FCC 312 Schedule S	FEDERAL COMMUNICATIONS COMMISSION SATELLITE SPACE STATION AUTHORIZATIONS (Technical and Operational Description)	Page 1: General, Frequency Bands, and GSO Orbit

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: HISPASAT-1C		e. Estimated Date of Placement into Service: 2/3/2000	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: 12	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) 432 MHz	l. Orbit Type: Mark all boxes that apply: [X] GSO [ ] 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)		
13750.00	M	14000.00	M	R	Digital Data, Video, and Internet Services from 64 Kbps to 45 Mbps
11700.00	M	12200.00	M	T	Digital Data, Video, and Internet Services from 64 Kbps to 45 Mbps

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 30 W	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: The HISPASAT-1C satellite is operated at 30 degrees West longitude orbital location. Operation of the HISPASAT-1C satellite has been coordinated with the United States. In fact, the American beams have already notified in from the ITU under the HISPASAT 2C3KU filing.
Longitudinal Tolerance or E/W Station-Keeping: d. Toward West: 0.07 Degrees e. Toward East: 0.07 Degrees	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 g. Westernmost: h. Easternmost:	
i. Reason for service are selection (Optional):			

FEDERAL COMMUNICATIONS COMMISSION **Page 2: NGSO Orbits**
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:

S4b. Total Number of Orbital Planes in Network or System:

S4c. Celestial Reference Body (Earth, Sun, Moon, etc.):

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 intital phase angle.

(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)

NO NGSO DATA FILED

FEDERAL COMMUNICATIONS COMMISSION **Page 3: Service Areas**
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.
			Please see Attachment. All .gxt files are listed and described in the S6 attachment, and are attached to this appli

FEDERAL COMMUNICATIONS COMMISSION **Page 4: Antenna Beams**
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 Isolation (dB)	(h) Polarization Switchable? (Y/N)	(i) Polarization Alignment Rel. Equatorial Plane (Degrees)	(j) Service Area ID	Transmit			Receive				
		(c) Peak (dBi)	(d) Edge (dBi)							(k) Input Losses (dB)	(l) Effective Output Power (W)	(m) Max. EIRP (dBW)	(n) System Noice 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
AME	R	31.4	26.9	0.07	0.05	31	N		AMERICA				530	4.1	-96	15	1
AME-	R	31.4	26.9	0.07		29	N		AMERICA				530	4.1	-96	15	1
AME-	T	31.2	26.7	0.07		31	N		AMERICA	1.7		48					
AME-	T	31.2	26.7	0.07		29	N		AMERICA	1.7		48					

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
AME	R	C	-30		AMEKU_R_HC.gxt					
AME	R	X	-30		AMEKU_R_HX.gxt					
AME-	R	C	-30		AMEKU_R_VC.gxt					
AME-	R	X	-30		AMEKU_R_VX.gxt					
AME-	T	C	-30		AMEKU_T_HC.gxt					
AME-	T	X	-30		AMEKU_T_HX.gxt					
AME-	T	C	-30		AMEKU_T_VC.gxt					
AME-	T	X	-30		AMEKU_T_VX.gxt					

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:

(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)
53R	36000	R	13772	V	C
53T	36000	T	11972	H	C
54R	36000	R	13812	V	C
54T	36000	T	12012	H	C
55R	36000	R	13852	V	C
55T	36000	T	12052	H	C
56R	36000	R	13892	V	C
56T	36000	T	12092	H	C
57R	36000	R	13772	H	C
57T	36000	T	11972	V	C
58R	36000	R	13812	H	C
58T	36000	T	12012	V	C
59R	36000	R	13852	H	C
59T	36000	T	12052	V	C
60R	36000	R	13892	H	C
60T	36000	T	12092	V	C
61R	36000	R	13932	V	C
61T	36000	T	12132	H	C
62R	36000	R	13972	H	C
62T	36000	T	12172	H	C
63R	36000	R	13932	H	C
63T	36000	T	12132	V	C
64R	36000	R	13932	H	C
64T	36000	T	12172	V	C
BEAC.	500	T	11702	H	T
TC	1400	R	14000	H	T
TM	500	T	12748.25	H	T
S/TC	600	R	2052.0	R	T
S/TM	600	R	2228.4163	R	T

S10. SPACE STATION TRANSPONDERS For each transponder provide:

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
53	125	53R	AMER	53T	AME-3
54	125	54R	AMER	54T	AME-3
55	125	55R	AMER	55T	AME-3
56	125	56R	AMER	56T	AME-3
57	125	57R	AMER	57T	AME-3
58	125	58R	AMER	58T	AME-3
59	125	59R	AMER	59T	AME-3
60	125	60R	AMER	60T	AME-3
61	125	61R	AMER	61T	AME-3
62	125	62R	AMER	62T	AME-3
63	125	63R	AMER	63T	AME-3
64	125	64R	AMER	64T	AME-3
BEAC	125	BEAC.	AMER	BEAC.	AME-3
TC	125	TC	AMER	TC	AME-3
TM	125	TM	AMER	TM	AME-3
S/TC	125	S/TC	AMER	S/TC	AME-3
S/TM	125	S/TM	AMER	S/TM	AME-3

FEDERAL COMMUNICATIONS COMMISSION **Page 7: Digital Modulation**

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)
64K	76K8G1X	76.8		64			5	14.8
TO								
45K	36M0G7X	36000		45000			7.6	15.9

FEDERAL COMMUNICATIONS COMMISSION **Page 8: Analog Modulation**

SATELLITE SPACE STATION AUTHORIZATIONS

FCC Form 312 - Schedule S: (Technical and Operational Description)

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						

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

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)			
(a) Start	(b) End	(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/m2/Hz)	(o)Assoc. Stn Rec. G/T (dB/K)
									(j) Min.	(k) Max.	(l) Min.	(m) Max.		
53	64	64K		311	7070			57.2	15.2	25.2	44.3	47.3	-130.6	22
53	64	45K		1				55	-10	-2	17	20	-130.6	19.2

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:			
S14b. City: Arganda	S14c. County:	S14d. State/Country	S14e. Zip Code:
S14f. Telephone Number:	S14g. Call Sign of Control Station (if appropriate): ATTACHMENT		

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

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): 7300	(f):	(k): 6300	(p):
Bus (Watts):	(b):	(g):	(l):	(q):
Total (Watts):	(c):	(h):	(m)	(r):
Solar Array (Watts):	(d):	(i):	(n):	(s):
Depth of Battery Discharge (%):	(e) 75.5 %	(j) %	(o) 70.68 %	(t) %

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	[ ] **YES**	[ ] **NO**	[X] **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?	[ ] **YES**	[ ] **NO**	[X] **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?	[ ] **YES**	[ ] **NO**	[X] **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.