

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: VIASAT-89W		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: 24		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) 2640 MHz		i. Orbit Type: Mark all boxes that apply: <input checked="" type="checkbox"/> GSO <input 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)		
28600	M	29100	M	R	Fixed Satellite Service
29500	M	30000	M	R	Fixed Satellite Service
18800	M	19300	M	T	Fixed Satellite Service
19700	M	20200	M	T	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 88.9 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: The 88.9 W.L. location has been selected in order to avoid physical collision with an operational satellite at the 89 W.L. orbital location.
Longitudinal Tolerance or E/W Station-Keeping:		f. Inclination Excursion or N/S Station-Keeping Tolerance:		
d. Toward West: 0.05 Degrees	e. Toward East: 0.05 Degrees	g. Westernmost: 0.05 Degrees 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:

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)

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	S		-6 dB contour of the uplink CONUS beam.
SA2	S		-6 dB contour of the downlink CONUS beam.
SA3	S		-6 dB contour of the uplink South American beam.
SA4	S		-6 dB contour of the downlink South American beam.
SA5	S		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				
										(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														
NAR	R	35.5	29.5	0.12		30	N		SA1				795	6.5	-98.2	25	1
NARL	R	35.5	29.5	0.12		30	N		SA1				795	6.5	-98.2	25	1
SAR	R	35.5	29.5	0.12		30	N		SA3				795	6.5	-98.2	25	1
SARL	R	35.5	29.5	0.12		30	N		SA3				795	6.5	-98.2	25	1
NAT	T	35	29	0.12		30	N		SA2	1	417	61.2					
NATL	T	35	29	0.12		30	N		SA2	1	417	61.2					
SATR	T	35	29	0.12		30	N		SA4	1	417	61.2					
SATL	T	35	29	0.12		30	N		SA4	1	417	61.2					
OMNI	R	3	0	0.12		30	N		SA5				1585	-29			
OMNI	T	3	0	0.12		30	N		SA5	3	12.6	14					

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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
NAR	R	C	-88.9		NARR.gxt					
NARL	R	C	-88.9		NARL.gxt					
SAR	R	C	-88.9		SARR.gxt					
SARL	R	C	-88.9		SARL.gxt					
NAT	T	C	-88.9		NATR.gxt	-138.6	-139.1	-135.3	-130.1	-126.4
NATL	T	C	-88.9		NATL.gxt	-138.6	-139.1	-135.3	-130.1	-126.4
SATR	T	C	-88.9		SATR.gxt	-133.5	-132	-129.8	-127.4	-125
SATL	T	C	-88.9		SATL.gxt	-133.5	-132	-129.8	-127.4	-125
OMNI	T	C	-88.9			-145.1	-145.1	-145.1	-145.1	-145.1

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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)
UL01	110000	R	29567	R	C
UL02	110000	R	29689	R	C
UL03	110000	R	29811	R	C
UL04	110000	R	29933	R	C
UL05	110000	R	29567	L	C
UL06	110000	R	29689	L	C
UL07	110000	R	29811	L	C
UL08	110000	R	29933	L	C
UL09	110000	R	28667	R	C
UL10	110000	R	28789	R	C
UL11	110000	R	28911	R	C
UL12	110000	R	29033	R	C
UL13	110000	R	28667	L	C
UL14	110000	R	28789	L	C
UL15	110000	R	28911	L	C
UL16	110000	R	29033	L	C
DL01	110000	T	19767	L	C
DL02	110000	T	19889	L	C
DL03	110000	T	20011	L	C
DL04	110000	T	20133	L	C
DL05	110000	T	19767	R	C
DL06	110000	T	19889	R	C
DL07	110000	T	20011	R	C
DL08	110000	T	20133	R	C
DL09	110000	T	18867	L	C
DL10	110000	T	18989	L	C
DL11	110000	T	19111	L	C
DL12	110000	T	19233	L	C
DL13	110000	T	18867	R	C
DL14	110000	T	18989	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
T0001	139.9	UL01	NARR	DL01	NATL
T0002	139.9	UL02	NARR	DL02	NATL
T0003	139.9	UL03	NARR	DL03	NATL
T0004	139.9	UL04	NARR	DL04	NATL
T0005	139.9	UL05	NARL	DL05	NATR
T0006	139.9	UL06	NARL	DL06	NATR
T0007	139.9	UL07	NARL	DL07	NATR
T0008	139.9	UL08	NARL	DL08	NATR
T0009	125.5	UL09	NARR	DL09	NATL
T0010	125.5	UL10	NARR	DL10	NATL
T0011	125.5	UL11	NARR	DL11	NATL
T0012	125.5	UL12	NARR	DL12	NATL
T0013	125.5	UL13	NARL	DL13	NATR
T0014	125.5	UL14	NARL	DL14	NATR
T0015	125.5	UL15	NARL	DL15	NATR
T0016	125.5	UL16	NARL	DL16	NATR
T0017	125.5	UL09	SARR	DL09	SATL
T0018	125.5	UL10	SARR	DL10	SATL
T0019	125.5	UL11	SARR	DL11	SATL
T0020	125.5	UL12	SARR	DL12	SATL
T0021	125.5	UL13	SARL	DL13	SATR
T0022	125.5	UL14	SARL	DL14	SATR
T0023	125.5	UL15	SARL	DL15	SATR
T0024	125.5	UL16	SARL	DL16	SATR
T0025	125.5	UL09	NARR	DL09	SATL
T0026	125.5	UL10	NARR	DL10	SATL
T0027	125.5	UL11	NARR	DL11	SATL
T0028	125.5	UL12	NARR	DL12	SATL
T0029	125.5	UL13	NARL	DL13	SATR
T0030	125.5	UL14	NARL	DL14	SATR

