



312 File Number: **SATLOI2016111500108**

Filing Description

Question	Response
Description	Non-geostationary low-earth orbit satellite network in Ka band.

**Satellite
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	Telesat LEO Constellation
Estimated Lifetime of Satellite(s) From Date of Launch	10 Years
Will the space station(s) operate on a Common Carrier basis?	No

**Operating
Frequency
Bands (5)**

Nature of service	Description	Frequency Band(s)	Mode Type
Fixed-Satellite Service		17800.0 MHz -18600.0 MHz	Transmit
Fixed-Satellite Service		18800.0 MHz -19300.0 MHz	Transmit
Fixed-Satellite Service		19700.0 MHz -20200.0 MHz	Transmit
Fixed-Satellite Service		27500.0 MHz -29100.0 MHz	Receive
Fixed-Satellite Service		29500.0 MHz -30000.0 MHz	Receive

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	117
Orbit Epoch Date	09/23/2019
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	12
Inclination Angle	99.5 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6306.9 seconds
Apogee	1000.0 km
Perigee	1000.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	330.0
2	300.0
3	270.0
4	240.0
5	210.0
6	180.0
7	150.0
8	120.0
9	90.0
10	60.0
11	30.0
12	0.0

Orbital Plane 2:

Question	Response
Number of Satellites in Plane	12
Inclination Angle	99.5 degrees
Right Ascension of Ascending Node	63.2 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6306.9 seconds
Apogee	1000.0 km
Perigee	1000.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	330.0
2	300.0
3	270.0
4	240.0
5	210.0
6	180.0
7	150.0
8	120.0
9	90.0
10	60.0
11	30.0
12	0.0

Orbital Plane 3:

Question	Response
Number of Satellites in Plane	12
Inclination Angle	99.5 degrees
Right Ascension of Ascending Node	94.8 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6306.9 seconds
Apogee	1000.0 km
Perigee	1000.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	345.0
2	315.0
3	285.0
4	255.0
5	225.0
6	195.0
7	165.0
8	135.0
9	105.0
10	75.0
11	45.0
12	15.0

Orbital Plane 4:

Question	Response
Number of Satellites in Plane	12
Inclination Angle	99.5 degrees
Right Ascension of Ascending Node	126.4 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6306.9 seconds
Apogee	1000.0 km
Perigee	1000.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	330.0
2	300.0
3	270.0
4	240.0
5	210.0
6	180.0
7	150.0
8	120.0
9	90.0
10	60.0
11	30.0
12	0.0

Orbital Plane 5:

Question	Response
Number of Satellites in Plane	12
Inclination Angle	99.5 degrees
Right Ascension of Ascending Node	158.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6306.9 seconds
Apogee	1000.0 km
Perigee	1000.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	345.0
2	315.0
3	285.0
4	255.0
5	225.0
6	195.0
7	165.0
8	135.0
9	105.0
10	75.0
11	45.0
12	15.0

Orbital Plane 6:

Question	Response
Number of Satellites in Plane	9
Inclination Angle	37.4 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6627.6 seconds
Apogee	1248.0 km
Perigee	1248.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0
2	40.0
3	80.0
4	320.0
5	280.0
6	240.0
7	200.0
8	160.0
9	120.0

Orbital Plane 7:

Question	Response
Number of Satellites in Plane	9
Inclination Angle	37.4 degrees

Right Ascension of Ascending Node	36.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6627.6 seconds
Apogee	1248.0 km
Perigee	1248.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	320.0
2	280.0
3	240.0
4	200.0
5	160.0
6	120.0
7	80.0
8	40.0
9	0.0

Orbital Plane 8:

Question	Response
Number of Satellites in Plane	9
Inclination Angle	37.4 degrees
Right Ascension of Ascending Node	72.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6627.6 seconds

Apogee	1248.0 km
Perigee	1248.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	320.0
2	280.0
3	240.0
4	200.0
5	160.0
6	120.0
7	80.0
8	40.0
9	0.0

Orbital Plane 9:

Question	Response
Number of Satellites in Plane	9
Inclination Angle	37.4 degrees
Right Ascension of Ascending Node	108.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6627.6 seconds
Apogee	1248.0 km
Perigee	1248.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees

Active Service Arc End Angle with respect to Ascending Node 360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	320.0
2	280.0
3	240.0
4	200.0
5	160.0
6	120.0
7	80.0
8	40.0
9	0.0

Orbital Plane 10:

Question	Response
Number of Satellites in Plane	9
Inclination Angle	37.4 degrees
Right Ascension of Ascending Node	144.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6627.6 seconds
Apogee	1248.0 km
Perigee	1248.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	320.0
2	280.0
3	240.0
4	200.0
5	160.0
6	120.0
7	80.0
8	40.0
9	0.0

Orbital Plane 11:

Question	Response
Number of Satellites in Plane	12
Inclination Angle	99.5 degrees
Right Ascension of Ascending Node	31.6 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6306.9 seconds
Apogee	1000.0 km
Perigee	1000.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	360.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	345.0
2	315.0

3	285.0
4	255.0
5	225.0
6	195.0
7	165.0
8	135.0
9	105.0
10	75.0
11	45.0
12	15.0

Receiving Beams 1:

Question	Response
Beam ID	G1P1
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	31.8 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	2.5 dB/K
Min. Saturation Flux Density	-99.3 dBW/m2
Max. Saturation Flux Density	-59.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 2:

Question	Response
Beam ID	G1P2
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	31.8 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees

Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	2.5 dB/K
Min. Saturation Flux Density	-99.3 dBW/m2
Max. Saturation Flux Density	-59.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 3:

Question	Response
Beam ID	G2P1
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	31.8 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	2.5 dB/K
Min. Saturation Flux Density	-99.3 dBW/m2
Max. Saturation Flux Density	-59.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving

Beams 4:

Question	Response
Beam ID	G2P2
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	31.8 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	2.5 dB/K
Min. Saturation Flux Density	-99.3 dBW/m2
Max. Saturation Flux Density	-59.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 5:

Question	Response
Beam ID	H1P1
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	31.8 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	2.5 dB/K
Min. Saturation Flux Density	-99.3 dBW/m2
Max. Saturation Flux Density	-59.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 6:

Question	Response
Beam ID	H1P2
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	31.8 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	2.5 dB/K
Min. Saturation Flux Density	-99.3 dBW/m2
Max. Saturation Flux Density	-59.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 7:

Question	Response
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Beam ID	H2P1
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	31.8 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	2.5 dB/K
Min. Saturation Flux Density	-99.3 dBW/m2
Max. Saturation Flux Density	-59.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 8:

Question	Response
Beam ID	H2P2
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	31.8 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	2.5 dB/K
Min. Saturation Flux Density	-99.3 dBW/m2
Max. Saturation Flux Density	-59.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 9:

Question	Response
Beam ID	J1P1
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	12.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-17.0 dB/K
Min. Saturation Flux Density	-99.8 dBW/m2
Max. Saturation Flux Density	-59.8 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 10:

Question	Response
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Beam ID	J1P2
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	12.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-17.0 dB/K
Min. Saturation Flux Density	-99.8 dBW/m2
Max. Saturation Flux Density	-59.8 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

**Receiving
Beams 11:**

Question	Response
Beam ID	J2P1
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	12.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-17.0 dB/K
Min. Saturation Flux Density	-99.8 dBW/m2
Max. Saturation Flux Density	-59.8 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

**Receiving
Beams 12:**

Question	Response
Beam ID	J2P2
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	12.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-17.0 dB/K
Min. Saturation Flux Density	-99.8 dBW/m2
Max. Saturation Flux Density	-59.8 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

**Receiving
Beams 13:**

Question	Response
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Beam ID	F1P1
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	RHCP
Peak Gain	42.5 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	13.2 dB/K
Min. Saturation Flux Density	-110.0 dBW/m2
Max. Saturation Flux Density	-70.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 14:

Question	Response
Beam ID	F1P2
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	LHCP
Peak Gain	42.5 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	13.2 dB/K
Min. Saturation Flux Density	-110.0 dBW/m2
Max. Saturation Flux Density	-70.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

