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:
INMARSAT-3 F4		3/3/2006	N
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s):	j. Number of transponders offered on a common carrier basis:
		13 Years	0
c. Construction Completion Date:		g. Total Number of Transponders:	k. Total Common Carrier Transponder Bandwidth:
		4	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:
		68 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)		
1525	M	1559	M	T	Mobile-Satellite Service
1626.5	M	1660.5	M	R	Mobile-Satellite Service
6425	M	6454	M	R	Feeder Link for Mobile Satellite Service in FSS
3600	M	3629	M	T	Feeder Link for Mobile Satellite Service in FSS
6454.4	M	6456.6	M	R	Fixed Satellite Service
3629.4	M	3631.6	M	T	Fixed Satellite Service
1574.4	M	1576.6	M	T	Radio Navigation 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:
142 W			Inmarsat is authorized by the United Kingdom to operate the Inmarsat-3 F4 satellite at 142 W.L.
Longitudinal Tolerance or E/W Station-Keeping: d. Toward West: 0.1 Degrees e. Toward East: 0.1 Degrees	f. Inclination Excursion or N/S Station-Keeping Tolerance: 2.7 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):			

FEDERAL COMMUNICATIONS COMMISSION **Page 2: NGSO Orbits**
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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

FEDERAL COMMUNICATIONS COMMISSION **Page 3: Service Areas**
SATELLITE SPACE STATION AUTHORIZATIONS
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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.
GLOBAL	S		All visible areas of the Earth.

FEDERAL COMMUNICATIONS COMMISSION **Page 4: Antenna Beams**
SATELLITE SPACE STATION AUTHORIZATIONS
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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
CGU	R	20.5	16.5	0.1	0.1	30	N		GLOBAL				891	-9	-98	24	2
CGU	R	20.5	16.5	0.1	0.1	30	N		GLOBAL				891	-9	-98	24	2
CGD	T	20	16.5	0.1	0.1	30	N		GLOBAL	3.3	10.5	30.5					
CGD	T	20	16.5	0.1	0.1	30	N		GLOBAL	3.3	10.5	30.5					
LGU	R	18.5	16	0.1	0.1		N		GLOBAL				562	-9	-109	23	2
LGD	T	19.5	17	0.1	0.1		N		GLOBAL	4.1	159	41.5					
CNU	R	20.5	16.5	0.1	0.1	30	N		GLOBAL				1585	-11.5	-109	24	2
LND	T	19	15.5	0.1	0.1		N		GLOBAL	3	50	33					

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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
CGU	R	C	-142		CGUR.GXT					
CGU	R	C	-142		CGUL.GXT					
CGD	T	C	-142		CGDR.GXT	-165.1	-164.9	-164.7	-164.4	-164.1
CGD	T	C	-142		CGDL.GXT	-168.8	-168.6	-168.4	-168.1	-167.8
LGU	R	C	-142		LGUR.GXT					
LGD	T	C	-142		LGDR.GXT					
CNU	R	C	-142		CNUR.GXT					
LND	T	C	-142		LNDR.gxt					

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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)
CUR	29000	R	6439.5	R	C
CUL	29000	R	6439.5	L	C
CDR	29000	T	3614.5	R	C
CDL	29000	T	3614.5	L	C
LUR	34000	R	1643.5	R	C
LDR	34000	T	1542	R	C
NUR	2200	R	6455.5	R	C
L1DR	2200	T	1575.5	R	C
C1DL	2200	T	3630.5	L	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
FL1	137	CUR	CGUR	LDR	LGDR
FL2	137	CUL	CGUL	LDR	LGDR
RL1	127	LUR	LGUR	CDR	CGDR
RL2	127	LUR	LGUR	CDL	CGDL
CL	139	NUR	CNUR	L1DR	LNDR
CC	109	NUR	CNUR	C1DL	CGDL

FEDERAL COMMUNICATIONS COMMISSION **Page 7: Digital Modulation**

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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	20K0G1E	20	4	12	0.5		5.1	17.3
D2	100KG1X	100	4	64	0.5		5	17.2
D3	10K0G1X	10	4	3	0.5		0.6	12.8
D4	20K0G1E	20	4	12	0.5		5.1	17.3
D5	100KG1X	100	4	64	0.5		5	17.2
D6	20K0G1X	20	4	12	0.5		4.4	16.6
D7	2M20G1D	2200	2	1023	1		-28	-15.8

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

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						

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SATELLITE SPACE STATION AUTHORIZATIONS

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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)			
(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.		
FL1	FL2	D1		93	20	FL INM-B 20 k		54	-0.4	4.6	24.3	26.8		-4
FL1	FL2	D2		45	100	FL INM-B 100 k		54	2.8	7.8	27.5	30		-4
FL1	FL2	D3		468	10	FL INM-B 10 k		54	-7.4	-2.4	17.3	19.8		-4
RL1	RL2	D4		1122	20	RL INM-B 20 k		21	9.5	12	3.7	7.4	-160.4	30.7
RL1	RL2	D5		290	100	RL INM-B 100		21	9.5	12	3.7	7.4	-160.4	30.7
RL1	RL2	D6		1122	20	RL INM-B 20 k		21	9.5	12	3.7	7.4	-160.4	30.7
CL	CL	D7		1		C-L LB.doc		57	17	21	29.5	33		-26
CC	CC	D7		1		C-C LB.doc		57	17	21	-0.2	3.5	-185.6	32

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: Beijing Inmarsat TTC Station			
S14b. City: Beijing	S14c. County:	S14d. State/Country	S14e. Zip Code: 102206
S14f. Telephone Number: +86 10 6202 7169	S14g. Call Sign of Control Station (if appropriate):		

Remote Control (TT C) Location(s):

S14a: Street Address: Stazione del Fucino			
S14b. City: Ortucchio AQ	S14c. County: Avezzano	S14d. State/Country	S14e. Zip Code: 67050
S14f. Telephone Number: +39 0863 550597	S14g. Call Sign of Control Station (if appropriate):		

Remote Control (TT C) Location(s):

S14a: Street Address: 8801 Youbou Road			
S14b. City: Lake Cowichan	S14c. County: BC	S14d. State/Country	S14e. Zip Code: V0R 2G0
S14f. Telephone Number: +1 250-749-6646	S14g. Call Sign of Control Station (if appropriate):		

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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a: Mass of spacecraft without fuel (kg): 870	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 803		
S15c. Mass of spacecraft and fuel at launch (kg): 1956	S15f. Length (m): 3.15	S15i. Payload: 0.72
S15d. Mass of fuel, in orbit, at beginning of life (kg): 283	S15g. Width (m): 20.67	S15j. Bus: 0.9
S15e. Deployed Area of Solar Array (square meters): 30.5	S15h. Height (m): 2.31	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): 2099	(f): 2132	(k): 2099	(p): 2132
Bus (Watts):	(b): 717	(g): 478	(l): 717	(q): 478
Total (Watts):	(c): 2816	(h): 2610	(m) 2816	(r): 2610
Solar Array (Watts):	(d): 3700	(i): 3250	(n): 3105	(s): 2832
Depth of Battery Discharge (%):	(e) 70 %	(j) 0 %	(o) 70 %	(t) 0 %

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.