

**FEDERAL COMMUNICATIONS COMMISSION  
SATELLITE SPACE STATION AUTHORIZATIONS  
(Technical and Operational Description)**

**S1. GENERAL INFORMATION** Complete for all satellite applications.

a. Space Station or Satellite Network Name: EXPRESS AM44		e. Estimated Date of Placement into Service: 5/19/2009		i. Will the space station(s) operate on a Common Carrier Basis: N	
b. Construction Commencement Date: 3/1/2007		f. Estimated Lifetime of Satellite(s): 12 Years		j. Number of transponders offered on a common carrier basis: 0	
c. Construction Completion Date: 1/1/2009		g. Total Number of Transponders: 26		k. Total Common Carrier Transponder Bandwidth: 0 MHz	
d1. Est Launch Date Begin: 2/11/2009	d2. Est Launch Date End: 2/11/2009	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 1264 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)		
3655	M	3695	M	T	Fixed Satellite Service
5980	M	6020	M	R	Fixed Satellite Service
3705	M	3745	M	T	Fixed Satellite Service
6030	M	6070	M	R	Fixed Satellite Service
3755	M	3795	M	T	Fixed Satellite Service
3805	M	3845	M	T	Fixed Satellite Service
6130	M	6170	M	R	Fixed Satellite Service
3855	M	3895	M	T	Fixed Satellite Service
6180	M	6220	M	R	Fixed Satellite Service
3905	M	3945	M	T	Fixed Satellite Service
6230	M	6270	M	R	Fixed Satellite Service
4005	M	4045	M	T	Fixed Satellite Service
6330	M	6370	M	R	Fixed Satellite Service
4055	M	4095	M	T	Fixed Satellite Service
6380	M	6420	M	R	Fixed Satellite Service
4105	M	4155	M	T	Fixed Satellite Service
6430	M	6470	M	R	Fixed Satellite Service
4155	M	4195	M	T	Fixed Satellite Service
6480	M	6520	M	R	Fixed Satellite Service

**S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY**

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 11 W	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection:  Replacement satellite for prior Intersputnik space station.									
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):  <table border="0" style="width: 100%;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Degrees</u></th> <th style="text-align: center;"><u>E/W</u></th> </tr> </thead> <tbody> <tr> <td>g. Westernmost:</td> <td style="text-align: center;">85</td> <td style="text-align: center;">W</td> </tr> <tr> <td>h. Easternmost:</td> <td style="text-align: center;">60</td> <td style="text-align: center;">E</td> </tr> </tbody> </table>			<u>Degrees</u>	<u>E/W</u>	g. Westernmost:	85	W	h. Easternmost:	60	E
	<u>Degrees</u>	<u>E/W</u>										
g. Westernmost:	85	W										
h. Easternmost:	60	E										
i. Reason for service are selection (Optional): Look angles below 5 degrees prohibit access to space station.												

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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.
1	E	Express AM44 Service	Atlantic Ocean Region Satellite; Global C-band Coverage

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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)														
6	T	40	40	0.1		30	N		1	100	39						
6R	R	40	40	0.1		30	N		1			500	3.5	-92	16	1	
7	T	40	40	0.1		30	N		1	100	47						
7R	R	40	40	0.1		30	N		1			500	3.5	-94	16	1	
8	T	40	40	0.1		30	N		1	100	47						
8R	R	40	40	0.1		30	N		1			500	3.5	-94	16	1	
9	T	40	40	0.1		30	N		1	100	47						
9R	R	40	40	0.1		30	N		1			500	3.5	-94	16	1	
10	T	40	40	0.1		30	N		1	100	39						
10R	R	40	40	0.1		30	N		1			500	3.5	-92	16	1	
11	T	40	40	0.1		30	N		1	100	39						
11R	R	40	40	0.1		30	N		1			500	3.5	-92	16	1	
15	T	40	40	0.1		30	N		1	100	47						
15R	R	40	40	0.1		30	N		1			500	3.5	-94	16	1	
16	T	40	40	0.1		30	N		1	100	47						
16R	R	40	40	0.1		30	N		1			500	3.5	-94	16	1	
17	T	40	40	0.1		30	N		1	100	47						
17R	R	40	40	0.1		30	N		1			500	3.5	-94	16	1	
18	T	40	40	0.1		30	N		1	100	47						
18R	R	40	40	0.1		30	N		1			500	3.5	-94	16	1	

