



312 File Number: **SATAMD2022040800039**

---

## Filing Description

| Question    | Response                                  |
|-------------|-------------------------------------------|
| Description | Intelsat 40e: Modify the TT&C frequencies |

---

**Satellite  
Information**

| Question                                                     | Response     |
|--------------------------------------------------------------|--------------|
| Select Orbit Type                                            | GSO          |
| Space Station or Satellite Network Name                      | Intelsat 40e |
| Estimated Lifetime of Satellite(s) From Date of Launch       | 21 Years     |
| Will the space station(s) operate on a Common Carrier basis? | No           |

Operating  
Frequency  
Bands (6)

| Nature of service       | Description | Frequency Band(s)        | Mode Type |
|-------------------------|-------------|--------------------------|-----------|
| Fixed-Satellite Service |             | 14000.0 MHz -14500.0 MHz | Receive   |
| Fixed-Satellite Service |             | 27500.0 MHz -29100.0 MHz | Receive   |
| Fixed-Satellite Service |             | 29250.0 MHz -30000.0 MHz | Receive   |
| Fixed-Satellite Service |             | 10825.0 MHz -12200.0 MHz | Transmit  |
| Fixed-Satellite Service |             | 17800.0 MHz -19400.0 MHz | Transmit  |
| Fixed-Satellite Service |             | 19600.0 MHz -20200.0 MHz | Transmit  |

**Orbital  
Information For  
Geostationary  
Satellites**

| Section                                                               | Question                                                              | Response        |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------|
| Orbital Longitude Information                                         | Orbital Longitude                                                     | 91.0<br>degrees |
|                                                                       | Hemisphere of Orbital<br>Longitude                                    | W               |
| Longitudinal Tolerance or East<br>/West Station-Keeping               | Toward West                                                           | 0.05<br>degrees |
|                                                                       | Toward East                                                           | 0.05<br>degrees |
| Inclination Excursion or North<br>/South Station-Keeping<br>Tolerance | Inclination Excursion or North<br>/South Station-Keeping<br>Tolerance | 0.1<br>degrees  |
| Antenna Axis Attitude Accuracy                                        | Roll                                                                  | 0.1<br>degrees  |
|                                                                       | Pitch                                                                 | 0.1<br>degrees  |
|                                                                       | Yaw                                                                   | 0.1<br>degrees  |

## Receiving Beams 1:

| Question                                                | Response                                    |
|---------------------------------------------------------|---------------------------------------------|
| Beam ID                                                 | CHLU                                        |
| Receive Beam Frequency                                  | 14000.0 MHz -14030.0 MHz                    |
| Beam Type                                               | Fixed                                       |
| Polarization                                            | LHCP                                        |
| Peak Gain                                               | dBi                                         |
| Antenna Pointing Error                                  | 0.19 degrees                                |
| Antenna Rotational Error                                | 0.34 degrees                                |
| Polarization Switchable                                 |                                             |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                |
| G/T at Max. Gain Point                                  | -99.0 dB/K                                  |
| Min. Saturation Flux Density                            | -100.0 dBW/m2                               |
| Max. Saturation Flux Density                            | -99.9 dBW/m2                                |
| Co- or Cross Polar Mode                                 | C                                           |
| Service Area Description                                | Tunable Command Beam default<br>CF: 14000.5 |

## Receiving Beams 2:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | CPLU                     |
| Receive Beam Frequency   | 14000.0 MHz -14030.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | LHCP                     |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.19 degrees             |
| Antenna Rotational Error | 0.34 degrees             |

### Receiving Beams 3:

|                                                         |                                            |
|---------------------------------------------------------|--------------------------------------------|
| Polarization Switchable                                 |                                            |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                               |
| G/T at Max. Gain Point                                  | -99.0 dB/K                                 |
| Min. Saturation Flux Density                            | -100.0 dBW/m2                              |
| Max. Saturation Flux Density                            | -99.9 dBW/m2                               |
| Co- or Cross Polar Mode                                 | C                                          |
| Service Area Description                                | Tunable Command Beam default<br>CF 14003.0 |

| Question                                                | Response                                   |
|---------------------------------------------------------|--------------------------------------------|
| Beam ID                                                 | CMLD                                       |
| Receive Beam Frequency                                  | 14000.0 MHz -14030.0 MHz                   |
| Beam Type                                               | Fixed                                      |
| Polarization                                            | LHCP                                       |
| Peak Gain                                               | dBi                                        |
| Antenna Pointing Error                                  | 0.19 degrees                               |
| Antenna Rotational Error                                | 0.34 degrees                               |
| Polarization Switchable                                 |                                            |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                               |
| G/T at Max. Gain Point                                  | -99.0 dB/K                                 |
| Min. Saturation Flux Density                            | -100.0 dBW/m2                              |
| Max. Saturation Flux Density                            | -99.9 dBW/m2                               |
| Co- or Cross Polar Mode                                 | C                                          |
| Service Area Description                                | Tunable Command Beam Default<br>CF 14000.5 |

## Receiving Beams 4:

| Question                                                | Response                 |
|---------------------------------------------------------|--------------------------|
| Beam ID                                                 | A3LK                     |
| Receive Beam Frequency                                  | 29250.0 MHz -30000.0 MHz |
| Beam Type                                               | Fixed                    |
| Polarization                                            | LHCP                     |
| Peak Gain                                               | dBi                      |
| Antenna Pointing Error                                  | 0.19 degrees             |
| Antenna Rotational Error                                | 0.34 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| G/T at Max. Gain Point                                  | 20.97 dB/K               |
| Min. Saturation Flux Density                            | -101.9 dBW/m2            |
| Max. Saturation Flux Density                            | -74.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | Fixed GW Beam            |

