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: GESN@125 W		e. Estimated Date of Placement into Service:	i Will the space station(s) operate on a Common Carrier Basis: N
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s): 15 Years	j. Number of transponders offered on a common carrier basis:
c. Construction Completion Date:		g. Total Number of Transponders: 0	k. Total Common Carrier Transponder Bandwidth: MHz
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 18000 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)		
29.25	G	30.0	G	R	6 x 125 MHz channels
28.35	G	28.6	G	R	2 x 125 MHz channels
47.2	G	47.5	G	R	Gateway beams - 1 x 300 MHz channel
47.5	G	47.9	G	R	Gateway and user beams - 1 x 400 MHz channel
47.9	G	48.2	G	R	Gateway beams - 1 x 300 MHz channel
48.2	G	50.2	G	R	4 x 500 MHz channels
18.3	G	18.8	G	T	2 x 250 MHz channels
19.7	G	20.2	G	T	2 x 250 MHz channels
37.5	G	40.0	G	T	Gateway/ Hub applications - 5 x 500 MHz channels
40.0	G	42.0	G	T	4 x 500 MHz channels
28.6	G	29.1	G	R	4 x 125 MHz channels
18.8	G	19.3	G	T	2 x 250 MHz Channels

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 125 W	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: Part of GESN satellite system.
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: 129 W h. Easternmost: 121 W	

i. Reason for service are selection (Optional):	

FEDERAL COMMUNICATIONS COMMISSION **Page 2: NGSO Orbits**
SATELLITE SPACE STATION AUTHORIZATIONS
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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

FEDERAL COMMUNICATIONS COMMISSION **Page 3: Service Areas**
SATELLITE SPACE STATION AUTHORIZATIONS
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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.
1	S		AAB

FEDERAL COMMUNICATIONS COMMISSION **Page 4: Antenna Beams**
SATELLITE SPACE STATION AUTHORIZATIONS
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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
V1R	T	53	50	0.05	0	30	Y		1	2	20	64					
V2R	T	53	50	0.05	0	30	Y		1	2	40	67					
V3R	R	54.4	51.4	0.05	0	30	Y		1				520	27.2	-120	30	2
K1R	T	48	45	0.05	0	30	Y		1	2	50	63					
K3R	T	54	51	0.05	0	30	Y		1	2	50	69					
K4R	R	54	51	0.05	0	30	Y		1				504	27	-134.4	32	2
K5R	T	18.5	15.5	0.05	0	30	N		1	2	100	36.5					
K6R	R	18.5	15.5	0.05	0	30	N		1				504	-8.5	-123.6	32	2
K7R	T	-3	-5	0.05	0	30	N		1	3	2	-3					
K8R	R	-3	-5	0.05	0	30	N		1				1154	-33.6	-90	20	2
K2R	R	46.5	43.5	0.05	0	30	Y		1				504	19.5	-126.7	32	2

FEDERAL COMMUNICATIONS COMMISSION **Page 5: Beam Diagrams**
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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
K8R	R	X	-125		K8R_XPol					
V1R	T	C	-125		V1R_ CoPol	-140	-134	-126	-126	-126
V1R	T	X	-125		V1R_ XPol					
V2R	T	C	-125		V2R_CoPol	-124	-120	-117	-117	-117
V2R	T	X	-125		V2R_XPol					
V3R	R	C	-125		V3R_CoPol					
V3R	R	X	-125		V3R_ XPol					
K1R	T	C	-125		K1R_ CoPol	-121	-121	-121	-120	-120
K1R	T	X	-125		K1R_XPol					
K2R	R	C	-125		K2R_CoPol					
K2R	R	X	-125		K2r_XPol					
K3R	T	C	-125		K3R_ CoPol	-116.8	-113	-111.7	-111.6	-111.5
K3R	T	X	-125		K3R_XPol					
K4R	R	C	-125		K4R_CoPol					
K4R	R	X	-125		K4R_ XPol					
K5R	T	C	-125		K5R_CoPol	-122	-121.9	-121.8	-121.7	-121.6
K5R	T	X	-125		K5R_XPol					
K6R	R	C	-125		K6R_CoPol					
K6R	R	X	-125		K6R_XPol					
K7R	T	C	-125		K7R_CPol	-150	-150	-150	-150	-150
K7R	T	X	-125		K7R_XPol					
K8R	R	C	-125		K8R_CoPol					

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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)
K1	110000	R	28412.5	L	C
K1	110000	R	28412.5	R	C
K2	125000	R	28537.5	L	C
K2	125000	R	28537.5	R	C
K3	115000	R	29312.5	L	C
K3	115000	R	29312.5	R	C
K4	110000	R	29437.5	L	C
K4	110000	R	29437.5	R	C
K5	125000	R	29562.5	L	C
K5	125000	R	29562.5	R	C
K6	125000	R	29687.5	L	C
K6	125000	R	29687.5	R	C
K7	125000	R	29812.5	L	C
K7	125000	R	29812.5	R	C
K8	110000	R	29937.5	L	C
K8	110000	R	29937.5	R	C
V1	300000	R	47350	L	C
V1	300000	R	47350	R	C
V2	400000	R	47700	L	C
V2	400000	R	47700	R	C
V3	300000	R	48050	L	C
V3	300000	R	48050	R	C
V4	500000	R	48450	L	C
V4	500000	R	48450	R	C
V5	500000	R	48950	L	C
V5	500000	R	48950	R	C
V6	500000	R	49450	L	C
V6	500000	R	49450	R	C
V7	500000	R	49950	R	C
V7	500000	R	49950	L	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