**Receiving
Beams 15:**

Question	Response
Beam ID	F2P1
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	RHCP
Peak Gain	42.5 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	13.2 dB/K
Min. Saturation Flux Density	-110.0 dBW/m2
Max. Saturation Flux Density	-70.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

**Receiving
Beams 16:**

Question	Response
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Beam ID	F2P2
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	LHCP
Peak Gain	42.5 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	13.2 dB/K
Min. Saturation Flux Density	-110.0 dBW/m2
Max. Saturation Flux Density	-70.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Channels (14)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
TC9	1.0	27501.0	TT&C
TC8	1.0	29999.0	TT&C
TC7	1.0	29998.0	TT&C
TC6	1.0	29502.0	TT&C
TC11	1.0	28620.0	TT&C
TC5	1.0	29501.0	TT&C
TC4	1.0	29099.0	TT&C
TC3	1.0	29098.0	TT&C
TC2	1.0	28352.0	TT&C
TC10	1.0	27502.0	TT&C
TC1	1.0	28351.0	TT&C
U2	500.0	29750.0	Service Link
TC12	1.0	28630.0	TT&C
U1	1600.0	28300.0	Service Link

Transmitting Beams 1:

Question	Response
Beam ID	M1P1
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	RHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	39.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-131.0	-125.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 2:

Question	Response
Beam ID	M1P2
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz

Beam Type	Both Steerable and Shapeable
Polarization	LHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	39.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-131.0	-125.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 3:

Question	Response
Beam ID	M2P1
Transmit Beam Frequency	18800.0 MHz -19300.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	RHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.1 degrees

Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	37.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5° (dBW/m ²) /BW:	* 5° - 10° (dBW/m ²) /BW:	* 10° - 15° (dBW/m ²) /BW:	* 15° - 20° (dBW/m ²) /BW:	* 20° - 25° (dBW/m ²) /BW:	* 25° - 90° (dBW/m ²) /BW:
1.0 MHz	-131.0	-125.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 4:

Question	Response
Beam ID	M2P2
Transmit Beam Frequency	18800.0 MHz -19300.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	LHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz

Max. Transmit EIRP	37.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5° (dBW/m ²) /BW):	* 5° - 10° (dBW/m ²) /BW):	* 10° - 15° (dBW/m ²) /BW):	* 15° - 20° (dBW/m ²) /BW):	* 20° - 25° (dBW/m ²) /BW):	* 25° - 90° (dBW/m ²) /BW):
1.0 MHz	-131.0	-125.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 5:

Question	Response
Beam ID	M3P1
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	RHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-56.4 dBW/Hz
Max. Transmit EIRP	30.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0	-137.4	-131.4	-127.4	-127.4	-127.4	-127.4
MHz						

Transmitting Beams 6:

Question	Response
Beam ID	M3P2
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	LHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-56.4 dBW/Hz
Max. Transmit EIRP	30.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0	-137.4	-131.4	-127.4	-127.4	-127.4	-127.4
MHz						

Transmitting Beams 7:

Question	Response
Beam ID	N1P1
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	39.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-131.0	-127.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 8:

Question	Response
Beam ID	N1P2
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz

Beam Type	Steerable
Polarization	LHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	39.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5° (dBW/m ²) /BW:	* 5° - 10° (dBW/m ²) /BW:	* 10° - 15° (dBW/m ²) /BW:	* 15° - 20° (dBW/m ²) /BW:	* 20° - 25° (dBW/m ²) /BW:	* 25° - 90° (dBW/m ²) /BW:
1.0 MHz	-131.0	-127.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 9:

Question	Response
Beam ID	N2P1
Transmit Beam Frequency	18800.0 MHz -19300.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees

Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	37.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5° (dBW/m ²) /BW:	* 5° - 10° (dBW/m ²) /BW:	* 10° - 15° (dBW/m ²) /BW:	* 15° - 20° (dBW/m ²) /BW:	* 20° - 25° (dBW/m ²) /BW:	* 25° - 90° (dBW/m ²) /BW:
1.0 MHz	-131.0	-127.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 10:

Question	Response
Beam ID	N2P2
Transmit Beam Frequency	18800.0 MHz -19300.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz

Max. Transmit EIRP	37.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5° (dBW/m ²) /BW:	* 5° - 10° (dBW/m ²) /BW:	* 10° - 15° (dBW/m ²) /BW:	* 15° - 20° (dBW/m ²) /BW:	* 20° - 25° (dBW/m ²) /BW:	* 25° - 90° (dBW/m ²) /BW:
1.0 MHz	-131.0	-127.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 11:

Question	Response
Beam ID	N3P1
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-56.4 dBW/Hz
Max. Transmit EIRP	30.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-137.4	-133.4	-127.4	-127.4	-127.4	-127.4

Transmitting Beams 12:

Question	Response
Beam ID	N3P2
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-56.4 dBW/Hz
Max. Transmit EIRP	30.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-137.4	-133.4	-127.4	-127.4	-127.4	-127.4

Transmitting Beams 13:

Question	Response
Beam ID	R1P1
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	39.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-131.0	-127.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 14:

Question	Response
Beam ID	R1P2
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz

Beam Type	Steerable
Polarization	LHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	39.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5° (dBW/m ²) /BW:	* 5° - 10° (dBW/m ²) /BW:	* 10° - 15° (dBW/m ²) /BW:	* 15° - 20° (dBW/m ²) /BW:	* 20° - 25° (dBW/m ²) /BW:	* 25° - 90° (dBW/m ²) /BW:
1.0 MHz	-131.0	-127.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 15:

Question	Response
Beam ID	R2P1
Transmit Beam Frequency	18800.0 MHz -19300.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees

Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz
Max. Transmit EIRP	37.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5° (dBW/m ²) /BW:	* 5° - 10° (dBW/m ²) /BW:	* 10° - 15° (dBW/m ²) /BW:	* 15° - 20° (dBW/m ²) /BW:	* 20° - 25° (dBW/m ²) /BW:	* 25° - 90° (dBW/m ²) /BW:
1.0 MHz	-131.0	-127.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 16:

Question	Response
Beam ID	R2P2
Transmit Beam Frequency	18800.0 MHz -19300.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-50.0 dBW/Hz

Max. Transmit EIRP	37.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5° (dBW/m ²) /BW:	* 5° - 10° (dBW/m ²) /BW:	* 10° - 15° (dBW/m ²) /BW:	* 15° - 20° (dBW/m ²) /BW:	* 20° - 25° (dBW/m ²) /BW:	* 25° - 90° (dBW/m ²) /BW:
1.0 MHz	-131.0	-127.0	-121.0	-121.0	-121.0	-121.0

Transmitting Beams 17:

Question	Response
Beam ID	R3P1
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-56.4 dBW/Hz
Max. Transmit EIRP	30.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-137.4	-133.4	-127.4	-127.4	-127.4	-127.4

Transmitting Beams 18:

Question	Response
Beam ID	R3P2
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	27.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-56.4 dBW/Hz
Max. Transmit EIRP	30.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)	(dBW/m ²)
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-137.4	-133.4	-127.4	-127.4	-127.4	-127.4

Transmitting Channels (17)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
D1	800.0	18200.0	Service Link
TM13	1.0	18820.0	TT&C
TM14	1.0	18830.0	TT&C
TM9	0.5	19701.0	TT&C
TM8	0.5	19299.0	TT&C
TM7	0.5	19298.0	TT&C
TM6	0.5	18802.0	TT&C
TM5	0.5	18801.0	TT&C
TM4	0.5	18599.0	TT&C
TM3	0.5	18598.0	TT&C
TM2	0.5	17802.0	TT&C
TM12	0.5	20199.0	TT&C
TM11	0.5	20198.0	TT&C
TM10	0.5	19702.0	TT&C
TM1	0.5	17801.0	TT&C
D3	500.0	19950.0	Service Link
D2	500.0	19050.0	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?	Yes
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?	Yes
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>GIMS_LEO.mdb</u>		NGSO Antenna Gain Data	GIMS file (*.mdb)	