

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

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: JCSAT-5A		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): 12 Years		j. Number of transponders offered on a common carrier basis: 0
c. Construction Completion Date: 1/20/2006		g. Total Number of Transponders: 40		k. Total Common Carrier Transponder Bandwidth: 0 MHz
d1. Est Launch Date Begin: 4/12/2006	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 2584 MHz		i. Orbit Type: Mark all boxes that apply: <input checked="" type="checkbox"/> GSO <input type="checkbox"/> 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)		
12.254	G	12.749	G	T	Fixed Satellite Service
14.002	G	14.497	G	R	Fixed Satellite Service
3.702	G	4.118	G	T	Fixed Satellite Service
5.927	G	6.343	G	R	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 132 E		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: JSAT Corporation has authorization from Ministry of Internal Affairs and Communication of Japan to operate the satellite at the 132 degrees East longitude orbital location.
Longitudinal Tolerance or E/W Station-Keeping:		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	
d. Toward West: 0.05 Degrees	g. Westernmost:			
e. Toward East: 0.05 Degrees	h. Easternmost:			
i. Reason for service are selection (Optional):				

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

Page 2: NGSO Orbits

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 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 initial phase angle.

(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)
-----------------------	----------------------	-----------------------------------

NO NGSO DATA FILED

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

Page 3: Service Areas

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.
C BAND	E		Asia & Hawaii
KU BAND	E		Japan & Asia

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

Page 4: Antenna Beams

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 Iso- lation (dB)	(h) Polar- ization Switch- able? (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 Noise 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
C-T-	T	26.2	16.2	0.1	0.3	27	N	0	C BAND	2	45	40.7					
C-R-	R	29.2	19.2	0.1	0.3	27	N	0	C BAND				537	1.8	-97	15	1
C-T-	T	26.1	16.1	0.1	0.3	27	N	90	C BAND	2	45	40.6					
C-R-	R	29.2	19.2	0.1	0.3	27	N	90	C BAND				537	1.8	-97	15	1

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

Page 5: Beam Diagrams

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
C-T-	T	C	132		JCSAT-5A_CTH.gxt	-152	-149.5	-147	-144.5	-142
C-R-	R	C	132		JCSAT-5A_CRH.gxt					
C-T-	T	C	132		JCSAT-5A_CTV.gxt	-152	-149.5	-147	-144.5	-142
C-R-	R	C	132		JCSAT-5A_CRV.gxt					

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

Page 6: Channels and Transponders

S9. SPACE STATION CHANNELS For each frequency channel provide: S10. SPACE STATION TRANSPONDERS For each transponder 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)
C1T	36000	T	3.72	V	C
C1R	36000	R	5.945	H	C
C2T	36000	T	3.74	H	C
C2R	36000	R	5.965	V	C
C3T	36000	T	3.76	V	C
C3R	36000	R	5.985	H	C
C4T	36000	T	3.78	H	C
C4R	36000	R	6.005	V	C
C5T	36000	T	3.80	V	C
C5R	36000	R	6.025	H	C
C6T	36000	T	3.82	H	C
C6R	36000	R	6.045	V	C
C7T	36000	T	3.84	V	C
C7R	36000	R	6.065	H	C
C8T	36000	T	3.86	H	C
C8R	36000	R	6.085	V	C
C9T	36000	T	3.88	V	C
C9R	36000	R	6.105	H	C
C10T	36000	T	3.90	H	C
C10R	36000	R	6.125	V	C
C11T	36000	T	3.92	V	C
C11R	36000	R	6.145	H	C
C12T	36000	T	3.94	H	C
C12R	36000	R	6.165	V	C
C13T	36000	T	3.96	V	C
C13R	36000	R	6.185	H	C
C14T	36000	T	3.98	H	C
C14R	36000	R	6.205	V	C
C15T	36000	T	4.00	V	C
C15R	36000	R	6.225	H	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
C1	114	C1R	C-R-H	C1T	C-T-V
C2	114	C2R	C-R-V	C2T	C-T-H
C3	114	C3R	C-R-H	C3T	C-T-V
C4	114	C4R	C-R-V	C4T	C-T-H
C5	114	C5R	C-R-H	C5T	C-T-V
C6	114	C6R	C-R-V	C6T	C-T-H
C7	114	C7R	C-R-H	C7T	C-T-V
C8	114	C8R	C-R-V	C8T	C-T-H
C9	114	C9R	C-R-H	C9T	C-T-V
C10	114	C10R	C-R-V	C10T	C-T-H
C11	114	C11R	C-R-H	C11T	C-T-V
C12	114	C12R	C-R-V	C12T	C-T-H
C13	114	C13R	C-R-H	C13T	C-T-V
C14	114	C14R	C-R-V	C14T	C-T-H
C15	114	C15R	C-R-H	C15T	C-T-V
C16	114	C16R	C-R-V	C16T	C-T-H
C17	114	C17R	C-R-H	C17T	C-T-V
C18	114	C18R	C-R-V	C18T	C-T-H
C19	114	C19R	C-R-H	C19T	C-T-V
C20	114	C20R	C-R-V	C20T	C-T-H

