



312 File Number: **SATLOA2023071100165**

Filing Description

Question	Response
Description	Xona RNSS System

**Satellite
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	Xona System
Estimated Lifetime of Satellite(s) From Date of Launch	5 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating Frequency Bands (9)

Nature of service	Description	Frequency Band (s)	Mode Type
Other Satellite Service (please specify)	Intersatellite Service	1525.0 MHz -1559.0 MHz	Receive
Other Satellite Service (please specify)	Intersatellite Service	1626.5 MHz -1660.5 MHz	Transmit
Space Operation Service		2200.0 MHz -2290.0 MHz	Transmit
Radionavigation-Satellite Service		5010.0 MHz -5030.0 MHz	Transmit
Radionavigation-Satellite Service		5000.0 MHz -5010.0 MHz	Receive
Space Operation Service		8025.0 MHz -8400.0 MHz	Transmit
Space Operation Service		2025.0 MHz -2110.0 MHz	Receive
Radionavigation-Satellite Service		1180.4 MHz -1200.6 MHz	Transmit
Radionavigation-Satellite Service		1591.2 MHz -1595.5 MHz	Transmit

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	258
Orbit Epoch Date	12/25/2023
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0
2	22.5
3	180.0
4	202.5
5	225.0
6	247.5
7	270.0
8	292.5
9	315.0
10	337.5
11	157.5
12	135.0
13	112.5

14	90.0
15	67.5
16	45.0

Orbital Plane 2:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	30.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	226.875
2	249.375
3	271.875
4	294.375
5	316.875
6	339.375
7	204.375
8	181.875
9	159.375

10	136.875
11	114.375
12	91.875
13	69.375
14	46.875
15	24.375
16	1.875

Orbital Plane 3:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	60.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	341.25
2	318.75
3	296.25
4	273.75
5	251.25

6	228.75
7	206.25
8	183.75
9	161.25
10	138.75
11	116.25
12	93.75
13	71.25
14	48.75
15	26.25
16	3.75

Orbital Plane 4:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	90.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	343.125

2	320.625
3	298.125
4	275.625
5	253.125
6	230.625
7	208.125
8	185.625
9	163.125
10	140.625
11	5.625
12	28.125
13	50.625
14	73.125
15	95.625
16	118.125

Orbital Plane 5:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	120.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	7.5
2	30.0
3	52.5
4	75.0
5	97.5
6	120.0
7	142.5
8	165.0
9	187.5
10	210.0
11	232.5
12	255.0
13	277.5
14	300.0
15	322.5
16	345.0

Orbital Plane 6:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	150.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km

Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	346.875
2	324.375
3	301.875
4	279.375
5	256.875
6	234.375
7	211.875
8	189.375
9	9.375
10	31.875
11	54.375
12	76.875
13	99.375
14	121.875
15	144.375
16	166.875

Orbital Plane 7:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees

Right Ascension of Ascending Node	180.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	348.75
2	326.25
3	303.75
4	281.25
5	258.75
6	236.25
7	213.75
8	191.25
9	168.75
10	146.25
11	123.75
12	101.25
13	78.75
14	56.25
15	33.75
16	11.25

Orbital Plane 8:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	210.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	350.625
2	328.125
3	305.625
4	283.125
5	260.625
6	238.125
7	215.625
8	193.125
9	170.625
10	148.125
11	125.625
12	103.125
13	80.625

14	58.125
15	35.625
16	13.125

Orbital Plane 9:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	240.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	352.5
2	330.0
3	307.5
4	285.0
5	262.5
6	240.0
7	217.5
8	195.0
9	172.5

10	150.0
11	127.5
12	105.0
13	82.5
14	60.0
15	37.5
16	15.0

Orbital Plane 10:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	270.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	354.375
2	331.875
3	309.375
4	286.875
5	264.375

6	241.875
7	219.375
8	196.875
9	174.375
10	151.875
11	129.375
12	106.875
13	84.375
14	61.875
15	39.375
16	16.875

