

**S1. GENERAL INFORMATION** Complete for all satellite applications.

a. Space Station or Satellite Network Name: SPECTRUM IB		e. Estimated Date of Placement into Service: 8/1/2010		i. Will the space station(s) operate on a Common Carrier Basis: N	
b. Construction Commencement Date: 12/1/2006		f. Estimated Lifetime of Satellite(s): 12 Years		j. Number of transponders offered on a common carrier basis: 0	
c. Construction Completion Date: 12/1/2009		g. Total Number of Transponders: 202		k. Total Common Carrier Transponder Bandwidth: MHz	
d1. Est Launch Date Begin: 4/1/2010	d2. Est Launch Date End: 6/1/2010	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 4848 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)		
12.2	G	12.7	G	T	Broadcasting Satellite Service - Video
12.2	G	12.7	G	T	Broadcasting Satellite Service - Data
12.2	G	12.7	G	T	Broadcasting Satellite Service - Sound
12.2	G	12.7	G	T	TT & C
17.3	G	17.8	G	R	Broadcasting Satellite Service - Video
17.3	G	17.8	G	R	Broadcasting Satellite Service - Data
17.3	G	17.8	G	R	Broadcasting Satellite Service - Sound
17.3	G	17.8	G	R	TT&C

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

a. Nominal Orbital Longitude (Degrees E/W): 114.5 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: This is an obital slot with full CONUS coverage and is compatible with the Region 2 BSS Plan.	
Longitudinal Tolerance or E/W Station-Keeping: d. Toward West:      0.05 Degrees e. Toward East:      0.05 Degrees		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 g. Westernmost:      1      E h. Easternmost:      1      W	
i. Reason for service are selection (Optional): Compatibility with region 2 BSS plan APS30, APS30A					

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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.
CONUS	S		Beams 1-48 coaxial uplink/downlink spot beams, 0.7 deg beamwidth
ALASKA	S		Beam 49 coaxial uplink/downlink spot beams. 6.0 deg beamwidth
HAWAII	S		Beam 50 coaxial uplink/downlink spot beams, 0.7 deg beamwidth
ANTILLES	S		Beam 51 coaxial uplink/downlink spot beams, 0.7 deg beamwidth
ANTILLES	S		Beam 52 coaxial uplink/downlink spot beams, 0.7 deg beamwidth

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S7. SPACE STATION ANTENNA BEAM CHARACTERISTICS For each antenna beam provide:

(a) Beam ID	(b) T/R Mode	(c) 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)	
		(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)	(q) Max. Value	(r) Step Size
2	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	4.1	55.5	646	17.3	-87.9	10	1
3	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	4.2	55.6	646	17.3	-87.9	10	1
4	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	4.3	55.7	646	17.3	-87.9	10	1
5	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	4.4	55.8	646	17.3	-87.9	10	1
6	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	4.5	55.9	646	17.3	-87.8	10	1
7	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	4.6	56	646	17.3	-87.8	10	1
8	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	4.6	56	646	17.3	-87.8	10	1
9	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.7	57	646	17.3	-83.1	10	1
10	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.7	57	646	17.3	-83.1	10	1
11	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.8	57	646	17.3	-83.5	10	1
12	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.8	57	646	17.3	-83.9	10	1
13	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.9	57.1	646	17.3	-84.1	10	1
14	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.9	57.1	646	17.3	-84.1	10	1
15	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6	57.2	646	17.3	-84.3	10	1
16	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6	57.2	646	17.3	-84.3	10	1
17	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6	57.2	646	17.3	-84.3	10	1
18	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6	57.2	646	17.3	-84.3	10	1
19	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.2	56.6	646	17.3	-88.9	10	1
20	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.3	56.6	646	17.3	-88.9	10	1
21	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.5	56.8	646	17.3	-88.9	10	1
22	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.5	56.8	646	17.3	-88.9	10	1
23	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.7	57	646	17.3	-88.9	10	1
24	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.8	57	646	17.3	-88.9	10	1
25	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.9	57.1	646	17.3	-87.1	10	1
26	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6	57.2	646	17.3	-85.3	10	1
27	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6	57.2	646	17.3	-83.4	10	1
28	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6	57.2	646	17.3	-83.4	10	1
29	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6	57.2	646	17.3	-83.4	10	1

