Approved by OMD Control Number 3060-0678
Estimated Burden Hours: 80

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:
CIEL-6I			N
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s): 13.9 Years	j. Number of transponders offered on a common carrier basis: 0
c. Construction Completion Date:		g. Total Number of Transponders: 1	k. Total Common Carrier Transponder Bandwidth: 0 MHz
d1. Est Launch Date Begin:	d2. Est Launch Date End: 7/16/2011	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 500 MHz	l. Orbit Type: Mark all boxes that apply: [X] 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)		
24750	M	25250	M	R	Feeder Link for Broadcasting Satellite Service in FSS
17300	M	17800	M	T	Broadcasting Satellite Service - Video
17300	M	17800	M	T	Broadcasting Satellite Service - Sound
17300	M	17800	M	T	Broadcasting Satellite Service - Data

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 103 W	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: Ciel Satellite Limited Partnership has Industry Canada approval to operate the CIEL-6i satellite at the 103 W.L. orbital location.
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: 0.075 Degrees	Range of orbital are in which adequate service can be provided (Optional): Degrees E/W g. Westernmost: h. Easternmost:	
i. Reason for service are selection (Optional):			

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S4. ORBITAL INFORMATION FOR NON-GEOSTATIONARY SATELLITES ONLY

S4a. Total Number of Satellites in Network or System:

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

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

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 intital 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.
SA1	E		North America including Alaska and Hawaii

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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 Isolation (dB)	(h) Polarization Switchable? (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
KAUL	R	23.5	22.5	0.15		25	N		SA1				1230	-7.4	-99.6	20	1
KADL	T	23.3	19.1	0.15		25	N		SA1			33.6					
KAD	T	23.3	19.1	0.15		25	N		SA1			33.6					

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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
KAUL	R	C	-103		KAUL.GXT					
KADL	T	C	-103		KADL.GXT	-130.8	-130.6	-130.5	-130.3	-130
KAD	T	C	-103		KADR.GXT	-130.8	-130.6	-130.5	-130.3	-130

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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)
CU01	500000	R	25000	L	C
CD01	500000	T	17550	L	C
CD02	500000	T	17550	R	C

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
T001	1	CU01	KAUL	CD01	KADL
T002	1	CU01	KAUL	CD02	KADR

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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)
D1	3M75G7W	3751	4	1544	0.247		-2	10.2
D2	36M0G7W	36000	4	14820	0.247		-2	10.2
D3	390MG7W	390000	4	160500	0.247		-2	10.2

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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)			
								(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)
(a) Start	(b) End	(c) Digital (Table S11)	(d) Analog (Table S12)						(j) Min.	(k) Max.	(l) Min.	(m) Max.		
T001	T002	D1		30	13300	LB1.docx		59.6	2.6	3.6	12.1	16.3	-151.2	34.7
T001	T002	D2		6	66600	LB2.docx		57.4	12.9	13.9	19.2	23.4	-154	37.6
T001	T002	D3		1		LB3.docx		57.4	26.7	27.7	29.4	33.6	-154.1	37.6

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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: South Mountain			
S14b. City: Somis	S14c. County: Ventura	S14d. State/Country CA	S14e. Zip Code: 93066
S14f. Telephone Number: 805-386-2701	S14g. Call Sign of Control Station (if appropriate): KA288		

Remote Control (TT C) Location(s):

S14a: Street Address: Vernon Valley			
S14b. City: Sussex	S14c. County:	S14d. State/Country NJ	S14e. Zip Code: 07461
S14f. Telephone Number: 973-823-6000	S14g. Call Sign of Control Station (if appropriate): E9494		

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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a: Mass of spacecraft without fuel (kg): 1362	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 1750		
S15c. Mass of spacecraft and fuel at launch (kg): 3112	S15f. Length (m): 23.5	S15i. Payload: 0.94
S15d. Mass of fuel, in orbit, at beginning of life (kg): 528	S15g. Width (m): 7.7	S15j. Bus: 0.89
S15e. Deployed Area of Solar Array (square meters): 39	S15h. Height (m): 3.9	S15k. Total: 0.84

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): 4966	(f): 4966	(k): 4948	(p): 4948
Bus (Watts):	(b): 973	(g): 479	(l): 1064	(q): 350
Total (Watts):	(c): 5938	(h): 5445	(m) 6012	(r): 5428
Solar Array (Watts):	(d): 7370	(i): 6608	(n): 7048	(s): 6436
Depth of Battery Discharge (%):	(e) 54.4 %	(j) %	(o) 63.6 %	(t) 15.3 %

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	X	**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**	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.

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