

**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: NEW DAWN		e. Estimated Date of Placement into Service: 6/30/2011		i. Will the space station(s) operate on a Common Carrier Basis: N	
b. Construction Commencement Date: 9/30/2008		f. Estimated Lifetime of Satellite(s): 15 Years		j. Number of transponders offered on a common carrier basis:	
c. Construction Completion Date: 1/14/2011		g. Total Number of Transponders: 30		k. Total Common Carrier Transponder Bandwidth: MHz	
d1. Est Launch Date Begin: 2/18/2011	d2. Est Launch Date End: 3/31/2011	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 1872 MHz		i. Orbit Type: Mark all boxes that apply: ☒ GSO ☐ 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)		
5850	M	6500	M	R	Fixed Satellite Service
14000	M	14500	M	R	Fixed Satellite Service
3625	M	4200	M	T	Fixed Satellite Service
10950	M	11200	M	T	Fixed Satellite Service
11450	M	11700	M	T	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 32.8 E		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: REPLACE THE EXISTING GALAXY 11 SPACECRAFT
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				
e. Toward East: 0.05 Degrees				
i. Reason for service are selection (Optional):				

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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)
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NO NGSO DATA FILED

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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.
1	S		AFRICA, EUROPE, MIDDLE EAST
2	S		SOUTHWESTERN AFRICA
3	S		GLOBAL

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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
LLUP	R	27.1	19.1	0.12	0.12	30	N		1				550	-0.3	-111	31	1
LRU	R	27.1	19.1	0.12	0.12	30	N		1				562	-0.4	-111	31	1
AHU	R	33.8	23.8	0.12	0.12	30	N	0	2				708	5.3	-114.4	32	1
AVU	R	33.8	23.8	0.12	0.12	30	N	90	2				708	5.3	-114.4	32	1
LRD	T	27.7	19.7	0.12	0.12	30	N		1	2.5	28.2	42.2					
LLDN	T	27.7	19.7	0.12	0.12	30	N		1	2.5	28.2	42.2					
AHD	T	31.9	23.9	0.12	0.12	30	N	0	2	3	75.9	50.7					
AVD	T	32.2	24.2	0.12	0.12	30	N	90	2	2.9	77.6	51.1					
CMD	R	20.8	16.8	0.12	0.12		N		3				7756	-18.1	-116.2		
CMD	R	13.6	9.6	0.12	0.12		N		3				12089	-27.2	-107.1		
CMD	R	2.5	-1.5	0.12	0.12		N		3				8719	-36.9	-97.4		
TLM	T	20.2	16.2	0.12	0.12		N		3	5.3	0.2	12.5					
TLM	T	13.3	9.3	0.12	0.12		N		3	8.3	1.5	15					
TLM	T	2.3	-1.7	0.12	0.12		N		3	5.2	3	7.1					
UPC	T	13	9	0.12	0.12		N	90	3	1.6	0.7	11.4					
UPC	T	20.6	16.6	0.12	0.12		N		3	2.9	0.2	13.9					

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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
LLUP	R	C	32.8		LLUP.gxt					
LRU	R	C	32.8		LRUP.gxt					
AHU	R	C	32.8		AHUP.gxt					
AVU	R	C	32.8		AVUP.gxt					
LRD	T	C	32.8		LRDN.gxt	-152	-151	-150.8	-150.7	-150.6
LLDN	T	C	32.8		LLDN.gxt	-152	-151	-150.8	-150.7	-150.6
AHD	T	C	32.8		AHDN.gxt	-150	-147.5	-145	-142.5	-142.1
AVD	T	C	32.8		AVDN.gxt	-150	-147.5	-145	-142.5	-141.7
CMD	R	C	32.8	CMDG.pdf						
CMD	R	C	32.8	CMDW.pdf						
CMD	R	C	32.8	CMDO.pdf						
TLM	T	C	32.8	TLMG.pdf		-168.7	-168.6	-168.5	-168.4	-168.3
TLM	T	C	32.8	TLMW.pdf		-167.9	-167.8	-167.7	-167.6	-167.5
TLM	T	C	32.8	TLMO.pdf		-174.1	-174	-173.9	-173.8	-173.7
UPC	T	C	32.8	UPCC.pdf		-159.8	-159.7	-159.6	-159.5	-159.4
UPC	T	C	32.8	UPCK.pdf		-157.3	-157.2	-157.1	-157	-156.9