C16T	36000	T	4.02	H	C
C16R	36000	R	6.245	V	C
C17T	36000	T	4.04	V	C
C17R	36000	R	6.265	H	C
C18T	36000	T	4.06	H	C
C18R	36000	R	6.285	V	C
C19T	36000	T	4.08	V	C
C19R	36000	R	6.305	H	C
C20T	36000	T	4.10	H	C
C20R	36000	R	6.325	V	C

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

Page 7: Digital Modulation

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	273KG7W	573	8	512	0.75	0	10.3	23
D2	36M0G7W	36000	8	57800	0.75	0	10.3	23
D3	36M0G7D	36000	8	57800	0.75	0	10.3	23

Page 8: Analog Modulation

(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 Componder, Preemphasis, and Noise Weighting (dB)	(n) Total C/N Performance Objective (dB)	(o) Single Entry C/ Objective (dB)
					(f) Ave. Companded Talker Level (dBm0)	(g) Bottom Baseband Freq. (MHz)	(h) Top Baseband Freq. (MHz)	(i) RMS Modulation Index						

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

Page 9: Typical Emissions

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)			
		(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)
(a) Start	(b) End								(j) Min.	(k) Max.	(l) Min.	(m) Max.		
C1	C1	D1		65	18.5			54.3	24.8	27	34.7	38.7	-123.8	
C1	C1	D2		1				54.3	24.8	27	34.7	72	-129.4	
C1	C1	D3		1				54.3	24.8	27	34.7	72	-129.4	

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

Page 10: TT and C

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): No

Remote Control (TT C) Location(s):

S14a. Street Address: 229-1 Miho-cho			
S14b. City: Yokohama	S14c. County: Kanagawa	S14d. State/Country	S14e. Zip Code: 226-0015
S14f. Telephone Number: +81-45-922-7111		S14g. Call Sign of Control Station (if appropriate):	

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:

S15a. Mass of spacecraft without fuel (kg): 2226	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 1528		
S15c. Mass of spacecraft and fuel at launch (kg): 4410	S15f. Length (m): 26.4	S15i. Payload: 0.801
S15d. Mass of fuel, in orbit, at beginning of life (kg): 656	S15g. Width (m): 14.3	S15j. Bus: 0.827
S15e. Deployed Area of Solar Array (square meters): 70.6	S15h. Height (m): 8.3	S15k. Total: 0.663

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): 8605	(f): 8605	(k): 8605	(p): 8605
Bus (Watts):	(b): 510	(g): 494	(l): 550	(q): 534
Total (Watts):	(c): 9115	(h): 9099	(m): 9155	(r): 9139
Solar Array (Watts):	(d): 14452	(i): 12790	(n): 12115	(s): 10832
Depth of Battery Discharge (%):	(e) 72.4 %	(j) 72.4 %	(o) 72.6 %	(t) 72.6 %

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> 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?	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> 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?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> 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.