



312 File Number: **SATAMD2017061300089**

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## Filing Description

| Question    | Response                         |
|-------------|----------------------------------|
| Description | Galaxy 3C License Term Extension |

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**Satellite  
Information**

| Question   | Response  |
|--|-----------|
| Select Orbit Type  | GSO       |
| Space Station or Satellite Network Name                      | Galaxy 3C |
| Estimated Lifetime of Satellite(s) From Date of Launch       | 24 Years  |
| Will the space station(s) operate on a Common Carrier basis? | No        |

**Operating  
Frequency  
Bands (4)**

| <b>Nature of service</b>       | <b>Description</b> | <b>Frequency Band(s)</b> | <b>Mode Type</b> |
|--------------------------------|--------------------|--------------------------|------------------|
| <b>Fixed-Satellite Service</b> |                    | 5925.0 MHz -6675.0 MHz   | Receive          |
| <b>Fixed-Satellite Service</b> |                    | 3700.0 MHz -4200.0 MHz   | Transmit         |
| <b>Fixed-Satellite Service</b> |                    | 11450.0 MHz -12200.0 MHz | Transmit         |
| <b>Fixed-Satellite Service</b> |                    | 13750.0 MHz -14500.0 MHz | Receive          |

## Orbital Information For Geostationary Satellites

| Section  | Question  | Response     |
|--|---|--------------|
| <b>Orbital Longitude Information</b>                                   | Orbital Longitude   | 95.0 degrees |
|  | Hemisphere of Orbital Longitude                                 | W            |
| <b>Longitudinal Tolerance or East /West Station-Keeping</b>            | Toward West   | 0.05 degrees |
|  | Toward East   | 0.05 degrees |
| <b>Inclination Excursion or North /South Station-Keeping Tolerance</b> | Inclination Excursion or North /South Station-Keeping Tolerance | 0.1 degrees  |
| <b>Antenna Axis Attitude Accuracy</b>                                  | Roll  | 0.1 degrees  |
|  | Pitch   | 0.1 degrees  |
|  | Yaw   | 0.1 degrees  |

## Receiving Beams 1:

| Question  | Response               |
|---|------------------------|
| Beam ID   | CNHU                   |
| Receive Beam Frequency                                  | 5925.0 MHz -6675.0 MHz |
| Beam Type   | Fixed                  |
| Polarization  | H                      |
| Peak Gain   | dBi                    |
| Antenna Pointing Error                                  | 0.14 degrees           |
| Antenna Rotational Error                                | 0.22 degrees           |
| Polarization Switchable                                 | No                     |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees            |
| G/T at Max. Gain Point                                  | 2.7 dB/K               |
| Min. Saturation Flux Density                            | -97.5 dBW/m2           |
| Max. Saturation Flux Density                            | -82.0 dBW/m2           |
| Co- or Cross Polar Mode                                 | C                      |
| Service Area Description                                | North America          |

## Receiving Beams 2:

| Question                 | Response               |
|--------------------------|------------------------|
| Beam ID                  | CNVU                   |
| Receive Beam Frequency   | 5925.0 MHz -6675.0 MHz |
| Beam Type                | Fixed                  |
| Polarization             | V                      |
| Peak Gain                | dBi                    |
| Antenna Pointing Error   | 0.14 degrees           |
| Antenna Rotational Error | 0.22 degrees           |

|   |               |
|---|---------------|
| Polarization Switchable                                 | No            |
| Polarization Alignment Relative to the Equatorial Plane | 90.0 degrees  |
| G/T at Max. Gain Point                                  | 3.3 dB/K      |
| Min. Saturation Flux Density                            | -97.5 dBW/m2  |
| Max. Saturation Flux Density                            | -82.0 dBW/m2  |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | NORTH AMERICA |

### Receiving Beams 3:

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | KNHU                     |
| Receive Beam Frequency                                  | 14263.0 MHz -14500.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | H                        |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees              |
| G/T at Max. Gain Point                                  | 5.3 dB/K                 |
| Min. Saturation Flux Density                            | -101.0 dBW/m2            |
| Max. Saturation Flux Density                            | -71.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | NORTH AMERICA            |

