FCC 312 Schedule S	FEDERAL COMMUNICATIONS COMMISSION SATELLITE SPACE STATION AUTHORIZATIONS (Technical and Operational Description)	Page 1: General, Frequency Bands, and GSO Orbit

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name:		e. Estimated Date of Placement into Service:	i Will the space station(s) operate on a Common Carrier Basis:
SKYSAT		9/29/2012	N
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s):	j. Number of transponders offered on a common carrier basis:
2/14/2011		6 Years	0
c. Construction Completion Date:		g. Total Number of Transponders:	k. Total Common Carrier Transponder Bandwidth:
3/31/2013		0	0 MHz
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth)	l. Orbit Type: Mark all boxes that apply:
9/29/2012	3/31/2013	0 MHz	[ ] GSO [X] 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)		
8025	M	8400	M	T	Earth Exploration Satellite Service
2025	M	2110	M	R	Earth Exploration Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

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S4. ORBITAL INFORMATION FOR NON-GEOSTATIONARY SATELLITES ONLY

S4a. Total Number of Satellites in Network or System: 2

S4b. Total Number of Orbital Planes in Network or System: 2

S4c. Celestial Reference Body (Earth, Sun, Moon, etc.): E

S4d. Orbit Epoch Date: 9/29/2012

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
1	1	97.79	5787	600.2	577.8	346.01	354.62	0	360	
2	1	97.94	5847	637	637	346.01	0	0	360	

S5. INITIAL SATELLITE PHASE ANGLE For each satellite in each orbital plane, provide the intital phase angle.

(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)
1	1	0
2	1	0

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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.
VISIBLEEART	E		XVE (visible Earth)

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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				
		(c) Peak (dBi)	(d) Edge (dBi)							(k) Input Losses (dB)	(l) Effective Output Power (W)	(m) Max. EIRP (dBW)	(n) System Noice 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
PLD	T	28.7	28.3	0.1	0		N		VISIBLEE	3.3	0.47	25.4					
TTC	T	5	-4	0.1	0		N		VISIBLEE	2.2	0.43	1.3					
CMD	R	6	0	0.1	0		N		VISIBLEE				570	-21.6	0		

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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
PLD	T	C		payload_antenna.pdf		-154.9	-152.5	-150.6	-149.1	-147.8
PLD	T	X		payload_antenna.pdf						
TTC	T	C		ttc_x-band.pdf		-153.4	-151	-149.4	-147.9	-146.6
TTC	T	X		ttc_x-band.pdf						
CMD	R	C		ttc_s-band.pdf						
CMD	R	X		ttc_s-band.pdf						

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S9. SPACE STATION CHANNELS For each frequency channel 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)
PLD1	60000	T	8075	R	C
PLD2	60000	T	8200	R	C
PLD3	60000	T	8325	R	C
TTC1	256	T	8375	R	T
TTC2	256	T	8380	R	T
CMD1	110	R	2081	R	T
CMD2	110	R	2083	R	T

S10. SPACE STATION TRANSPONDERS For each transponder provide:

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
NONE	1	CMD1	CMD	TTC1	TTC

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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)
PLD1	60M0G1D	60000	8	100845	0.747	0	7.9	20.7
PLD2	60M0G1D	60000	8	100845	0.747	0	7.9	20.7
PLD3	60M0G1D	60000	8	100845	0.747	0	7.9	20.7
TTC1	256KG1D	256	2	64	0.5	0	7.9	20.7
TTC2	256KG1D	256	2	64	0.5	0	7.9	20.7
CMD1	110KF1D	110		16	1	0	7.9	20.7
CMD2	110KF1D	110		16	1	0	7.9	20.7

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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						

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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)			
(a) Start	(b) End	(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/m2/Hz)	(o)Assoc. Stn Rec. G/T (dB/K)
									(j) Min.	(k) Max.	(l) Min.	(m) Max.		

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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: Skybox Imaging Inc.			
S14b. City: Mountain View	S14c. County: Santa Clara	S14d. State/Country CA	S14e. Zip Code: 94043
S14f. Telephone Number: 650-316-6660	S14g. Call Sign of Control Station (if appropriate): NONE		

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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a: Mass of spacecraft without fuel (kg): 87	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): 87	S15f. Length (m): 0.6	S15i. Payload: 0.801
S15d. Mass of fuel, in orbit, at beginning of life (kg): 0	S15g. Width (m): 1.2	S15j. Bus: 0.8833
S15e. Deployed Area of Solar Array (square meters): 0.36	S15h. Height (m): 0.8	S15k. Total: 0.7075

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): 27	(f): 27	(k): 27	(p): 27
Bus (Watts):	(b): 136	(g): 136	(l): 136	(q): 136
Total (Watts):	(c): 163	(h): 163	(m) 163	(r): 163
Solar Array (Watts):	(d): 161	(i): 155	(n): 149	(s): 143
Depth of Battery Discharge (%):	(e) 30 %	(j) 30 %	(o) 30 %	(t) 30 %

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	[ ] YES	[ ] NO	[X] 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	[X] 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?	[X] 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.