## Receiving Beams 5:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | A3RK                     |
| Receive Beam Frequency   | 29250.0 MHz -30000.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | RHCP                     |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.19 degrees             |
| Antenna Rotational Error | 0.34 degrees             |
| Polarization Switchable  |                          |

|                                                         |               |
|---------------------------------------------------------|---------------|
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees  |
| G/T at Max. Gain Point                                  | 20.97 dB/K    |
| Min. Saturation Flux Density                            | -101.9 dBW/m2 |
| Max. Saturation Flux Density                            | -74.0 dBW/m2  |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | Fixed GW Beam |

## Receiving Beams 6:

| Question                                                | Response                 |
|---------------------------------------------------------|--------------------------|
| Beam ID                                                 | A3LU                     |
| Receive Beam Frequency                                  | 27500.0 MHz -29100.0 MHz |
| Beam Type                                               | Fixed                    |
| Polarization                                            | LHCP                     |
| Peak Gain                                               | dBi                      |
| Antenna Pointing Error                                  | 0.19 degrees             |
| Antenna Rotational Error                                | 0.34 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| G/T at Max. Gain Point                                  | 20.97 dB/K               |
| Min. Saturation Flux Density                            | -101.9 dBW/m2            |
| Max. Saturation Flux Density                            | -74.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | Fixed GW Beam            |

## Receiving Beams 7:

| Question | Response |
|----------|----------|
|----------|----------|

|                                                         |                          |
|---------------------------------------------------------|--------------------------|
| Beam ID                                                 | A3RU                     |
| Receive Beam Frequency                                  | 27500.0 MHz -29100.0 MHz |
| Beam Type                                               | Fixed                    |
| Polarization                                            | RHCP                     |
| Peak Gain                                               | dBi                      |
| Antenna Pointing Error                                  | 0.19 degrees             |
| Antenna Rotational Error                                | 0.34 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| G/T at Max. Gain Point                                  | 20.97 dB/K               |
| Min. Saturation Flux Density                            | -101.9 dBW/m2            |
| Max. Saturation Flux Density                            | -74.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | Fixed GW Beam            |

## Receiving Beams 8:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | A2LK                     |
| Receive Beam Frequency   | 29250.0 MHz -30000.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | LHCP                     |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.19 degrees             |
| Antenna Rotational Error | 0.34 degrees             |
| Polarization Switchable  |                          |

|                                                         |               |
|---------------------------------------------------------|---------------|
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees  |
| G/T at Max. Gain Point                                  | 20.97 dB/K    |
| Min. Saturation Flux Density                            | -101.9 dBW/m2 |
| Max. Saturation Flux Density                            | -74.0 dBW/m2  |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | Fixed GW Beam |

## Receiving Beams 9:

| Question                                                | Response                 |
|---------------------------------------------------------|--------------------------|
| Beam ID                                                 | A2RK                     |
| Receive Beam Frequency                                  | 29250.0 MHz -30000.0 MHz |
| Beam Type                                               | Fixed                    |
| Polarization                                            | RHCP                     |
| Peak Gain                                               | dBi                      |
| Antenna Pointing Error                                  | 0.19 degrees             |
| Antenna Rotational Error                                | 0.34 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| G/T at Max. Gain Point                                  | 20.97 dB/K               |
| Min. Saturation Flux Density                            | -101.9 dBW/m2            |
| Max. Saturation Flux Density                            | -74.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | Fixed GW Beam            |

## Receiving Beams 10:

| Question | Response |
|----------|----------|
|----------|----------|

|                                                         |                          |
|---------------------------------------------------------|--------------------------|
| Beam ID                                                 | A2LU                     |
| Receive Beam Frequency                                  | 27500.0 MHz -29100.0 MHz |
| Beam Type                                               | Fixed                    |
| Polarization                                            | LHCP                     |
| Peak Gain                                               | dBi                      |
| Antenna Pointing Error                                  | 0.19 degrees             |
| Antenna Rotational Error                                | 0.34 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| G/T at Max. Gain Point                                  | 20.97 dB/K               |
| Min. Saturation Flux Density                            | -101.9 dBW/m2            |
| Max. Saturation Flux Density                            | -74.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | Fixed GW Beam            |

## Receiving Beams 11:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | A2RU                     |
| Receive Beam Frequency   | 27500.0 MHz -29100.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | RHCP                     |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.19 degrees             |
| Antenna Rotational Error | 0.34 degrees             |
| Polarization Switchable  |                          |

|                                                         |               |
|---------------------------------------------------------|---------------|
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees  |
| G/T at Max. Gain Point                                  | 20.97 dB/K    |
| Min. Saturation Flux Density                            | -101.9 dBW/m2 |
| Max. Saturation Flux Density                            | -74.0 dBW/m2  |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | Fixed GW Beam |

## Receiving Beams 12:

| Question                                                | Response                                                                               |
|---------------------------------------------------------|----------------------------------------------------------------------------------------|
| Beam ID                                                 | KUHU                                                                                   |
| Receive Beam Frequency                                  | 14000.0 MHz -14500.0 MHz                                                               |
| Beam Type                                               | Fixed                                                                                  |
| Polarization                                            | H                                                                                      |
| Peak Gain                                               | dBi                                                                                    |
| Antenna Pointing Error                                  | 0.19 degrees                                                                           |
| Antenna Rotational Error                                | 0.34 degrees                                                                           |
| Polarization Switchable                                 |                                                                                        |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees                                                                            |
| G/T at Max. Gain Point                                  | 15.92 dB/K                                                                             |
| Min. Saturation Flux Density                            | -105.0 dBW/m2                                                                          |
| Max. Saturation Flux Density                            | -85.0 dBW/m2                                                                           |
| Co- or Cross Polar Mode                                 | C                                                                                      |
| Service Area Description                                | This Ku band is consisting of 42 fixed spot beams, only one GXT file will be provided. |

