Approved by OMB 3060-0678
Estimated Burden: up to 80 hours
April 2016

Federal Communications Commission

312 File Number: **SATAMD2017030100026**

Filing Description

Question	Response
Description	Amendment to the pending O3b modification application to add V-band frequencies to twenty-four of the pending satellites.

Satellite Information

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	O3b
Estimated Lifetime of Satellite(s) From Date of Launch	15 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating Frequency Bands (4)

Nature of service	Description	Frequency Band(s)	Mode Type
Fixed-Satellite Service		17700.0 MHz -20200.0 MHz	Transmit
Fixed-Satellite Service		27500.0 MHz -30000.0 MHz	Receive
Fixed-Satellite Service		37500.0 MHz -42500.0 MHz	Transmit
Fixed-Satellite Service		47200.0 MHz -51400.0 MHz	Receive

Orbital Information For Non-Geostationary Satellites

Question	Response
Total Number of Satellites in the active constellation	60
Orbit Epoch Date	01/01/2016
Celestrial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	8
Inclination Angle	70.0 degrees
Right Ascension of Ascending Node	180.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	17280.0 seconds
Apogee	8062.0 km
Perigee	8062.0 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	26.0
2	71.0
3	341.0
4	296.0
5	251.0
6	206.0
7	161.0
8	116.0

Orbital Plane 2:

Question	Response
Number of Satellites in Plane	44
Inclination Angle	0.0 degrees

Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	17280.0 seconds
Apogee	8062.0 km
Perigee	8062.0 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	33.7
3	157.5
4	247.5
5	258.7
6	270.0
7	90.0
8	93.7
9	108.7
10	123.7
11	135.0
12	138.7
13	153.7
14	168.7
15	180.0

16	183.7
17	202.5
18	213.7
19	225.0
20	228.7
21	243.7
22	1.0
23	91.0
24	181.0
25	271.0
26	48.7
27	78.7
28	67.5
29	63.7
30	288.7
31	198.7
32	112.5
33	45.0
34	348.7
35	337.5
36	333.7
37	318.7
38	315.0
39	303.7
40	292.5
41	273.7

42	22.5
43	18.7
44	3.7

Orbital Plane 3:

Question	Response
Number of Satellites in Plane	8
Inclination Angle	70.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	17280.0 seconds
Apogee	8062.0 km
Perigee	8062.0 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	183.5
2	228.5
3	273.5
4	318.5
5	138.5
6	93.5
7	48.5
8	3.5

Receiving Beams 1:

Question	Response
Beam ID	UR3G
Receive Beam Frequency	28140.0 MHz -28400.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 2:

Question	Response
Beam ID	UR2G
Receive Beam Frequency	27890.0 MHz -28150.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees

Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 3:

Question	Response
Beam ID	UR1G
Receive Beam Frequency	27600.0 MHz -27900.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 4:

Question	Response
Beam ID	UR5N
Receive Beam Frequency	28837.5 MHz -29087.5 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 5:

Question	Response
Beam ID	UR6G
Receive Beam Frequency	27600.0 MHz -27900.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 6:

Question	Response
Beam ID	UR7G
Receive Beam Frequency	27890.0 MHz -28150.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 7:

Question	Response

Beam ID	UR8G
Receive Beam Frequency	28140.0 MHz -28400.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 8:

Question	Response
Beam ID	UR9N
Receive Beam Frequency	28600.0 MHz -28850.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees

G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 9:

Question	Response
Beam ID	UR10
Receive Beam Frequency	28837.5 MHz -29087.5 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 10:

Question	Response
Beam ID	GR1N

Receive Beam Frequency	28600.0 MHz -29087.5 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-98.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 11:

Question	Response
Beam ID	GR2G
Receive Beam Frequency	27600.0 MHz -28400.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K

Min. Saturation Flux Density	-98.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 12:

