

**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: BSSNET103W		e. Estimated Date of Placement into Service: 12/30/2012		i. Will the space station(s) operate on a Common Carrier Basis: N	
b. Construction Commencement Date: 6/30/2009		f. Estimated Lifetime of Satellite(s): 15 Years		j. Number of transponders offered on a common carrier basis: 0	
c. Construction Completion Date: 10/30/2011		g. Total Number of Transponders: 26		k. Total Common Carrier Transponder Bandwidth: 0 MHz	
d1. Est Launch Date Begin: 12/30/2011	d2. Est Launch Date End: 12/30/2011	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 676 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)		
17.3	G	17.7	G	T	Broadcasting Satellite Service - Data
17.3	G	17.7	G	T	Broadcasting Satellite Service - Sound
17.3	G	17.7	G	T	Broadcasting Satellite Service - Video
17.3	G	17.7	G	T	PTTC
24.75	G	25.15	G	R	Broadcasting Satellite Service - Data
24.75	G	25.15	G	R	Broadcasting Satellite Service - Sound
24.75	G	25.15	G	R	Broadcasting Satellite Service - Video
24.75	G	25.15	G	R	TTC

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

a. Nominal Orbital Longitude (Degrees E/W): 103.15 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: Available Appendix F offset 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):			g. Westernmost: h. Easternmost:	
d. Toward West:	0.05 Degrees		Degrees      E/W				
e. Toward East:		0.05 Degrees		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.
CONUS+	S		USA, HWA, ALS, ATN, PTR, VIR, ABW
LAUL	S	ULLA SA.gxt	Spot LA Uplink
CMD	S	SP31R SA.gxt	Command from LA
TEL	S	SP31R SA.gxt	Telemetry to LA
CRBSPOT	S		ABW, ATN

**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					
		(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	
USA	T	36.1	21.1	0.15		30	N		CONUS+	1.5	313	61.1						
LAUL	R	47	46	0.1		30	N		LAUL				794	17.5	-109	25	0.5	
CMD	R	47.7	43.7	0.1		30	N		CMD				794	18.7	-109	25	0.5	
TEL	T	36.1	28.7	0.15		30	N		TEL	2	0.05	23.1						
CMD	R	47.7	46	0.1		30	N		CRBSPOT				794	18.7				
TELC	T	36.1	16.4	0.1		30	N		CRBSPOT	2	12.59	47.1						

**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
USA	T	C	-103.15		103 Conus.gxt	-116.3	-116.2	-116	-115.9	-115.8
LAUL	R	C	-103.15		ULLA G.gxt					
CMD	R	C	-103.15		SP31R.gxt					
TEL	T	C	-103.15		103 Conus.gxt	-140.8	-140.8	-140.8	-140.8	-140.8
CMD	R	C	-103.15		SP51R.gxt					
TELC	T	C	-103.15		103 Conus.gxt	-116.8	-116.8	-116.8	-116.8	-116.8

