

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: DIRECTV KU-45W		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: 36		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) 1296 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)		
10950	M	11200	M	T	Direct to Home in the Fixed Fixed Satellite Service
10950	M	11200	M	T	Fixed Satellite Service
13750	M	14500	M	R	Fixed Satellite Service
11450	M	11700	M	T	Direct to Home in the Fixed Fixed Satellite Service
11450	M	11700	M	T	Fixed Satellite Service
11950	M	12200	M	T	Direct to Home in the Fixed Fixed Satellite Service
11950	M	12200	M	T	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 45.2 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:			
Longitudinal Tolerance or E/W Station-Keeping:		f. Inclination Excursion or N/S Station-Keeping Tolerance:				g. Westernmost: h. Easternmost:	
d. Toward West:	0.05 Degrees	0.05 Degrees					
e. Toward East:				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.
B	S		Brasil

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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															
TXV	T	33.4	27.4	0.1	0.1	30	N	90	B	2.2	91.2	53						
RXH	R	36.9	30.9	0.1	0.1	30	N	0	B				1000	6.9	-100	20	1	
RXV	R	36.9	30.9	0.1	0.1	30	N	90	B				1000	6.9	-100	20	1	
T1H	T	34.9	28.8	0.1	0.1	30	N	0	B	1.8	72.4	53.5						
T1V	T	34.9	28.9	0.1	0.1	30	N	90	B	1.8	72.4	53.5						
T2H	T	37	31	0.1	0.1	30	N	0	B	5.3	44.7	53.5						
T2V	T	37	31	0.1	0.1	30	N	90	B	5.3	44.7	53.5						

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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
RXH	R	C	-45.2		/-45W Rx H-pol AMD					
RXV	R	C	-45.2		/-45W Rx V-pol AMD					
T1H	T	C	-45.2		/-45W Tx1 H-pol AMD	-168.5	-168.5	-168.5	-168.5	-168.5
T1V	T	C	-45.2		/-45W Tx1 V-pol AMD	-168.5	-168.5	-168.5	-168.5	-168.5
T2H	T	C	-45.2		/-45W Tx2 H-pol AMD	-168.5	-168.5	-168.5	-168.5	-168.5
T2V	T	C	-45.2		/-45W Tx2 V-pol AMD	-168.5	-168.5	-168.5	-168.5	-168.5

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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)
RX001	36000	R	14020	V	C
RX003	36000	R	14060	V	C
RX005	36000	R	14100	V	C
RX007	36000	R	14140	V	C
RX009	36000	R	14180	V	C
RX011	36000	R	14220	V	C
RX013	36000	R	14260	V	C
RX015	36000	R	14300	V	C
RX017	36000	R	14340	V	C
RX019	36000	R	14380	V	C
RX021	36000	R	14420	V	C
RX023	36000	R	14460	V	C
RX002	36000	R	14020	H	C
RX004	36000	R	14060	H	C
RX006	36000	R	14100	H	C
RX008	36000	R	14140	H	C
RX010	36000	R	14180	H	C
RX012	36000	R	14220	H	C
RX014	36000	R	14260	H	C
RX016	36000	R	14300	H	C
RX018	36000	R	14340	H	C
RX020	36000	R	14380	H	C
RX022	36000	R	14420	H	C
RX024	36000	R	14460	H	C
TX001	36000	T	11470	H	C
TX003	36000	T	11510	H	C
TX005	36000	T	11550	H	C
TX007	36000	T	11590	H	C
TX009	36000	T	11630	H	C
TX011	36000	T	11670	H	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
TP001	120	RX001	RXV	TX001	T1H
TP003	120	RX003	RXV	TX003	T1H
TP005	120	RX005	RXV	TX005	T1H
TP007	120	RX007	RXV	TX007	T1H
TP009	120	RX009	RXV	TX009	T1H
TP011	120	RX011	RXV	TX011	T1H
TP013	120	RX013	RXV	TX013	T1H
TP015	120	RX015	RXV	TX015	T1H
TP017	120	RX017	RXV	TX017	T1H
TP019	120	RX019	RXV	TX019	T1H
TP021	120	RX021	RXV	TX021	T1H
TP023	120	RX023	RXV	TX023	T1H
TP025	120	RX025	RXV	TX025	T2H
TP027	120	RX027	RXV	TX027	T2H
TP029	120	RX029	RXV	TX029	T2H
TP031	120	RX031	RXV	TX031	T2H
TP033	120	RX033	RXV	TX033	T2H
TP035	120	RX035	RXV	TX035	T2H
TP002	120	RX002	RXH	TX002	T1V
TP004	120	RX004	RXH	TX004	T1V
TP006	120	RX006	RXH	TX006	T1V
TP008	120	RX008	RXH	TX008	T1V
TP010	120	RX010	RXH	TX010	T1V
TP012	120	RX012	RXH	TX012	T1V
TP014	120	RX014	RXH	TX014	T1V
TP016	120	RX016	RXH	TX016	T1V
TP018	120	RX018	RXH	TX018	T1V
TP020	120	RX020	RXH	TX020	T1V
TP022	120	RX022	RXH	TX022	T1V
TP024	120	RX024	RXH	TX024	T1V