30	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	2.9	54	646	17.3	-89.6	10	1
31	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	2.9	54	646	17.3	-89.6	10	1
32	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	3.3	54.6	646	17.3	-89.6	10	1
33	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	4.3	55.7	646	17.3	-87.9	10	1
34	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.3	56.6	646	17.3	-86.2	10	1
35	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.5	56.8	646	17.3	-84.5	10	1
36	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	6.3	57.4	646	17.3	-84.5	10	1
37	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	7.1	57.9	646	17.3	-84.5	10	1
38	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	7.9	58.4	646	17.3	-84.5	10	1
39	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	8.8	58.8	646	17.3	-84.5	10	1
40	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	2.8	53.9	646	17.3	-89.5	10	1
41	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	2.8	53.9	646	17.3	-87	10	1
42	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5	56.4	646	17.3	-84.4	10	1
43	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	7.2	58	646	17.3	-81.8	10	1
44	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	7.2	58	646	17.3	-81.8	10	1
45	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	7.2	58	646	17.3	-81.8	10	1
46	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	7.2	58	646	17.3	-81.8	10	1
47	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	5.5	56.8	646	17.3	-84.5	10	1
48	R	49.4	45.4	0.05	0	35	N		CONUS	1.5	15.8	61.4	646	17.3	-73.6	10	1
49	R	35.4	31.4	0.05	0	35	N		ALASKA	1.5	17.9	55.3	646	17.3	-73.9	10	1
50	R	49.4	45.4	0.05	0	35	N		HAWAII	1.5	15.8	61.4	646	17.3	-73.6	10	1
51	R	49.4	45.4	0.05	0	35	N		ANTILLES	1.5	15.8	61.4	646	17.3	-73.6	10	1
NOT	T																
NOT	R																
52	R	49.4	45.4	0.05	0	35	N		ANTILLES	1.5	15.8	61.4	646	17.3	-73.6	10	1

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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
18	T	C	-114.5			-136	-133.1	-127	-122.4	-122.7
49	T	C	-114.5			-125	-125	-125	-125	-125
18	T	C	-114.5			-136	-133.1	-127	-122.4	-122.7
49	T	C	-114.5			-125	-125	-125	-125	-125

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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)
1-A	24000	R	17324.00	R	C
2-A	24000	R	17440.64	R	C
3-A	24000	R	17557.28	R	C
4-A	24000	R	17673.92	R	C
1-B	24000	R	17353.16	R	C
2-B	24000	R	17469.80	R	C
3-B	24000	R	17586.44	R	C
4-B	24000	R	17703.08	R	C
1-C	24000	R	17382.32	R	C
2-C	24000	R	17498.96	R	C
3-C	24000	R	17615.60	R	C
4-C	24000	R	17732.24	R	C
1-D	24000	R	17411.48	R	C
2-D	24000	R	17528.12	R	C
3-D	24000	R	17644.76	R	C
4-D	24000	R	17761.40	R	C
1-A'	24000	T	12224.00	L	C
2-A'	24000	T	12340.64	L	C
3-A'	24000	T	12457.28	L	C
4-A'	24000	T	12573.92	L	C
1-B'	24000	T	12282.32	L	C
2-B'	24000	T	12369.80	L	C
3-B'	24000	T	12486.44	L	C
4-B'	24000	T	12603.08	L	C
1-C'	24000	T	12282.32	L	C
2-C'	24000	T	12398.96	L	C
3-C'	24000	T	12515.60	L	C
4-C'	24000	T	12632.24	L	C
1-D'	24000	T	12311.48	L	C
2-D'	24000	T	12428.12	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
T-1A	158.4	1-A		1-A'	
T-2A	158.4	2-A		2-A'	
T-3A	158.4	3-A		3-A'	
T-4A	158.4	4-A		4-A'	
T-1B	158.4	1-B		1-B'	
T-2B	158.4	2-B		2-B'	
T-3B	158.4	3-B		3-B'	
T-4B	158.4	4-B		4-B'	
T-1C	158.4	1-C		1-C'	
T-2C	158.4	2-C		2-C'	
T-3C	158.4	3-C		3-C'	
T-4C	158.4	4-C		4-C'	
T-1D	158.4	1-D		1-D'	
T-2D	158.4	2-D		2-D'	
T-3D	158.4	3-D		3-D'	
T-4D	158.4	4-D		4-D'	
T-5		5	NOTE		
T-6				6	NOTE
T-7				7	NOTE
T-8				8	NOTE

3-D'	24000	T	12544.76	L	C
4-D'	24000	T	12661.40	L	C
5	1000	R	17305	L	T
6	1000	T	12201	L	T
7	1000	T	12203	L	T
8	1000	T	122015	L	T

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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)
AA	24M0G1W	24000	4	27600	0.75		7	15.2
BB	1M00G2D	1000		2.4			21.3	



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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)
T-1A	T-4D	AA		1		Table 3.doc		49.4	4.5	12	54	61.4	-118.9	13.1
T-6		BB		1		Table 4.doc		19	0	0	16	19	-206.3	37
T-7		BB		1		Table 4.doc		19	0	0	16	19	-206.3	37

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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

**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):	

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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a. Mass of spacecraft without fuel (kg): 2121	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 3920		
S15c. Mass of spacecraft and fuel at launch (kg): 6533	S15f. Length (m): 24	S15i. Payload: 0.9
S15d. Mass of fuel, in orbit, at beginning of life (kg): 392	S15g. Width (m): 3	S15j. Bus: 0.9
S15e. Deployed Area of Solar Array (square meters): 61.8	S15h. Height (m): 4	S15k. Total: 0.81

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): 4508	(f): 4508	(k): 4508	(p): 4508
Bus (Watts):	(b): 1032	(g): 1002	(l): 1032	(q): 1002
Total (Watts):	(c): 5540	(h): 5510	(m): 5540	(r): 5510
Solar Array (Watts):	(d): 7293	(i): 6640	(n): 6081	(s): 5540
Depth of Battery Discharge (%):	(e) 75 %	(j) 0 %	(o) 75 %	(t) 0 %

S17. CERTIFICATIONS:

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