

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: VIASAT-KA1		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: 0	
c. Construction Completion Date:		g. Total Number of Transponders: 72		k. Total Common Carrier Transponder Bandwidth: 0 MHz	
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 80000 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)		
28.1	G	28.6	G	R	Fixed Satellite Service
29.5	G	30	G	R	Fixed Satellite Service
18.3	G	18.8	G	T	Fixed Satellite Service
19.7	G	20.2	G	T	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 77.3 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: The Commission has authorized ViaSat to use the GSO Ka-band spectrum at 77.3 W.L.	
Longitudinal Tolerance or E/W Station-Keeping:		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		
d. Toward West:	0.05 Degrees		g. Westernmost: h. Easternmost:		
e. Toward East:		0.05 Degrees			
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		CONUS, Alaska, Hawaii
SA2	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			Input Attenuator (dB)	
										(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)	(q) Max. Value	(r) Step Size
		(c) Peak (dBi)	(d) Edge (dBi)														
GWU	R	53.2	52.2	0.05	0.05	26	N		SA1				1349	21.9	-100	20	1
GWU	R	53.2	52.2	0.05	0.05	26	N		SA1				1349	21.9	-100	20	1
GWD	T	52.5	51.5	0.05	0.05	30	N		SA1	4.5	9.3	62.2					
GWD	T	52.5	51.5	0.05	0.05	30	N		SA1	4.5	9.3	62.2					
USU	R	53.6	48.6	0.05	0.05	26	N		SA1				1230	22.7	-100	20	1
USU	R	53.6	48.6	0.05	0.05	26	N		SA1				1230	22.7	-100	20	1
USD	T	53.1	48.1	0.05	0.05	30	N		SA1	4.5	24.6	67					
USD	T	53.1	48.1	0.05	0.05	30	N		SA1	4.5	24.6	67					
TCR	R	53.2	52.2	0.05	0.05	26	N		SA1						-0.2		
TCL	R	53.2	52.2	0.05	0.05	26	N		SA1						-0.2		
TMR	T	52.5	51.5	0.05	0.05	30	N		SA1	7.5	0.01	25					
TML	T	52.5	51.5	0.05	0.05	30	N		SA1	7.5	0.01	25					
BNR	R	53.2	52.2	0.05	0.05	26	N		SA1						-3		
OMN	R	3	-1	0.05	0.05	30	N		SA2				2455	-30.9			
OMN	R	3	-1	0.05	0.05	30	N		SA2				2455	-30.9			
OMN	T	3	-1	0.05	0.05	30	N		SA2	5.5	7.1	14					
OMN	T	3	-1	0.05	0.05	30	N		SA2	5.5	7.1	14					
BNL	R	53.2	52.2	0.05	0.05	26	N		SA1						-3		

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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
GWU	R	C	-77.3		GWUR.gxt					
GWU	R	C	-77.3		GWUL.gxt					
GWD	T	C	-77.3		GWDR.gxt	-130.9	-130.9	-130.9	-130.9	-130.9
GWD	T	C	-77.3		GWDL.gxt	-130.9	-130.9	-130.9	-130.9	-130.9
USU	R	C	-77.3		USUR.gxt					
USU	R	C	-77.3		USUL.gxt					
USD	T	C	-77.3		USDR.gxt	-122.1	-122.1	-122.1	-122.1	-122.1
USD	T	C	-77.3		USDL.gxt	-122.1	-122.1	-122.1	-122.1	-122.1
TCR	R	C	-77.3		TCR.gxt					
TCL	R	C	-77.3		TCL.gxt					
TMR	T	C	-77.3		TMR.gxt	-137.1	-137.1	-137.1	-137.1	-137.1
TML	T	C	-77.3		TML.gxt	-137.1	-137.1	-137.1	-137.1	-137.1
BNR	R	C	-77.3		BNR.gxt					
OMN	T	C	-77.3			-148.1	-148.1	-148.1	-148.1	-148.1
OMN	T	C	-77.3			-148.1	-148.1	-148.1	-148.1	-148.1
BNL	R	C	-77.3		BNL.gxt					

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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	500000	R	28350	R	C
UL02	500000	R	28350	L	C
UL03	500000	R	29750	R	C
UL04	500000	R	29750	L	C
DL01	500000	T	18550	L	C
DL02	500000	T	18550	R	C
DL03	500000	T	19950	L	C
DL04	500000	T	19950	R	C
CMD1	1000	R	29500.5	L	T
CMD2	1000	R	29503	R	T
TLM1	1000	T	19701	L	T
TLM2	1000	T	19703	R	T
BCN1	1	R	29999	R	T
BCN2	1	T	20199	R	T
CMD3	1000	R	29500.5	R	T
CMD4	1000	R	29503	L	T
BCN3	1	R	29999	L	T