Orbital Plane 11:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	300.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	356.25

2	333.75
3	311.25
4	288.75
5	266.25
6	243.75
7	221.25
8	198.75
9	176.25
10	153.75
11	131.25
12	108.75
13	86.25
14	63.75
15	41.25
16	18.75

Orbital Plane 12:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	53.0 degrees
Right Ascension of Ascending Node	330.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-53.0 degrees
Active Service Arc End Angle with respect to Ascending Node	53.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	358.125
2	335.625
3	313.125
4	290.625
5	268.125
6	245.625
7	223.125
8	200.625
9	178.125
10	155.625
11	133.125
12	110.625
13	88.125
14	65.625
15	43.125
16	20.625

Orbital Plane 13:

Question	Response
Number of Satellites in Plane	11
Inclination Angle	97.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km

Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-90.0 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	327.27
2	294.55
3	261.82
4	229.09
5	196.36
6	163.64
7	130.91
8	98.18
9	65.45
10	32.73
11	0.0

Orbital Plane 14:

Question	Response
Number of Satellites in Plane	11
Inclination Angle	97.0 degrees
Right Ascension of Ascending Node	60.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km

Active Service Arc Begin Angle with respect to Ascending Node	-90.0 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	332.73
2	300.0
3	267.27
4	234.55
5	201.82
6	169.09
7	136.36
8	103.64
9	70.91
10	38.18
11	5.45

Orbital Plane 15:

Question	Response
Number of Satellites in Plane	11
Inclination Angle	97.0 degrees
Right Ascension of Ascending Node	120.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-90.0 degrees

Active Service Arc End Angle with respect to Ascending Node	90.0 degrees
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Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	338.18
2	305.45
3	272.73
4	240.0
5	207.27
6	174.55
7	141.82
8	109.09
9	76.36
10	43.64
11	10.91

Orbital Plane 16:

Question	Response
Number of Satellites in Plane	11
Inclination Angle	97.0 degrees
Right Ascension of Ascending Node	180.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-90.0 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	343.64
2	310.91
3	278.18
4	245.45
5	212.73
6	180.0
7	147.27
8	114.55
9	81.82
10	49.09
11	16.36

Orbital Plane 17:

Question	Response
Number of Satellites in Plane	11
Inclination Angle	97.0 degrees
Right Ascension of Ascending Node	240.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-90.0 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	349.09
2	316.36
3	283.64
4	250.91
5	218.18
6	185.45
7	152.73
8	120.0
9	87.27
10	54.55
11	21.81

Orbital Plane 18:

Question	Response
Number of Satellites in Plane	11
Inclination Angle	97.0 degrees
Right Ascension of Ascending Node	300.0 degrees
Argument of Perigee	90.0 degrees
Orbital Period	6409.0 seconds
Apogee	1087.0 km
Perigee	1073.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-90.0 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
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1	256.36
2	223.64
3	190.91
4	158.18
5	125.45
6	92.72
7	60.0
8	27.27
9	354.55
10	321.82
11	289.09

Receiving Beams 1:

Question	Response
Beam ID	CUL1
Receive Beam Frequency	5000.0 MHz -5010.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.0 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	-24.9 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-69.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 2:

Question	Response
Beam ID	CUR1
Receive Beam Frequency	5000.0 MHz -5010.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.0 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	-24.9 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-69.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving
Beams 3:

Question	Response
Beam ID	ISLR
Receive Beam Frequency	1525.0 MHz -1559.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	9.0 dBi
Antenna Pointing Error	0.0 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	-18.6 dB/K
Min. Saturation Flux Density	-0.1 dBW/m2
Max. Saturation Flux Density	0.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving

Beams 4:

Question	Response
Beam ID	SUL1
Receive Beam Frequency	2025.0 MHz -2110.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.0 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	-24.9 dB/K
Min. Saturation Flux Density	-107.5 dBW/m2
Max. Saturation Flux Density	-76.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 5:

Question	Response
Beam ID	SUR1
Receive Beam Frequency	2025.0 MHz -2110.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.0 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	-24.9 dB/K
Min. Saturation Flux Density	-107.5 dBW/m2
Max. Saturation Flux Density	-76.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Channels (95)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
CU15	0.25	5004.5	Feeder Link
CU05	1.0	5004.5	Feeder Link
IS17	0.2	1541.0	Feeder Link
IS20	0.2	1543.9	Feeder Link
IS30	0.2	1554.0	Feeder Link
IS33	0.2	1557.0	Feeder Link
SR06	1.0	2053.5	TT&C
CU26	0.1	5005.5	Feeder Link
CU02	1.0	5001.5	Feeder Link
SR11	0.25	2046.0	TT&C
IS15	0.2	1539.0	Feeder Link
IS18	0.2	1542.0	Feeder Link
IS02	0.2	1526.0	Feeder Link
CU29	0.1	5008.5	Feeder Link
CU18	0.25	5007.5	Feeder Link
CU25	0.1	5004.5	Feeder Link
IS35	0.2	1558.9	Feeder Link
CU01	1.0	5000.5	Feeder Link
CU20	0.25	5009.5	Feeder Link
IS28	0.2	1552.0	Feeder Link
SR22	0.1	2047.5	TT&C
SR23	0.1	2049.0	TT&C
SR24	0.1	2050.0	TT&C
SR25	0.1	2052.0	TT&C

SR21	0.1	2046.0	TT&C
SR20	0.25	2076.5	TT&C
SR19	0.25	2075.0	TT&C
SR18	0.25	2056.0	TT&C
SR17	0.25	2055.0	TT&C
SR16	0.25	2053.5	TT&C
IS34	0.2	1558.0	Feeder Link
SR30	0.1	2076.5	TT&C
SR28	0.1	2056.0	TT&C
SR27	0.1	2055.0	TT&C
SR10	1.0	2076.5	TT&C
IS32	0.2	1556.0	Feeder Link
CU06	1.0	5005.5	Feeder Link
SR04	1.0	2050.0	TT&C
IS16	0.2	1540.0	Feeder Link
CU14	0.25	5003.5	Feeder Link
CU22	0.1	5001.5	Feeder Link
IS06	0.2	1530.0	Feeder Link
SR09	1.0	2075.0	TT&C
SR08	1.0	2056.0	TT&C
CU23	0.1	5002.5	Feeder Link
IS25	0.2	1549.0	Feeder Link
SR07	1.0	2055.0	TT&C
IS26	0.2	1550.0	Feeder Link
CU19	0.25	5008.5	Feeder Link
CU30	0.1	5009.5	Feeder Link

CU09	1.0	5008.5	Feeder Link
IS01	0.2	1525.1	Feeder Link
IS21	0.2	1545.1	Feeder Link
CU13	0.25	5002.5	Feeder Link
SR02	1.0	2047.5	TT&C
IS10	0.2	1534.0	Feeder Link
CU07	1.0	5006.5	Feeder Link
IS22	0.2	1546.0	Feeder Link
IS31	0.2	1555.0	Feeder Link
CU04	1.0	5003.5	Feeder Link
CU12	0.25	5001.5	Feeder Link
SR13	0.25	2049.0	TT&C
SR14	0.25	2050.0	TT&C
IS27	0.2	1551.0	Feeder Link
IS13	0.2	1537.0	Feeder Link
IS14	0.2	1538.0	Feeder Link
CU21	0.1	5000.5	Feeder Link
IS23	0.2	1547.0	Feeder Link
SR01	1.0	2046.0	TT&C
CU03	1.0	5002.5	Feeder Link
IS03	0.2	1527.0	Feeder Link
IS29	0.2	1553.0	Feeder Link
CU10	1.0	5009.5	Feeder Link
CU27	0.1	5006.5	Feeder Link
CU11	0.25	5000.5	Feeder Link
SR15	0.25	2052.0	TT&C

