

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: SPACEWAY 5		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): 12.6 Years		j. Number of transponders offered on a common carrier basis: 0	
c. Construction Completion Date:		g. Total Number of Transponders: 48		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) 24000 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	29.1	G	R	Fixed Satellite Service
18.3	G	19.3	G	T	Fixed Satellite Service
19.7	G	20.2	G	T	Fixed Satellite Service
29.25	G	30	G	R	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 109.1 W		b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: The Ka-band at the nominal 109°W.L. location is unassigned. The 109.1°W.L. location is equidistant from the 107.1°W.L. and 111.1°W.L. locations. Hughes Network Systems, LLC has a pending application before the Commission to operate the SPACEWAY 4 Ka-band satellite at 107.1°W.L. Telesat Canada operates the Ka-band WILDBLUE 1 and ANIK-F2 satellites at 111.1°W.L.
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	Range of orbital arc in which adequate service can be provided (Optional): g. Westernmost: <u> </u> Degrees <u> </u> E/W 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		CONUS, Alaska, Hawaii, Puerto Rico, USVI and portions of Canada and Mexico.
SA2	S		Global

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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)														
SPRL	R	50.1	44.6	0.03	0.03	23	N		SA1				650	22		31.5	0.5
SPR	R	50.1	44.6	0.03	0.03	23	N		SA1				650	22		31.5	0.5
SPTL	T	51.5	50.8	0.03	0.03	30	N		SA1			70.9					
SPT	T	51.5	50.8	0.03	0.03	30	N		SA1			70.9					
CON	T	35	28.5	0.03	0.03	30	N		SA1			64.5					
CON	T	35	28.5	0.03	0.03	30	N		SA1			64.5					
TC	R	50.1	47.1	0.03	0.03	30	N		SA1				3664	12			
TM	T	22.3	18.3	0.03	0.03	30	N		SA2	3.05	9.4	32.04					
OMN	R	5	2	0.03	0.03	30	N		SA2				3707	-30.7			
OMN	R	-0.7	-3.7	0.03	0.03	30	N	0	SA2				7533	-39.5			
OMN	T	5	2	0.03	0.03	30	N		SA2	7.47	2.7	9.3					
OMN	T	-0.7	-3.7	0.03	0.03	30	N	0	SA2	5.24	4.5	5.8					

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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
SPRL	R	C	-109.1		SPRL.gxt					
SPR	R	C	-109.1		SPRR.gxt					
SPTL	T	C	-109.1		SPTL.gxt	-119.4	-119.2	-119.1	-119	-118.9
SPT	T	C	-109.1		SPTR.gxt	-119.4	-119.2	-119.1	-119	-118.9
CON	T	C	-109.1		CONL.gxt	-119.7	-119.6	-119.5	-119.4	-119.3
CON	T	C	-109.1		CONR.gxt	-119.7	-119.6	-119.5	-119.4	-119.3
TC	R	C	-109.1		TC.gxt					
TM	T	C	-109.1		TM.gxt	-133.1	-132.9	-132.6	-132.4	-132.1
OMN	T	C	-109.1			-152.8	-152.8	-152.8	-152.8	-152.8
OMN	T	C	-109.1			-156.2	-156.2	-156.2	-156.2	-156.2

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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	250000	R	28225	L	C
UL02	250000	R	28225	R	C
UL03	250000	R	28725	L	C
UL04	250000	R	28725	R	C
UL05	250000	R	28975	L	C
UL06	250000	R	28975	R	C
UL07	250000	R	28475	L	C
UL08	250000	R	28475	R	C
UL09	250000	R	29375	L	C
UL10	250000	R	29375	R	C
UL11	250000	R	29625	L	C
UL12	250000	R	29625	R	C
UL13	250000	R	29875	L	C
UL14	250000	R	29875	R	C
DL01	500000	T	19050	L	C
DL02	500000	T	19050	R	C
DL03	500000	T	18550	L	C
DL04	500000	T	18550	R	C
DL05	500000	T	19950	L	C
DL06	500000	T	19950	R	C
CMD1	1300	R	29252	L	T
CMD2	1300	R	29254	L	T
CMD3	1300	R	29252	H	T
CMD4	1300	R	29254	H	T
TM1	106	T	19701.25	L	T
TM2	106	T	19702.25	L	T
TM3	106	T	19701.25	H	T
TM4	106	T	19702.25	H	T
BCN1	25	R	29999	L	T
BCN2	25	R	29998.5	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
UL01		UL01	SPRL		
UL02		UL02	SPRR		
UL03		UL03	SPRL		
UL04		UL04	SPRR		
UL05		UL05	SPRL		
UL06		UL06	SPRR		
UL07		UL07	SPRL		
UL08		UL08	SPRR		
UL09		UL09	SPRL		
UL10		UL10	SPRR		
UL11		UL11	SPRL		
UL12		UL12	SPRR		
DL01				DL01	SPTL
DL02				DL02	SPTR
DL03				DL03	SPTL
DL04				DL04	SPTR
DL05				DL05	SPTL
DL06				DL06	SPTR
DL07				DL01	CONL
DL08				DL02	CONR
DL09				DL03	CONL
DL10				DL04	CONR
DL11				DL05	CONL
DL12				DL06	CONR
TC1		CMD1	TC		
TC2		CMD2	TC		
TC3		CMD1	OMNUL		
TC4		CMD2	OMNUL		
TC5		CMD3	OMNUH		
TC6		CMD4	OMNUH		