TX013	36000	T	11980	H	C
TX015	36000	T	12020	H	C
TX017	36000	T	12060	H	C
TX019	36000	T	12100	H	C
TX021	36000	T	12140	H	C
TX023	36000	T	12180	H	C
TX002	36000	T	11470	V	C
TX004	36000	T	11510	V	C
TX006	36000	T	11550	V	C
TX008	36000	T	11590	V	C
TX010	36000	T	11630	V	C
TX012	36000	T	11670	V	C
TX014	36000	T	11980	V	C
TX016	36000	T	12020	V	C
TX018	36000	T	12060	V	C
TX020	36000	T	12100	V	C
TX022	36000	T	12140	V	C
TX024	36000	T	12180	V	C
CMD1	1300	R	14497	V	T
CMD2	1300	R	14495	H	T
TLM1	106	T	11697	H	T
TLM2	106	T	11695	H	T
TX025	36000	T	10970	H	C
TX027	36000	T	11010	H	C
TX029	36000	T	11050	H	C
TX031	36000	T	11090	H	C
TX033	36000	T	11130	H	C
TX035	36000	T	11170	H	C
TX026	36000	T	10970	V	C
TX028	36000	T	11010	V	C
TX030	36000	T	11050	V	C
TX032	36000	T	11090	V	C
TX034	36000	T	11130	V	C
TX036	36000	T	11170	V	C
RX025	36000	R	13774	V	C
RX027	36000	R	13814	V	C
RX029	36000	R	13854	V	C
RX031	36000	R	13894	V	C
RX033	36000	R	13934	V	C

TP026	120	RX026	RXH	TX026	T2V
TP028	120	RX028	RXH	TX028	T2V
TP030	120	RX030	RXH	TX030	T2V
TP032	120	RX032	RXH	TX032	T2V
TP034	120	RX034	RXH	TX034	T2V
TP036	120	RX036	RXH	TX036	T2V
CMD1		CMD1	RXV		
CMD2		CMD2	RXH		
TLM1				TLM1	T1H
TLM2				TLM2	T1H

RX035	36000	R	13974	V	C
RX026	36000	R	13774	H	C
RX028	36000	R	13814	H	C
RX030	36000	R	13854	H	C
RX032	36000	R	13894	H	C
RX034	36000	R	13934	H	C
RX036	36000	R	13974	H	C

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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)
M01	36M0G7W	36000	4	43560	0.726		5.7	17.9

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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						
CMD	1M30F9D	1300		1									15	27.2
TLM	106KG9D	106		1									14	26.2

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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)			
		(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)
(a) Start	(b) End						(j) Min.	(k) Max.	(l) Min.	(m) Max.				
CMD1	CMD2		CMD	1				60.7	11.2	11.2				
TLM1	TLM2		TLM	1									-160.2	36.9
TP001	TP036	M01		1				60.7	10.1	12.9	47.5	53.5	-148.9	14

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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): 2300	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 3860		
S15c. Mass of spacecraft and fuel at launch (kg): 6160	S15f. Length (m): 42	S15i. Payload: 0.95
S15d. Mass of fuel, in orbit, at beginning of life (kg): 3510	S15g. Width (m): 10.2	S15j. Bus: 0.85
S15e. Deployed Area of Solar Array (square meters): 67	S15h. Height (m): 7.6	S15k. Total: 0.808

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): 8750	(f): 8750	(k): 8750	(p): 8750
Bus (Watts):	(b): 1450	(g): 900	(l): 1400	(q): 700
Total (Watts):	(c): 10200	(h): 9650	(m): 10150	(r): 9450
Solar Array (Watts):	(d): 14750	(i): 13475	(n): 13275	(s): 12127
Depth of Battery Discharge (%):	(e) 70 %	(j) 0 %	(o) 70 %	(t) 0 %

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.