



(REFERENCE COPY) Schedule S

312 File Number: **SATAMD2018010200001**

Filing Description

Question	Response
Description	Applicant requests authority to measure signals, readily accessible to the public, on its Phase IB/IC and Phase II satellites to infer atmospheric and land surface properties and update technical details for its Phase II satellites.

**Satellite
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	LEMUR-2
Estimated Lifetime of Satellite(s) From Date of Launch	2 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating Frequency Bands (17)

Nature of service	Description	Frequency Band(s)	Mode Type
Mobile-Satellite Service		399.9 MHz -400.05 MHz	Receive
Earth Exploration-Satellite Service		402.0 MHz -403.0 MHz	Receive
Earth Exploration-Satellite Service		2200.0 MHz -2290.0 MHz	Transmit
Space Operation Service		401.0 MHz -402.0 MHz	Transmit
Space Operation Service		449.75 MHz -450.25 MHz	Receive
Earth Exploration-Satellite Service		2020.0 MHz -2025.0 MHz	Transmit
Earth Exploration-Satellite Service		161.962 MHz -161.988 MHz	Receive
Earth Exploration-Satellite Service		162.012 MHz -162.038 MHz	Receive
Earth Exploration-Satellite Service		156.762 MHz -156.788 MHz	Receive
Earth Exploration-Satellite Service		156.812 MHz -156.838 MHz	Receive
Earth Exploration-Satellite Service		1087.7 MHz -1092.3 MHz	Receive
Earth Exploration-Satellite Service		161.987 MHz -162.013 MHz	Receive
Earth Exploration-Satellite Service		161.937 MHz -161.963 MHz	Receive
Earth Exploration-Satellite Service		2025.0 MHz -2110.0 MHz	Receive
Earth Exploration-Satellite Service		1164.0 MHz -1300.0 MHz	Receive
Earth Exploration-Satellite Service		1559.0 MHz -1610.0 MHz	Receive

**Earth Exploration-Satellite
Service**

8025.0 MHz -8325.0
MHz

Transmit

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	175
Orbit Epoch Date	04/01/2018
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	11
Inclination Angle	51.6 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5553.0 seconds
Apogee	400.0 km
Perigee	400.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	96.0
2	64.0
3	160.0
4	128.0
5	32.0
6	0.0
7	224.0
8	288.0
9	320.0
10	192.0
11	256.0

Orbital Plane 2:

Question	Response
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Number of Satellites in Plane	4
Inclination Angle	0.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5615.0 seconds
Apogee	450.0 km
Perigee	450.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	270.0
2	180.0
3	90.0
4	0.0

Orbital Plane 3:

Question	Response
Number of Satellites in Plane	12
Inclination Angle	51.6 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5615.0 seconds
Apogee	450.0 km
Perigee	450.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees

Active Service Arc End Angle with respect to Ascending Node 90.0 degrees

Mean Anomaly For Each Satellite

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

Orbital Plane 4:

Question	Response
Number of Satellites in Plane	25
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5615.0 seconds
Apogee	450.0 km
Perigee	450.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	308.0
2	294.0
3	238.0
4	252.0
5	266.0
6	280.0
7	56.0
8	70.0
9	84.0
10	98.0
11	112.0
12	126.0
13	140.0
14	154.0
15	168.0
16	42.0
17	28.0
18	14.0
19	0.0
20	322.0
21	336.0
22	224.0

23	210.0
24	196.0
25	182.0

Orbital Plane 5:

Question	Response
Number of Satellites in Plane	4
Inclination Angle	0.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5676.0 seconds
Apogee	500.0 km
Perigee	500.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0
2	90.0
3	180.0
4	270.0

Orbital Plane 6:

Question	Response
Number of Satellites in Plane	12
Inclination Angle	51.6 degrees
Right Ascension of Ascending Node	0.0 degrees

Argument of Perigee	0.0 degrees
Orbital Period	5676.0 seconds
Apogee	500.0 km
Perigee	500.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

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

Orbital Plane 7:

Question	Response
Number of Satellites in Plane	25
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	0.0 degrees