## Receiving Beams 13:

| Question | Response |
|----------|----------|
|----------|----------|

|                                                         |                          |
|---------------------------------------------------------|--------------------------|
| Beam ID                                                 | A1RK                     |
| Receive Beam Frequency                                  | 29250.0 MHz -30000.0 MHz |
| Beam Type                                               | Fixed                    |
| Polarization                                            | RHCP                     |
| Peak Gain                                               | dBi                      |
| Antenna Pointing Error                                  | 0.19 degrees             |
| Antenna Rotational Error                                | 0.34 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| G/T at Max. Gain Point                                  | 20.97 dB/K               |
| Min. Saturation Flux Density                            | -101.9 dBW/m2            |
| Max. Saturation Flux Density                            | -74.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | Fixed GW beam            |

## Receiving Beams 14:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | A1LK                     |
| Receive Beam Frequency   | 29250.0 MHz -30000.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | LHCP                     |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.19 degrees             |
| Antenna Rotational Error | 0.34 degrees             |
| Polarization Switchable  |                          |

|                                                         |               |
|---------------------------------------------------------|---------------|
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees  |
| G/T at Max. Gain Point                                  | 20.97 dB/K    |
| Min. Saturation Flux Density                            | -101.9 dBW/m2 |
| Max. Saturation Flux Density                            | -74.0 dBW/m2  |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | Fixed GW beam |

## Receiving Beams 15:

| Question                                                | Response                 |
|---------------------------------------------------------|--------------------------|
| Beam ID                                                 | A1RU                     |
| Receive Beam Frequency                                  | 27500.0 MHz -29100.0 MHz |
| Beam Type                                               | Fixed                    |
| Polarization                                            | RHCP                     |
| Peak Gain                                               | dBi                      |
| Antenna Pointing Error                                  | 0.19 degrees             |
| Antenna Rotational Error                                | 0.34 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| G/T at Max. Gain Point                                  | 20.97 dB/K               |
| Min. Saturation Flux Density                            | -101.9 dBW/m2            |
| Max. Saturation Flux Density                            | -74.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | Fixed GW beam            |

## Receiving Beams 16:

| Question | Response |
|----------|----------|
|----------|----------|

|                                                               |                                                                                        |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Beam ID                                                       | KUVU                                                                                   |
| Receive Beam Frequency                                        | 14000.0 MHz -14500.0 MHz                                                               |
| Beam Type                                                     | Fixed                                                                                  |
| Polarization                                                  | V                                                                                      |
| Peak Gain                                                     | dBi                                                                                    |
| Antenna Pointing Error                                        | 0.19 degrees                                                                           |
| Antenna Rotational Error                                      | 0.34 degrees                                                                           |
| Polarization Switchable                                       |                                                                                        |
| Polarization Alignment<br>Relative to the Equatorial<br>Plane | 90.0 degrees                                                                           |
| G/T at Max. Gain Point                                        | 15.2 dB/K                                                                              |
| Min. Saturation Flux Density                                  | -105.0 dBW/m2                                                                          |
| Max. Saturation Flux Density                                  | -85.0 dBW/m2                                                                           |
| Co- or Cross Polar Mode                                       | C                                                                                      |
| Service Area Description                                      | This Ku band is consisting of 42 fixed spot beams, only one GXT file will be provided. |

## Receiving Beams 17:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | A1LU                     |
| Receive Beam Frequency   | 27500.0 MHz -29100.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | LHCP                     |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.19 degrees             |
| Antenna Rotational Error | 0.34 degrees             |
| Polarization Switchable  |                          |

|                                                         |               |
|---------------------------------------------------------|---------------|
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees  |
| G/T at Max. Gain Point                                  | 20.97 dB/K    |
| Min. Saturation Flux Density                            | -101.9 dBW/m2 |
| Max. Saturation Flux Density                            | -74.0 dBW/m2  |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | Fixed GW beam |

## Receiving Channels (33)

| Channel ID | Channel Bandwidth (MHz) | Center Frequency s (MHz) | Feeder Link, Service Link or TT&C |
|------------|-------------------------|--------------------------|-----------------------------------|
| Ka10       | 216.0                   | 29625.0                  | Service Link                      |
| Ka09       | 216.0                   | 29375.0                  | Service Link                      |
| Ka16       | 108.0                   | 28310.0                  | Service Link                      |
| Ka17       | 108.0                   | 28685.0                  | Service Link                      |
| Ka06       | 216.0                   | 28500.0                  | Service Link                      |
| Ka07       | 108.0                   | 28690.0                  | Service Link                      |
| Ka08       | 216.0                   | 28875.0                  | Service Link                      |
| CMLD       | 1.0                     | 14000.5                  | TT&C                              |
| KH06       | 216.0                   | 14375.0                  | Service Link                      |
| KH05       | 216.0                   | 14125.0                  | Service Link                      |
| KH04       | 108.0                   | 14435.0                  | Service Link                      |
| KH03       | 108.0                   | 14315.0                  | Service Link                      |
| CHLU       | 1.0                     | 14000.5                  | TT&C                              |
| Ka05       | 216.0                   | 28250.0                  | Service Link                      |
| Ka04       | 108.0                   | 28060.0                  | Service Link                      |
| Ka18       | 81.0                    | 29051.5                  | Service Link                      |
| Ka19       | 108.0                   | 29565.0                  | Service Link                      |
| Ka20       | 108.0                   | 29685.0                  | Service Link                      |
| Ka21       | 108.0                   | 28815.0                  | Service Link                      |
| KH01       | 108.0                   | 14065.0                  | Service Link                      |
| KH02       | 108.0                   | 14185.0                  | Service Link                      |
| Ka15       | 108.0                   | 28190.0                  | Service Link                      |
| Ka14       | 108.0                   | 27810.0                  | Service Link                      |
| Ka13       | 108.0                   | 27690.0                  | Service Link                      |

|             |       |         |                              |
|-------------|-------|---------|------------------------------|
| <b>Ka03</b> | 108.0 | 27940.0 | <a href="#">Service Link</a> |
| <b>Ka02</b> | 216.0 | 27750.0 | <a href="#">Service Link</a> |
| <b>Ka01</b> | 108.0 | 27560.0 | <a href="#">Service Link</a> |
| <b>Ka22</b> | 108.0 | 28935.0 | <a href="#">Service Link</a> |
| <b>Ka24</b> | 108.0 | 29435.0 | <a href="#">Service Link</a> |
| <b>CPLU</b> | 1.0   | 14003.0 | <a href="#">TT&amp;C</a>     |
| <b>Ka11</b> | 216.0 | 29875.0 | <a href="#">Service Link</a> |
| <b>Ka12</b> | 216.0 | 28000.0 | <a href="#">Service Link</a> |
| <b>Ka23</b> | 108.0 | 29315.0 | <a href="#">Service Link</a> |

