| FCC 312<br>Schedule S | FEDERAL COMMUNICATIONS COMMISSION<br>SATELLITE SPACE STATION AUTHORIZATIONS<br>(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: |
|---|---|---|---|
| INMARSAT 4F1 | | 5/1/2005 | N |
| b. Construction Commencement Date: | | f. Estimated Lifetime of Satellite(s): | j. Number of transponders offered on a common carrier basis: |
| 5/11/2000 | | 12 Years | 0 |
| c. Construction Completion Date: | | g. Total Number of Transponders: | k. Total Common Carrier Transponder Bandwidth: |
| 2/1/2005 | | 1260 | 0 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: |
| 2/5/2005 | 3/11/2005 | 252 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) | | |
| 1525 | M | 1559 | M | T | Mobile-Satellite Service |
| 1626.5 | M | 1660.5 | M | R | Mobile-Satellite Service |
| 6425 | M | 6575 | M | R | Feeder Link for Mobile Satellite Service in FSS |
| 3600 | M | 3700 | M | T | Feeder Link for Mobile Satellite Service in FSS |
| 6338 | M | 6342 | M | R | Fixed Satellite Service |
| 3945 | M | 3955 | M | T | 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: |
|---|---|---|---|
| 143.5 E | | | The Inmarsat 4F1 satellite will operate at 143.5°E. L. geostationary orbital location. This orbital location optimizes Asia Pacific coverage while complementing the coverage provided by the Inmarsat 4F3 satellite at 98°W.L. and 4F2 at 25°E.L. |
| Longitudinal Tolerance or E/W Station-Keeping:<br>d. Toward West: 0.1 Degrees<br>e. Toward East: 0.1 Degrees | f. Inclination Excursion or N/S Station-Keeping Tolerance: 3 Degrees | Range of orbital are in which adequate service can be provided (Optional): Degrees E/W<br>g. Westernmost:<br>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:

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**

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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. |
|---|---|---|---|
| GLOBAL | S | | All visible areas of the Earth. |

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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 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 |
| CGU | R | 22 | 18 | 0.2 | 0.1 | 30 | N | | GLOBAL | | | | 692 | -6.4 | -174.7 | 16 | 1 |
| CGU | R | 22 | 18 | 0.2 | 0.1 | 30 | N | | GLOBAL | | | | 692 | -6.4 | -174.7 | 16 | 1 |
| CGD | T | 22 | 18 | 0.2 | 0.1 | 30 | N | | GLOBAL | 3.4 | 20.1 | 35 | | | | | |
| CGD | T | 22 | 18 | 0.2 | 0.1 | 30 | N | | GLOBAL | 3.4 | 20.1 | 35 | | | | | |
