



312 File Number: **SATMPL2020052600062**

Filing Description

Question	Response
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Description	Modification to Grant of U.S. Market for the OneWeb NGSO FSS System (May 2020)
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**Satellite
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	ONEWEB
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 (6)

Nature of service	Description	Frequency Band(s)	Mode Type
Fixed-Satellite Service		10700.0 MHz -12700.0 MHz	Transmit
Fixed-Satellite Service		14000.0 MHz -14500.0 MHz	Receive
Fixed-Satellite Service		17800.0 MHz -18600.0 MHz	Transmit
Fixed-Satellite Service		18800.0 MHz -19300.0 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	716
Orbit Epoch Date	01/01/2010
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	55.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-55.0 degrees
Active Service Arc End Angle with respect to Ascending Node	55.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	337.5
2	315.0
3	292.5
4	270.0
5	247.5
6	225.0
7	202.5
8	180.0
9	157.5
10	135.0
11	112.5
12	90.0
13	67.5

14	45.0
15	22.5
16	0.0

Orbital Plane 2:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	55.0 degrees
Right Ascension of Ascending Node	45.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-55.0 degrees
Active Service Arc End Angle with respect to Ascending Node	55.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	337.5
2	315.0
3	292.5
4	270.0
5	247.5
6	225.0
7	202.5
8	180.0
9	157.5

10	135.0
11	112.5
12	90.0
13	67.5
14	45.0
15	22.5
16	0.0

Orbital Plane 3:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	55.0 degrees
Right Ascension of Ascending Node	90.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-55.0 degrees
Active Service Arc End Angle with respect to Ascending Node	55.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	337.5
2	315.0
3	292.5
4	270.0
5	247.5

6	225.0
7	202.5
8	180.0
9	157.5
10	135.0
11	112.5
12	90.0
13	67.5
14	45.0
15	22.5
16	0.0

Orbital Plane 4:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	55.0 degrees
Right Ascension of Ascending Node	135.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-55.0 degrees
Active Service Arc End Angle with respect to Ascending Node	55.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	337.5

2	315.0
3	292.5
4	270.0
5	247.5
6	225.0
7	202.5
8	180.0
9	157.5
10	135.0
11	112.5
12	90.0
13	67.5
14	45.0
15	22.5
16	0.0

Orbital Plane 5:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	55.0 degrees
Right Ascension of Ascending Node	180.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-55.0 degrees
Active Service Arc End Angle with respect to Ascending Node	55.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	337.5
2	315.0
3	292.5
4	270.0
5	247.5
6	225.0
7	202.5
8	180.0
9	157.5
10	135.0
11	112.5
12	90.0
13	67.5
14	45.0
15	22.5
16	0.0

Orbital Plane 6:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	55.0 degrees
Right Ascension of Ascending Node	225.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km

Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-55.0 degrees
Active Service Arc End Angle with respect to Ascending Node	55.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	337.5
2	315.0
3	292.5
4	270.0
5	247.5
6	225.0
7	202.5
8	180.0
9	157.5
10	135.0
11	112.5
12	90.0
13	67.5
14	45.0
15	22.5
16	0.0

Orbital Plane 7:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	55.0 degrees

Right Ascension of Ascending Node	270.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-55.0 degrees
Active Service Arc End Angle with respect to Ascending Node	55.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	337.5
2	315.0
3	292.5
4	270.0
5	247.5
6	225.0
7	202.5
8	180.0
9	157.5
10	135.0
11	112.5
12	90.0
13	67.5
14	45.0
15	22.5
16	0.0

Orbital Plane 8:

Question	Response
Number of Satellites in Plane	16
Inclination Angle	55.0 degrees
Right Ascension of Ascending Node	315.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-55.0 degrees
Active Service Arc End Angle with respect to Ascending Node	55.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	337.5
2	315.0
3	292.5
4	270.0
5	247.5
6	225.0
7	202.5
8	180.0
9	157.5
10	135.0
11	112.5
12	90.0
13	67.5