Transmitting  
Beams 1:

| Question                                                | Response                                                      |
|---------------------------------------------------------|---------------------------------------------------------------|
| Beam ID                                                 | A1RD                                                          |
| Transmit Beam Frequency                                 | 17800.0 MHz -19400.0 MHz                                      |
| Beam Type                                               | Fixed                                                         |
| Polarization                                            | RHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -19.8 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 60.5 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

Max. Power Flux Density

|         | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|---------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|         | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> |
| * BW:   | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| 1.0 MHz | -123.3              | -123.2              | -123.0              | -122.9              | -122.8              | -122.1              |

Transmitting  
Beams 2:

| Question                | Response                 |
|-------------------------|--------------------------|
| Beam ID                 | A3RE                     |
| Transmit Beam Frequency | 19600.0 MHz -20200.0 MHz |

|                                                         |                                                               |
|---------------------------------------------------------|---------------------------------------------------------------|
| Beam Type                                               | Fixed                                                         |
| Polarization                                            | RHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -21.7 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 58.6 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

Max. Power Flux Density

|         | * 0° - 5°<br>(dBW/m <sup>2</sup><br>/BW): | * 5° - 10°<br>(dBW/m <sup>2</sup><br>/BW): | * 10° - 15°<br>(dBW/m <sup>2</sup><br>/BW): | * 15° - 20°<br>(dBW/m <sup>2</sup><br>/BW): | * 20° - 25°<br>(dBW/m <sup>2</sup><br>/BW): | * 25° - 90°<br>(dBW/m <sup>2</sup><br>/BW): |
|---------|-------------------------------------------|--------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 1.0 MHz | -125.0                                    | -124.9                                     | -124.7                                      | -124.6                                      | -124.5                                      | -123.8                                      |

Transmitting Beams 3:

| Question                | Response                 |
|-------------------------|--------------------------|
| Beam ID                 | A3LE                     |
| Transmit Beam Frequency | 19600.0 MHz -20200.0 MHz |
| Beam Type               | Fixed                    |
| Polarization            | LHCP                     |
| Peak Gain               | dBi                      |
| Antenna Pointing Error  | 0.19 degrees             |

|                                                         |                                                               |
|---------------------------------------------------------|---------------------------------------------------------------|
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -21.7 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 58.6 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

### Max. Power Flux Density

|                | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> |
| * BW:          | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| <b>1.0 MHz</b> | -125.0              | -124.9              | -124.7              | -124.6              | -124.5              | -123.8              |

### Transmitting Beams 4:

| Question                                                | Response                 |
|---------------------------------------------------------|--------------------------|
| Beam ID                                                 | A3RD                     |
| Transmit Beam Frequency                                 | 17800.0 MHz -19400.0 MHz |
| Beam Type                                               | Fixed                    |
| Polarization                                            | RHCP                     |
| Peak Gain                                               | dBi                      |
| Antenna Pointing Error                                  | 0.19 degrees             |
| Antenna Rotational Error                                | 0.34 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| Max. Transmit EIRP Density                              | -22.3 dBW/Hz             |

|                          |                                                               |
|--------------------------|---------------------------------------------------------------|
| Max. Transmit EIRP       | 58.0 dBW                                                      |
| Co- or Cross Polar Mode  | C                                                             |
| Service Area Description | IS-40e has 3 Ka band fixed GW beams which cover United States |

### Max. Power Flux Density

|                | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> |
| * BW:          | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| <b>1.0 MHz</b> | -125.6              | -125.5              | -125.3              | -125.2              | -125.1              | -124.4              |

### Transmitting Beams 5:

| Question                                                | Response                                                      |
|---------------------------------------------------------|---------------------------------------------------------------|
| Beam ID                                                 | A3LD                                                          |
| Transmit Beam Frequency                                 | 17800.0 MHz -19400.0 MHz                                      |
| Beam Type                                               | Fixed                                                         |
| Polarization                                            | LHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -22.3 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 58.0 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

Max. Power Flux Density

|         | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|---------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| *       | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> |
| BW:     | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| 1.0 MHz | -125.6              | -125.5              | -125.3              | -125.2              | -125.1              | -124.4              |

Transmitting Beams 6:

| Question                                                | Response                                                      |
|---------------------------------------------------------|---------------------------------------------------------------|
| Beam ID                                                 | A2RE                                                          |
| Transmit Beam Frequency                                 | 19600.0 MHz -20200.0 MHz                                      |
| Beam Type                                               | Fixed                                                         |
| Polarization                                            | RHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -18.9 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 61.4 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

Max. Power Flux Density

|     | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|-----|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| *   | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> |
| BW: | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |

|                    |        |        |        |        |        |        |
|--------------------|--------|--------|--------|--------|--------|--------|
| <b>1.0<br/>MHz</b> | -122.2 | -122.1 | -121.9 | -121.8 | -121.7 | -121.0 |
|--------------------|--------|--------|--------|--------|--------|--------|

**Transmitting  
Beams 7:**

| Question                                                | Response                                                      |
|---------------------------------------------------------|---------------------------------------------------------------|
| Beam ID                                                 | A2LE                                                          |
| Transmit Beam Frequency                                 | 19600.0 MHz -20200.0 MHz                                      |
| Beam Type                                               | Fixed                                                         |
| Polarization                                            | LHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -18.9 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 61.4 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