| LSU | R | 42 | 39 | 0.2 | 0.1 | | N | | GLOBAL | | | | 583 | 14.3 | -186.8 | 16 | 2 |
| LRU | R | 34 | 30 | 0.2 | 0.1 | | N | | GLOBAL | | | | 1259 | 3 | -170.8 | 16 | 2 |
| LSD | T | 42 | 39 | 0.2 | 0.1 | | N | | GLOBAL | 4.1 | 631 | 70 | | | | | |
| LRD | T | 34 | 30 | 0.2 | 0.1 | | N | | GLOBAL | 4.1 | 251.2 | 58 | | | | | |
| LGD | T | 22 | 18 | 0.2 | 0.1 | | N | | GLOBAL | 4.1 | 125.9 | 43 | | | | | |
| TCN | R | 9 | 1.5 | 0.2 | 0.1 | 30 | N | | GLOBAL | | | | 501 | -18 | -177.1 | | |
| TCNL | R | 9 | 1.5 | 0.2 | 0.1 | 30 | N | | GLOBAL | | | | 501 | -18 | -177.1 | | |
| CRD | T | 22 | 18 | 0.2 | 0.1 | 30 | N | | GLOBAL | 3.5 | 0.355 | 17.5 | | | | | |
| CRD | T | 22 | 18 | 0.2 | 0.1 | 30 | N | | GLOBAL | 3.5 | 0.355 | 17.5 | | | | | |
| LGU | R | 22 | 18 | 0.2 | 0.1 | | N | | GLOBAL | | | | 632 | -6 | -170.8 | 16 | 2 |
| LND1 | T | 19 | 15.5 | 0.2 | 0.1 | 30 | N | | GLOBAL | 4.1 | 20 | 32 | | | | | |
| LND5 | T | 19 | 15.5 | 0.2 | 0.1 | 30 | N | | GLOBAL | 4.1 | 12.6 | 30 | | | | | |

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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 |
| CGU | R | C | -98 | | CGUR_143.5E.GXT | | | | | |
| CGU | R | C | -98 | | CGUL_143.5E.GXT | | | | | |
| CGD | T | C | -98 | | CGDR_143.5E.GXT | -165.9 | -165.7 | -165.5 | -165.2 | -164.9 |
| CGD | T | C | -98 | | CGDL_143.5E.GXT | -165.9 | -165.7 | -165.5 | -165.2 | -164.9 |
| LSU | R | C | -98 | | LSU_143.5E.GXT | | | | | |
| LRU | R | C | -98 | | LRU_143.5E.GXT | | | | | |
| LSD | T | C | -98 | | LSD_143.5E.GXT | | | | | |
| LRD | T | C | -98 | | LRD_143.5E.GXT | | | | | |
| LGD | T | C | -98 | | LGD_143.5E.GXT | | | | | |
| TCN | R | C | -98 | | TCNR_143.5E.GXT | | | | | |
| TCNL | R | C | -98 | | TCNL_143.5E.GXT | | | | | |
| CRD | T | C | -98 | | CRDR_143.5E.GXT | -164.9 | -164.7 | -164.5 | -164.2 | -163.9 |
| CRD | T | C | -98 | | CRDL_143.5E.GXT | -164.9 | -164.7 | -164.5 | -164.2 | -163.9 |
| LGU | R | C | -98 | | LGU_143.5E.GXT | | | | | |
| LND1 | T | C | -98 | | LND1_143.5E.GXT | | | | | |
| LND5 | T | C | -98 | | LND5_143.5E.GXT | | | | | |

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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) |
|---|---|---|---|---|---|
| CXU | 150000 | R | 6500 | R | C |
| CYU | 150000 | R | 6500 | L | C |
| CXD | 100000 | T | 3650 | R | C |
| CYD | 100000 | T | 3650 | L | C |
| LU | 34000 | R | 1643.5 | R | C |
| LD | 34000 | T | 1542 | R | C |