### Receiving

## Beams 4:

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | KNVU                     |
| Receive Beam Frequency                                  | 13750.0 MHz -14500.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | V                        |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 90.0 degrees             |
| G/T at Max. Gain Point                                  | 4.5 dB/K                 |
| Min. Saturation Flux Density                            | -103.0 dBW/m2            |
| Max. Saturation Flux Density                            | -73.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | NORTH AMERICA            |

## Receiving Beams 5:

| Question                 | Response                 |
|--------------------------|--------------------------|
| Beam ID                  | KPHU                     |
| Receive Beam Frequency   | 14000.0 MHz -14263.0 MHz |
| Beam Type                | Fixed                    |
| Polarization             | H                        |
| Peak Gain                | dBi                      |
| Antenna Pointing Error   | 0.14 degrees             |
| Antenna Rotational Error | 0.22 degrees             |
| Polarization Switchable  |                          |

|   |                               |
|---|-------------------------------|
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees                   |
| G/T at Max. Gain Point                                  | 2.4 dB/K                      |
| Min. Saturation Flux Density                            | -101.0 dBW/m2                 |
| Max. Saturation Flux Density                            | -71.0 dBW/m2                  |
| Co- or Cross Polar Mode                                 | C                             |
| Service Area Description                                | NORTH AMERICA AND PUERTO RICO |

**Receiving Beams 6:**

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | KVHU                     |
| Receive Beam Frequency                                  | 13750.0 MHz -14000.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | H                        |
| Peak Gain   | dB <i>i</i>              |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees              |
| G/T at Max. Gain Point                                  | 3.3 dB/K                 |
| Min. Saturation Flux Density                            | -103.0 dBW/m2            |
| Max. Saturation Flux Density                            | -73.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | NORTHERN SOUTH AMERICA   |

**Receiving Beams 7:**

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



|   |                          |
|---|--------------------------|
| Beam ID   | KVHV                     |
| Receive Beam Frequency                                  | 14248.0 MHz -14500.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | H                        |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees              |
| G/T at Max. Gain Point                                  | 3.3 dB/K                 |
| Min. Saturation Flux Density                            | -103.0 dBW/m2            |
| Max. Saturation Flux Density                            | -73.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | NORTHERN SOUTH AMERICA   |

**Receiving  
Beams 8:**

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | SSVU                     |
| Receive Beam Frequency                                  | 14248.0 MHz -14500.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | V                        |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 90.0 degrees             |

|                              |                        |
|------------------------------|------------------------|
| G/T at Max. Gain Point       | 9.8 dB/K               |
| Min. Saturation Flux Density | -103.0 dBW/m2          |
| Max. Saturation Flux Density | -73.0 dBW/m2           |
| Co- or Cross Polar Mode      | C                      |
| Service Area Description     | SOUTHERN SOUTH AMERICA |

**Receiving Beams 9:**

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | TCNU                     |
| Receive Beam Frequency                                  | 14488.0 MHz -14498.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | V                        |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 90.0 degrees             |
| G/T at Max. Gain Point                                  | -4.7 dB/K                |
| Min. Saturation Flux Density                            | -106.0 dBW/m2            |
| Max. Saturation Flux Density                            | -76.0 dBW/m2             |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | GLOBAL                   |

**Receiving Beams 10:**

| Question | Response |
|----------|----------|
| Beam ID  | CMDO     |

|   |                                 |
|---|---------------------------------|
| Receive Beam Frequency                                  | 14000.5 MHz -14001.5 MHz        |
| Beam Type   | Fixed                           |
| Polarization  | V                               |
| Peak Gain   | dBi                             |
| Antenna Pointing Error                                  | 0.14 degrees                    |
| Antenna Rotational Error                                | 0.22 degrees                    |
| Polarization Switchable                                 |                                 |
| Polarization Alignment Relative to the Equatorial Plane | 90.0 degrees                    |
| G/T at Max. Gain Point                                  | -99.0 dB/K                      |
| Min. Saturation Flux Density                            | -86.3 dBW/m2                    |
| Max. Saturation Flux Density                            | -86.2 dBW/m2                    |
| Co- or Cross Polar Mode                                 | C                               |
| Service Area Description                                | GLOBAL COVERAGE<br>COMMAND BEAM |