Argument of Perigee	0.0 degrees
Orbital Period	5676.0 seconds
Apogee	500.0 km
Perigee	500.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	294.0
2	182.0
3	196.0
4	210.0
5	224.0
6	56.0
7	42.0
8	28.0
9	14.0
10	168.0
11	154.0
12	140.0
13	126.0
14	112.0
15	98.0
16	84.0
17	70.0
18	0.0

19	280.0
20	336.0
21	322.0
22	308.0
23	238.0
24	252.0
25	266.0

Orbital Plane 8:

Question	Response
Number of Satellites in Plane	4
Inclination Angle	0.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5739.0 seconds
Apogee	550.0 km
Perigee	550.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0
2	90.0
3	270.0
4	180.0

Orbital Plane 9:

Question	Response
Number of Satellites in Plane	24
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5739.0 seconds
Apogee	550.0 km
Perigee	550.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	210.0
2	225.0
3	195.0
4	180.0
5	165.0
6	150.0
7	135.0
8	120.0
9	105.0
10	90.0
11	75.0
12	60.0
13	45.0
14	30.0

15	15.0
16	0.0
17	240.0
18	255.0
19	270.0
20	285.0
21	300.0
22	315.0
23	330.0
24	345.0

Orbital Plane 10:

Question	Response
Number of Satellites in Plane	3
Inclination Angle	0.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5801.0 seconds
Apogee	600.0 km
Perigee	600.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0
2	240.0

3	120.0
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Orbital Plane 11:

Question	Response
Number of Satellites in Plane	24
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5801.0 seconds
Apogee	600.0 km
Perigee	600.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	135.0
2	150.0
3	165.0
4	180.0
5	195.0
6	210.0
7	225.0
8	240.0
9	255.0
10	270.0
11	285.0

12	300.0
13	45.0
14	30.0
15	15.0
16	120.0
17	105.0
18	90.0
19	75.0
20	60.0
21	0.0
22	345.0
23	330.0
24	315.0

Orbital Plane 12:

Question	Response
Number of Satellites in Plane	3
Inclination Angle	0.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5863.0 seconds
Apogee	650.0 km
Perigee	650.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	240.0
2	120.0
3	0.0

Orbital Plane 13:

Question	Response
Number of Satellites in Plane	24
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5863.0 seconds
Apogee	650.0 km
Perigee	650.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	45.0
2	30.0
3	15.0
4	300.0
5	285.0
6	270.0
7	255.0
8	240.0

9	225.0
10	210.0
11	195.0
12	180.0
13	165.0
14	150.0
15	135.0
16	120.0
17	105.0
18	90.0
19	75.0
20	60.0
21	0.0
22	345.0
23	330.0
24	315.0

Receiving Beams 1:

Question	Response
Beam ID	UU1P
Receive Beam Frequency	402.0 MHz -403.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	2.05 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.0 dB/K
Min. Saturation Flux Density	-95.0 dBW/m ²
Max. Saturation Flux Density	-85.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 2:

Question	Response
Beam ID	UU2P
Receive Beam Frequency	399.9 MHz -400.05 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	2.05 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.0 dB/K
Min. Saturation Flux Density	-96.0 dBW/m2
Max. Saturation Flux Density	-86.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 3:

Question	Response
Beam ID	UU3P
Receive Beam Frequency	449.75 MHz -450.25 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	2.05 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.0 dB/K
Min. Saturation Flux Density	-95.0 dBW/m2
Max. Saturation Flux Density	-85.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 4:

Question	Response
Beam ID	UU1B

Receive Beam Frequency	402.0 MHz -403.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	3.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-21.5 dB/K
Min. Saturation Flux Density	-96.0 dBW/m2
Max. Saturation Flux Density	-86.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

**Receiving
Beams 5:**

Question	Response
Beam ID	UU2B
Receive Beam Frequency	399.9 MHz -400.05 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	3.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-21.5 dB/K
Min. Saturation Flux Density	-96.0 dBW/m2

Max. Saturation Flux Density	-86.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 6:

Question	Response
Beam ID	APR1
Receive Beam Frequency	1559.0 MHz -1610.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	3.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-21.5 dB/K
Min. Saturation Flux Density	-28.1 dBW/m2
Max. Saturation Flux Density	-18.1 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 7:

Question	Response
Beam ID	APR2
Receive Beam Frequency	1164.0 MHz -1300.0 MHz
Beam Type	Fixed

Polarization	RHCP
Peak Gain	3.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-21.5 dB/K
Min. Saturation Flux Density	-30.27 dBW/m2
Max. Saturation Flux Density	-20.27 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 8:

Question	Response
Beam ID	AIR1
Receive Beam Frequency	161.962 MHz -161.988 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	1.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.5 dB/K
Min. Saturation Flux Density	-32.56 dBW/m2
Max. Saturation Flux Density	-22.56 dBW/m2

Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 9:

Question	Response
Beam ID	AIR2
Receive Beam Frequency	162.012 MHz -162.038 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	1.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.5 dB/K
Min. Saturation Flux Density	-32.56 dBW/m2
Max. Saturation Flux Density	-22.56 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 10:

Question	Response
Beam ID	AIR3
Receive Beam Frequency	156.762 MHz -156.788 MHz
Beam Type	Fixed
Polarization	H

Peak Gain	1.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.5 dB/K
Min. Saturation Flux Density	-32.84 dBW/m2
Max. Saturation Flux Density	-22.84 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

**Receiving
Beams 11:**

Question	Response
Beam ID	AIR4
Receive Beam Frequency	156.812 MHz -156.838 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	1.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.5 dB/K
Min. Saturation Flux Density	-32.84 dBW/m2
Max. Saturation Flux Density	-22.84 dBW/m2
Co- or Cross Polar Mode	C

Service Area Description	Global
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**Receiving
Beams 12:**

Question	Response
Beam ID	ADR1
Receive Beam Frequency	1087.7 MHz -1092.3 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	5.0 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-20.0 dB/K
Min. Saturation Flux Density	-19.5 dBW/m2
Max. Saturation Flux Density	-9.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

**Receiving
Beams 13:**

Question	Response
Beam ID	ASM1
Receive Beam Frequency	161.937 MHz -161.963 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	1.5 dBi

Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.5 dB/K
Min. Saturation Flux Density	-32.56 dBW/m2
Max. Saturation Flux Density	-22.56 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

**Receiving
Beams 14:**

Question	Response
Beam ID	ASM2
Receive Beam Frequency	161.987 MHz -162.013 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	1.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-23.5 dB/K
Min. Saturation Flux Density	-32.56 dBW/m2
Max. Saturation Flux Density	-22.56 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 15:

Question	Response
Beam ID	UU3B
Receive Beam Frequency	449.75 MHz -450.25 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	3.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-21.5 dB/K
Min. Saturation Flux Density	-96.0 dBW/m ²
Max. Saturation Flux Density	-86.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 16:

Question	Response
Beam ID	SU1
Receive Beam Frequency	2025.0 MHz -2110.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	5.0 dBi
Antenna Pointing Error	1.0 degrees

Antenna Rotational Error	1.0 degrees
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Polarization Switchable	
<hr/>	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
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G/T at Max. Gain Point	-22.0 dB/K
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Min. Saturation Flux Density	-98.0 dBW/m2
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Max. Saturation Flux Density	-79.0 dBW/m2
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Co- or Cross Polar Mode	C
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Service Area Description	Global
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Receiving Channels (16)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
UU2B	0.15	399.975	TT&C
UU1P	1.0	402.5	TT&C
UU3P	0.5	450.0	TT&C
AIR1	0.025	161.975	Service Link
ASM2	0.026	162.0	Service Link
ASM1	0.025	161.95	Service Link
AIR3	0.025	156.775	Service Link
UU1B	1.0	402.5	TT&C
AIR2	0.025	162.025	Service Link
UU2P	0.15	399.975	TT&C
APR1	51.0	1584.5	Service Link
APR2	136.0	1232.0	Service Link
AIR4	0.025	156.825	Service Link
SU1	85.0	2067.5	Service Link
UU3B	0.5	450.0	TT&C
ADR1	4.6	1090.0	Service Link