| TLCR | 4000 | R | 6340 | R | T |
| TLCL | 4000 | R | 6340 | L | T |
| TLMR | 10000 | T | 3950 | R | T |
| TLML | 10000 | T | 3950 | L | T |
| C1 | 4000 | R | 6534.52 | R | C |
| C5 | 20000 | R | 6548.55 | R | C |
| L1 | 4000 | T | 1575.42 | R | C |
| L5 | 20000 | T | 1176.45 | R | C |
| CCU | 5000 | R | 6527.7 | L | C |
| CCD | 5000 | T | 3630.7 | R | 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 |
| FL1 | 192 | CXU | CGUR | LD | LSD |
| FL2 | 192 | CYU | CGUL | LD | LSD |
| FL3 | 176 | CXU | CGUR | LD | LRD |
| FL4 | 176 | CYU | CGUL | LD | LRD |
| FL5 | 176 | CXU | CGUR | LD | LGD |
| FL6 | 176 | CYU | CGUL | LD | LGD |
| RL1 | 192 | LU | LSU | CXD | CGDR |
| RL2 | 192 | LU | LSU | CYD | CGDL |
| RL3 | 176 | LU | LRU | CXD | CGDR |
| RL4 | 176 | LU | LRU | CYD | CGDL |
| RL5 | 176 | LU | LGU | CXD | CGDR |
| RL6 | 176 | LU | LGU | CYD | CGDL |
| TC1 | | TLCR | TCNR | | |
| TC2 | | TLCL | TCNL | | |
| TM1 | | | | TLMR | CRDR |
| TM2 | | | | TLML | CRDL |
| FL7 | 169 | C1 | CGUR | L1 | LND1 |
| FL8 | 167 | C5 | CGUR | L5 | LND5 |
| CC1 | 136 | CCU | CGUL | CCD | CGDR |

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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) |
|---|---|---|---|---|---|---|---|---|
| C1F2 | 200KD7W | 200 | 16 | 492 | 0.822 | | 12.3 | 24.5 |
| C2F2 | 200KD7W | 200 | 16 | 464 | 0.775 | | 11.4 | 23.6 |
| C3F2 | 200KD7W | 200 | 16 | 384 | 0.642 | | 9.1 | 21.3 |
| C1F3 | 50K0D7W | 50 | 16 | 98 | 0.766 | | 11.4 | 23.6 |
| C2F3 | 50K0D7W | 50 | 16 | 90 | 0.703 | | 10.3 | 22.5 |
| C3F3 | 50K0G7W | 50 | 4 | 49.2 | 0.796 | | 5.4 | 17.6 |
| C1F4 | 12K5G7W | 12.5 | 4 | 12.2 | 0.897 | | 8.1 | 20.3 |
| C2F4 | 12K5G7W | 12.5 | 4 | 12.2 | 0.897 | | 8.1 | 20.3 |
| C3F4 | 12K5G7W | 12.5 | 4 | 12.2 | 0.897 | | 8.1 | 20.3 |
| C1R3 | 50K0D7W | 50 | 16 | 101.6 | 0.852 | | 12 | 24.2 |
| C2R3 | 50K0G7W | 50 | 4 | 52.8 | 0.87 | | 6.6 | 18.8 |
| C3R3 | 25K0G7W | 25 | 4 | 20 | 0.73 | | 4.4 | 16.6 |
| C1RT | 200KD7W | 200 | 16 | 492.8 | 0.852 | | 12.7 | 24.9 |
| C2RT | 200KD7W | 200 | 16 | 448 | 0.775 | | 10.8 | 23 |
| C3RT | 200KG7W | 200 | 4 | 239.6 | 0.83 | | 4.8 | 17 |
| 13 | 20K0G1E | 20 | 4 | 12 | 0.5 | | 5.1 | 17.3 |
| 14 | 100KG1X | 100 | 4 | 64 | 0.5 | | 5 | 17.2 |
| 15 | 10K0G1X | 10 | 2 | 3 | 0.5 | | 0.6 | 12.8 |
| 16 | 10K0G1W | 10 | 4 | 4 | 0.5 | | 5 | 17.2 |
| 17 | 10K0G1X | 10 | 2 | 3 | 0.5 | | 2.8 | 15 |
| 18 | 10K0G1X | 10 | 2 | 3 | 0.5 | | 2.8 | 15 |
| 19 | 10K0G1X | 10 | 2 | 3 | 0.5 | | 2.8 | 15 |
