

|                               |   |  |
|-------------------------------|---|--|
| <b>FCC 312<br/>Schedule S</b> | <b>FEDERAL COMMUNICATIONS COMMISSION<br/>SATELLITE SPACE STATION AUTHORIZATIONS<br/>(Technical and Operational Description)</b> | <b>Page 1: General,<br/>Frequency Bands,<br/>and GSO Orbit</b> |
|-------------------------------|---|--|

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

|   |                          |  |  |
|---|--------------------------|--|--|
| a. Space Station or Satellite Network Name:<br>TELSTAR 12 |                          | e. Estimated Date of Placement into Service:                                 | i. Will the space station(s) operate on a Common Carrier Basis:<br>N   |
| b. Construction Commencement Date:                        |                          | f. Estimated Lifetime of Satellite(s):<br>9 Years                            | j. Number of transponders offered on a common carrier basis:<br>0  |
| c. Construction Completion Date:                          |                          | g. Total Number of Transponders:<br>30                                       | k. Total Common Carrier Transponder Bandwidth:<br>0 MHz  |
| d1. Est Launch Date Begin:                                | d2. Est Launch Date End: | h. Total Transponder Bandwidth (no. transponders x Bandwidth)<br>1514.55 MHz | l. Orbit Type: Mark all boxes that apply:<br><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) |             |   |
| 10.95                 | G               | 11.2                 | G               | T           | Fixed Satellite Service                                   |
| 11.45                 | G               | 11.7                 | G               | T           | Fixed Satellite Service                                   |
| 11.7                  | G               | 12.2                 | G               | T           | Fixed Satellite Service                                   |
| 13.75                 | G               | 14.0                 | G               | R           | Fixed Satellite Service                                   |
| 14.0                  | G               | 14.5                 | G               | R           | Fixed Satellite Service                                   |

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

|  |  |  |
|--|--|--|
| a. Nominal Orbital Longitude (Degrees E/W):<br>109.2 W | b. Alternate Orbital Longitude (Degrees E/W):              | c. Reason for orbital location selection:<br>T12V has replaced T12 at the 15W orbital slot, meaning T12 can be moved to 109.2W to provide service to the Americas. |
| 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                          |  |
| g. Westernmost:      Degrees      E/W                  |  |  |
| 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:

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 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. |
|---------------------|---|---|---|
| 1                   | S   | Region1.gxt                                   |   |
| 2                   | S   | Region2.gxt                                   |   |
| 3                   | S   | Region3.gxt                                   |   |
| 4                   | S   | Region4.gxt                                   |   |

**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)<br>Beam<br>ID | (b)<br>T/R<br>Mode | Isotropic Antenna<br>Gain |                  | (e)<br>Pointing<br>Error<br>(Degrees) | (f)<br>Rotational<br>Error<br>(Degrees) | (g) Min.<br>Cross-<br>Polar Iso-<br>lation (dB) | (h) Polar-<br>ization<br>Switch-<br>able?<br>(Y/N) | (i) Polarization<br>Alignment Rel.<br>Equatorial<br>Plane (Degrees) | (j) Service<br>Area ID | Transmit                    |                                      |                              | Receive                            |                                       |  |                       |  |
|-------------------|--------------------|---------------------------|------------------|---------------------------------------|---|---|--|---|------------------------|-----------------------------|--------------------------------------|------------------------------|------------------------------------|---------------------------------------|--|-----------------------|--|
|                   |                    |                           |                  |                                       |   |   |  |   |                        | (k) Input<br>Losses<br>(dB) | (l) Effective<br>Output<br>Power (W) | (m)<br>Max.<br>EIRP<br>(dBW) | (n)<br>System<br>Noise<br>Temp (k) | (o) G/T<br>Max.<br>Gain Pt.<br>(db/K) | (p) Min.<br>Saturation<br>Flux Density<br>(dBW/m2) | Input Attenuator (dB) |  |
|                   |                    | (q) Max.<br>Value         | (r) Step<br>Size |                                       |   |   |  |   |                        |                             |                                      |                              |                                    |                                       |  |                       |  |
| ATX               | T                  |                           |                  | 0.1                                   | 0                                       | 30  | N  |   | 1                      |                             |                                      | 50.9                         |                                    |                                       |  |                       |  |
| BTX               | T                  |                           |                  | 0.1                                   | 0                                       | 30  | N  |   | 2                      |                             |                                      | 52.1                         |                                    |                                       |  |                       |  |
| CTX               | T                  |                           |                  | 0.1                                   | 0                                       | 30  | N  |   | 3                      |                             |                                      | 49.6                         |                                    |                                       |  |                       |  |
| ARX               | R                  |                           |                  | 0.1                                   | 0                                       | 30  | N  |   | 1                      |                             |                                      |                              | 3.5                                | -100.1                                | 20   | 1                     |  |
| BRX               | R                  |                           |                  | 0.1                                   | 0                                       | 30  | N  |   | 2                      |                             |                                      |                              | 2                                  | -99.1                                 | 20   | 1                     |  |
| CRX               | R                  |                           |                  | 0.1                                   | 0                                       | 30  | N  |   | 3                      |                             |                                      |                              | 1.9                                | -98.6                                 | 20   | 1                     |  |
| TETX              | T                  |                           |                  | 0.1                                   | 0                                       | 30  | N  |   | 4                      |                             |                                      | 13                           |                                    |                                       |  |                       |  |
| CDR               | R                  |                           |                  | 0.1                                   | 0                                       | 30  | N  |   | 4                      |                             |                                      |                              |                                    | -110                                  |  |                       |  |