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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)
1CU	72000	R	5890	L	C
3CU	72000	R	5970	L	C
5CU	72000	R	6050	L	C
7CU	72000	R	6130	L	C
9CU	72000	R	6220	L	C
11CU	72000	R	6300	L	C
13CU	72000	R	6380	L	C
15CU	72000	R	6460	L	C
2CU	72000	R	5890	R	C
4CU	72000	R	5970	R	C
6CU	72000	R	6050	R	C
8CU	72000	R	6130	R	C
10CU	72000	R	6220	R	C
12CU	72000	R	6300	R	C
14CU	72000	R	6380	R	C
16CU	72000	R	6460	R	C
1KU	36000	R	14025	H	C
3KU	36000	R	14065	H	C
5KU	36000	R	14105	H	C
7KU	36000	R	14145	H	C
9KU	72000	R	14205	H	C
11KU	72000	R	14295	H	C
13KU	72000	R	14375	H	C
15KU	72000	R	14455	H	C
2KU	36000	R	14025	V	C
4KU	36000	R	14065	V	C
6KU	36000	R	14105	V	C
8KU	36000	R	14145	V	C
10KU	72000	R	14205	V	C
12KU	72000	R	14295	V	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
1C	135.7	1CU	LLUP	1CD	LRDN
3C	135.7	3CU	LLUP	3CD	LRDN
5C	135.7	5CU	LLUP	5CD	LRDN
7C	135.7	7CU	LLUP	7CD	LRDN
9C	135.7	9CU	LLUP	9CD	LRDN
11C	135.7	11CU	LLUP	11CD	LRDN
13C	135.7	13CU	LLUP	13CD	LRDN
2C	135.7	2CU	LRUP	2CD	LLDN
4C	135.7	4CU	LRUP	4CD	LLDN
6C	135.7	6CU	LRUP	6CD	LLDN
8C	135.7	8CU	LRUP	8CD	LLDN
10C	135.7	10CU	LRUP	10CD	LLDN
12CD	135.7	12CU	LRUP	12CD	LLDN
14CD	135.7	14CU	LRUP	14CD	LLDN
1K	143.6	1KU	AHUP	1KD	AVDN
3K	143.6	3KU	AHUP	3KD	AVDN
5K	143.6	5KU	AHUP	5KD	AVDN
7K	143.6	7KU	AHUP	7KD	AVDN
9K	143.6	9KU	AHUP	9KD	AVDN
11K	143.6	11KU	AHUP	11KD	AVDN
13K	143.6	13KU	AHUP	13KD	AVDN
15K	143.6	15KU	AHUP	15KD	AVDN
2K	143.5	2KU	AVUP	2KD	AHDN
4K	143.5	4KU	AVUP	4KD	AHDN
6K	143.5	6KU	AVUP	6KD	AHDN
8K	143.5	8KU	AVUP	8KD	AHDN
10K	143.5	10KU	AVUP	10KD	AHDN
12K	143.5	12KU	AVUP	12KD	AHDN
14K	143.5	14KU	AVUP	14KD	AHDN
16K	143.5	16KU	AVUP	16KD	AHDN

14KU	72000	R	14375	V	C
16KU	72000	R	14455	V	C
1CD	72000	T	3665	R	C
3CD	72000	T	3745	R	C
5CD	72000	T	3825	R	C
7CD	72000	T	3905	R	C
9CD	72000	T	3995	R	C
11CD	72000	T	4075	R	C
13CD	72000	T	4155	R	C
2CD	72000	T	3655	L	C
4CD	72000	T	3745	L	C
6CD	72000	T	3825	L	C
8CD	72000	T	3905	L	C
10CD	72000	T	3995	L	C
12CD	72000	T	4075	L	C
14CD	72000	T	4155	L	C
1KD	36000	T	10975	V	C
3KD	36000	T	11015	V	C
5KD	36000	T	11055	V	C
7KD	36000	T	11095	V	C
9KD	72000	T	11155	V	C
11KD	72000	T	11495	V	C
13KD	72000	T	11575	V	C
15KD	72000	T	11655	V	C
2KD	36000	T	10975	H	C
4KD	36000	T	11015	H	C
6KD	36000	T	11055	H	C
8KD	36000	T	11095	H	C
10KD	72000	T	11155	H	C
12KD	72000	T	11495	H	C
14KD	72000	T	11575	H	C
16KD	72000	T	11655	H	C
CMD1	1000	R	6173.7	L	T
CMD2	1000	R	6176.3	L	T
TLM1	500	T	3947.5	R	T
TLM2	500	T	3952.5	R	T
UPC1	25	T	3950	V	T
UPC2	25	T	11198	R	T
UPC3	25	T	11452	R	T

11CK	140.1	11CU	LLUP	11KD	AVDN
13CK	140.1	13CU	LLUP	13KD	AVDN
15CK	140.1	15CU	LLUP	15KD	AVDN
14CK	140	14CU	LRUP	14KD	AHDN
16CK	140	16CU	LRUP	16KD	AHDN
11KC	139.2	11KU	AHUP	11CD	LRDN
13KC	139.2	13KU	AHUP	13CD	LRDN

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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	72M0G7W	72000	4	49138	0.5		3.4	18.5
D2	10M3G7W	10300	4	6000	0.5		3.9	18.8
D3	100KG7W	100	4	64	0.5		3	18.2
D4	1M45G7W	1450	2	512	0.5		3.4	14.5
D5	400KG7W	400	2	128	0.5		3.4	14.5