| 20 | 5K00G1D | 5 | 2 | 0.3 | 0.5 | | 3.5 | 15.7 |
| 21 | 2K50F1D | 2.5 | 2 | 0.001 | 0.242 | | -10.9 | 1.3 |
| 22 | 20K0G1E | 20 | 4 | 12 | 0.5 | | 5.1 | 17.3 |
| 23 | 100KG1X | 100 | 4 | 64 | 0.5 | | 5 | 17.2 |
| 24 | 20K0G1X | 20 | 4 | 12 | 0.5 | | 4.4 | 16.6 |
| 25 | 10K0G1W | 10 | 4 | 4 | 0.5 | | 5 | 17.2 |
| 26 | 20K0G1X | 20 | 2 | 1.5 | 0.5 | | 1.7 | 13.9 |
| 27 | 20K0G1X | 20 | 2 | 1.5 | 0.5 | | 1.2 | 13.4 |
| 28 | 5K00G1D | 5 | 2 | 0.3 | 0.5 | | 3.5 | 15.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 29 | 2K50F1D | 2.5 | 2 | 0.064 | 0.5 | | -3.7 | 8.5 |
| 30 | 20K0G1E | 20 | 4 | 12 | 0.5 | | 5.1 | 17.3 |
| 31 | 100KG1X | 100 | 4 | 64 | 0.5 | | 5 | 17.2 |
| 32 | 10K0G1W | 10 | 4 | 4 | 0.5 | | 5 | 17.2 |
| 33 | 5K00G1E | 5 | 4 | 2.8 | 0.5 | | 5.4 | 17.6 |
| 34 | 60K0D1W | 60 | 16 | 64 | 0.476 | | 7.7 | 19.9 |
| 35 | 5K00G1W | 5 | 4 | 3.6 | 0.643 | | 5.4 | 17.6 |
| 36 | 5K00G1D | 5 | 2 | 0.3 | 0.5 | | 3.5 | 15.7 |
| 37 | 2K50F1D | 2.5 | 2 | 0.001 | 0.242 | | -10.9 | 1.3 |
| 38 | 20K0G1E | 20 | 4 | 12 | 0.5 | | 5.1 | 17.3 |
| 39 | 100KG1X | 100 | 4 | 64 | 0.5 | | 5 | 17.2 |
| 40 | 10K0G1W | 10 | 4 | 4 | 0.5 | | 5 | 17.2 |
| 41 | 5K00G1E | 5 | 4 | 2.8 | 0.5 | | 5.4 | 17.6 |
| 42 | 60K0D1W | 60 | 16 | 64 | 0.476 | | 7.7 | 19.9 |
| 43 | 5K00G1W | 5 | 4 | 3.6 | 0.643 | | 5.4 | 17.6 |
| 44 | 5K00G1D | 5 | 2 | 0.3 | 0.5 | | 3.5 | 15.7 |
| 45 | 2K50F1D | 2.5 | 2 | 0.064 | 0.5 | | 2.3 | 14.5 |
| 46 | 180KG3X | 180 | 2 | 4.8 | 0.5 | | 11 | 23.2 |
| 48 | 4M00X2D | 4000 | 1 | 1023 | 1 | | -28 | -15.8 |
| 49 | 20M0X2D | 20000 | 1 | 10230 | 1 | | -35 | -22.8 |
| 50 | 7K50G1D | 7.5 | 2 | 10.5 | 0.5 | | 5 | 17.2 |
| 51 | 5K00G1D | 5 | 2 | 4.8 | 0.5 | | 4.7 | 16.9 |
| 52 | 2K50G1D | 2.5 | 2 | 1.2 | 0.5 | | 3.2 | 15.4 |
| 53 | 45K0G7D | 45 | 4 | 64 | 0.5 | | 7.7 | 19.9 |
| 54 | 5K00G1W | 5 | 2 | 4.8 | 0.5 | | 5.4 | 17.6 |
| 55 | 7K50G1W | 7.5 | 2 | 4.8 | 0.5 | | 5.4 | 17.6 |
| 56 | 7K50G1E | 7.5 | 2 | 2.8 | 0.5 | | 5.4 | 17.6 |
| 57 | 7K50G1D | 7.5 | 2 | 10.5 | 0.5 | | 5 | 17.2 |
| 58 | 12K5G1D | 12.5 | 2 | 8.4 | 0.5 | | 2.9 | 15.1 |
| 59 | 45K0G7D | 45 | 4 | 64 | 0.5 | | 7.7 | 19.9 |
| 60 | 45K0G7D | 45 | 4 | 64 | 0.5 | | 7.7 | 19.9 |
| 61 | 17K5G1D | 17.5 | 2 | 9.6 | 0.5 | | 4.5 | 16.7 |
| 62 | 45K0G7D | 45 | 4 | 64 | 0.5 | | 7.7 | 19.9 |
| 63 | 7K50G1D | 7.5 | 2 | 10.5 | 0.5 | | 5 | 17.2 |
| 64 | 5K00G1D | 5 | 2 | 4.8 | 0.5 | | 4.7 | 16.9 |
| 65 | 2K50G1D | 2.5 | 2 | 1.2 | 0.5 | | 3.2 | 15.4 |
| 66 | 45K0G7D | 45 | 4 | 64 | 0.5 | | 7.7 | 19.9 |