Transmitting Beams 1:

Question	Response
Beam ID	UD2P
Transmit Beam Frequency	401.0 MHz -402.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	2.05 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-25.65 dBW/Hz
Max. Transmit EIRP	5.05 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

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):
Hz	-161.8	-159.9	-158.1	-156.6	-155.2	-148.7

Transmitting Beams 2:

Question	Response
Beam ID	UD2B
Transmit Beam Frequency	401.0 MHz -402.0 MHz
Beam Type	Fixed
Polarization	H

Peak Gain	3.5 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-24.2 dBW/Hz
Max. Transmit EIRP	6.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

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):
Hz	-160.3	-158.4	-156.6	-155.1	-153.7	-147.3

Transmitting Beams 3:

Question	Response
Beam ID	SD1
Transmit Beam Frequency	2020.0 MHz -2025.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	5.0 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees

Max. Transmit EIRP Density	-58.99 dBW/Hz
Max. Transmit EIRP	8.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

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):
Hz	-200.0	-200.0	-198.0	-196.0	-195.0	-189.0

Transmitting Beams 4:

Question	Response
Beam ID	SD2
Transmit Beam Frequency	2200.0 MHz -2290.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	5.0 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-52.0 dBW/Hz
Max. Transmit EIRP	8.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

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):
Hz	-194.0	-193.0	-191.0	-189.0	-188.0	-182.0

Transmitting Beams 5:

Question	Response
Beam ID	XD1
Transmit Beam Frequency	8025.0 MHz -8325.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	5.0 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-62.5 dBW/Hz
Max. Transmit EIRP	5.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

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):
4.0 kHz	-161.7	-159.6	-157.7	-156.1	-154.8	-144.9

Transmitting Channels (5)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
SD1	5.0	2022.5	Service Link
SD2	1.0	2245.0	Service Link
XD1	60.0	8175.0	Service Link
UD2P	1.0	401.5	TT&C
UD2B	1.0	401.5	TT&C

Certification Questions

Question	Response
<p>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?</p>	<p>N/A</p>
<p>Are the applicable frequency tolerances of 25.202(e) and out-of-band emission limits of 25.202(f)(1),(2), and (3) met?</p>	<p>Yes</p>
<p>Are the cessation of emissions requirements of 25.207 met?</p>	<p>Yes</p>
<p>Are the applicable power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?</p>	
<p>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?</p>	<p>N/A</p>
<p>Are the applicable full-frequency-reuse requirements of 25.210 met?</p>	
<p>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)?</p>	

Attachments

File Name	Beam	Field	Attachment Type	Description
Receiving Beam 4 UU1B.pdf	UU1B	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 14 ASM2.pdf	ASM2	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 13 ASM1.pdf	ASM1	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 12 ADR1.pdf	ADR1	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 11 AIR4.pdf	AIR4	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 5 UU2B.pdf	UU2B	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 6 APR1.pdf	APR1	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 10 AIR3.pdf	AIR3	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 9 AIR2.pdf	AIR2	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 7 APR2.pdf	APR2	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 3 UU3P.pdf	UU3P	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 2 UU2P.pdf	UU2P	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 1 UU1P.pdf	UU1P	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 8 AIR1.pdf	AIR1	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 15 UU3B.pdf	UU3B	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
Receiving Beam 16 SU1.pdf	SU1	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.

<u>Transmitting Beam 2</u> <u>_UD2P.pdf</u>	UD2P	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
<u>Transmitting Beam 4</u> <u>_UD2B.pdf</u>	UD2B	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
<u>Transmitting Beam 5</u> <u>_SD1.pdf</u>	SD1	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
<u>Transmitting Beam 6</u> <u>_SD2.pdf</u>	SD2	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
<u>Transmitting Beam 7</u> <u>_XD1.pdf</u>	XD1	NGSO Antenna Gain Data	PDF file (*.pdf)	Applicable to all orbits.
