(h) Polar-	(i) Polarization	(j) Service		Transmit				Receive		
Beam	T/R	Ga	ain		Rotational	Cross-	ization	Alignment Rel.	Area ID	(k)	(I) Effective	(m)	(n)	(o) G/T	(p) Min.	Input Attenu	uator (dB)
ID	Mode		(d) Edge	Error		Polar Iso-	Switch-	Equatorial		Input	Output	Max.	System	Max.	Saturation	(q) Max.	(r) Step
		(dBi)	(dBi)	(Degrees)	(Degrees)	lation (dB)	able? (Y/N)	Plane (Degrees)		Losses (dB)	Power (W)	EIRP (dBW)			Flux Density	Value	Size
							` '			(ub)		,	Temp (k)	(db/K)	(dBW/m2)		
TLM	Т	48	45	0.05		30	Ν		1	2	0.25	42					
CMD	R	46.5	43.5	0.05		30	N		1				504	19.5	-116.2		
TLM	Т	-3	-3	0.05		30	N		1	3	1	-3					
CMD	R	-2	-2	0.05		30	N		1				1154	-32.6	-116.2		

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

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)	(b)	(c) Co-or	(d) GSO	(e) NGSO Antenna Gain	(f) GSO Antenna	Max. Power Flux Density (dBW/M2/Hz)						
Beam	T/R	Cross	Ref.	Contour Description	Gain Contour Data	At Angle of	Arrival above ho	orizontal (for emission with highest PFD)				
ID	Mode	Polar Mode ("C"	Orbital Longitude	(Figure/Table/ Exhibit)	(GXT File)	(g) 5 Deg	(h) 10 Deg	(i) 15 Deg	(j) 20 Deg	(k) 25 Deg		
		or" X")	(Deg. E/W)									
TLM	Т	С	130	GSO T C.pdf		-120	-119	-118	-118	-118		
TLM	Т	Х	130	GSO T X.pdf								
CMD	R	С	130	GSO R C.pdf								
CMD	R	Χ	130	GSO R X.pdf								
TLM	Т	С	130	OMNI.pdf								
TLM	Т	Χ	130	OMNI.pdf								
CMD	R	С	130	OMNI.pdf								
CMD	R	Χ	130	OMNI.pdf								

Page 5: Beam Diagrams

Page 6: Channels and Transponders

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

S9. SPACE STATION CHANNELS For each frequency channel provide: S10. SPACE STATION TRANSPONDERS For each transponder provide:

(c) T/R (d) Center Frequency (MHz) (e) Polarization (f) TTC (B) Assigned (a) Bandwidth or Comm Channel (kHz) Mode (H, V, L, R) Channel No. (T or C) 29098 SOS1 2000 R SOS2 2000 R 28602 SOS3 2000 19298 SOS4 2000 18802

(a)	(b)	Receive	Band	Transmit Band		
Transponder ID	Transponder Gain (dB)	(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID	
SOS1		SOS1	CMD			
SOS2		SOS2	CMD			
SOS3				SOS3	TLM	
SOS4				SOS4	TLM	
TO1		SOS1	CMDO			
TO2		SOS2	CMDO			
TO3				SOS3	TLMO	
TO4				SOS4	TLMO	

Page 7: Digital Modulation

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

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	2M00G7D	2000	2	1000	1		15	27
D2	1M00G7D	1000	2	500	1		15	27

Page 8: Analog Modulation

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

S12. ANALOG MODULATION PARAMETERS For each analog emission provide:

(a)	(b) Emission	(c)	(d) Signal	(e)	Multi-channel Telephony				(j) Video	(k) Video	(I) Video	(m) SCPC/FM	()	(-) - 3 -
Analog Mod. IE		Assigned Bandwidth (kHz)	Туре	Channels per Carrier	Companded	(g) Bottom Baseband Freq. (MHz)	(h) Top Baseband Freq. (MHz)	(i) RMS Modulation Index	Standard NTSC, PAL, etc.	- 3 - 3	and SCPC/FM Modulation Index	Compander, Preemphasis, and Noise Weighting (dB)	Performance Objective (dB)	Entry C/I Objective (dB)
A1	4K00F9D	4	FDM/FM	1									18	27

Page 9: Typical Emissions

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	 (g)Noise Budget Reference (Table No.)	(h) Energy Dispersal Bandwidth	Receive Band (Assoc. Transmit Stn)			Transmit Band (This Space Stat			tion)
		(c) Digital (d) Analog (Table (Table S12					(i)Assoc. Stn. Max.	Assoc. Station Transmit Power (dBW)		EIRP (dBW)		(n) Max. Power Flux	(o)Assoc. Stn
(a) Start	(b) End	S11)	(Table 312)			(kHz)	Antenna	Power (dBW)		<u> </u>			Rec. G/T
	311)					Gain (dBi)	(j) Min.	(k) Max.	(I) Min.	(m) Max.	(dBW/m2/Hz)	(dB/K)	
SOS1	SOS2	D2					59	17	17	77	77		
SOS3	SOS4	D1					55.5			42	42		28.9
TO1	TO2		A1				68.9	21.1	21.1	90	90		
TO3	TO4		A1				65.3			-3	-3		39.7

Page 10: TT and C

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

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

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

Page 11: Characteristics and Certifications

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

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 (20.145(c)(1))	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 appearatoing applicant is required to provi	ido all the information	a anaaifiad in l	Cootion OF 111	£ 41a.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.