**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: 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) |
|-----------------|------------------------------|--------------|----------------------------|-------------------------------|----------------------------------|
| U1H             | 54000                        | R            | 14343                      | H                             | C                                |
| U1V             | 54000                        | R            | 14343                      | V                             | C                                |
| U2H             | 54000                        | R            | 14405                      | H                             | C                                |
| U2V             | 54000                        | R            | 14405                      | V                             | C                                |
| U3H             | 54000                        | R            | 14467                      | H                             | C                                |
| U3V             | 54000                        | R            | 14467                      | V                             | C                                |
| U4H             | 54000                        | R            | 13813                      | H                             | C                                |
| U4V             | 54000                        | R            | 13813                      | V                             | C                                |
| U5H             | 54000                        | R            | 13875                      | H                             | C                                |
| U5V             | 54000                        | R            | 13875                      | V                             | C                                |
| U6H             | 54000                        | R            | 13937                      | H                             | C                                |
| U6V             | 54000                        | R            | 13937                      | V                             | C                                |
| U7V             | 54000                        | R            | 14281                      | V                             | C                                |
| U8H             | 54000                        | R            | 14033                      | H                             | C                                |
| U8V             | 54000                        | R            | 14033                      | V                             | C                                |
| U9H             | 54000                        | R            | 14095                      | H                             | C                                |
| U9V             | 54000                        | R            | 14095                      | V                             | C                                |
| U10H            | 54000                        | R            | 14157                      | H                             | C                                |
| U10V            | 54000                        | R            | 14157                      | V                             | C                                |
| U11H            | 54000                        | R            | 14219                      | H                             | C                                |
| U11V            | 54000                        | R            | 14219                      | V                             | C                                |
| U12H            | 54000                        | R            | 14343                      | H                             | C                                |
| U12V            | 54000                        | R            | 14343                      | V                             | C                                |
| U13H            | 54000                        | R            | 14405                      | H                             | C                                |
| U13V            | 54000                        | R            | 14405                      | V                             | C                                |
| U14H            | 54000                        | R            | 14467                      | H                             | C                                |
| U14V            | 54000                        | R            | 14467                      | V                             | C                                |
| U15V            | 54000                        | R            | 14281                      | V                             | C                                |
| D1H             | 54000                        | T            | 11543                      | H                             | C                                |
| D1V             | 54000                        | T            | 11543                      | V                             | C                                |

| (a) Transponder ID | (b) Transponder Gain (dB) | Receive Band    |             | Transmit Band   |             |
|--------------------|---------------------------|-----------------|-------------|-----------------|-------------|
|                    |                           | (c) Channel No. | (d) Beam ID | (e) Channel No. | (f) Beam ID |
| 1                  | 1                         | U1H             | BRX         | D1V             | BTX         |
| 2                  | 1                         | U1V             | BRX         | D1H             | BTX         |
| 3                  | 1                         | U2H             | BRX         | D2V             | BTX         |
| 4                  | 1                         | U2V             | BRX         | D2H             | BTX         |
| 5                  | 1                         | U3H             | BRX         | D3V             | BTX         |
| 6                  | 1                         | U3V             | BRX         | D3H             | BTX         |
| 7                  | 1                         | U4H             | BRX         | D4V             | BTX         |
| 8                  | 1                         | U4V             | BRX         | D4H             | BTX         |
| 9                  | 1                         | U5H             | BRX         | D5V             | BTX         |
| 10                 | 1                         | U5V             | BRX         | D6H             | BTX         |
| 11                 | 1                         | U6H             | BRX         | D6V             | BTX         |
| 12                 | 1                         | U6V             | BRX         | D6H             | BTX         |
| 13                 | 1                         | U7V             | ARX         | D7H             | CTX         |
| 14                 | 1                         | U8H             | ARX         | D8V             | ATX         |
| 15                 | 1                         | U8V             | ARX         | D8H             | ATX         |
| 16                 | 1                         | U9H             | ARX         | D9V             | ATX         |
| 17                 | 1                         | U9V             | ARX         | D9H             | ATX         |
| 18                 | 1                         | U10H            | ARX         | D10V            | ATX         |
| 19                 | 1                         | U10V            | ARX         | D10H            | ATX         |
| 20                 | 1                         | U11H            | ARX         | D11V            | ATX         |
| 21                 | 1                         | U11V            | ARX         | D11H            | ATX         |
| 22                 | 1                         | U12H            | ARX         | D12V            | ATX         |
| 23                 | 1                         | U12V            | ARX         | D12H            | ATX         |
| 24                 | 1                         | U13H            | ARX         | D13V            | ATX         |
| 25                 | 1                         | U13V            | ARX         | D13H            | ATX         |
| 26                 | 1                         | U14H            | ARX         | D14V            | ATX         |
| 27                 | 1                         | U14V            | ARX         | D14H            | ATX         |
| 28                 | 1                         | U15V            | CRX         | D15V            | ATX         |
| 29                 |                           |                 |             | TM1             | TETX        |
| 30                 |                           |                 |             | TM2             | TETX        |