14	45.0
15	22.5
16	0.0

Orbital Plane 9:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	124.9
2	66.12
3	58.78
4	51.43
5	44.08
6	36.73
7	29.39
8	315.92
9	308.57

10	301.22
11	293.88
12	80.82
13	73.47
14	146.94
15	154.29
16	161.63
17	168.98
18	176.33
19	183.67
20	191.02
21	198.37
22	323.27
23	286.53
24	279.18
25	271.84
26	264.49
27	257.14
28	249.8
29	242.45
30	235.1
31	227.76
32	220.41
33	213.06
34	205.71
35	95.51

36	102.86
37	110.2
38	117.55
39	88.16
40	337.96
41	330.61
42	345.31
43	352.65
44	139.59
45	132.24
46	0.0
47	7.35
48	14.69
49	22.04

Orbital Plane 10:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	15.23 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	44.08
2	36.73
3	29.39
4	22.04
5	14.69
6	7.35
7	0.0
8	51.43
9	58.78
10	66.12
11	73.47
12	80.82
13	88.16
14	95.51
15	102.86
16	110.2
17	117.55
18	124.9
19	132.24
20	139.59
21	146.94
22	154.29
23	161.63
24	168.98
25	176.33

26	183.67
27	191.02
28	198.37
29	205.71
30	213.06
31	220.41
32	227.76
33	235.1
34	242.45
35	249.8
36	257.14
37	293.88
38	301.22
39	308.57
40	315.92
41	352.65
42	345.31
43	337.96
44	330.61
45	286.53
46	279.18
47	271.84
48	264.49
49	323.27

Orbital Plane 11:

Question

Response

Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	30.46 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	36.73
2	44.08
3	73.47
4	80.82
5	88.16
6	95.51
7	183.67
8	191.02
9	198.37
10	205.71
11	213.06
12	220.41
13	227.76
14	308.57
15	315.92

16	330.61
17	323.27
18	102.86
19	110.2
20	117.55
21	124.9
22	132.24
23	51.43
24	58.78
25	66.12
26	279.18
27	176.33
28	168.98
29	161.63
30	154.29
31	235.1
32	337.96
33	345.31
34	352.65
35	0.0
36	7.35
37	14.69
38	22.04
39	29.39
40	286.53
41	293.88

42	301.22
43	146.94
44	139.59
45	242.45
46	249.8
47	257.14
48	264.49
49	271.84

Orbital Plane 12:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	45.69 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	257.14
2	264.49
3	271.84
4	279.18

5	286.53
6	293.88
7	301.22
8	88.16
9	80.82
10	73.47
11	220.41
12	213.06
13	205.71
14	308.57
15	315.92
16	323.27
17	330.61
18	345.31
19	352.65
20	95.51
21	66.12
22	58.78
23	51.43
24	44.08
25	36.73
26	29.39
27	22.04
28	14.69
29	7.35
30	0.0

31	124.9
32	132.24
33	139.59
34	146.94
35	154.29
36	161.63
37	168.98
38	176.33
39	102.86
40	110.2
41	117.55
42	227.76
43	235.1
44	242.45
45	249.8
46	198.37
47	191.02
48	183.67
49	337.96

Orbital Plane 13:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	60.92 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds

Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	249.8
2	242.45
3	235.1
4	132.24
5	124.9
6	117.55
7	146.94
8	154.29
9	161.63
10	139.59
11	264.49
12	271.84
13	279.18
14	286.53
15	293.88
16	301.22
17	308.57
18	315.92
19	323.27
20	330.61

21	337.96
22	345.31
23	352.65
24	0.0
25	7.35
26	14.69
27	22.04
28	29.39
29	102.86
30	110.2
31	168.98
32	176.33
33	95.51
34	88.16
35	80.82
36	73.47
37	66.12
38	58.78
39	51.43
40	44.08
41	36.73
42	183.67
43	191.02
44	198.37
45	205.71
46	213.06