**Receiving  
Beams 11:**

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | CMDP                     |
| Receive Beam Frequency                                  | 13752.5 MHz -13753.5 MHz |
| Beam Type   | Fixed                    |
| Polarization  | LHCP                     |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 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 | -91.2 dBW/m2        |
| Max. Saturation Flux Density | -91.1 dBW/m2        |
| Co- or Cross Polar Mode      | C                   |
| Service Area Description     | GLOBAL COMMAND BEAM |

**Receiving  
Beams 12:**

| Question  | Response                        |
|---|---------------------------------|
| Beam ID   | CMDC                            |
| Receive Beam Frequency                                  | 14000.5 MHz -14001.5 MHz        |
| Beam Type   | Fixed                           |
| Polarization  | H                               |
| Peak Gain   | dBi                             |
| Antenna Pointing Error                                  | 0.14 degrees                    |
| Antenna Rotational Error                                | 0.22 degrees                    |
| Polarization Switchable                                 |                                 |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees                     |
| G/T at Max. Gain Point                                  | -99.0 dB/K                      |
| Min. Saturation Flux Density                            | -113.1 dBW/m2                   |
| Max. Saturation Flux Density                            | -113.0 dBW/m2                   |
| Co- or Cross Polar Mode                                 | C                               |
| Service Area Description                                | COMMAND CARRIER USING KPHU BEAM |

## Receiving Channels (91)

| Channel ID | Channel Bandwidth (MHz) | Center Frequency s (MHz) | Feeder Link, Service Link or TT&C |
|------------|-------------------------|--------------------------|-----------------------------------|
| KU28       | 54.0                    | 14230.0                  | Service Link                      |
| KU27       | 54.0                    | 14170.0                  | Service Link                      |
| KU26       | 54.0                    | 14110.0                  | Service Link                      |
| KU25       | 54.0                    | 14050.0                  | Service Link                      |
| KU24       | 27.0                    | 14470.0                  | Service Link                      |
| KU23       | 27.0                    | 14440.0                  | Service Link                      |
| KU22       | 27.0                    | 14410.0                  | Service Link                      |
| KU21       | 27.0                    | 14380.0                  | Service Link                      |
| KU20       | 27.0                    | 14350.0                  | Service Link                      |
| KU19       | 27.0                    | 14320.0                  | Service Link                      |
| KU18       | 27.0                    | 14290.0                  | Service Link                      |
| KU17       | 27.0                    | 14260.0                  | Service Link                      |
| KU16       | 27.0                    | 14230.0                  | Service Link                      |
| KU15       | 27.0                    | 14200.0                  | Service Link                      |
| KU14       | 27.0                    | 14170.0                  | Service Link                      |
| KU13       | 27.0                    | 14140.0                  | Service Link                      |
| KU12       | 27.0                    | 14110.0                  | Service Link                      |
| KU11       | 27.0                    | 14080.0                  | Service Link                      |
| KU10       | 27.0                    | 14050.0                  | Service Link                      |
| KU09       | 27.0                    | 14020.0                  | Service Link                      |
| KU08       | 24.0                    | 13974.5                  | Service Link                      |
| KU07       | 24.0                    | 13945.34                 | Service Link                      |
| KU06       | 24.0                    | 13916.18                 | Service Link                      |
| KU05       | 24.0                    | 13887.02                 | Service Link                      |

