

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: GESN NGSO		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		i. Orbit Type: Mark all boxes that apply: <input type="checkbox"/> GSO <input checked="" 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)		
29.5	G	30.0	G	R	4 x 125 MHz channels (only for 3 HEO satellites)
28.6	G	29.1	G	R	4 x 125 MHz channels
47.2	G	47.5	G	R	Gateway beams
47.5	G	47.9	G	R	Gateway and user beams
47.9	G	48.2	G	R	Gateway beams
48.2	G	50.2	G	R	4 x 500 MHz channels
18.8	G	19.3	G	T	2 x 250 MHz channels
19.7	G	20.2	G	T	2 x 250 MHz channels (only for 3 HEO satellites)
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

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

S4. ORBITAL INFORMATION FOR NON-GEOSTATIONARY SATELLITES ONLY

S4a. Total Number of Satellites in Network or System: 7 S4c. Celestial Reference Body (Earth, Sun, Moon, etc.): E
 S4b. Total Number of Orbital Planes in Network or System: 4 S4d. Orbit Epoch Date: 1/1/2000

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	63.4	43064	39352	1111	0	270	120	250	
2	1	63.4	43064	39352	1111	120	270	120	250	
3	1	63.4	43064	39352	1111	240	270	120	250	
4	4	0.05	86164	35878	35878	0	235	0	360	
4	4	0.05	86164	35878	35878	0	287	0	360	
4	4	0.05	86164	35878	35878	0	68.5	0	360	
4	4	0.05	86164	35878	35878	0	116.5	0	360	

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)
1	1	0
2	1	120
3	1	240
4	1	0
4	2	0
4	3	0
4	4	0

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

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		AAA

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

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					
										(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															
V1R	T	53	50	0.05		30	Y		1	2	20	64						
V2R	T	53	50	0.05		30	Y		1	2	40	67						
V3R	R	54.4	51.4	0.05		30	Y		1				520	27.2	-120	30	2	
K1R	T	48	45	0.05		30	Y		1	2	50	63						
K3R	T	54	51	0.05		30	Y		1	2	50	69						
K4R	R	54	51	0.05		30	Y		1				504	27	-134.4	32	2	
K7R	T	-3	-5	0.1		30	N		1	3	2	-3						
K8R	R	-3	-5	0.1		30	N		1				1154	-33.6	-90	20	2	
K2R	R	46.5	43.5	0.05		30	Y		1				504	19.5	-126.7	32	2	
K5R	T	18.5	15.5	0.1		30	N		1	2	50	33.5						
K6R	R	18.5	15.5	0.1		30	N		1				504	-8.5	-123.6	32	2	

**FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)**

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	C		8R-Rx TT&C CoPol.pdf						
K8R	R	X		8R - Rx TT&C XPol.pdf						
V1R	T	C		V1R Tx CoPol.pdf		-140	-130	-120	-120	
V1R	T	X		V1R Tx XPol.pdf						
V2R	T	C		V2R Tx CoPol.pdf		-131	-121	-111	-111	
V2R	T	X		V2R Tx XPol.pdf						
V3R	R	C		V3 Rx CoPol.pdf						
V3R	R	X		V3 Rx XPol.pdf						
K1R	T	X		K1R Tx 48 XPol.pdf						
K1R	T	C		K1R Tx 48 CoPol.pdf		-119	-118	-117	-117	
K2R	R	X		K2R-Rx 46.5 Xpol.pdf						
K2R	R	C		K2 Rx 46.5 CoPol.pdf						
K3R	T	C		K3R Tx 54 CoPol.pdf		-117	-113.7	-112.65	-109.1	
K3R	T	X		K3R- Tx 54 XPol.pdf						
K4R	R	C		K4R Rx 54 CoPol.pdf						
K4R	R	X		K4R Rx 54 XPol.pdf						
K5R	T	C		5R-Tx Beacon CoPol.p		-119.2	-119	-118.8	-118.6	
K5R	T	X		5R-Tx Beacon XPol.p						
K6R	R	C		6R-Rx Beacon CoPol.p						
K7R	T	C		7R-Tx-TT&C CoPol.p		-139.4	-139.2	-139	-138.8	
K7R	T	X		7R-Tx-TT&C XPol.p						
K8R	R	C		8R-Rx TT&C CoPol.p						
K8R	R	X		8R - Rx TT&C XPol.p						
V1R	T	C		V1R Tx CoPol.pdf		-140	-130	-120	-120	
V1R	T	X		V1R Tx XPol.pdf						
V2R	T	C		V2R Tx CoPol.pdf		-131	-121	-111	-111	
V2R	T	X		V2R Tx XPol.pdf						
V3R	R	C		V3 Rx CoPol.pdf						