| 67 | 5K00G1W | 5 | 2 | 4.8 | 0.5 | | 5.4 | 17.6 |
| 68 | 5K00G1W | 5 | 2 | 4.8 | 0.5 | | 5.4 | 17.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 69 | 7K50G1E | 7.5 | 2 | 2.8 | 0.5 | | 5.4 | 17.6 |
| 70 | 7K50G1D | 7.5 | 2 | 10.5 | 0.5 | | 5 | 17.2 |
| 71 | 12K5G1D | 12.5 | 2 | 8.4 | 0.5 | | 2.9 | 15.1 |
| 72 | 45K0G7D | 45 | 4 | 64 | 0.5 | | 7.7 | 19.9 |
| 73 | 45K0G7D | 45 | 4 | 64 | 0.5 | | 7.7 | 19.9 |
| 74 | 17K5G1D | 17.5 | 2 | 9.6 | 0.5 | | 4.5 | 16.7 |
| 75 | 45K0G7D | 45 | 4 | 64 | 0.5 | | 7.7 | 19.9 |
| 76 | 100KN0N | 100 | | | 1 | | 15 | 27.2 |
| 77 | 100KN0N | 100 | | | 1 | | 15 | 27.2 |

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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 | | | | | | |
| 47 | 1M40F3X | 1400 | SCPC/FM | 1 | | | 0.027 | | | | 14.4 | 0 | 11 | 23.2 |

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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. | | |
| FL5 | FL6 | 14 | | 112 | 100 | FLG INM-B 100 | | 59.6 | -5.8 | -0.8 | 22.5 | 26.5 | | -4 |
| FL5 | FL6 | 15 | | 2089 | 10 | FLG INM-B 10 | | 59.6 | -16.5 | -11.5 | 9.8 | 13.8 | | -4 |
| FL5 | FL6 | 16 | | 288 | 10 | FLG INM-M 10 | | 59.6 | -7.9 | -2.9 | 18.4 | 22.4 | | -10 |
| FL5 | FL6 | 17 | | 479 | 10 | FLG INM-M 10 | | 59.6 | -10.1 | -5.1 | 16.2 | 20.2 | | -10 |
| FL5 | FL6 | 18 | | 135 | 10 | FLG MINI-M 10 | | 59.6 | -4.6 | 0.4 | 21.7 | 25.7 | | -17 |
| FL5 | FL6 | 19 | | 135 | 10 | FLG M4 10 kHz | | 59.6 | -4.6 | 0.4 | 21.7 | 25.7 | | -7 |
| FL5 | FL6 | 20 | | 209 | 10 | FLG INM-C.doc | | 59.6 | -6.5 | -1.5 | 19.8 | 23.8 | | -23 |
| FL5 | FL6 | 21 | | 178 | 5 | FLG INM-D.doc | | 59.6 | -7.8 | -2.8 | 20.5 | 24.5 | | -22.1 |
| RL5 | RL6 | 22 | | 6300 | 20 | RLG INM-B 20 | | 21 | 5 | 12 | -8.4 | 2.6 | -165.2 | 35.6 |
| RL5 | RL6 | 23 | | 1260 | 100 | RLG INM-B 100 | | 21 | 8 | 16 | -1.4 | 8.6 | -166.5 | 35.6 |
| RL5 | RL6 | 24 | | 6300 | 20 | RLG INM-B 20 | | 21 | 4.3 | 13 | -9.1 | 3.6 | -164.2 | 35.6 |
| RL5 | RL6 | 25 | | 12600 | 10 | RLG INM-M 10 | | 14 | 7 | 13 | -13.4 | -6.4 | -169.4 | 35.6 |
| RL5 | RL6 | 26 | | 6300 | 20 | RLG INM-M 20 | | 14 | 3 | 11 | -17.4 | -5.4 | -167.2 | 35.6 |
| RL5 | RL6 | 27 | | 6300 | 20 | RLG MINI-M 20 | | 10 | 3 | 7 | -21.4 | -13.4 | -175.5 | 35.6 |
| RL5 | RL6 | 28 | | 25200 | 5 | RLG INM-C.doc | | 0 | 4 | 10.5 | -23 | -12.6 | -174.7 | 35.6 |
| RL5 | RL6 | 29 | | 25200 | 2.5 | RLG INM-D.doc | | 3.5 | -3 | 9 | -30.2 | -16.2 | -178.3 | 35.6 |