TM1				TM1	TM
TM2				TM2	TM
TM3				TM1	OMNDL
TM4				TM2	OMNDL
TM5				TM3	OMNDH
TM6				TM4	OMNDH
BCN1		BCN1	SPRL		
BCN2		BCN2	SPRL		
UL13		UL13	SPRL		
UL14		UL14	SPRR		

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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	651KG7W	651	4	520.8	0.6		8.8	21
D2	2M60G7W	2600	4	2083	0.6		8.8	21
D3	20M8G7W	20800	4	16666	0.6		8.8	21
D4	250MG7W	250000	4	200000	0.6		8.8	21
D5	500MG7W	500000	4	400000	0.61		6.7	18.9
D6	167MG7W	167000	4	133333	0.61		6.7	18.9
D7	125MG7W	125000	4	125000	0.61		6.7	18.9

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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						
A1	1M30F9D	1300		1									15	27.2
A2	25K0N0N	25		1									25	35
A3	106KG9D	106		1									14	26.2

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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) (j) Min. (k) Max.		EIRP (dBW) (l) Min. (m) Max.		(n) Max. Power Flux Density (dBW/m ² /Hz)	(o) Assoc. Stn Rec. G/T (dB/K)
UL01	UL02	D4		1		ULB4.doc		64.2	-1.3	14.5				
UL03	UL14	D1		384	651	ULB1.doc		45.6	-8.5	7.3				
UL03	UL14	D2		96	2600	ULB2.doc		53.3	-10.2	5.6				
UL03	UL14	D3		12	20800	ULB3.doc		59.1	-7	8.8				
DL01	DL06	D5		1		DLB1.doc					64.3	70.9	-118.3	18.6
DL01	DL06	D5		1		DLB2.doc					64.3	70.9	-118.3	26.1
DL01	DL06	D5		1		DLB3.doc					64.3	70.9	-118.3	36.5
DL07	DL12	D6		1		DLB4.doc					58	64.5	-120.7	18.6
DL07	DL12	D7		1		DLB5.doc					58	64.5	-119.4	18.6
TC1	TC2		A1	1		TC LB.doc		64.5	-27.8	-19.2				
TC3	TC4		A1	1		Emergency TC		64.5	16.2	26.8				
TC5	TC6		A1	1		Emergency TC		64.5	23.7	27.4				
BCN1	BCN2		A2	1		BCN LB.doc		64.5	-16.5	-14				
TM1	TM2		A3	1		TM LB.doc					28.04	32.04	-130.2	38
TM3	TM4		A3	1		Pipe TM LB.do					7.9	9.3	-152.8	38
TM5	TM6		A3	1		Bicone TM LB.					5.82	5.82	-156.2	38

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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

Remote Control (TT C) Location(s):

S14a: Street Address: 5281 East Garton			
S14b. City: Castle Rock	S14c. County: Douglas	S14d. State/Country CO	S14e. Zip Code: 80104
S14f. Telephone Number: 303-660-7200		S14g. Call Sign of Control Station (if appropriate): E060382	

Remote Control (TT C) Location(s):

S14a: Street Address: 33 East Telegraph Road			
S14b. City: Fillmore	S14c. County: Ventura	S14d. State/Country CA	S14e. Zip Code: 93015
S14f. Telephone Number: 805-524-4444		S14g. Call Sign of Control Station (if appropriate): E060383	

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Characteristics and
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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a. Mass of spacecraft without fuel (kg): 3950	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 2425		
S15c. Mass of spacecraft and fuel at launch (kg): 6375	S15f. Length (m): 54	S15i. Payload: 0.86
S15d. Mass of fuel, in orbit, at beginning of life (kg): 960	S15g. Width (m): 8.5	S15j. Bus: 0.89
S15e. Deployed Area of Solar Array (square meters): 104.5	S15h. Height (m): 7.5	S15k. Total: 0.77

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): 14400	(f): 14400	(k): 14400	(p): 14400
Bus (Watts):	(b): 4500	(g): 2500	(l): 4500	(q): 2500
Total (Watts):	(c): 18900	(h): 16900	(m): 18900	(r): 16900
Solar Array (Watts):	(d): 20500	(i): 18614	(n): 18860	(s): 18102
Depth of Battery Discharge (%):	(e) 73 %	(j) 73 %	(o) 73 %	(t) 73 %

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.