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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
6	T	C	-11		6 GLOBAL DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
6R	R	C	-11		6 GLOBAL UP.gxt					
7	T	C	-11		AM44 7 DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
7R	R	C	-11		AM44 7 UP.gxt					
8	T	C	-11		AM44 8 DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
8R	R	C	-11		AM44 8 UP.gxt					
9	T	C	-11		AM44 9 DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
9R	R	C	-11		AM44 9 UP.gxt					
10	T	C	-11		10 GLOBAL DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
10R	R	C	-11		10 GLOBAL UP.gxt					
11	T	C	-11		11 GLOBAL DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
11R	R	C	-11		11 GLOBAL UP.gxt					
15	T	C	-11		AM44 15 DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
15R	R	C	-11		AM44 15 UP.gxt					
16	T	C	-11		AM44 16 DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
16R	R	C	-11		AM44 16 UP.gxt					
17	T	C	-11		AM44 17 DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
17R	R	C	-11		AM44 17 UP.gxt					
18	T	C	-11		AM44 18 DN.gxt	-156.3	-156.2	-156	-155.9	-155.8
18R	R	C	-11		AM44 18 UP.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)
1	40000	T	6000	L	C
2	40000	R	3675	R	C
3	40000	T	6050	L	C
4	40000	R	3725	R	C
5	40000	T	6100	L	C
6	40000	R	3775	R	C
7	40000	T	6150	L	C
8	40000	R	3825	R	C
9	40000	T	6200	L	C
10	40000	R	3875	R	C
11	40000	T	6250	L	C
12	40000	R	3925	R	C
13	40000	T	6350	L	C
14	40000	R	4025	R	C
15	40000	T	6400	L	C
16	40000	R	4075	R	C
17	40000	T	6450	L	C
18	40000	R	4125	R	C
19	40000	T	6500	L	C
20	40000	R	4175	R	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
6	110	2	6R	1	6
7	110	4	7R	3	7
8	110	6	8R	5	8
9	110	8	9R	7	9
10	110	10	10R	9	10
11	110	12	11R	11	11
15	110	14	15R	13	15
16	110	16	16R	15	16
17	110	18	17R	17	17
18	110	20	18R	19	18

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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)
1	45K0G7D	45	4	67	0.75		6.8	30
2	128KG7D	128	4	189	0.75		6.8	30
3	40M0G7W	40000	4	66667	0.75		6.8	30
4	4M00G7W	4000	4	5925	0.75		6.8	30
5	27M0G7W	27000	4	40000	0.75		6.8	30
6	28M0G7W	28000	4	41481	0.75		6.8	30
7	34M0G7W	34000	4	50371	0.75		6.8	30







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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: Otyabvskaya			
S14b. City: Gus-Khrustalny	S14c. County: Russia	S14d. State/Country	S14e. Zip Code: 801501
S14f. Telephone Number: +70959569526		S14g. Call Sign of Control Station (if appropriate):	

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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): 4410	(f): 4410	(k): 4410	(p): 4410
Bus (Watts):	(b): 1183	(g): 1095	(l): 1183	(q): 1095
Total (Watts):	(c): 5593	(h): 5505	(m): 5593	(r): 5505
Solar Array (Watts):	(d): 8354	(i): 7443	(n): 6766	(s): 6029
Depth of Battery Discharge (%):	(e) %	(j) %	(o) %	(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.**