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Page 8: Analog Modulation

S12. ANALOG MODULATION PARAMETERS For each analog emission provide:

(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 Compander, Preemphasis, and Noise Weighting (dB)	(n) Total C/N Performance Objective (dB)	(o) Single Entry C/I Objective (dB)
					(f) Ave. Companded Talker Level (dBm0)	(g) Bottom Baseband Freq. (MHz)	(h) Top Baseband Freq. (MHz)	(i) RMS Modulation Index						
A1	36M0F3F	36000	TV/FM	1					PAL	15.6	1.5		10	23.4

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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/m ² /Hz)	(o) Assoc. Stn Rec. G/T (dB/K)
(a) Start	(b) End								(j) Min.	(k) Max.	(l) Min.	(m) Max.		
1C	13KC		A1	2	36000	NEW DAWN S	4000	55.4	15.5	23.5	30	38	-154.1	31
1C	13KC	D1		1	72000	NOTE.txt		55.4	15.5	23.5	34.2	42.2	-161.7	19.2
1C	13KC	D2		4	10300	NOTE.txt		49.4	10.5	18.5	23.9	31.9	-162.5	21
1C	13KC	D3		527	100	NOTE.txt		49.4	-9.9	-1.9	3.5	11.5	-163.4	21
1C	13KC		A1	2	36000	NOTE.txt	4000	56.4	16.5	24.5	38.5	46.5	-145.6	32.6
1C	13KC	D1		1	72000	NOTE.txt		56.4	16.5	24.5	42.7	50.7	-153.2	21.8
1C	13KC	D2		4	10300	NOTE.txt		49.4	10.4	18.4	32.3	40.3	-154.1	24.5
1C	13KC	D3		521	100	NOTE.txt		49.4	-9.9	-1.9	12	20	-154.9	24.5
1C	13KC		A1	2	36000	NOTE.txt	4000	56.9	11.6	21.6	38.5	46.5	-145.6	32.6
1C	13KC	D1		1	72000	NOTE.txt		56.9	13.6	23.6	42.7	50.7	-153.2	21.8
1C	13KC	D2		5	10300	NOTE.txt		56.9	2.3	12.3	32.1	40.1	-154.3	24.5
1C	13KC	D3		537	100	NOTE.txt		56.9	-17.9	-7.9	11.9	19.9	-155	24.5
1C	13KC	D4		33	1450	NOTE.txt		56.9	-5.9	4.1	23.9	31.9	-155.1	24.5
1C	13KC	D5		180	400	NOTE.txt		49	-9	1	12.9	20.9	-160.1	32.6
1C	13KC		A1	2	36000	NOTE.txt	4000	56.9	13.1	23.1	30	38	-154.1	28.4
1C	13KC	D1		1	72000	NOTE.txt		56.9	13.1	23.1	34.2	42.2	-161.7	19.2
1C	13KC	D2		4	10300	NOTE.txt		56.9	3.2	13.2	24	32	-162.4	21
1C	13KC	D3		481	100	NOTE.txt		56.9	-16.9	-6.9	3.9	11.9	-163	21

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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): Yes

Remote Control (TT C) Location(s):

S14a: Street Address: 3400 INTERNATIONAL DRIVE, NW.			
S14b. City: WASHINGTON	S14c. County:	S14d. State/Country DC	S14e. Zip Code: 20008
S14f. Telephone Number: 202-944-7701		S14g. Call Sign of Control Station (if appropriate):	

Remote Control (TT C) Location(s):

S14a: Street Address:			
S14b. City:	S14c. County:	S14d. State/Country	S14e. Zip Code:
S14f. Telephone Number:		S14g. Call Sign of Control Station (if appropriate):	

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**Page 11:
Characteristics and
Certifications**

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a. Mass of spacecraft without fuel (kg): 1278	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 1722		
S15c. Mass of spacecraft and fuel at launch (kg): 3000	S15f. Length (m): 23.6	S15i. Payload: 0.811
S15d. Mass of fuel, in orbit, at beginning of life (kg): 578	S15g. Width (m): 4.9	S15j. Bus: 0.838
S15e. Deployed Area of Solar Array (square meters): 31.1	S15h. Height (m): 8.5	S15k. Total: 0.68

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): 4818	(f): 4818	(k): 4818	(p): 4818
Bus (Watts):	(b): 372	(g): 307	(l): 372	(q): 307
Total (Watts):	(c): 5190	(h): 5125	(m): 5190	(r): 5125
Solar Array (Watts):	(d): 7420	(i): 6653	(n): 6946	(s): 6400
Depth of Battery Discharge (%):	(e) 45.1 %	(j) %	(o) 70.1 %	(t) %

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?	☒ YES	☐ NO	☐ 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?	☐ YES	☐ NO	☒ 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?	☒ YES	☐ NO	☐ 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.