47	220.41
48	227.76
49	257.14

Orbital Plane 14:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	76.15 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	168.98
2	95.51
3	102.86
4	110.2
5	117.55
6	124.9
7	14.69
8	22.04
9	29.39

10	36.73
11	44.08
12	51.43
13	58.78
14	66.12
15	73.47
16	80.82
17	88.16
18	183.67
19	191.02
20	198.37
21	205.71
22	213.06
23	220.41
24	227.76
25	235.1
26	242.45
27	249.8
28	257.14
29	264.49
30	271.84
31	279.18
32	286.53
33	293.88
34	301.22
35	132.24

36	139.59
37	146.94
38	154.29
39	161.63
40	0.0
41	7.35
42	352.65
43	345.31
44	337.96
45	330.61
46	323.27
47	315.92
48	308.57
49	176.33

Orbital Plane 15:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	91.38 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	279.18
2	271.84
3	264.49
4	257.14
5	249.8
6	242.45
7	235.1
8	227.76
9	220.41
10	213.06
11	205.71
12	198.37
13	191.02
14	0.0
15	7.35
16	286.53
17	293.88
18	301.22
19	308.57
20	315.92
21	345.31
22	337.96
23	14.69
24	22.04
25	29.39

26	36.73
27	44.08
28	51.43
29	58.78
30	102.86
31	110.2
32	117.55
33	124.9
34	132.24
35	139.59
36	146.94
37	154.29
38	161.63
39	168.98
40	176.33
41	183.67
42	352.65
43	323.27
44	330.61
45	66.12
46	73.47
47	80.82
48	88.16
49	95.51

Orbital Plane 16:

Question

Response

Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	106.61 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	22.04
2	14.69
3	213.06
4	220.41
5	227.76
6	235.1
7	242.45
8	249.8
9	257.14
10	264.49
11	271.84
12	279.18
13	286.53
14	293.88
15	301.22

16	308.57
17	315.92
18	323.27
19	337.96
20	345.31
21	352.65
22	205.71
23	161.63
24	0.0
25	7.35
26	198.37
27	191.02
28	183.67
29	176.33
30	168.98
31	154.29
32	146.94
33	139.59
34	132.24
35	124.9
36	117.55
37	110.2
38	102.86
39	95.51
40	88.16
41	330.61

42	80.82
43	73.47
44	66.12
45	58.78
46	51.43
47	44.08
48	36.73
49	29.39

Orbital Plane 17:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	121.84 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0
2	7.35
3	14.69
4	22.04

5	29.39
6	36.73
7	44.08
8	51.43
9	58.78
10	66.12
11	73.47
12	198.37
13	191.02
14	183.67
15	176.33
16	168.98
17	161.63
18	124.9
19	117.55
20	110.2
21	102.86
22	95.51
23	88.16
24	80.82
25	132.24
26	139.59
27	323.27
28	315.92
29	308.57
30	301.22

31	293.88
32	286.53
33	330.61
34	337.96
35	264.49
36	257.14
37	242.45
38	249.8
39	271.84
40	154.29
41	146.94
42	235.1
43	227.76
44	220.41
45	213.06
46	205.71
47	279.18
48	352.65
49	345.31

Orbital Plane 18:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	137.07 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds

Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	22.04
2	14.69
3	7.35
4	0.0
5	315.92
6	308.57
7	301.22
8	293.88
9	286.53
10	279.18
11	271.84
12	264.49
13	257.14
14	73.47
15	110.2
16	117.55
17	124.9
18	132.24
19	139.59
20	146.94

21	154.29
22	161.63
23	205.71
24	198.37
25	345.31
26	352.65
27	249.8
28	242.45
29	235.1
30	227.76
31	220.41
32	213.06
33	191.02
34	183.67
35	176.33
36	168.98
37	66.12
38	58.78
39	51.43
40	44.08
41	36.73
42	29.39
43	80.82
44	88.16
45	95.51
46	323.27