|             |      |          |              |
|-------------|------|----------|--------------|
| <b>KU04</b> | 24.0 | 13857.86 | Service Link |
| <b>KU03</b> | 24.0 | 13828.7  | Service Link |
| <b>KU02</b> | 24.0 | 13799.54 | Service Link |
| <b>KU01</b> | 24.0 | 13770.38 | Service Link |
| <b>CU44</b> | 24.0 | 6654.5   | Service Link |
| <b>CU43</b> | 24.0 | 6625.34  | Service Link |
| <b>CU42</b> | 24.0 | 6596.18  | Service Link |
| <b>CU41</b> | 24.0 | 6567.02  | Service Link |
| <b>CU40</b> | 24.0 | 6537.86  | Service Link |
| <b>CU39</b> | 24.0 | 6508.7   | Service Link |
| <b>CU38</b> | 24.0 | 6479.54  | Service Link |
| <b>CU37</b> | 24.0 | 6450.38  | Service Link |
| <b>CU36</b> | 24.0 | 6650.0   | Service Link |
| <b>CU35</b> | 24.0 | 6620.0   | Service Link |
| <b>CU34</b> | 24.0 | 6590.0   | Service Link |
| <b>CU33</b> | 24.0 | 6560.0   | Service Link |
| <b>CU32</b> | 24.0 | 6530.0   | Service Link |
| <b>CU31</b> | 24.0 | 6500.0   | Service Link |
| <b>CU30</b> | 24.0 | 6470.0   | Service Link |
| <b>CU29</b> | 24.0 | 6440.0   | Service Link |
| <b>CU28</b> | 24.0 | 6635.0   | Service Link |
| <b>CU27</b> | 24.0 | 6575.0   | Service Link |
| <b>CU26</b> | 24.0 | 6515.0   | Service Link |
| <b>CU25</b> | 24.0 | 6455.0   | Service Link |
| <b>CU21</b> | 36.0 | 6285.0   | Service Link |
| <b>CU20</b> | 36.0 | 6245.0   | Service Link |

|             |      |         |                              |
|-------------|------|---------|------------------------------|
| <b>CU19</b> | 36.0 | 6205.0  | <a href="#">Service Link</a> |
| <b>CU18</b> | 36.0 | 6165.0  | <a href="#">Service Link</a> |
| <b>CU17</b> | 36.0 | 6125.0  | <a href="#">Service Link</a> |
| <b>CU16</b> | 36.0 | 6085.0  | <a href="#">Service Link</a> |
| <b>CU15</b> | 36.0 | 6045.0  | <a href="#">Service Link</a> |
| <b>CU14</b> | 36.0 | 6005.0  | <a href="#">Service Link</a> |
| <b>CU13</b> | 36.0 | 5965.0  | <a href="#">Service Link</a> |
| <b>CU12</b> | 36.0 | 6385.0  | <a href="#">Service Link</a> |
| <b>CU11</b> | 36.0 | 6345.0  | <a href="#">Service Link</a> |
| <b>CU10</b> | 36.0 | 6305.0  | <a href="#">Service Link</a> |
| <b>CU09</b> | 36.0 | 6265.0  | <a href="#">Service Link</a> |
| <b>CU08</b> | 36.0 | 6225.0  | <a href="#">Service Link</a> |
| <b>CU07</b> | 36.0 | 6185.0  | <a href="#">Service Link</a> |
| <b>CU06</b> | 36.0 | 6145.0  | <a href="#">Service Link</a> |
| <b>CU05</b> | 36.0 | 6105.0  | <a href="#">Service Link</a> |
| <b>CU04</b> | 36.0 | 6065.0  | <a href="#">Service Link</a> |
| <b>CU03</b> | 36.0 | 6025.0  | <a href="#">Service Link</a> |
| <b>CU02</b> | 36.0 | 5985.0  | <a href="#">Service Link</a> |
| <b>KU45</b> | 10.0 | 14493.0 | <a href="#">Service Link</a> |
| <b>KU44</b> | 24.0 | 14455.0 | <a href="#">Service Link</a> |
| <b>KU43</b> | 24.0 | 14395.0 | <a href="#">Service Link</a> |
| <b>KU42</b> | 24.0 | 14335.0 | <a href="#">Service Link</a> |
| <b>KU41</b> | 24.0 | 14275.0 | <a href="#">Service Link</a> |
| <b>KU40</b> | 24.0 | 14470.0 | <a href="#">Service Link</a> |
| <b>KU39</b> | 24.0 | 14440.0 | <a href="#">Service Link</a> |
| <b>KU38</b> | 24.0 | 14410.0 | <a href="#">Service Link</a> |