**Max. Power Flux Density**

|                    | * 0° - 5°<br>(dBW/m <sup>2</sup><br>/BW): | * 5° - 10°<br>(dBW/m <sup>2</sup><br>/BW): | * 10° - 15°<br>(dBW/m <sup>2</sup><br>/BW): | * 15° - 20°<br>(dBW/m <sup>2</sup><br>/BW): | * 20° - 25°<br>(dBW/m <sup>2</sup><br>/BW): | * 25° - 90°<br>(dBW/m <sup>2</sup><br>/BW): |
|--------------------|-------------------------------------------|--------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| <b>1.0<br/>MHz</b> | -122.2                                    | -122.1                                     | -121.9                                      | -121.8                                      | -121.7                                      | -121.0                                      |

**Transmitting  
Beams 8:**

| Question | Response |
|----------|----------|
|----------|----------|

|                                                         |                                                               |
|---------------------------------------------------------|---------------------------------------------------------------|
| Beam ID                                                 | A2RD                                                          |
| Transmit Beam Frequency                                 | 17800.0 MHz -19400.0 MHz                                      |
| Beam Type                                               | Fixed                                                         |
| Polarization                                            | RHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -18.9 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 61.4 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

### Max. Power Flux Density

|                    | * 0° - 5°                    | * 5° - 10°                   | * 10° - 15°                  | * 15° - 20°                  | * 20° - 25°                  | * 25° - 90°                  |
|--------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| *<br>BW:           | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): |
| <b>1.0<br/>MHz</b> | -122.2                       | -122.1                       | -121.9                       | -121.8                       | -121.7                       | -121.0                       |

### Transmitting Beams 9:

| Question                | Response                     |
|-------------------------|------------------------------|
| Beam ID                 | GLRD                         |
| Transmit Beam Frequency | 11700.487 MHz -11700.512 MHz |
| Beam Type               | Fixed                        |
| Polarization            | RHCP                         |

|                                                         |                             |
|---------------------------------------------------------|-----------------------------|
| Peak Gain                                               | dBi                         |
| Antenna Pointing Error                                  | 0.19 degrees                |
| Antenna Rotational Error                                | 0.34 degrees                |
| Polarization Switchable                                 |                             |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                |
| Max. Transmit EIRP Density                              | -30.0 dBW/Hz                |
| Max. Transmit EIRP                                      | 14.0 dBW                    |
| Co- or Cross Polar Mode                                 | C                           |
| Service Area Description                                | ULPC2 fixed at 11700.50 MHz |

### Max. Power Flux Density

Information not provided.

### Transmitting Beams 10:

| Question                                                | Response                     |
|---------------------------------------------------------|------------------------------|
| Beam ID                                                 | KLRD                         |
| Transmit Beam Frequency                                 | 12199.487 MHz -12199.512 MHz |
| Beam Type                                               | Fixed                        |
| Polarization                                            | RHCP                         |
| Peak Gain                                               | dBi                          |
| Antenna Pointing Error                                  | 0.19 degrees                 |
| Antenna Rotational Error                                | 0.34 degrees                 |
| Polarization Switchable                                 |                              |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                 |
| Max. Transmit EIRP Density                              | -30.0 dBW/Hz                 |
| Max. Transmit EIRP                                      | 14.0 dBW                     |

|                          |                         |
|--------------------------|-------------------------|
| Co- or Cross Polar Mode  | C                       |
| Service Area Description | ULPC3 fixed at 12199.50 |

### Max. Power Flux Density

Information not provided.

### Transmitting Beams 11:

| Question                                                | Response                                                      |
|---------------------------------------------------------|---------------------------------------------------------------|
| Beam ID                                                 | A1RE                                                          |
| Transmit Beam Frequency                                 | 19600.0 MHz -20200.0 MHz                                      |
| Beam Type                                               | Fixed                                                         |
| Polarization                                            | RHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -20.0 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 60.3 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

### Max. Power Flux Density

|                | * 0° - 5°<br>(dBW/m <sup>2</sup><br>/BW): | * 5° - 10°<br>(dBW/m <sup>2</sup><br>/BW): | * 10° - 15°<br>(dBW/m <sup>2</sup><br>/BW): | * 15° - 20°<br>(dBW/m <sup>2</sup><br>/BW): | * 20° - 25°<br>(dBW/m <sup>2</sup><br>/BW): | * 25° - 90°<br>(dBW/m <sup>2</sup><br>/BW): |
|----------------|-------------------------------------------|--------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| <b>1.0 MHz</b> | -123.3                                    | -123.2                                     | -123.0                                      | -122.9                                      | -122.8                                      | -122.1                                      |

Transmitting  
Beams 12:

| Question                                                | Response                                                      |
|---------------------------------------------------------|---------------------------------------------------------------|
| Beam ID                                                 | A1LE                                                          |
| Transmit Beam Frequency                                 | 19600.0 MHz -20200.0 MHz                                      |
| Beam Type                                               | Fixed                                                         |
| Polarization                                            | LHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -20.0 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 16.0 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

Max. Power Flux Density

|            | * 0° - 5°                    | * 5° - 10°                   | * 10° - 15°                  | * 15° - 20°                  | * 20° - 25°                  | * 25° - 90°                  |
|------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| *<br>BW:   | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): |
| 1.0<br>MHz | -123.3                       | -123.2                       | -123.0                       | -122.9                       | -122.8                       | -122.1                       |

Transmitting  
Beams 13:

| Question                | Response                 |
|-------------------------|--------------------------|
| Beam ID                 | A1LD                     |
| Transmit Beam Frequency | 17800.0 MHz -19400.0 MHz |
| Beam Type               | Fixed                    |

|                                                         |                                                               |
|---------------------------------------------------------|---------------------------------------------------------------|
| Polarization                                            | LHCP                                                          |
| Peak Gain                                               | dBi                                                           |
| Antenna Pointing Error                                  | 0.19 degrees                                                  |
| Antenna Rotational Error                                | 0.34 degrees                                                  |
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -19.8 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 60.5 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