| FL3 | FL4 | 30 | | 6300 | 20 | FLR INM-B 20 | | 59.6 | -9.8 | -4.8 | 19.5 | 23.5 | | -4 |
| FL3 | FL4 | 31 | | 1260 | 100 | FLR INM-B 100 | | 59.6 | -4.8 | 0.2 | 24.5 | 28.5 | | -4 |
| FL3 | FL4 | 32 | | 4898 | 10 | FLR INM-M 10 | | 59.6 | -8.2 | -3.2 | 21.1 | 25.1 | | -12 |
| FL3 | FL4 | 33 | | 17378 | 5 | FLR MINI-M 5 k | | 59.6 | -5.1 | -0.1 | 15.6 | 19.6 | | -7 |
| FL3 | FL4 | 34 | | 832 | 60 | FLR M4 60 kHz | | 59.6 | 0.5 | 4.5 | 28.8 | 32.8 | | -7 |
| FL3 | FL4 | 35 | | 17378 | 5 | FLR M4 5 kHz. | | 59.6 | -13.7 | -8.7 | 15.6 | 19.6 | | -7 |
| FL3 | FL4 | 35 | | 6166 | 5 | FLR INM-C.doc | | 59.6 | -9.2 | -4.2 | 20.1 | 24.1 | | -23 |
| FL3 | FL4 | 37 | | 5623 | 5 | FLR INM-D.doc | | 59.6 | -10.2 | -5.2 | 20.5 | 24.5 | | -22.1 |
| RL3 | RL4 | 38 | | 6300 | 20 | RLR INM-B 20 | | 21 | -3.3 | 5 | -10.7 | 1.6 | -166.2 | 35.6 |
| RL3 | RL4 | 39 | | 1260 | 100 | RLR INM-B 100 | | 21 | -0.2 | 13 | -3.6 | 13.3 | -160.8 | 35.6 |
| RL3 | RL4 | 40 | | 12600 | 10 | RLR INM-M 10 | | 12 | 0.8 | 9 | -15.6 | -3.4 | -166.4 | 35.6 |
| RL3 | RL4 | 41 | | 25200 | 5 | RLR MINI-M 5 | | 18 | -9.5 | -1 | -16.9 | -2.2 | -165.9 | 35.6 |
| RL3 | RL4 | 42 | | 2100 | 60 | RLR M4 60 kHz | | 18 | 4 | 11 | -3.4 | 1.4 | -170.7 | 35.6 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RL3 | RL4 | 43 | | 25200 | 5 | RLR M4 5 kHz. | | 18 | -9.5 | -1 | -16.9 | -2.2 | -165.9 | 35.6 |
| RL3 | RL4 | 44 | | 25200 | 5 | RLR INM-C.doc | | 0 | 1.2 | 10.5 | -25.4 | -12 | -174.1 | 35.6 |
| RL3 | RL4 | 45 | | 25200 | 2.5 | RLR INM-D.doc | | 3.5 | -5.7 | 5.5 | -25 | -8.8 | -170.9 | 35.6 |
| FL1 | FL2 | C1F2 | | 630 | 200 | C1F2 LB.doc | | 59.6 | -2.3 | 2.7 | 41.5 | 44.5 | | -9.7 |
| FL1 | FL2 | C2F2 | | 630 | 200 | C2F2 LB.doc | | 59.6 | -2.3 | 2.7 | 41.5 | 44.5 | | -12.5 |
| FL1 | FL2 | C3F2 | | 630 | 200 | C3F2 LB.doc | | 59.6 | -2.3 | 2.7 | 41.5 | 44.5 | | -16.9 |
| FL3 | FL4 | C1F3 | | 2520 | 50 | C1F3 LB.doc | | 59.6 | -3.6 | 1.4 | 30.2 | 33.2 | | -9.7 |
| FL3 | FL4 | C2F3 | | 2520 | 50 | C2F3 LB.doc | | 59.6 | -3.6 | 1.4 | 31.2 | 33.2 | | -12.5 |
| FL3 | FL4 | C3F3 | | 2520 | 50 | C3F3 LB.doc | | 59.6 | -3.6 | 1.4 | 30.2 | 33.2 | | -16.9 |
| FL5 | FL6 | C1F4 | | 1 | | C1F4 LB.doc | | 59.6 | -5.7 | 0.7 | 27.5 | 31.5 | | -9.7 |
| FL5 | FL6 | C2F4 | | 1 | | C2F4 LB.doc | | 59.6 | -5.7 | 0.7 | 27.5 | 31.5 | | -12.5 |
| FL5 | FL6 | C3F4 | | 1 | | C3F4 LB.doc | | 59.6 | -5.7 | 0.7 | 27.5 | 31.5 | | -16.9 |
| RL1 | RL2 | C1R3 | | 2520 | 50 | C1R3 LB.doc | | 14 | 4 | 7 | -0.5 | 6.5 | -165.8 | 35.6 |