|             |      |         |              |
|-------------|------|---------|--------------|
| <b>CU01</b> | 36.0 | 5945.0  | Service Link |
| <b>CMD2</b> | 1.0  | 13753.0 | TT&C         |
| <b>CMD1</b> | 1.0  | 14001.0 | TT&C         |
| <b>KU37</b> | 24.0 | 14380.0 | Service Link |
| <b>KU36</b> | 24.0 | 14350.0 | Service Link |
| <b>KU35</b> | 24.0 | 14320.0 | Service Link |
| <b>KU34</b> | 24.0 | 14290.0 | Service Link |
| <b>KU33</b> | 24.0 | 14260.0 | Service Link |
| <b>KU32</b> | 54.0 | 14470.0 | Service Link |
| <b>KU31</b> | 54.0 | 14410.0 | Service Link |
| <b>KU30</b> | 54.0 | 14350.0 | Service Link |
| <b>KU29</b> | 54.0 | 14290.0 | Service Link |
| <b>CU24</b> | 36.0 | 6405.0  | Service Link |
| <b>CU23</b> | 36.0 | 6365.0  | Service Link |
| <b>CU22</b> | 36.0 | 6325.0  | Service Link |



## Transmitting Beams 1:

| Question  | Response               |
|---|------------------------|
| Beam ID   | CNHD                   |
| Transmit Beam Frequency                                 | 3700.0 MHz -4200.0 MHz |
| Beam Type   | Fixed                  |
| Polarization  | H                      |
| Peak Gain   | dBi                    |
| Antenna Pointing Error                                  | 0.14 degrees           |
| Antenna Rotational Error                                | 0.22 degrees           |
| Polarization Switchable                                 | No                     |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees            |
| Max. Transmit EIRP Density                              | -43.5 dBW/Hz           |
| Max. Transmit EIRP                                      | 41.6 dBW               |
| Co- or Cross Polar Mode                                 | C                      |
| Service Area Description                                | NORTH 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> |
| BW:            | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| <b>4.0 kHz</b> | -152.3              | -152.2              | -152.0              | -150.9              | -150.8              | -150.1              |

## Transmitting Beams 2:

| Question                | Response               |
|-------------------------|------------------------|
| Beam ID                 | CNVD                   |
| Transmit Beam Frequency | 3700.0 MHz -4200.0 MHz |

|   |               |
|---|---------------|
| Beam Type   | Fixed         |
| Polarization  | V             |
| Peak Gain   | dBi           |
| Antenna Pointing Error                                  | 0.19 degrees  |
| Antenna Rotational Error                                | 0.24 degrees  |
| Polarization Switchable                                 | No            |
| Polarization Alignment Relative to the Equatorial Plane | 90.0 degrees  |
| Max. Transmit EIRP Density                              | -43.1 dBW/Hz  |
| Max. Transmit EIRP                                      | 42.0 dBW      |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | NORTH 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> |
| BW:            | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| <b>4.0 kHz</b> | -152.3              | -152.2              | -152.0              | -150.9              | -150.8              | -150.1              |

### Transmitting Beams 3:

| Question                | Response                 |
|-------------------------|--------------------------|
| Beam ID                 | KNHD                     |
| Transmit Beam Frequency | 11700.0 MHz -12200.0 MHz |
| Beam Type               | Fixed                    |
| Polarization            | H                        |
| Peak Gain               | dBi                      |
| Antenna Pointing Error  | 0.14 degrees             |

|   |               |
|---|---------------|
| Antenna Rotational Error                                | 0.22 degrees  |
| Polarization Switchable                                 |               |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees   |
| Max. Transmit EIRP Density                              | -33.1 dBW/Hz  |
| Max. Transmit EIRP                                      | 50.8 dBW      |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | NORTH AMERICA |

### Max. Power Flux Density

Information not provided.