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
FL01	112	UL01	GWUR	DL01	USDL
FL02	112	UL02	GWUL	DL02	USDR
FL03	112	UL03	GWUR	DL03	USDL
FL04	112	UL04	GWUL	DL04	USDR
RL01	107	UL01	USUR	DL01	GWDL
RL02	107	UL02	USUL	DL02	GWDR
RL03	107	UL03	USUR	DL03	GWDL
RL04	107	UL04	USUL	DL04	GWDR
TC1		CMD1	TCL		
TC2		CMD2	TCR		
TM1				TLM1	TML
TM2				TLM2	TMR
BN1		BCN1	BNR		
BN2				BCN2	GWDR
TC3		CMD1	OMNUL		
TC4		CMD2	OMNUR		
TM3				TLM1	OMNDL
TM4				TLM2	OMNDR
TC5		CMD3	TCR		
TC6		CMD4	TCL		
BN3		BCN3	BNL		

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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	500MG7D	500000	16	1107000	0.6642		10.3	20.3
D2	500MG7D	500000	8	746300	0.597		3.6	13.6
D3	500MG7D	500000	4	205900	0.247		-2.8	7.2
D4	6M25G7D	6250	8	8750	0.5833		6.2	16.2
D5	3M13G7D	3125	4	3750	0.75		4.9	14.9
D6	1M57G7D	1562.5	4	937.5	0.375		-0.1	9.9
D7	782KG7D	781.25	2	312.5	0.5		-1.3	8.7
D8	25M0G7D	25000	8	50000	0.8333		10.8	20.8

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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
A3	1K00N0N	1		1									14	26.2
A4	1K00N0N	1		1									10	22.2

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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.									
FL01	FL04	D1		1		LB1.doc		64.9	4.3	10.1	57.7	67	-122.1	26
FL01	FL04	D2		1		LB2.doc		64.9	4.3	10.1	57.7	67	-122.1	17.6
FL01	FL04	D3		1		LB3.doc		64.9	4.3	10.1	57.7	67	-122.1	17.6
RL01	RL04	D4		80	6250	LB4.doc		44.4	4.5	4.5	38.2	39.2	-130.9	38
RL01	RL04	D5		160	3125	LB5.doc		44.4	4.5	4.5	35.2	36.2	-130.9	38
RL01	RL04	D6		320	1562.5	LB6.doc		44.4	4.5	4.5	32.1	33.1	-130.9	38
RL01	RL04	D7		640	781.25	LB7.doc		44.4	2.3	2.3	29.1	30.1	-130.9	38
RL01	RL04	D8		20	25000	LB8.doc		64.5	-6.8	2.7	44.2	45.2	-130.9	38
TC1	TC2		A1	1		TC OS.doc		64.9	-7.9	-6.9				
TC3	TC4		A1	1		TC TO.doc		70	18	22				
TM1	TM2		A2	1		TM OS.doc					24	25	-137.1	37.4
TM3	TM4		A2	1		TM TO.doc					10	14	-148.1	37.4
BN1	BN1		A3	1		BCN AT.doc		65	-11.5	-10.5				
BN2	BN2		A4	1		BCN UPC.doc					20	30	-132.1	37.4
TC5	TC6		A1	1		TC OS.doc		64.9	-7.9	-6.9				
BN3	BN3		A3	1		BCN AT.doc		65	-11.5	-10.5				

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Page 10: TT and C

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): 3168	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 3050		
S15c. Mass of spacecraft and fuel at launch (kg): 6218	S15f. Length (m): 9.35	S15i. Payload: 0.71
S15d. Mass of fuel, in orbit, at beginning of life (kg): 350	S15g. Width (m): 26.05	S15j. Bus: 0.77
S15e. Deployed Area of Solar Array (square meters): 74.2	S15h. Height (m): 8.4	S15k. Total: 0.55

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): 10292	(f): 10292	(k): 10292	(p): 10292
Bus (Watts):	(b): 2988	(g): 1320	(l): 2988	(q): 1320
Total (Watts):	(c): 13280	(h): 11612	(m): 13280	(r): 11612
Solar Array (Watts):	(d): 14375	(i): 13000	(n): 13666	(s): 12855
Depth of Battery Discharge (%):	(e) 74.5 %	(j) %	(o) 74.5 %	(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.