Approved by OMD Control Number 3060-0678
Estimated Burden Hours: 80

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:		e. Estimated Date of Placement into Service:	i Will the space station(s) operate on a Common Carrier Basis:
ARSAT-2		11/3/2015	N
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s):	j. Number of transponders offered on a common carrier basis:
2/6/2014		15 Years	
c. Construction Completion Date:		g. Total Number of Transponders:	k. Total Common Carrier Transponder Bandwidth:
8/6/2015		16	MHz
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth)	l. Orbit Type: Mark all boxes that apply:
9/30/2015	9/30/2015	1184 MHz	[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)		
3700	M	4200	M	T	Fixed Satellite Service
5925	M	6425	M	R	Fixed Satellite Service
11.7	G	12.2	G	T	Fixed Satellite Service
14	G	14.5	G	R	Fixed Satellite Service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W):	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:
81 W			The Argentinian telecommunications authority has authorized ARSAT to operate the ARSAT-2 satellite at 81°W.L.
Longitudinal Tolerance or E/W Station-Keeping: d. Toward West: 0.05 Degrees e. Toward East: 0.05 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
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
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.
SA1	S		-14 dB contour of beams CUV and CUH
SA2	S		-10 dB contour of beams KNUV and KNUH
SA3	S		-10 dB contour of beams CDV and CDH
SA4	S		-10 dB contour of beams KNDV and KNDH
SA5	S		-4 dB contour of beams TMH and TMV

FEDERAL COMMUNICATIONS COMMISSION
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 Iso-lation (dB)	(h) Polar-ization Switch-able? (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
CUH	R	29.7	15.7	0.15		30	N	0	SA1				390	3.7	-105	40	0.5
CUV	R	29.64	15.64	0.15		30	N	90	SA1				390	3.7	-105	40	0.5
KNU	R	33.85	23.85	0.15		30	N	0	SA2				377	8	-101	40	0.5
KNU	R	33.79	23.79	0.15		30	N	90	SA2				377	8	-101	40	0.5
CDH	T	24.61	14.61	0.15		30	N	0	SA3	1.25	54	41.9					
CDV	T	24.8	14.8	0.15		30	N	90	SA3	1.25	54	41.9					
KND	T	32	22	0.15		30	N	0	SA4	1.5	97	51.9					
KND	T	31.99	21.99	0.15		30	N	90	SA4	1.5	97	51.9					
TMH	T	21.55	17.55	0.15		30	N	0	SA5	1.4	0.7	18.65					
TMV	T	21.55	17.55	0.15		30	N	90	SA5	1.4	0.7	18.65					

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
CUH	R	C	-81		CUH.GXT					
CUV	R	C	-81		CUV.GXT					
CDH	T	C	-81		CDH.GXT	-166.4	-166.1	-165.7	-165.3	-164.8
CDV	T	C	-81		CDV.GXT	-166.4	-166.1	-165.7	-165.3	-164.8
KNU	R	C	-81		KNUH.GXT					
KNU	R	C	-81		KNUV.GXT					
KND	T	C	-81		KNDH.GXT	-157.7	-157.3	-156.8	-156.2	-155.6
KND	T	C	-81		KNDV.GXT	-157.7	-157.3	-156.8	-156.2	-155.6
TMH	T	C	-81		TMH.GXT					
TMV	T	C	-81		TMV.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)
U0001	72000	R	14130	V	C
U0002	72000	R	14130	H	C
U0003	72000	R	14210	V	C
U0004	72000	R	14210	H	C
U0005	72000	R	14290	V	C
U0006	72000	R	14290	H	C
U0007	72000	R	14370	V	C
U0008	72000	R	14370	H	C
U0009	72000	R	14450	V	C
U0010	72000	R	14450	H	C
U0011	72000	R	6046	V	C
U0012	72000	R	6046	H	C
U0013	72000	R	6206	V	C
U0014	72000	R	6206	H	C
U0015	88000	R	6376	V	C
U0016	88000	R	6376	H	C
D0001	72000	T	11831	H	C
D0002	72000	T	11831	V	C
D0003	72000	T	11911	H	C
D0004	72000	T	11911	V	C
D0005	72000	T	11991	H	C
D0006	72000	T	11991	V	C
D0007	72000	T	12071	H	C
D0008	72000	T	12071	V	C
D0009	72000	T	12151	H	C
D0010	72000	T	12151	V	C
D0011	72000	T	3821	H	C
D0012	72000	T	3821	V	C
D0013	72000	T	3981	H	C
D0014	72000	T	3981	V	C

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
NN001	131.7	U0001	KNUV	D0001	KNDH
NN002	132.5	U0002	KNUH	D0002	KNDV
NN003	131.1	U0003	KNUV	D0003	KNDH
NN004	131.5	U0004	KNUH	D0004	KNDV
NN005	131.6	U0005	KNUV	D0005	KNDH
NN006	132	U0006	KNUH	D0006	KNDV
NN007	132.8	U0007	KNUV	D0007	KNDH
NN008	131.7	U0008	KNUH	D0008	KNDV
NN009	130.8	U0009	KNUV	D0009	KNDH
NN010	131.6	U0010	KNUH	D0010	KNDV
HH001	129.6	U0011	CUV	D0011	CDH
HH002	129.9	U0012	CUH	D0012	CDV
HH003	129.9	U0013	CUV	D0013	CDH
HH004	130	U0014	CUH	D0014	CDV
HH005	130.1	U0015	CUV	D0015	CDH
HH006	129.9	U0016	CUH	D0016	CDV
BC1				BC1	CDV
BC2				BC2	CDH
TM1				TM1	TMH
TM2				TM2	TMV