### Transmitting Beams 4:

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | KNVD                     |
| Transmit Beam Frequency                                 | 11700.0 MHz -12200.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | V                        |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 90.0 degrees             |
| Max. Transmit EIRP Density                              | -33.1 dBW/Hz             |
| Max. Transmit EIRP                                      | 50.8 dBW                 |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | NORTH AMERICA            |

### Max. Power Flux Density

Information not provided.

#### Transmitting Beams 5:

| Question  | Response                      |
|---|-------------------------------|
| Beam ID   | KPVD                          |
| Transmit Beam Frequency                                 | 11700.0 MHz -11957.0 MHz      |
| Beam Type   | Fixed                         |
| Polarization  | V                             |
| Peak Gain   | dBi                           |
| Antenna Pointing Error                                  | 0.14 degrees                  |
| Antenna Rotational Error                                | 0.22 degrees                  |
| Polarization Switchable                                 |                               |
| Polarization Alignment Relative to the Equatorial Plane | 90.0 degrees                  |
| Max. Transmit EIRP Density                              | -36.4 dBW/Hz                  |
| Max. Transmit EIRP                                      | 50.5 dBW                      |
| Co- or Cross Polar Mode                                 | C                             |
| Service Area Description                                | NORTH AMERICA and PUERTO RICO |

### Max. Power Flux Density

Information not provided.

#### Transmitting Beams 6:

| Question                | Response                 |
|-------------------------|--------------------------|
| Beam ID                 | KSRD                     |
| Transmit Beam Frequency | 11948.0 MHz -12200.0 MHz |
| Beam Type               | Fixed                    |
| Polarization            | RHCP                     |
| Peak Gain               | dBi                      |

|   |               |
|---|---------------|
| Antenna Pointing Error                                  | 0.14 degrees  |
| Antenna Rotational Error                                | 0.22 degrees  |
| Polarization Switchable                                 |               |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees  |
| Max. Transmit EIRP Density                              | -30.7 dBW/Hz  |
| Max. Transmit EIRP                                      | 52.6 dBW      |
| Co- or Cross Polar Mode                                 | C             |
| Service Area Description                                | SOUTH AMERICA |

### Max. Power Flux Density

Information not provided.

### Transmitting Beams 7:

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | KSLD                     |
| Transmit Beam Frequency                                 | 11948.0 MHz -12200.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | LHCP                     |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| Max. Transmit EIRP Density                              | -30.4 dBW/Hz             |
| Max. Transmit EIRP                                      | 52.9 dBW                 |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | SOUTH AMERICA            |

## Max. Power Flux Density

Information not provided.

### Transmitting Beams 8:

| Question  | Response                 |
|---|--------------------------|
| Beam ID   | NSLD                     |
| Transmit Beam Frequency                                 | 11450.0 MHz -11700.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | LHCP                     |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| Max. Transmit EIRP Density                              | -31.8 dBW/Hz             |
| Max. Transmit EIRP                                      | 51.5 dBW                 |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | NORTH AND SOUTH 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> |
| BW:     | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               | /BW):               |
| 4.0 kHz | -152.3              | -152.2              | -152.0              | -150.9              | -150.8              | -150.1              |

### Transmitting Beams 9:

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

|   |                          |
|---|--------------------------|
| Beam ID   | NSRD                     |
| Transmit Beam Frequency                                 | 11450.0 MHz -11700.0 MHz |
| Beam Type   | Fixed                    |
| Polarization  | RHCP                     |
| Peak Gain   | dBi                      |
| Antenna Pointing Error                                  | 0.14 degrees             |
| Antenna Rotational Error                                | 0.22 degrees             |
| Polarization Switchable                                 |                          |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees             |
| Max. Transmit EIRP Density                              | -31.6 dBW/Hz             |
| Max. Transmit EIRP                                      | 51.7 dBW                 |
| Co- or Cross Polar Mode                                 | C                        |
| Service Area Description                                | NORTH AND SOUTH 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> ) |
| * BW:          | /BW):                 | /BW):                 | /BW):                 | /BW):                 | /BW):                 | /BW):                 |
| <b>4.0 kHz</b> | -152.3                | -152.2                | -152.0                | -150.9                | -150.8                | -150.1                |