|      |       |   |         |   |   |
|------|-------|---|---------|---|---|
| D2H  | 54000 | T | 11605   | H | C |
| D2V  | 54000 | T | 11605   | V | C |
| D3H  | 54000 | T | 11667   | H | C |
| D3V  | 54000 | T | 11667   | V | C |
| D4H  | 54000 | T | 11013   | H | C |
| D4V  | 54000 | T | 11013   | V | C |
| D5H  | 54000 | T | 11075   | H | C |
| D5V  | 54000 | T | 11075   | V | C |
| D6H  | 54000 | T | 11137   | H | C |
| D6V  | 54000 | T | 11137   | V | C |
| D7H  | 54000 | T | 11481   | H | C |
| D8H  | 54000 | T | 11733   | H | C |
| D8V  | 54000 | T | 11733   | V | C |
| D9H  | 54000 | T | 11795   | H | C |
| D9V  | 54000 | T | 11795   | V | C |
| D10H | 54000 | T | 11857   | H | C |
| D10V | 54000 | T | 11857   | V | C |
| D11H | 54000 | T | 11919   | H | C |
| D11V | 54000 | T | 11919   | V | C |
| D12H | 54000 | T | 12043   | H | C |
| D12V | 54000 | T | 12043   | V | C |
| D13H | 54000 | T | 12105   | H | C |
| D13V | 54000 | T | 12105   | V | C |
| D14H | 54000 | T | 12167   | H | C |
| D14V | 54000 | T | 12167   | V | C |
| D15V | 54000 | T | 11981   | V | C |
| TC1  | 850   | R | 14499   | R | T |
| TM1  | 850   | T | 11450.5 | L | T |
| TM2  | 850   | T | 11451   | L | T |

|    |  |     |      |  |  |
|----|--|-----|------|--|--|
| 31 |  | TC1 | CDRX |  |  |
|----|--|-----|------|--|--|

**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) |
|---------------------|-------------------------|------------------------------|-------------------|------------------------------|--------------------------------------|-------------------------------|--|-------------------------------------|
| 1                   | 54M0G7W                 |                              |                   |                              |                                      |                               |  |                                     |
| 2                   | 27M0G7W                 |                              |                   |                              |                                      |                               |  |                                     |
| 3                   | 10M0G7W                 |                              |                   |                              |                                      |                               |  |                                     |
| 4                   | 5M00G7W                 |                              |                   |                              |                                      |                               |  |                                     |
| 5                   | 2M00G7W                 |                              |                   |                              |                                      |                               |  |                                     |
| 6                   | 1M12G7W                 |                              |                   |                              |                                      |                               |  |                                     |
| 7                   | 500KG7W                 |                              |                   |                              |                                      |                               |  |                                     |
| 8                   | 100KG1D                 |                              |                   |                              |                                      |                               |  |                                     |
| 9                   | 850KF1D                 |                              |                   |                              |                                      |                               |  |                                     |







**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): Yes

**Remote Control (TT C) Location(s):**

|  |                              |  |                          |
|--|------------------------------|--|--------------------------|
| S14a: Street Address:<br>1305 Industrial Park Road |                              |  |                          |
| S14b. City:  | S14c. County:<br>Mt. Jackson | S14d. State/Country<br>VA                            | S14e. Zip Code:<br>22842 |
| S14f. Telephone Number:<br>540-477-5520            |                              | S14g. Call Sign of Control Station (if appropriate): |                          |

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

Page 11:  
Characteristics and  
Certifications

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

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 |
| <b>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.</b> |                                     |     |                          |    |                                     |     |

**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-PER, 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.

Remember - You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

**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.**