| RL1 | RL2 | C2R3 | | 2520 | 50 | C2R3 LB.doc | | 11 | 2.1 | 5.1 | -5.4 | 1.6 | -170.7 | 35.6 |
| RL1 | RL2 | C3R3 | | 5040 | 25 | C3R3 LB.doc | | 8 | 0 | 3 | -10.5 | -3.5 | -172.8 | 35.6 |
| RL3 | RL4 | C1RT | | 630 | 200 | C1RT LB.doc | | 14 | 4 | 7 | 7.5 | 14.5 | -164.3 | 35.6 |
| RL3 | RL4 | C2RT | | 630 | 200 | C2RT LB.doc | | 11 | 2.1 | 5.1 | 3.6 | 9.6 | -169.2 | 35.6 |
| RL3 | RL4 | C3RT | | 630 | 200 | C3RT LB.doc | | 8 | 0 | 3 | -2 | 4.5 | -174.3 | 35.6 |
| FL5 | FL6 | 13 | | 368 | 20 | FLG INM-B 20 | | 59.6 | -9 | -4 | 17.3 | 21.3 | | -4 |
| TC1 | TC2 | | 47 | 1 | | I4_TLC_LB_SS | | 59.6 | 5.4 | 29.4 | | | | -21 |
| TM1 | TM2 | 46 | | 1 | | I4TLM_LB_SS. | | 54.8 | | | 0 | 10.5 | -166.6 | 35.6 |
| FL7 | FL7 | 48 | | 1 | | FLG NAV 4 MH | | 59.6 | 0.4 | 23.4 | 27.7 | 32 | | -26 |
| FL8 | FL8 | 49 | | 1 | | FLG NAV 20 M | | 59.6 | 0.4 | 23.4 | 25.1 | 30 | | -26 |
| FL5 | FL6 | 50 | | 186 | 7.5 | FLG AERO-H 7 | | 59.6 | -6 | -1 | 20.3 | 24.3 | | -13 |
| FL5 | FL6 | 51 | | 112 | 5 | FLG AERO-I 5 | | 59.6 | -3.8 | 1.2 | 22.5 | 26.5 | | -19 |
| FL5 | FL6 | 52 | | 58 | 2.5 | FLG AERO-L 2. | | 59.6 | -0.9 | 4.1 | 25.4 | 29.4 | | -26 |
| FL5 | FL6 | 53 | | 68 | 45 | FLG F77 45 kH | | 59.6 | -4.6 | 0.4 | 24.7 | 25.7 | | -4 |
| FL5 | FL6 | 54 | | 1023 | 5 | FLG F55 5kHz. | | 59.6 | -14.4 | -9.4 | 12.9 | 15.9 | | -7 |
| FL5 | FL6 | 55 | | 323 | 7.5 | FLG F33 7.5 k | | 59.6 | -8.9 | -3.9 | 17.4 | 21.4 | | -12.5 |
| FL3 | FL4 | 56 | | 2399 | 7.5 | FLR MINI-M 7.5 | | 59.6 | -5.1 | -0.1 | 24.2 | 28.2 | | -17 |
| FL3 | FL4 | 57 | | 6457 | 7.5 | FLR AERO-H 7 | | 59.6 | -10 | -5 | 19.9 | 23.9 | | -13 |
| FL3 | FL4 | 58 | | 2042 | 12.5 | FLR AERO-I 12 | | 59.6 | -5.3 | -0.3 | 24.9 | 28.9 | | -19 |
| FL3 | FL4 | 59 | | 2291 | 45 | FLR F77 45 kH | | 59.6 | -4.9 | 0.1 | 24.4 | 28.4 | | -4 |
| FL3 | FL4 | 60 | | 1175 | 45 | FLR F55 45 kH | | 59.6 | -2 | 3 | 27.3 | 31.3 | | -7 |
| FL3 | FL4 | 61 | | 1778 | 17.5 | FLR F33 17.5 k | | 59.6 | -3.8 | 1.2 | 25.5 | 29.5 | | -12.5 |
| FL3 | FL4 | 62 | | 603 | 45 | FLR SWIFT64 | | 59.6 | 0.9 | 5.9 | 30.2 | 34.2 | | -13 |
| RL5 | RL6 | 63 | | 5623 | 7.5 | RLG AERO-H 7 | | 12 | 7.6 | 13.5 | -6.5 | 3.5 | -160.7 | 35.6 |
| RL5 | RL6 | 64 | | 13183 | 5 | RLG AERO-I 5 | | 6 | 9.9 | 16 | -10.2 | -0.2 | -162.3 | 35.6 |
| RL5 | RL6 | 65 | | 18577 | 2.5 | RLG AERO-L 2 | | 0 | 11.8 | 13.5 | -14.7 | -9 | -169 | 35.6 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RL5 | RL6 | 66 | | 851 | 45 | RLG F77 45 kH | | 20 | 10 | 12 | 1.7 | 7.7 | -164.4 | 35.6 |
