

**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: TELSTAR RDBS-1		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: 26		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) 624 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)		
24.75	G	25.15	G	R	Feeder Link for Broadcasting Satellite Service in FSS
17.3	G	17.7	G	T	Broadcasting Satellite Service - Video

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 70 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):							

**FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
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 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)**

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.
CANCON	S		CONUS

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

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				
										(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														
RX1R	R	36	30	0.12	0.1	25	N		CANCON				631	8	-95	20	1
RX1L	R	36	30	0.12	0.1	25	N		CANCON				631	8	-95	20	1
TX1R	T	36	28	0.12	0.1	25	N		CANCON	2	251	60					
TX1L	T	36	28	0.12	0.1	25	N		CANCON	2	251	60					
TTC	R	4	0	0.12	0.1	30	N		GBL				3160	-31			
TTCT	T	4	0	0.12	0.1	30	N		GBL	3	50	21					

**FEDERAL COMMUNICATIONS COMMISSION
 SATELLITE SPACE STATION AUTHORIZATIONS
 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) 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
RX1R	R	C	-70		RX1R.gxt					
RX1L	R	C	-70		RX1L.gxt					
TX1R	T	C	-70		TX1R.gxt	-123.1	-122.7	-122.5	-122.4	-122
TX1L	T	C	-70		TX1L.gxt	-123.1	-122.7	-122.5	-122.4	-122
TTC	R	C	-70		TTCR_OMNI.gxt					
TTCT	T	C	-70		TTCT_OMNI.gxt					

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
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:

(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)
1R	24000	R	24772	R	C
2R	24000	R	24786.58	L	C
3R	24000	R	24801.16	R	C
4R	24000	R	24815.74	L	C
5R	24000	R	24830.32	R	C
6R	24000	R	24844.9	L	C
7R	24000	R	24859.48	R	C
8R	24000	R	24874.06	L	C
9R	24000	R	24888.64	R	C
10R	24000	R	24903.22	L	C
11R	24000	R	24917.8	R	C
12R	24000	R	24932.38	L	C
13R	24000	R	24946.96	R	C
14R	24000	R	24961.54	L	C
15R	24000	R	24976.12	R	C
16R	24000	R	24990.7	L	C
17R	24000	R	25005.28	R	C
18R	24000	R	25019.86	L	C
19R	24000	R	25034.44	R	C
20R	24000	R	25049.02	L	C
21R	24000	R	25063.6	R	C
22R	24000	R	25078.18	L	C
23R	24000	R	25092.76	R	C
24R	24000	R	25107.34	L	C
25R	24000	R	25121.92	R	C
26R	24000	R	25136.5	L	C
1T	24000	T	17322	R	C
2T	24000	T	17336.58	L	C
3T	24000	T	17351.16	R	C
4T	24000	T	17365.74	L	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
TP01	132.4	1R	RX1R	1T	TX1R
TP02	132.4	2R	RX1L	2T	TX1L
TP03	132.4	3R	RX1R	3T	TX1R
TP04	132.4	4R	RX1L	4T	TX1L
TP05	132.4	5R	RX1R	5T	TX1R
TP06	132.4	6R	RX1L	6T	TX1L
TP07	132.4	7R	RX1R	7T	TX1R
TP08	132.4	8R	RX1L	8T	TX1L
TP09	132.4	9R	RX1R	9T	TX1R
TP10	132.4	10R	RX1L	10T	TX1L
TP11	132.4	11R	RX1R	11T	TX1R
TP12	132.4	12R	RX1L	12T	TX1L
TP13	132.4	13R	RX1R	13T	TX1R
TP14	132.4	14R	RX1L	14T	TX1L
TP15	132.4	15R	RX1R	15T	TX1R
TP16	132.4	16R	RX1L	16T	TX1L
TP17	132.4	17R	RX1R	17T	TX1R
TP18	132.4	18R	RX1L	18T	TX1L
TP19	132.4	19R	RX1R	19T	TX1R
TP20	132.4	20R	RX1L	20T	TX1L
TP21	132.4	21R	RX1R	21T	TX1R
TP22	132.4	22R	RX1L	22T	TX1L
TP23	132.4	23R	RX1R	23T	TX1R
TP24	132.4	24R	RX1L	24T	TX1L
TP25	132.4	25R	RX1R	25T	TX1R
TP26	132.4	26R	RX1L	26T	TX1L
CMDA		CMD1	TTCR		
CMDB		CMD2	TTCR		
TLMA				TLM1	TTCT
TLMB				TLM2	TTCT

5T	24000	T	17380.32	R	C
6T	24000	T	17394.9	L	C
7T	24000	T	17409.48	R	C
8T	24000	T	17424.06	L	C
9T	24000	T	17438.64	R	C
10T	24000	T	17453.22	L	C
11T	24000	T	17467.8	R	C
12T	24000	T	17482.38	L	C
13T	24000	T	17496.96	R	C
14T	24000	T	17511.54	L	C
15T	24000	T	17526.12	R	C
16T	24000	T	17540.7	L	C
17T	24000	T	17555.28	R	C
18T	24000	T	17569.86	L	C
19T	24000	T	17584.44	R	C
20T	24000	T	17599.02	L	C
21T	24000	T	17613.6	R	C
22T	24000	T	17628.18	L	C
23T	24000	T	17642.76	R	C
24T	24000	T	17657.34	L	C
25T	24000	T	17671.92	R	C
26T	24000	T	17686.5	L	C
CMD1	1000	R	24751.5	R	T
CMD2	1000	R	24752.5	L	T
TLM1	200	T	17301.5	R	T
TLM2	200	T	17302.5	L	T

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
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)
DT1	24M0G7W	24000	4	27647	0.721		4.5	20
DT2	12M0G7W	12000	4	13823	0.721		4.5	20
DT3	4M00G7W	4000	4	4608	0.721		4.5	20

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

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 ² /Hz)	(o) Assoc. Stn Rec. G/T (dB/K)
TP01	TP26	DT1		1		Table LB1.xls		65.56	-2.7	17.3	52	60	-115.3	13.3
CMDA	CMDB		CMD	1		Table CMD.doc		67.23	-7.49	25.7				
TLMA	TLMB		TLM	1		Table TLM.doc					11	21		39.4

**FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
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): Yes

Remote Control (TT C) Location(s):

S14a: Street Address: 1601 Telesat Court			
S14b. City: Ottawa	S14c. County:	S14d. State/Country ON	S14e. Zip Code: K1B 5P4
S14f. Telephone Number: +1-613-748-0123		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): 2850	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 3650		
S15c. Mass of spacecraft and fuel at launch (kg): 6500	S15f. Length (m): 3	S15i. Payload: 0.85
S15d. Mass of fuel, in orbit, at beginning of life (kg): 1205	S15g. Width (m): 3	S15j. Bus: 0.84
S15e. Deployed Area of Solar Array (square meters): 120	S15h. Height (m): 6	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): 18000	(f): 18000	(k): 18000	(p): 18000
Bus (Watts):	(b): 3500	(g): 2000	(l): 3500	(q): 2000
Total (Watts):	(c): 21500	(h): 20000	(m): 21500	(r): 20000
Solar Array (Watts):	(d): 24000	(i): 22100	(n): 22600	(s): 20900
Depth of Battery Discharge (%):	(e) 75 %	(j) 75 %	(o) 75 %	(t) 75 %

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.