### Max. Power Flux Density

|                | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> |
|                | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| <b>1.0 MHz</b> | -123.1              | -123.0              | -122.8              | -122.7              | -122.6              | -121.9              |

### Transmitting Beams 14:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | A2LD                     |
| Transmit Beam Frequency  | 17800.0 MHz -19400.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | LHCP                     |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.19 degrees             |
| Antenna Rotational Error | 0.34 degrees             |

|                                                         |                                                               |
|---------------------------------------------------------|---------------------------------------------------------------|
| Polarization Switchable                                 |                                                               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                                  |
| Max. Transmit EIRP Density                              | -18.9 dBW/Hz                                                  |
| Max. Transmit EIRP                                      | 61.4 dBW                                                      |
| Co- or Cross Polar Mode                                 | C                                                             |
| Service Area Description                                | IS-40e has 3 Ka band fixed GW beams which cover United States |

### Max. Power Flux Density

|                | * 0° - 5°<br>(dBW/m <sup>2</sup><br>/BW): | * 5° - 10°<br>(dBW/m <sup>2</sup><br>/BW): | * 10° - 15°<br>(dBW/m <sup>2</sup><br>/BW): | * 15° - 20°<br>(dBW/m <sup>2</sup><br>/BW): | * 20° - 25°<br>(dBW/m <sup>2</sup><br>/BW): | * 25° - 90°<br>(dBW/m <sup>2</sup><br>/BW): |
|----------------|-------------------------------------------|--------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| <b>1.0 MHz</b> | -122.2                                    | -122.1                                     | -121.9                                      | -121.8                                      | -121.7                                      | -121.0                                      |

### Transmitting Beams 15:

| Question                                                | Response                     |
|---------------------------------------------------------|------------------------------|
| Beam ID                                                 | ALHD                         |
| Transmit Beam Frequency                                 | 20199.487 MHz -20199.512 MHz |
| Beam Type                                               | Fixed                        |
| Polarization                                            | H                            |
| Peak Gain                                               | dBi                          |
| Antenna Pointing Error                                  | 0.19 degrees                 |
| Antenna Rotational Error                                | 0.34 degrees                 |
| Polarization Switchable                                 |                              |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees                  |
| Max. Transmit EIRP Density                              | -27.5 dBW/Hz                 |

|                          |                         |
|--------------------------|-------------------------|
| Max. Transmit EIRP       | 16.5 dBW                |
| Co- or Cross Polar Mode  | C                       |
| Service Area Description | ULPC4 Ka at 20199.5 MHz |

### Max. Power Flux Density

|         | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|---------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|         | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> |
| * BW:   | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| 4.0 kHz | -154.7              | -154.6              | -154.5              | -154.4              | -154.3              | -153.5              |

### Transmitting Beams 16:

| Question                                                | Response                     |
|---------------------------------------------------------|------------------------------|
| Beam ID                                                 | CLRD                         |
| Transmit Beam Frequency                                 | 10950.237 MHz -10950.262 MHz |
| Beam Type                                               | Fixed                        |
| Polarization                                            | RHCP                         |
| Peak Gain                                               | dBi                          |
| Antenna Pointing Error                                  | 0.19 degrees                 |
| Antenna Rotational Error                                | 0.34 degrees                 |
| Polarization Switchable                                 |                              |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                 |
| Max. Transmit EIRP Density                              | -30.0 dBW/Hz                 |
| Max. Transmit EIRP                                      | 14.0 dBW                     |
| Co- or Cross Polar Mode                                 | C                            |
| Service Area Description                                | ULPC1 Fixed at 10950.25 MHz  |

Max. Power Flux Density

|         | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|---------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| *       | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> |
| BW:     | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| 4.0 kHz | -157.2              | -157.1              | -157.0              | -156.9              | -156.8              | -156.0              |

Transmitting Beams 17:

| Question                                                | Response                                           |
|---------------------------------------------------------|----------------------------------------------------|
| Beam ID                                                 | TMRD                                               |
| Transmit Beam Frequency                                 | 12170.0 MHz -12200.0 MHz                           |
| Beam Type                                               | Fixed                                              |
| Polarization                                            | RHCP                                               |
| Peak Gain                                               | dBi                                                |
| Antenna Pointing Error                                  | 0.19 degrees                                       |
| Antenna Rotational Error                                | 0.34 degrees                                       |
| Polarization Switchable                                 |                                                    |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                                       |
| Max. Transmit EIRP Density                              | -46.5 dBW/Hz                                       |
| Max. Transmit EIRP                                      | 10.5 dBW                                           |
| Co- or Cross Polar Mode                                 | C                                                  |
| Service Area Description                                | TM centered 12198.00 MHz with 100kHz tunable steps |

Max. Power Flux Density

|     | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|-----|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| *   | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> | (dbW/m <sup>2</sup> |
| BW: | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |

|                    |        |        |        |        |        |        |
|--------------------|--------|--------|--------|--------|--------|--------|
| <b>4.0<br/>kHz</b> | -173.7 | -173.6 | -173.5 | -173.4 | -173.3 | -172.5 |
|--------------------|--------|--------|--------|--------|--------|--------|

**Transmitting  
Beams 18:**

| Question                                                | Response                             |
|---------------------------------------------------------|--------------------------------------|
| Beam ID                                                 | THRD                                 |
| Transmit Beam Frequency                                 | 12197.75 MHz -12198.25 MHz           |
| Beam Type                                               | Fixed                                |
| Polarization                                            | RHCP                                 |
| Peak Gain                                               | dBi                                  |
| Antenna Pointing Error                                  | 0.19 degrees                         |
| Antenna Rotational Error                                | 0.34 degrees                         |
| Polarization Switchable                                 |                                      |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                         |
| Max. Transmit EIRP Density                              | -46.5 dBW/Hz                         |
| Max. Transmit EIRP                                      | 10.5 dBW                             |
| Co- or Cross Polar Mode                                 | C                                    |
| Service Area Description                                | TM fixed RHCP Default CF<br>12198.00 |