| RL5 | RL6 | 67 | | 13490 | 5 | RLG F55 5 kHz | | 17 | 3 | 8 | -10.3 | -1.3 | -163.4 | 35.6 |
| RL5 | RL6 | 68 | | 13490 | 5 | RLG F33 5 kHz | | 11.5 | 8.5 | 13.5 | -10.3 | -1.3 | -163.4 | 35.6 |
| RL3 | RL4 | 69 | | 16800 | 7.5 | RLR MINI-M 7. | | 10 | -1.5 | 7 | -16.9 | -4.5 | -166.6 | 35.6 |
| RL3 | RL4 | 70 | | 11749 | 7.5 | RLR AERO-H 7 | | 12 | 2 | 7.5 | -9.7 | 0.8 | -163.4 | 35.6 |
| RL3 | RL4 | 71 | | 10080 | 12.5 | RLR AERO-I 12 | | 6 | 6.7 | 7.5 | -11.8 | -7 | -171.3 | 35.6 |
| RL3 | RL4 | 72 | | 955 | 45 | RLR F77 45 kH | | 20 | 3.6 | 12 | 1.2 | 9.6 | -162.5 | 35.6 |
| RL3 | RL4 | 73 | | 955 | 45 | RLR F55 45 kH | | 17 | 6.6 | 11.6 | 1.2 | 6.2 | -165.9 | 35.6 |
| RL3 | RL4 | 74 | | 5248 | 17.5 | RLR F33 17.5 k | | 11.5 | 3.7 | 9.5 | -6.2 | -1.4 | -169.2 | 35.6 |
| RL3 | RL4 | 75 | | 933 | 45 | RLR SWIFT64 | | 11.5 | 9.2 | 13.5 | 1.3 | 5.6 | -166.5 | 35.6 |
| FL5 | FL6 | 76 | | 4 | 100 | FLG AFC.doc | | 59.6 | -14.6 | 3.4 | 10 | 15 | | 21.7 |
| RL5 | RL6 | 77 | | 4 | 100 | RLG AFC.doc | | 45.7 | -14.7 | -4.7 | -9 | -4 | | 35.6 |

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: Inmarsat Satellite Access Station | | | |
|---|---|---|---|
| S14b. City: Haleiwa | S14c. County: Honolulu | S14d. State/Country HI | S14e. Zip Code: 96712 |
| S14f. Telephone Number: +1-808-638-5122 | S14g. Call Sign of Control Station (if appropriate): KA25 | | |

**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): 3340 | Spacecraft Dimensions (meters) | Probability of Survival to End of Life (0.0 - 1.0) |
|---|---|---|
| S15b. Mass of fuel and disposables at launch (kg): 2619 | | |
| S15c. Mass of spacecraft and fuel at launch (kg): 5959 | S15f. Length (m): 18 | S15i. Payload: 0.74 |
| S15d. Mass of fuel, in orbit, at beginning of life (kg): 350 | S15g. Width (m): 45 | S15j. Bus: 0.89 |
| S15e. Deployed Area of Solar Array (square meters): 89.3 | S15h. Height (m): 8 | S15k. Total: 0.66 |

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): 8981 | (f): 8981 | (k): 8981 | (p): 8981 |
| Bus (Watts): | (b): 840 | (g): 596 | (l): 840 | (q): 596 |
| Total (Watts): | (c): 11635 | (h): 10423 | (m) 11696 | (r): 10423 |
| Solar Array (Watts): | (d): 14086 | (i): 13208 | (n): 13388 | (s): 12038 |
| Depth of Battery Discharge (%): | (e) 68 % | (j) 0 % | (o) 72 % | (t) 12 % |

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.**