IS19	0.2	1543.0	Feeder Link
CU17	0.25	5006.5	Feeder Link
SR29	0.1	2075.0	TT&C
IS04	0.2	1528.0	Feeder Link
CU16	0.25	5005.5	Feeder Link
SR26	0.1	2053.5	TT&C
IS08	0.2	1532.0	Feeder Link
IS09	0.2	1533.0	Feeder Link
SR03	1.0	2049.0	TT&C
IS07	0.2	1531.0	Feeder Link
SR12	0.25	2047.5	TT&C
IS11	0.2	1535.0	Feeder Link
CU28	0.1	5007.5	Feeder Link
CU08	1.0	5007.5	Feeder Link
SR05	1.0	2052.0	TT&C
CU24	0.1	5003.5	Feeder Link
IS12	0.2	1536.0	Feeder Link
IS24	0.2	1548.0	Feeder Link
IS05	0.2	1529.0	Feeder Link

Transmitting
Beams 1:

Question	Response
Beam ID	X1
Transmit Beam Frequency	1591.2 MHz -1595.5 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	10.5 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-33.5 dBW/Hz
Max. Transmit EIRP	29.1 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 /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):
1.0 MHz	-115.5	-116.0	-115.6	-115.7	-115.7	-115.7

Transmitting
Beams 2:

Question	Response
Beam ID	X1B
Transmit Beam Frequency	1591.2 MHz -1595.5 MHz

Beam Type	Fixed
Polarization	RHCP
Peak Gain	10.5 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-27.0 dBW/Hz
Max. Transmit EIRP	35.6 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 /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):
1.0 MHz	-109.0	-109.5	-109.1	-109.2	-109.2	-109.2

Transmitting Beams 3:

Question	Response
Beam ID	X5
Transmit Beam Frequency	1180.4 MHz -1200.6 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	4.6 dBi
Antenna Pointing Error	0.0 degrees

Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-46.0 dBW/Hz
Max. Transmit EIRP	23.2 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):
1.0 MHz	-129.6	-127.3	-125.5	-124.1	-123.7	-122.3

Transmitting Beams 4:

Question	Response
Beam ID	X5B
Transmit Beam Frequency	1180.4 MHz -1200.6 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	4.6 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-39.5 dBW/Hz

Max. Transmit EIRP	29.7 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):
1.0 MHz	-123.1	-120.8	-119.0	-117.6	-117.2	-115.8

Transmitting Beams 5:

Question	Response
Beam ID	XC
Transmit Beam Frequency	5010.0 MHz -5030.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	5.2 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-45.4 dBW/Hz
Max. Transmit EIRP	23.8 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

Max. Power Flux Density

**Transmitting
Beams 6:**

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
* BW:	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):
1.0 MHz	-127.8	-126.4	-125.1	-123.8	-122.7	-122.2

Question	Response
Beam ID	ISLT
Transmit Beam Frequency	1626.5 MHz -1660.5 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	9.0 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-29.5 dBW/Hz
Max. Transmit EIRP	8.5 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°
* BW:	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):
4.0 kHz	-146.1	-144.4	-142.8	-141.4	-140.1	-133.9

Transmitting
Beams 7:

Question	Response
Beam ID	SDL1
Transmit Beam Frequency	2200.0 MHz -2290.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-49.5 dBW/Hz
Max. Transmit EIRP	10.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global (with the exception of the United States, Alaska, and Hawaii)

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	-155.0	-153.8	-152.6	-151.5	-150.6	-145.1

Transmitting
Beams 8:

Question	Response
Beam ID	SDR1
Transmit Beam Frequency	2200.0 MHz -2290.0 MHz

Beam Type	Fixed
Polarization	RHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-49.5 dBW/Hz
Max. Transmit EIRP	10.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global (with the exception of the United States, Alaska, and Hawaii)