**Max. Power Flux Density**

|                    | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                    | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> |
| *<br>BW:           | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| <b>4.0<br/>kHz</b> | -173.7              | -173.6              | -173.5              | -173.4              | -173.3              | -172.5              |

**Transmitting  
Beams 19:**

| Question | Response |
|----------|----------|
|----------|----------|

|                                                         |                                      |
|---------------------------------------------------------|--------------------------------------|
| Beam ID                                                 | TPRD                                 |
| Transmit Beam Frequency                                 | 12198.25 MHz -12198.75 MHz           |
| Beam Type                                               | Fixed                                |
| Polarization                                            | RHCP                                 |
| Peak Gain                                               | dBi                                  |
| Antenna Pointing Error                                  | 0.19 degrees                         |
| Antenna Rotational Error                                | 0.34 degrees                         |
| Polarization Switchable                                 |                                      |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                         |
| Max. Transmit EIRP Density                              | -46.5 dBW/Hz                         |
| Max. Transmit EIRP                                      | 10.5 dBW                             |
| Co- or Cross Polar Mode                                 | C                                    |
| Service Area Description                                | TM Fixed RHCP default CF<br>12198.50 |

**Max. Power Flux Density**

|         | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|---------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|         | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> |
| * BW:   | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| 4.0 kHz | -173.7              | -173.6              | -173.5              | -173.4              | -173.3              | -172.5              |

**Transmitting Beams 20:**

| Question                | Response                   |
|-------------------------|----------------------------|
| Beam ID                 | TGRD                       |
| Transmit Beam Frequency | 12198.75 MHz -12199.25 MHz |
| Beam Type               | Fixed                      |
| Polarization            | RHCP                       |

|                                                         |                                      |
|---------------------------------------------------------|--------------------------------------|
| Peak Gain                                               | dBi                                  |
| Antenna Pointing Error                                  | 0.19 degrees                         |
| Antenna Rotational Error                                | 0.34 degrees                         |
| Polarization Switchable                                 |                                      |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees                         |
| Max. Transmit EIRP Density                              | -46.5 dBW/Hz                         |
| Max. Transmit EIRP                                      | 10.5 dBW                             |
| Co- or Cross Polar Mode                                 | C                                    |
| Service Area Description                                | Fixed TM RHCP default CF<br>12199.00 |

### Max. Power Flux Density

|                    | * 0° - 5°                    | * 5° - 10°                   | * 10° - 15°                  | * 15° - 20°                  | * 20° - 25°                  | * 25° - 90°                  |
|--------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| *<br>BW:           | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): | (dBW/m <sup>2</sup><br>/BW): |
| <b>4.0<br/>kHz</b> | -173.7                       | -173.6                       | -173.5                       | -173.4                       | -173.3                       | -172.5                       |

### Transmitting Beams 21:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | KUDV                     |
| Transmit Beam Frequency  | 10825.0 MHz -12000.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | V                        |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.19 degrees             |
| Antenna Rotational Error | 0.34 degrees             |
| Polarization Switchable  |                          |

|                                                               |                                                                                                                     |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Polarization Alignment<br>Relative to the<br>Equatorial Plane | 90.0 degrees                                                                                                        |
| Max. Transmit EIRP<br>Density                                 | -19.5 dBW/Hz                                                                                                        |
| Max. Transmit EIRP                                            | 60.8 dBW                                                                                                            |
| Co- or Cross Polar<br>Mode                                    | C                                                                                                                   |
| Service Area Description                                      | IS-40e Ku band spectrum consists of 42 spots that covers United States including Alaska, Hawaii and Central America |

### Max. Power Flux Density

|            | * 0° - 5°           | * 5° - 10°          | * 10° - 15°         | * 15° - 20°         | * 20° - 25°         | * 25° - 90°         |
|------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|            | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> | (dBW/m <sup>2</sup> |
| *<br>BW:   | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| 4.0<br>kHz | -146.8              | -146.6              | -146.0              | -146.4              | -146.3              | -145.5              |

### Transmitting Beams 22:

| Question                                                      | Response                 |
|---------------------------------------------------------------|--------------------------|
| Beam ID                                                       | KUHD                     |
| Transmit Beam<br>Frequency                                    | 10825.0 MHz -12200.0 MHz |
| Beam Type                                                     | Fixed                    |
| Polarization                                                  | H                        |
| Peak Gain                                                     | dBi                      |
| Antenna Pointing Error                                        | 0.19 degrees             |
| Antenna Rotational Error                                      | 0.34 degrees             |
| Polarization Switchable                                       |                          |
| Polarization Alignment<br>Relative to the<br>Equatorial Plane | 0.0 degrees              |

|                            |                                                                                                                     |
|----------------------------|---------------------------------------------------------------------------------------------------------------------|
| Max. Transmit EIRP Density | -19.5 dBW/Hz                                                                                                        |
| Max. Transmit EIRP         | 60.8 dBW                                                                                                            |
| Co- or Cross Polar Mode    | C                                                                                                                   |
| Service Area Description   | IS-40e Ku band spectrum consists of 42 spots that covers United States including Alaska, Hawaii and Central America |

### Max. Power Flux Density

|                             | * 0° - 5°                 | * 5° - 10°                | * 10° - 15°               | * 15° - 20°               | * 20° - 25°               | * 25° - 90°               |
|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| * (dBW/m <sup>2</sup> /BW): | (dBW/m <sup>2</sup> /BW): | (dBW/m <sup>2</sup> /BW): | (dBW/m <sup>2</sup> /BW): | (dBW/m <sup>2</sup> /BW): | (dBW/m <sup>2</sup> /BW): | (dBW/m <sup>2</sup> /BW): |
| 4.0 kHz                     | -146.8                    | -146.6                    | -146.5                    | -146.4                    | -146.3                    | -145.5                    |