### Transmitting Beams 10:

| Question                | Response                     |
|-------------------------|------------------------------|
| Beam ID                 | TLMP                         |
| Transmit Beam Frequency | 11701.825 MHz -11703.175 MHz |
| Beam Type               | Fixed                        |
| Polarization            | LHCP                         |

|   |              |
|---|--------------|
| Peak Gain   | dBi          |
| Antenna Pointing Error                                  | 0.14 degrees |
| Antenna Rotational Error                                | 0.22 degrees |
| Polarization Switchable                                 |              |
| Polarization Alignment Relative to the Equatorial Plane | 45.0 degrees |
| Max. Transmit EIRP Density                              | -55.9 dBW/Hz |
| Max. Transmit EIRP                                      | 9.1 dBW      |
| Co- or Cross Polar Mode                                 | C            |
| Service Area Description                                | GLOBAL       |

### Max. Power Flux Density

Information not provided.

### Transmitting Beams 11:

| Question  | Response                     |
|---|------------------------------|
| Beam ID   | TLMB                         |
| Transmit Beam Frequency                                 | 11701.825 MHz -11703.175 MHz |
| Beam Type   | Fixed                        |
| Polarization  | H                            |
| Peak Gain   | dBi                          |
| Antenna Pointing Error                                  | 0.14 degrees                 |
| Antenna Rotational Error                                | 0.22 degrees                 |
| Polarization Switchable                                 |                              |
| Polarization Alignment Relative to the Equatorial Plane | 0.0 degrees                  |
| Max. Transmit EIRP Density                              | -56.3 dBW/Hz                 |
| Max. Transmit EIRP                                      | 8.7 dBW                      |
| Co- or Cross Polar Mode                                 | C                            |



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Service Area Description

GLOBAL

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**Max. Power Flux Density**

Information not provided.

## Transmitting Channels (71)

| Channel ID | Channel Bandwidth (MHz) | Center Frequency s (MHz) | Feeder Link, Service Link or TT&C |
|------------|-------------------------|--------------------------|-----------------------------------|
| KD03       | 24.0                    | 12095.0                  | Service Link                      |
| KD02       | 24.0                    | 12035.0                  | Service Link                      |
| KD01       | 24.0                    | 11975.0                  | Service Link                      |
| CD24       | 36.0                    | 4180.0                   | Service Link                      |
| CD23       | 36.0                    | 4140.0                   | Service Link                      |
| CD22       | 36.0                    | 4100.0                   | Service Link                      |
| CD21       | 36.0                    | 4060.0                   | Service Link                      |
| CD20       | 36.0                    | 4020.0                   | Service Link                      |
| CD19       | 36.0                    | 3980.0                   | Service Link                      |
| CD18       | 36.0                    | 3940.0                   | Service Link                      |
| CD17       | 36.0                    | 3900.0                   | Service Link                      |
| CD16       | 36.0                    | 3860.0                   | Service Link                      |
| TLM1       | 0.35                    | 11702.0                  | TT&C                              |
| TLM2       | 0.35                    | 11703.0                  | TT&C                              |
| KD27       | 27.0                    | 11900.0                  | Service Link                      |
| KD26       | 27.0                    | 11870.0                  | Service Link                      |
| KD25       | 27.0                    | 11840.0                  | Service Link                      |
| KD24       | 27.0                    | 11810.0                  | Service Link                      |
| KD23       | 27.0                    | 11780.0                  | Service Link                      |
| KD22       | 27.0                    | 11750.0                  | Service Link                      |
| KD21       | 27.0                    | 11720.0                  | Service Link                      |
| KD20       | 24.0                    | 11685.0                  | Service Link                      |
| KD19       | 24.0                    | 11655.84                 | Service Link                      |
| KD18       | 24.0                    | 11626.68                 | Service Link                      |

