

**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: ATCONTACT77		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: 0	
c. Construction Completion Date:		g. Total Number of Transponders: 69		k. Total Common Carrier Transponder Bandwidth: 0 MHz	
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 17250 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)		
28.6	G	29.1	G	R	Fixed Satellite Service
18.8	G	19.3	G	T	Fixed Satellite Service

**S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:**

a. Nominal Orbital Longitude (Degrees E/W): 77.4 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:			
Longitudinal Tolerance or E/W Station-Keeping:		f. Inclination Excursion or N/S Station-Keeping Tolerance:				Range of orbital are in which adequate service can be provided (Optional): <u>      </u> Degrees <u>      </u> E/W	
d. Toward West:            0.05 Degrees	e. Toward East:            0.05 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:

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**

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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.
1	S		AAB

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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 Iso- lation (dB)	(h) Polar- ization Switch- able? (Y/N)	(i) Polarization Alignment Rel. Equatorial Plane (Degrees)	(j) Service Area ID	Transmit			Receive			Input Attenuator (dB)	
										(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)	(q) Max. Value	(r) Step Size
		(c) Peak (dBi)	(d) Edge (dBi)														
KTR	T	48	45	0.05		30	Y		1	2	31.6	63					
KRR	R	46.5	43.5	0.05		30	Y		1				504	19.5	-116.2	20	1
KTB	T	18.5	15.5	0.1		30	N		1	2	31.6	33.5					
KRB	R	18.5	15.5	0.1		30	N		1				504	-8.5	-116.2	20	1
TLM	T	48	45	0.05		30	N		1	2	0.25	42					
CMD	R	46.5	43.5	0.05		30	N		1				504	19.5	-116.2		
TLM	T	-3	-3	0.05		30	N		1	3	1	-3					
CMD	R	-2	-2	0.05		30	N		1				1154	-32.6	-116.2		

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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
KTR	T	C	-77.4		CONTACT77 KTRC.g	-119	-118	-118	-118	-118
KTR	T	X	-77.4		CONTACT77 KTRX.g					
KRR	R	C	-77.4		CONTACT77 KRRC.g					
KRR	R	X	-77.4		CONTACT77 KRRX.g					
KTB	T	C	-77.4		CONTACT77 KTBC.g	-119	-119	-118	-118	-118
KTB	T	X	-77.4		CONTACT77 KTBX.g					
KRB	R	C	-77.4		CONTACT77 KRBC.g					
KRB	R	X	-77.4		CONTACT77 KRBX.g					
TLM	T	C	-77.4		CONTACT77 TLMC.g	-120	-119	-118	-118	-118
TLM	T	X	-77.4		CONTACT77 TLMX.g					
CMD	R	C	-77.4		CONTACT77 CMDC.g					
CMD	R	X	-77.4		CONTACT77 CMDX.g					
TLM	T	C	-77.4							
TLM	T	X	-77.4							
CMD	R	C	-77.4							
CMD	R	X	-77.4							

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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)
BR1	2000	R	29096	R	T
BT1	2000	T	19296	L	T
SOS1	2000	R	29098	R	T
SOS2	2000	T	19298	L	T
KR017	125000	R	28662.5	L	C
KR018	125000	R	28787.5	L	C
KR019	125000	R	28912.5	L	C
KR020	125000	R	29037.5	L	C
KR021	125000	R	28662.5	R	C
KR022	125000	R	28787.5	R	C
KR023	125000	R	28912.5	R	C
KR024	125000	R	29037.5	R	C
KT009	250000	T	18925	L	C
KT010	250000	T	19175	L	C
KT011	250000	T	18925	R	C
KT012	250000	T	19175	R	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
SOS1		SOS1	CMD		
TO1		SOS1	CMDO		
SOS2				SOS2	TLM
TO2				SOS2	TLMO
BR1		BR1	KRB		
BT1				BT1	KTB
CR17		KR017	KRR		
CR18		KR018	KRR		
CR19		KR019	KRR		
CR20		KR020	KRR		
CR21		KR021	KRR		
CR22		KR022	KRR		
CR23		KR023	KRR		
CR24		KR024	KRR		
CT09				KT009	KTR
CT10				KT010	KTR
CT11				KT011	KTR
CT12				KT012	KTR

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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)
COMT1	250MG7W	250000	4	224000	0.67		5.4	17.6
COMR1	3M50G7W	3500	4	2520	0.4		7.1	19.1
BT1	334KG7D	334	4	200	0.4		4.2	16.2
BR1	8K00G7D	8	4	5	0.4		4.2	16.2
SOST1	2M00G7D	2000	2	1000	1		15	27
SOSR1	1M00G7D	1000	2	500	1		15	27
COMT2	125MG7W	125000	4	74000	0.45		6.3	18.5
COMR2	7M00G7W	7000	4	10100	0.9		9.3	21.5
COMR3	700KG2W	700	4	500	0.4		7.1	19.1





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S13. TYPICAL EMISSIONS For each planned type of emission provide:

Associated Transponder ID Range (a) Start (b) End		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) (j) Min. (k) Max.		EIRP (dBW) (l) Min. (m) Max.		(n) Max. Power Flux Density (dBW/m <sup>2</sup> /Hz)	(o) Assoc. Stn Rec. G/T (dB/K)
CT09	CT12	COMT1		1				41			63	63		16
CR17	CR24	COMR1		34	3600			44.6	2.8	2.8	47.4	47.4		
SOS1	SOS1	SOSR1						59	17	17	77	77		
SOS2	SOS2	SOST1						55.5			42	42		28.9
TO1	TO1		SOS3					68.9	21.1	21.1	90	90		
TO2	TO2		SOS3					65.3			-3	-3		39.7
CT09	CT12	COMT2		1				41			63	63	-121	14.6
CR17	CR24	COMR2		17	7200			49.3	5	5	54.3	54.3		
CR17	CR24	COMR3		40	720			44.6	2.8	2.8	47.4	47.4		

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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

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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a. Mass of spacecraft without fuel (kg): 2508	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 0		
S15c. Mass of spacecraft and fuel at launch (kg): 3154	S15f. Length (m): 4.8	S15i. Payload: 0.78
S15d. Mass of fuel, in orbit, at beginning of life (kg): 646	S15g. Width (m): 2.5	S15j. Bus: 0.93
S15e. Deployed Area of Solar Array (square meters): 38	S15h. Height (m): 2.5	S15k. Total: 0.72

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): 8600	(f): 8170	(k): 7050	(p): 6696
Bus (Watts):	(b): 2100	(g): 2000	(l): 1720	(q): 1639
Total (Watts):	(c): 10700	(h): 10170	(m): 8770	(r): 8335
Solar Array (Watts):	(d): 11200	(i): 10670	(n): 9180	(s): 8745
Depth of Battery Discharge (%):	(e) 70 %	(j) 70 %	(o) 70 %	(t) 70 %

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 checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	<input 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.**