### Transmitting Beams 23:

| Question                                                | Response                   |
|---------------------------------------------------------|----------------------------|
| Beam ID                                                 | TMRR                       |
| Transmit Beam Frequency                                 | 12197.25 MHz -12197.75 MHz |
| Beam Type                                               | Fixed                      |
| Polarization                                            | RHCP                       |
| Peak Gain                                               | dBi                        |
| Antenna Pointing Error                                  | 0.19 degrees               |
| Antenna Rotational Error                                | 0.34 degrees               |
| Polarization Switchable                                 |                            |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees               |
| Max. Transmit EIRP Density                              | -46.5 dBW/Hz               |
| Max. Transmit EIRP                                      | 10.5 dBW                   |

|                          |                     |
|--------------------------|---------------------|
| Co- or Cross Polar Mode  | C                   |
| Service Area Description | Fixed TM CF 12197.5 |

**Max. Power Flux Density**

Information not provided.

## Transmitting Channels (45)

| Channel ID | Channel Bandwidth (MHz) | Center Frequency s (MHz) | Feeder Link, Service Link or TT&C |
|------------|-------------------------|--------------------------|-----------------------------------|
| AD11       | 108.0                   | 17985.0                  | Service Link                      |
| AD10       | 108.0                   | 17865.0                  | Service Link                      |
| AD06       | 216.0                   | 18675.0                  | Service Link                      |
| KV17       | 81.0                    | 11251.5                  | Service Link                      |
| AD12       | 108.0                   | 18115.0                  | Service Link                      |
| KV01       | 108.0                   | 10885.0                  | Service Link                      |
| KLRD       | 0.025                   | 12199.5                  | TT&C                              |
| KV04       | 108.0                   | 11265.0                  | Service Link                      |
| KV03       | 108.0                   | 11135.0                  | Service Link                      |
| KV05       | 108.0                   | 11385.0                  | Service Link                      |
| CLRD       | 0.025                   | 10950.25                 | TT&C                              |
| ALHD       | 0.025                   | 20199.5                  | TT&C                              |
| AD19       | 108.0                   | 19885.0                  | Service Link                      |
| AD18       | 108.0                   | 19785.0                  | Service Link                      |
| AD17       | 216.0                   | 20075.0                  | Service Link                      |
| AD16       | 216.0                   | 19825.0                  | Service Link                      |
| AD15       | 216.0                   | 18925.0                  | Service Link                      |
| KV02       | 108.0                   | 11015.0                  | Service Link                      |
| TPRD       | 0.5                     | 12198.5                  | TT&C                              |
| GLRD       | 0.025                   | 11700.5                  | TT&C                              |
| AD14       | 108.0                   | 18985.0                  | Service Link                      |
| AD13       | 108.0                   | 18235.0                  | Service Link                      |
| AD08       | 108.0                   | 18865.0                  | Service Link                      |
| KV08       | 108.0                   | 11765.0                  | Service Link                      |

|             |       |         |              |
|-------------|-------|---------|--------------|
| <b>KV09</b> | 108.0 | 11885.0 | Service Link |
| <b>KV10</b> | 108.0 | 12015.0 | Service Link |
| <b>KV11</b> | 108.0 | 12135.0 | Service Link |
| <b>TMRR</b> | 0.5   | 12197.5 | TT&C         |
| <b>KV12</b> | 216.0 | 11075.0 | Service Link |
| <b>KV13</b> | 216.0 | 11325.0 | Service Link |
| <b>KV14</b> | 216.0 | 11575.0 | Service Link |
| <b>THRD</b> | 0.5   | 12198.0 | TT&C         |
| <b>TMRD</b> | 0.5   | 12198.0 | TT&C         |
| <b>AD07</b> | 216.0 | 20075.0 | Service Link |
| <b>AD09</b> | 108.0 | 19115.0 | Service Link |
| <b>AD01</b> | 216.0 | 17925.0 | Service Link |
| <b>AD02</b> | 216.0 | 18175.0 | Service Link |
| <b>AD03</b> | 216.0 | 18425.0 | Service Link |
| <b>AD04</b> | 108.0 | 18615.0 | Service Link |
| <b>AD05</b> | 108.0 | 18735.0 | Service Link |
| <b>KV15</b> | 216.0 | 11825.0 | Service Link |
| <b>KV16</b> | 216.0 | 12075.0 | Service Link |
| <b>TGRD</b> | 0.5   | 12199.0 | TT&C         |
| <b>KV07</b> | 108.0 | 11635.0 | Service Link |
| <b>KV06</b> | 108.0 | 11515.0 | Service Link |

## Certification Questions

| Question                                                                                                                                                                                  | Response |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Are the applicable service area coverage requirements of 25.143(b)(2) (ii) and (iii), or 25.144(a)(3)(i), or 25.145 (c)(1) and (2), or 25.146(i)(1) and (2), or 25.148(c), or 25.225 met? | N/A      |
| Are the applicable frequency tolerances of 25.202(e) and out-of-band emission limits of 25.202(f)(1),(2), and (3) met?                                                                    | Yes      |
| Are the cessation of emissions requirements of 25.207 met?                                                                                                                                | Yes      |
| Are the applicable power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?                                                     | Yes      |
| For NGSO applications, are the applicable equivalent-power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?                   | N/A      |
| Are the applicable full-frequency-reuse requirements of 25.210 met?                                                                                                                       | Yes      |
| If the application is for a 17/24 GHz BSS space station, will it be operated at an offset location with full power and interference protection in accordance with 25.262(b)?              |          |

Attachments

| File Name                 | Beam | Field                         | Attachment Type   | Description |
|---------------------------|------|-------------------------------|-------------------|-------------|
| <u>IS-40E APRIL 7.mdb</u> |      | GSO Antenna Gain Contour Data | GIMS file (*.mdb) |             |