V3R	R	X		V3 Rx XPol.pdf						
K1R	T	X		K1R Tx 48 XPol.pdf						
K1R	T	C		K1R Tx 48 CoPol.pdf	-119	-118	-117	-117	-117	
K2R	R	X		K2R-Rx 46.5 Xpol.pdf						
K2R	R	C		K2 Rx 46.5 CoPol.pdf						
K3R	T	C		K3R Tx 54 CoPol.pdf	-117	-113.7	-112.65	-109.1	-108.5	
K3R	T	X		K3R- Tx 54 XPol.pdf						
K4R	R	C		K4R Rx 54 CoPol.pdf						
K4R	R	X		K4R Rx 54 XPol.pdf						
K5R	T	C		5R-Tx Beacon CoPol.p	-119.2	-119	-118.8	-118.6	-118.6	
K5R	T	X		5R-Tx Beacon XPol.pd						
K6R	R	C		6R-Rx Beacon CoPol.p						
K7R	T	C		7R-Tx-TT&C CoPol.pd	-139.4	-139.2	-139	-138.8	-138.6	
K7R	T	X		7R-Tx-TT&C XPol.pd						

**FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)**

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)
K1	110000	R	28662.5	L	C
K1	110000	R	28662.5	R	C
K2	125000	R	28787.5	L	C
K2	125000	R	28787.5	R	C
K3	125000	R	28912.5	L	C
K3	125000	R	28912.5	R	C
K4	110000	R	29037.5	L	C
K4	110000	R	29037.5	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	125000	R	29937.5	L	C
K8	125000	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	L	C
V7	500000	R	49950	R	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID

B1	1000	R	29096	R	C
T1	2000	R	29098	R	T
K1T	240000	T	18925	R	C
K1T	240000	T	18925	L	C
K2T	240000	T	19175	L	C
K2T	240000	T	19175	R	C
K3T	250000	T	19825	L	C
K3T	250000	T	19825	R	C
K4T	250000	T	20075	L	C
K4T	250000	T	20075	R	C
V1T	500000	T	37750	L	C
V1T	500000	T	37750	R	C
V2T	500000	T	38250	L	C
T2	2000	R	28602	R	T
T4	2000	T	18802	L	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
B2	1000	T	19296	L	C
T3	2000	T	19298	L	T

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

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	10K7G7D	10.7	4	5	0.4		4.2	16.2
D09	250MG7W	250000	8	374000	0.75		8.6	20.6
D10	250MG7W	250000	4	224000	0.67		5.4	17.6
D11	250MG7W	250000	4	149000	0.45		4.2	16.4
D12	125MG7W	125000	4	112000	0.67		5.4	17.6
D13	125MG7W	125000	4	74000	0.45		4.2	16.4
D14	500MG7W	500000	8	748000	0.75		8.6	20.8
D15	334KG7D	334	4	200	0.4		4.2	16.4
D16	2M00G7D	2000	2	1000	1		15	27
D17	1M00G7D	1000	2	500	1		15	27
D18	60M0G7W	60000	8	89000	0.75		8.6	20.6
D19	60M0G7W	60000	4	53000	0.67		5.4	17.6

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

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):	

**FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)**

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a. Mass of spacecraft without fuel (kg): 2508	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): 3154	S15f. Length (m): 4.8	S15i. Payload: 0.78
S15d. Mass of fuel, in orbit, at beginning of life (kg): 646	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?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	<input 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 checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	<input 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.