|             |      |          |              |
|-------------|------|----------|--------------|
| <b>KD17</b> | 24.0 | 11597.52 | Service Link |
| <b>KD16</b> | 24.0 | 11568.36 | Service Link |
| <b>KD15</b> | 24.0 | 11539.2  | Service Link |
| <b>KD14</b> | 24.0 | 11510.04 | Service Link |
| <b>KD13</b> | 24.0 | 11480.88 | Service Link |
| <b>KD12</b> | 24.0 | 12170.0  | Service Link |
| <b>KD11</b> | 24.0 | 12140.0  | Service Link |
| <b>KD10</b> | 24.0 | 12110.0  | Service Link |
| <b>KD09</b> | 24.0 | 12080.0  | Service Link |
| <b>KD08</b> | 24.0 | 12050.0  | Service Link |
| <b>KD07</b> | 24.0 | 12020.0  | Service Link |
| <b>KD06</b> | 24.0 | 11990.0  | Service Link |
| <b>KD05</b> | 24.0 | 11960.0  | Service Link |
| <b>KD04</b> | 24.0 | 12155.0  | Service Link |
| <b>CD15</b> | 36.0 | 3820.0   | Service Link |
| <b>CD14</b> | 36.0 | 3780.0   | Service Link |
| <b>CD13</b> | 36.0 | 3740.0   | Service Link |
| <b>CD12</b> | 36.0 | 4160.0   | Service Link |
| <b>CD11</b> | 36.0 | 4120.0   | Service Link |
| <b>CD10</b> | 36.0 | 4080.0   | Service Link |
| <b>CD09</b> | 36.0 | 4040.0   | Service Link |
| <b>CD08</b> | 36.0 | 4000.0   | Service Link |
| <b>CD07</b> | 36.0 | 3960.0   | Service Link |
| <b>CD06</b> | 36.0 | 3920.0   | Service Link |
| <b>CD05</b> | 36.0 | 3880.0   | Service Link |
| <b>CD04</b> | 36.0 | 3840.0   | Service Link |

|             |      |         |              |
|-------------|------|---------|--------------|
| <b>KD45</b> | 10.0 | 11458.0 | Service Link |
| <b>KD44</b> | 54.0 | 12170.0 | Service Link |
| <b>KD43</b> | 54.0 | 12110.0 | Service Link |
| <b>KD42</b> | 54.0 | 12050.0 | Service Link |
| <b>KD41</b> | 54.0 | 11990.0 | Service Link |
| <b>KD40</b> | 54.0 | 11930.0 | Service Link |
| <b>KD39</b> | 54.0 | 11870.0 | Service Link |
| <b>KD38</b> | 54.0 | 11810.0 | Service Link |
| <b>KD37</b> | 54.0 | 11750.0 | Service Link |
| <b>KD36</b> | 27.0 | 12170.0 | Service Link |
| <b>KD35</b> | 27.0 | 12140.0 | Service Link |
| <b>KD34</b> | 27.0 | 12110.0 | Service Link |
| <b>KD33</b> | 27.0 | 12080.0 | Service Link |
| <b>KD32</b> | 27.0 | 12050.0 | Service Link |
| <b>KD31</b> | 27.0 | 12020.0 | Service Link |
| <b>KD30</b> | 27.0 | 11990.0 | Feeder Link  |
| <b>KD29</b> | 27.0 | 11960.0 | Service Link |
| <b>KD28</b> | 27.0 | 11930.0 | Service Link |
| <b>CD03</b> | 36.0 | 3800.0  | Service Link |
| <b>CD02</b> | 36.0 | 3760.0  | Service Link |
| <b>CD01</b> | 36.0 | 3720.0  | 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 |
|--|------|-------------------------------|-------------------|-------------|
| <a href="#"><u>galaxy_3c_beams.mdb</u></a> |      | GSO Antenna Gain Contour Data | GIMS file (*.mdb) |             |

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