**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)
FA001	26000	T	17325	L	C
FA003	26000	T	17354.16	L	C
FA005	26000	T	17383.32	L	C
FA007	26000	T	17412.48	L	C
FA009	26000	T	17441.64	L	C
FA011	26000	T	17470.8	L	C
FA013	26000	T	17499.96	L	C
FA015	26000	T	17529.12	L	C
FA017	26000	T	17558.28	L	C
FA019	26000	T	17587.44	L	C
FA021	26000	T	17616.6	L	C
FA023	26000	T	17645.76	L	C
FA025	26000	T	17674.92	L	C
FB002	26000	T	17325	R	C
FB004	26000	T	17354.16	R	C
FB006	26000	T	17383.32	R	C
FB008	26000	T	17412.48	R	C
FB010	26000	T	17441.64	R	C
FB012	26000	T	17470.8	R	C
FB014	26000	T	17499.96	R	C
FB016	26000	T	17529.12	R	C
FB018	26000	T	17558.28	R	C
FB020	26000	T	17587.44	R	C
FB022	26000	T	17616.6	R	C
FB024	26000	T	17645.76	R	C
FB026	26000	T	17674.92	R	C
GA001	26000	R	24775	R	C
GA003	26000	R	24804.16	R	C
GA005	26000	R	24833.32	R	C
GA007	26000	R	24862.48	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
NA001	156	GA001	LAUL	FA001	USA
NA003	156	GA003	LAUL	FA003	USA
NA005	156	GA005	LAUL	FA005	USA
NA007	156	GA007	LAUL	FA007	USA
NA009	156	GA009	LAUL	FA009	USA
NA011	156	GA011	LAUL	FA011	USA
NA013	156	GA013	LAUL	FA013	USA
NA015	156	GA015	LAUL	FA015	USA
NA017	156	GA017	LAUL	FA017	USA
NA019	156	GA019	LAUL	FA019	USA
NA021	156	GA021	LAUL	FA021	USA
NA023	156	GA023	LAUL	FA023	USA
NA025	156	GA025	LAUL	FA025	USA
NB002	156	GB002	LAUL	FB002	USA
NB004	156	GB004	LAUL	FB004	USA
NB006	156	GB006	LAUL	FB006	USA
NB008	156	GB008	LAUL	FB008	USA
NB010	156	GB010	LAUL	FB010	USA
NB012	156	GB012	LAUL	FB012	USA
NB014	156	GB014	LAUL	FB014	USA
NB016	156	GB016	LAUL	FB016	USA
NB018	156	GB018	LAUL	FB018	USA
NB020	156	GB020	LAUL	FB020	USA
NB022	156	GB022	LAUL	FB022	USA
NB024	156	GB024	LAUL	FB024	USA
NB026	156	GB026	LAUL	FB026	USA
C1		CMD1	CMD		
C2		CMD2	CMD		
T1				TLM1	TEL
T2				TLM2	TEL

GA009	26000	R	24891.64	R	C
GA011	26000	R	24920.8	R	C
GA013	26000	R	24949.96	R	C
GA015	26000	R	24979.12	R	C
GA017	26000	R	25008.28	R	C
GA019	26000	R	25037.44	R	C
GA021	26000	R	25066.6	R	C
GA023	26000	R	25095.76	R	C
GA025	26000	R	25124.92	R	C
GB002	26000	R	24775	L	C
GB004	26000	R	24804.16	L	C
GB006	26000	R	24833.32	L	C
GB008	26000	R	24862.48	L	C
GB010	26000	R	24891.64	L	C
GB012	26000	R	24920.8	L	C
GB014	26000	R	24949.96	L	C
GB016	26000	R	24979.12	L	C
GB018	26000	R	25008.28	L	C
GB020	26000	R	25037.44	L	C
GB022	26000	R	25066.6	L	C
GB024	26000	R	25095.76	L	C
GB026	26000	R	25124.92	L	C
CMD1	1000	R	24753	R	T
CMD2	1000	R	24755	R	T
TLM1	1000	T	17303	R	T
TLM2	1000	T	17306	R	T

C1CRB		CMD1	CMDCR		
C2CRB		CMD2	CMDCR		
T1CRB				TLM1	TELCR
T2CRB				TLM2	TELCR

**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)
D1	25M8G7W	25800	8	42570	0.67		7.1	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 <sup>2</sup> /Hz)	(o) Assoc. Stn Rec. G/T (dB/K)
NA001	NB026	D1		1		Comm Link Co		67.6	7	13.5	46.1	61.1	-115	16.4
C1	C2		C1			Command Link		64.4	5	24.5				18.7
T1	T2		T1			Telemetry Link					16	23.1	-140.8	41.2
C1CRB	C2CRB		C1					64.4	5	24.5				18.7
T1CRB	T2CRB		T1								27.4	47.1	-116.8	41.2

**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:			
S14b. City: Curacao	S14c. County:	S14d. State/Country	S14e. Zip Code:
S14f. Telephone Number:		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): 3715	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 2684		
S15c. Mass of spacecraft and fuel at launch (kg): 6399	S15f. Length (m): 50	S15i. Payload: 0.6
S15d. Mass of fuel, in orbit, at beginning of life (kg): 277	S15g. Width (m): 8.2	S15j. Bus: 0.85
S15e. Deployed Area of Solar Array (square meters): 80	S15h. Height (m): 7.3	S15k. Total: 0.51

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): 16704	(f): 16704	(k): 16704	(p): 16704
Bus (Watts):	(b): 1766	(g): 955	(l): 1766	(q): 955
Total (Watts):	(c): 18470	(h): 17659	(m): 18470	(r): 17659
Solar Array (Watts):	(d): 23124	(i): 20643	(n): 20905	(s): 19583
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 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.**