47	330.61
48	337.96
49	102.86

Orbital Plane 19:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	152.3 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	198.37
2	191.02
3	183.67
4	176.33
5	154.29
6	0.0
7	7.35
8	14.69
9	22.04

10	293.88
11	286.53
12	161.63
13	168.98
14	352.65
15	345.31
16	337.96
17	330.61
18	323.27
19	279.18
20	146.94
21	139.59
22	132.24
23	124.9
24	117.55
25	110.2
26	102.86
27	95.51
28	88.16
29	80.82
30	73.47
31	66.12
32	58.78
33	51.43
34	44.08
35	36.73

36	29.39
37	315.92
38	308.57
39	301.22
40	227.76
41	235.1
42	242.45
43	249.8
44	257.14
45	264.49
46	271.84
47	220.41
48	213.06
49	205.71

Orbital Plane 20:

Question	Response
Number of Satellites in Plane	49
Inclination Angle	87.9 degrees
Right Ascension of Ascending Node	167.53 degrees
Argument of Perigee	0.0 degrees
Orbital Period	6600.0 seconds
Apogee	1200.0 km
Perigee	1200.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-87.9 degrees
Active Service Arc End Angle with respect to Ascending Node	87.9 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	264.49
2	271.84
3	279.18
4	286.53
5	293.88
6	301.22
7	139.59
8	132.24
9	124.9
10	0.0
11	7.35
12	14.69
13	22.04
14	29.39
15	330.61
16	323.27
17	315.92
18	308.57
19	117.55
20	110.2
21	102.86
22	337.96
23	345.31
24	352.65
25	36.73

26	44.08
27	51.43
28	58.78
29	66.12
30	73.47
31	80.82
32	88.16
33	95.51
34	257.14
35	249.8
36	242.45
37	235.1
38	227.76
39	220.41
40	213.06
41	205.71
42	198.37
43	191.02
44	183.67
45	176.33
46	168.98
47	161.63
48	154.29
49	146.94

Receiving Beams 1:

Question	Response
Beam ID	GUAR
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.6 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	11.4 dB/K
Min. Saturation Flux Density	-101.5 dBW/m2
Max. Saturation Flux Density	-77.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 2:

Question	Response
Beam ID	GUBL
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.6 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	11.4 dB/K
Min. Saturation Flux Density	-101.5 dBW/m2
Max. Saturation Flux Density	-77.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving
Beams 3:

Question	Response
Beam ID	GUAL
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.6 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	11.4 dB/K
Min. Saturation Flux Density	-101.5 dBW/m2
Max. Saturation Flux Density	-77.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving

Beams 4:

Question	Response
Beam ID	GUBR
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	38.0 dBi
Antenna Pointing Error	0.6 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	11.4 dB/K
Min. Saturation Flux Density	-101.5 dBW/m2
Max. Saturation Flux Density	-77.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 5:

Question	Response
Beam ID	UUAL
Receive Beam Frequency	14000.0 MHz -14500.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	26.0 dBi
Antenna Pointing Error	0.4 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	-1.0 dB/K
Min. Saturation Flux Density	-77.5 dBW/m2
Max. Saturation Flux Density	-77.4 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 6:

Question	Response
Beam ID	UUBL
Receive Beam Frequency	14000.0 MHz -14500.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	26.0 dBi
Antenna Pointing Error	0.4 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	-1.0 dB/K
Min. Saturation Flux Density	-87.5 dBW/m2
Max. Saturation Flux Density	-70.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 7:

Question	Response
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Beam ID	UUCL
Receive Beam Frequency	14000.0 MHz -14500.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	38.6 dBi
Antenna Pointing Error	0.4 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	11.6 dB/K
Min. Saturation Flux Density	-97.5 dBW/m2
Max. Saturation Flux Density	-70.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 8:

Question	Response
Beam ID	UUBR
Receive Beam Frequency	14000.0 MHz -14500.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	26.0 dBi
Antenna Pointing Error	0.4 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	-1.0 dB/K
Min. Saturation Flux Density	-87.5 dBW/m2
Max. Saturation Flux Density	-70.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 9:

Question	Response
Beam ID	UUCR
Receive Beam Frequency	14000.0 MHz -14500.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	36.6 dBi
Antenna Pointing Error	0.4 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	11.6 dB/K
Min. Saturation Flux Density	-97.5 dBW/m2
Max. Saturation Flux Density	-70.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Channels (22)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
PU9	10.0	27585.0	TT&C
PU10	10.0	27595.0	TT&C
GU1	250.0	27725.0	Feeder Link
GU2	250.0	27975.0	Feeder Link
GU3	250.0	28225.0	Feeder Link
GU4	250.0	28475.0	Feeder Link
GU5	250.0	28725.0	Feeder Link
PU1	10.0	27505.0	TT&C
PU2	10.0	27515.0	TT&C
PU8	10.0	27575.0	TT&C
PU7	10.0	27565.0	TT&C
UU2	125.0	14187.5	Service Link
UU1	125.0	14062.5	Service Link
PU3	10.0	27525.0	TT&C
PU5	10.0	27545.0	TT&C
PU6	10.0	27555.0	TT&C
PU4	10.0	27535.0	TT&C
UU4	125.0	14437.5	Service Link
UU3	125.0	14312.5	Service Link
GU8	250.0	29875.0	Feeder Link
GU7	250.0	29625.0	Feeder Link
GU6	250.0	28975.0	Feeder Link

Transmitting
Beams 1:

Question	Response
Beam ID	GDAL
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	33.0 dBi
Antenna Pointing Error	0.6 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	38.0 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 /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	-144.1	-135.9	-131.8	-130.8	-129.9	-124.6

Transmitting
Beams 2:

Question	Response
Beam ID	GDBR
Transmit Beam Frequency	18800.0 MHz -19300.0 MHz

Beam Type	Steerable
Polarization	RHCP
Peak Gain	33.0 dBi
Antenna Pointing Error	0.6 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	38.0 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 /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	-144.1	-135.9	-131.8	-130.8	-129.9	-124.6

Transmitting Beams 3:

Question	Response
Beam ID	GDBL
Transmit Beam Frequency	18800.0 MHz -19300.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	33.0 dBi
Antenna Pointing Error	0.6 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	38.0 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):
1.0 MHz	-144.1	-135.9	-131.8	-130.8	-129.9	-124.6

Transmitting Beams 4:

Question	Response
Beam ID	GDAR
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	33.0 dBi
Antenna Pointing Error	0.6 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	38.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

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	-144.1	-135.9	-131.8	-130.8	-129.9	-124.6

Transmitting Beams 5:

Question	Response
Beam ID	UDAR
Transmit Beam Frequency	10700.0 MHz -12700.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	24.5 dBi
Antenna Pointing Error	0.4 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-49.4 dBW/Hz
Max. Transmit EIRP	34.6 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):
4.0 kHz	-165.9	-164.4	-162.7	-160.9	-159.0	-146.0

Question	Response
Beam ID	UDCR
Transmit Beam Frequency	10700.0 MHz -12700.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	37.0 dBi
Antenna Pointing Error	0.4 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-49.4 dBW/Hz
Max. Transmit EIRP	34.6 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°
* 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	-175.5	-174.3	-173.2	-172.2	-171.3	-146.0

Transmitting
Beams 7:

Question	Response
Beam ID	UDBR
Transmit Beam Frequency	10700.0 MHz -12700.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	24.5 dBi
Antenna Pointing Error	0.4 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-49.4 dBW/Hz
Max. Transmit EIRP	34.6 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):
4.0 kHz	-174.5	-173.3	-173.2	-172.2	-171.3	-146.0

Transmitting
Beams 8:

Question	Response
Beam ID	UDDR
Transmit Beam Frequency	10700.0 MHz -12700.0 MHz

Beam Type	Steerable
Polarization	RHCP
Peak Gain	24.5 dBi
Antenna Pointing Error	0.4 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-40.6 dBW/Hz
Max. Transmit EIRP	52.4 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):
4.0 kHz	-158.5	-150.5	-148.0	-145.5	-143.0	-140.5

Transmitting Beams 9:

Question	Response
Beam ID	UDER
Transmit Beam Frequency	10700.0 MHz -12700.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	37.0 dBi
Antenna Pointing Error	0.4 degrees

Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-38.7 dBW/Hz
Max. Transmit EIRP	54.3 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	-164.8	-163.6	-162.5	-147.5	-140.6	-140.5

Transmitting Beams 10:

Question	Response
Beam ID	UDDL
Transmit Beam Frequency	10700.0 MHz -12700.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	24.5 dBi
Antenna Pointing Error	0.4 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-40.6 dBW/Hz

Max. Transmit EIRP	52.4 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	-158.5	-150.5	-148.0	-145.5	-143.0	-140.5

Transmitting Beams 11:

Question	Response
Beam ID	UDEL
Transmit Beam Frequency	10700.0 MHz -12700.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	37.0 dBi
Antenna Pointing Error	0.4 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-38.7 dBW/Hz
Max. Transmit EIRP	54.3 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	-164.8	-163.6	-162.5	-147.5	-140.6	-140.5

**Transmitting
Channels (26)**

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
PD10	3.5	19298.25	TT&C
GD1	155.0	17877.5	Feeder Link
GD2	155.0	18032.5	Feeder Link
GD3	155.0	18187.5	Feeder Link
GD4	155.0	18342.5	Feeder Link
GD5	155.0	18497.5	Feeder Link
GD6	155.0	18877.5	Feeder Link
GD7	155.0	19032.5	Feeder Link
GD8	155.0	19187.5	Feeder Link
PD1	3.5	19266.75	TT&C
PD2	3.5	19270.25	TT&C
PD3	3.5	19273.75	TT&C
PD4	3.5	19277.25	TT&C
PD5	3.5	19280.75	TT&C
PD6	3.5	19284.25	TT&C
PD7	3.5	19287.75	TT&C
PD8	3.5	19291.25	TT&C
PD9	3.5	19294.75	TT&C
UD1	250.0	10825.0	Service Link
UD2	250.0	11075.0	Service Link
UD3	250.0	11325.0	Service Link
UD4	250.0	11575.0	Service Link
UD5	250.0	11825.0	Service Link
UD6	250.0	12075.0	Service Link

UD7	250.0	12325.0	Service Link
UD8	250.0	12575.0	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>Beam GUAL.gxt</u>	GUAL	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam GUAR.gxt</u>	GUAR	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UUBL.gxt</u>	UUBL	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UUAL.gxt</u>	UUAL	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UUCL.gxt</u>	UUCL	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UUBR.gxt</u>	UUBR	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UUCR.gxt</u>	UUCR	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UDAR.gxt</u>	UDAR	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UDCR.gxt</u>	UDCR	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UDBR.gxt</u>	UDBR	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UDDR.gxt</u>	UDDR	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UDER.gxt</u>	UDER	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UDDL.gxt</u>	UDDL	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam UDEL.gxt</u>	UDEL	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam GDBR.gxt</u>	GDBR	NGSO Antenna Gain Data	GXT file (*.gxt)	
<u>Beam GDBL.gxt</u>	GDBL	NGSO Antenna Gain Data	GXT file (*.gxt)	

<u>Beam GDAR.gxt</u>	GDAR	NGSO Antenna Gain Data	GXT file (*.gxt)
<u>Beam GDAL.gxt</u>	GDAL	NGSO Antenna Gain Data	GXT file (*.gxt)
<u>Beam GUBR.gxt</u>	GUBR	NGSO Antenna Gain Data	GXT file (*.gxt)
<u>Beam GUBL.gxt</u>	GUBL	NGSO Antenna Gain Data	GXT file (*.gxt)