DL15	110000	T	19111	R	C
DL16	110000	T	19233	R	C
CMD1	1000	R	29996	R	T
CMD2	1000	R	29998	R	T
TLM1	1000	T	19701	L	T
TLM2	1000	T	19703	L	T

T0031	125.5	UL15	NARL	DL15	SATR
T0032	125.5	UL16	NARL	DL16	SATR
T0033	125.5	UL09	SARR	DL09	NATL
T0034	125.5	UL10	SARR	DL10	NATL
T0035	125.5	UL11	SARR	DL11	NATL
T0036	125.5	UL12	SARR	DL12	NATL
T0037	125.5	UL13	SARL	DL13	NATR
T0038	125.5	UL14	SARL	DL14	NATR
T0039	125.5	UL15	SARL	DL15	NATR
T0040	125.5	UL16	SARL	DL16	NATR
CMD1		CMD1	NARR		
CMD2		CMD2	NARR		
CMD3		CMD1	OMNIR		
CMD4		CMD2	OMNIR		
TLM1				TLM1	NATL
TLM2				TLM2	NATL
TLM3				TLM1	OMNIL
TLM4				TLM2	OMNIL

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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	110MG7D	110000	4	121768	0.797		5.1	17.3
D2	110MG7D	110000	8	171187	0.747		8.4	20.6
D3	110MG7D	110000	8	203248	0.8869		11.2	23.4
D4	25M0G7D	25000	4	20729	0.597		2.6	14.8
D5	25M0G7D	25000	8	38907	0.747		8.4	20.6
D6	2M75G7D	2750	4	2853	0.747		4.4	16.6
D7	2M07G7D	2065	4	1905	0.6642		3.5	15.7
D8	1M38G7D	1380	4	952.5	0.497		1.4	13.6
D9	900KG7D	900	2	312.5	0.5		-0.4	11.8

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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	1M00F2D	1000		1									10	22.2
A2	1M00G2D	1000		1									9	21.2

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S13. TYPICAL EMISSIONS For each planned type of emission provide:

Associated Transponder ID Range (a) Start (b) End		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)
(j) Min.	(k) Max.	(l) Min.	(m) Max.											
T0001	T0016	D1		1		LB1.doc		65.3	9.8	15.8	55.2	61.2	-120.7	17.5
T0001	T0016	D3		1		LB2.doc		65.3	9.8	15.8	55.2	61.2	-120.7	37.8
T0001	T0016	D6		34	3235	LB3.doc		47.6	4	7	34.9	40.9	-125	37.8
T0001	T0016	D7		46	2391	LB4.doc		47.6	2.7	5.7	33.6	39.6	-125.1	37.8
T0001	T0016	D8		69	1594	LB5.doc		44.5	1	4	31.8	37.8	-125.1	37.8
T0001	T0016	D9		106	1037	LB6.doc		44.5	-1	2	29.9	35.9	-125.1	37.8
T0017	T0040	D1		1		LB7.doc		65	2	8	41	47	-134.9	37.4
T0017	T0040	D2		1		LB8.doc		65	7	13	41	47	-134.9	37.4
T0017	T0040	D4		4	27500	LB9.doc		65	-5.3	0.7	32.5	38.5	-137	37.4
T0017	T0040	D5		4	27500	LB10.doc		65	3.2	9.2	32.5	38.5	-137	37.4
CMD1	CMD2		A1	1		CMD1.doc		65.3	-6.1	-0.1				
CMD3	CMD4		A1	1		CMD2.doc		67.2	17.1	20.1				
TLM1	TLM2		A2	1		TLM1.doc					21	27	-132.3	38
TLM3	TLM4		A2	1		TLM2.doc					11	14	-145.1	44

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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

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Characteristics and
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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a. Mass of spacecraft without fuel (kg): 3350	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 5193		
S15c. Mass of spacecraft and fuel at launch (kg): 8543	S15f. Length (m): 8.6	S15i. Payload: 0.882
S15d. Mass of fuel, in orbit, at beginning of life (kg): 1560	S15g. Width (m): 4.3	S15j. Bus: 0.858
S15e. Deployed Area of Solar Array (square meters): 86.7	S15h. Height (m): 8.6	S15k. Total: 0.757

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): 11690	(f): 11690	(k): 11690	(p): 11690
Bus (Watts):	(b): 2500	(g): 1350	(l): 2500	(q): 1350
Total (Watts):	(c): 14190	(h): 13040	(m): 14190	(r): 13040
Solar Array (Watts):	(d): 19596	(i): 17174	(n): 17037	(s): 15340
Depth of Battery Discharge (%):	(e) 73.2 %	(j) %	(o) 76.3 %	(t) %

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 type="checkbox"/> YES	<input type="checkbox"/> NO	<input checked="" 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.