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
* BW:	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):
4.0 kHz	-155.0	-153.8	-152.6	-151.5	-150.6	-145.1

Transmitting Beams 9:

Question	Response
Beam ID	XDL1
Transmit Beam Frequency	8025.0 MHz -8400.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.0 degrees

Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-49.5 dBW/Hz
Max. Transmit EIRP	10.5 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):
4.0 kHz	-155.0	-153.8	-152.6	-151.5	-150.6	-145.1

Transmitting Beams 10:

Question	Response
Beam ID	XDR1
Transmit Beam Frequency	8025.0 MHz -8400.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-49.5 dBW/Hz

Max. Transmit EIRP	10.5 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):
4.0 kHz	-155.0	-153.8	-152.6	-151.5	-150.6	-145.1

**Transmitting
Channels (58)**

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
IS21	0.2	1647.0	Feeder Link
IS22	0.2	1648.0	Feeder Link
IS24	0.2	1650.0	Feeder Link
IS25	0.2	1651.0	Feeder Link
IS32	0.2	1658.0	Feeder Link
X5	20.0	1190.5163	Service Link
X1	4.0	1593.3225	Service Link
IS09	0.2	1634.0	Feeder Link
XD10	1.0	8120.0	TT&C
XD02	1.0	8040.0	TT&C
XD05	1.0	8070.0	TT&C
XD03	1.0	8050.0	TT&C
SD07	1.0	2258.5	TT&C
IS20	0.2	1644.4	Feeder Link
IS12	0.2	1637.0	Feeder Link
SD03	1.0	2222.5	TT&C
SD08	1.0	2267.5	TT&C
XD04	1.0	8060.0	TT&C
XD07	1.0	8090.0	TT&C
XD08	1.0	8100.0	TT&C
XD09	1.0	8110.0	TT&C
SD02	1.0	2213.5	TT&C
IS03	0.2	1628.0	Feeder Link
XD01	1.0	8030.0	TT&C

IS27	0.2	1653.0	Feeder Link
IS26	0.2	1652.0	Feeder Link
IS15	0.2	1640.0	Feeder Link
IS14	0.2	1639.0	Feeder Link
IS13	0.2	1638.0	Feeder Link
IS29	0.2	1655.0	Feeder Link
IS28	0.2	1654.0	Feeder Link
XC	18.0	5020.3725	Service Link
SD09	1.0	2276.5	TT&C
SD06	1.0	2249.5	TT&C
IS04	0.2	1629.0	Feeder Link
IS05	0.2	1630.0	Feeder Link
IS06	0.2	1631.0	Feeder Link
IS19	0.2	1644.0	Feeder Link
IS34	0.2	1660.0	Feeder Link
SD10	1.0	2285.5	TT&C
SD01	1.0	2204.5	TT&C
IS08	0.2	1633.0	Feeder Link
IS07	0.2	1632.0	Feeder Link
IS23	0.2	1649.0	Feeder Link
IS30	0.2	1656.0	Feeder Link
IS31	0.2	1657.0	Feeder Link
IS11	0.2	1636.0	Feeder Link
IS10	0.2	1635.0	Feeder Link
IS01	0.2	1626.6	Feeder Link
IS16	0.2	1641.0	Feeder Link

IS17	0.2	1642.0	Feeder Link
IS18	0.2	1643.0	Feeder Link
IS02	0.2	1627.0	Feeder Link
SD05	1.0	2240.5	TT&C
SD04	1.0	2231.5	TT&C
XD06	1.0	8080.0	TT&C
IS33	0.2	1659.0	Feeder Link
IS35	0.2	1660.4	Feeder 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?	
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>FCC_GIMS_XONA_RNSS_System.mdb</u>		NGSO Antenna Gain Data	GIMS file (*.mdb)	Antenna Beam Projections for All Relevant Beams