D0015	88000	T	4151	H	C
D0016	88000	T	4151	V	C
TM1	250	T	11701.75	V	T
TM2	250	T	12198.25	H	T
BC1	25	T	3700.25	V	T
BC2	25	T	3701.25	H	T

FEDERAL COMMUNICATIONS COMMISSION
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)
D1	60K0G7W	60	4	64	0.75		6.3	18.5
D2	4M50G7W	4500	4	5625	0.75		7	19.2
D3	9M00G7W	9000	4	11250	0.75		7	19.2
D4	18M0G7W	18000	4	22500	0.75		7	19.2
D5	36M0G7W	36000	8	67500	0.75		8.7	20.9
D6	72M0G7W	72000	16	180000	0.75		11	23.2
D7	36M0G7W	36000	4	45000	0.75		7	19.2
D8	72M0G7W	72000	8	135000	0.75		9.7	21.9
D9	88M0G7W	88000	8	165000	0.75		9.7	21.9

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)			
								(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)
(a) Start	(b) End	(c) Digital (Table S11)	(d) Analog (Table S12)						(j) Min.	(k) Max.	(l) Min.	(m) Max.		
NN001	NN010	D1		1200	60	LBA01.PDF		49.5	-12.22	-2.22	8.1	18.1	-155.9	18.9
NN001	NN010	D2		16	4500	LBA02.PDF		49.5	6.48	16.48	26.8	36.8	-155.9	18.9
NN001	NN010	D3		8	9000	LBA03.PDF		49.5	9.48	19.48	29.8	39.8	-155.9	18.9
NN001	NN010	D4		4	18000	LBA04.PDF		49.5	12.48	22.48	32.8	42.8	-155.9	18.9
NN001	NN010	D5		2	36000	LBA05.PDF		49.5	15.48	25.48	35.8	45.8	-155.9	18.9
NN001	NN010	D6		1		LBA06.PDF		56.9	17.17	27.17	41.9	51.9	-152.9	18.9
HH001	HH006	D1		1200	60	LBA07.PDF		45.3	-4.92	9.08	-2.3	7.7	-166.3	16.5
HH001	HH006	D2		16	4500	LBA08.PDF		45.3	13.83	27.83	16.8	26.8	-165.9	16.5
HH001	HH006	D3		8	9000	LBA09.PDF		45.3	16.83	30.83	19.8	29.8	-165.9	16.5
HH001	HH006	D4		4	18000	LBA10.PDF		45.3	19.83	33.83	22.8	32.8	-165.9	16.5
HH001	HH006	D5		2	36000	LBA11.PDF		45.3	22.83	36.83	25.8	35.8	-165.9	16.5
HH001	HH006	D6		1		LBA12.PDF		51.4	25.84	39.84	31.9	41.9	-162.9	16.5
HH001	HH006	D7		1		LBA13.PDF		51.4	26.74	40.74	31.9	41.9	-163.7	18.5

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

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: Av. Juan Domingo Peron 7934			
S14b. City: Benavidez	S14c. County: Buenos Aires	S14d. State/Country	S14e. Zip Code: B1621BGZ
S14f. Telephone Number: +541158112600	S14g. Call Sign of Control Station (if appropriate):		

Remote Control (TT C) Location(s):

S14a: Street Address: Ruta Provincial E96 Km 10			
S14b. City: Bosque Alegre	S14c. County: Cordoba	S14d. State/Country	S14e. Zip Code: 5187
S14f. Telephone Number: +541158112600	S14g. Call Sign of Control Station (if appropriate):		

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

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a: Mass of spacecraft without fuel (kg): 1306.3	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 1673		
S15c. Mass of spacecraft and fuel at launch (kg): 2979.3	S15f. Length (m): 16.321	S15i. Payload: 0.9
S15d. Mass of fuel, in orbit, at beginning of life (kg): 528	S15g. Width (m): 6.511	S15j. Bus: 0.78
S15e. Deployed Area of Solar Array (square meters): 24.26	S15h. Height (m): 4.533	S15k. Total: 0.7

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): 3412	(f): 3412	(k): 3412	(p): 3412
Bus (Watts):	(b): 610	(g): 586	(l): 610	(q): 408
Total (Watts):	(c): 4022	(h): 3998	(m) 4022	(r): 3820
Solar Array (Watts):	(d): 5636	(i): 5117	(n): 5018	(s): 4556
Depth of Battery Discharge (%):	(e) 66 %	(j) 66 %	(o) 66 %	(t) 66 %

S17. CERTIFICATIONS:

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

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting estimate for this collection of information includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PERM@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

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THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.