K1T	240000	T	18425	R	C
K1T	240000	T	18425	L	C
K2T	250000	T	18675	L	C
K2T	250000	T	18675	R	C
K3T	240000	T	19825	L	C
K3T	240000	T	19825	R	C
K4T	240000	T	20075	L	C
K4T	240000	T	20075	R	C
V1T	500000	T	37750	L	C
V1T	500000	T	37750	R	C
V2T	500000	T	38250	L	C
TT4	2000	T	20198	L	T
TR1	2000	R	28354	R	T
TR2	2000	R	29098	R	T
V2T	500000	T	38250	R	C
V3T	500000	T	38750	L	C
V3T	500000	T	38750	R	C
V4T	500000	T	39250	L	C
V4T	500000	T	39250	R	C
V5T	500000	T	39750	L	C
V5T	500000	T	39750	R	C
V6T	500000	T	40250	L	C
V6T	500000	T	40250	R	C
V7T	500000	T	40750	L	C
V7T	500000	T	40750	R	C
V8T	500000	T	41250	L	C
V8T	500000	T	41250	R	C
V9T	500000	T	41750	L	C
V9T	500000	T	41750	L	C
TT1	2000	T	18304	L	T
TT2	2000	T	19298	L	T
TR4	2000	R	29998	R	T
K9R	110000	R	28662.5	R	C
K9R	110000	R	28662.5	L	C
K10	125000	R	28787.5	R	C
K10	125000	R	28787.5	L	C
K11	125000	R	28912.5	R	C
K11	125000	R	28912.5	L	C
K12	110000	R	29037.5	R	C

K12	110000	R	29037.5	L	C
K9T	240000	T	18925	R	C
K9T	240000	T	18925	L	C
K13	240000	T	19175	R	C
K13	240000	T	19175	L	C
KTB	1000	T	19296	L	C
KRB	1000	R	20096	R	C

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)
D01	7M00G7W	700	4	10100	0.9		9.3	21.3
D02	3M50G7W	3500	4	2520	0.4		7.1	19.1
D03	700KG7W	700	4	500	0.4		7.1	19.1
D04	491MG7W	491000	4	706000	0.9		9.3	21.3
D05	175MG7W	175000	4	252000	0.9		9.3	21.3
D06	87M8G7W	87800	4	63000	0.4		7.1	19.1
D07	35M1G7W	35100	4	25000	0.4		7.1	19.1
D08	250MG7W	250000	8	374000	0.75		8.6	20.6
D09	250MG7W	250000	4	224000	0.67		5.4	17.6
D10	250MG7W	250000	4	149000	0.45		4.2	16.4
D11	125MG7W	125000	4	112000	0.67		5.4	17.6
D12	125MG7W	125000	4	74000	0.45		4.2	16.4
D13	500MG7W	500000	8	748000	0.75		8.6	20.8
D14	2M00G7D	2000	2	1000	1		15	27
D15	1M00G7D	1000	2	500	1		15	27
D16	3M50G7W	3500	4	5050	0.9		9.3	21.3
D17	60M0G7W	60000	8	89000	0.75		8.6	20.8
D18	60M0G7W	60000	4	53000	0.67		5.4	17.6

FEDERAL COMMUNICATIONS COMMISSION **Page 8: Analog Modulation**

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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						
A1	4K00F9D	4											18	27

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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.		

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): No

Remote Control (TT C) Location(s):

S14a: Street Address: TBD			
S14b. City: TBD	S14c. County: USA	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): 2700	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 2800		
S15c. Mass of spacecraft and fuel at launch (kg): 5500	S15f. Length (m): 4.8	S15i. Payload: 0.78
S15d. Mass of fuel, in orbit, at beginning of life (kg): 1700	S15g. Width (m): 2.5	S15j. Bus: 0.93
S15e. Deployed Area of Solar Array (square meters): 38	S15h. Height (m): 2.5	S15k. Total: 0.72

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): 8600	(f): 8170	(k): 7050	(p): 6696
Bus (Watts):	(b): 2100	(g): 2000	(l): 1720	(q): 1639
Total (Watts):	(c): 10700	(h): 10170	(m) 8770	(r): 8335
Solar Array (Watts):	(d): 11200	(i): 10670	(n): 9180	(s): 8745
Depth of Battery Discharge (%):	(e) 70 %	(j) 70 %	(o) 70 %	(t) 70 %

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.