Question	Response
Beam ID	GR1G
Receive Beam Frequency	27600.0 MHz -28400.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-98.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 13:

Question	Response
Beam ID	GR2N
Receive Beam Frequency	28600.0 MHz -29087.5 MHz

Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-98.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 14:

Question	Response
Beam ID	CMD
Receive Beam Frequency	29087.9 MHz -29089.1 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 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	-95.0 dBW/m2

Max. Saturation Flux Density	-80.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 15:

Question	Response
Beam ID	CMD1
Receive Beam Frequency	29095.0 MHz -29100.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 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	-100.0 dBW/m2
Max. Saturation Flux Density	-60.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 16:

Question	Response
Beam ID	CMD2
Receive Beam Frequency	29095.0 MHz -29100.0 MHz
Beam Type	Fixed

Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 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	-100.0 dBW/m2
Max. Saturation Flux Density	-60.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 17:

Question	Response
Beam ID	UR4N
Receive Beam Frequency	28600.0 MHz -28850.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2

Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Receiving Beams 18:

Question	Response
Beam ID	UR11
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 19:

Question	Response
Beam ID	GR3G
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	RHCP

Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-98.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 20:

Question	Response
Beam ID	RL1
Receive Beam Frequency	27500.0 MHz -30000.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	LHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	11.0 dB/K
Min. Saturation Flux Density	-90.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C

Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Receiving Beams 21:

Question	Response
Beam ID	GR4G
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-98.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 22:

Question	Response
Beam ID	UR12
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi

Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.0 dB/K
Min. Saturation Flux Density	-101.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Receiving Beams 23:

Question	Response
Beam ID	RR1
Receive Beam Frequency	27500.0 MHz -30000.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	11.0 dB/K
Min. Saturation Flux Density	-90.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C

Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Receiving Beams 24:

Question	Response
Beam ID	VRL1
Receive Beam Frequency	47200.0 MHz -51400.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	13.3 dB/K
Min. Saturation Flux Density	-95.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Receiving Beams 25:

Question	Response
Beam ID	VRR1
Receive Beam Frequency	47200.0 MHz -51400.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi

Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	13.3 dB/K
Min. Saturation Flux Density	-95.0 dBW/m2
Max. Saturation Flux Density	-55.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Receiving Channels (16)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
TC1	1.2	29088.5	TT&C
R5R	250.0	28962.5	Service Link
R5L	250.0	28962.5	Service Link
R4R	250.0	28725.0	Service Link
R4L	250.0	28725.0	Service Link
R3R	260.0	28270.0	Service Link
R3L	260.0	28270.0	Service Link
R2R	260.0	28020.0	Service Link
R2L	260.0	28020.0	Service Link
R1R	300.0	27750.0	Service Link
R1L	300.0	27750.0	Service Link
R6R	500.0	29750.0	Service Link
R6L	500.0	29750.0	Service Link
C001	5.0	29097.5	TT&C
R001	2500.0	28750.0	Service Link
VR01	4200.0	49300.0	Service Link

Transmitting Beams 1:

Question	Response
Beam ID	GT1N
Transmit Beam Frequency	18800.0 MHz -19287.5 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 2:

Question	Response
Beam ID	GT2G
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz

Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 3:

Question	Response
Beam ID	GT2N
Transmit Beam Frequency	18800.0 MHz -19287.5 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees

Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 4:

Question	Response
Beam ID	TLMN
Transmit Beam Frequency	19296.1 MHz -19300.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-37.8 dBW/Hz

Max. Transmit EIRP	5.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-130.7	-130.3	-130.0	-129.6	-129.3	-126.9

Transmitting Beams 5:

Question	Response
Beam ID	TLMS
Transmit Beam Frequency	19296.1 MHz -19300.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	20.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 6:

Question	Response
Beam ID	TLM1
Transmit Beam Frequency	19295.0 MHz -19300.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-22.5 dBW/Hz
Max. Transmit EIRP	26.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-115.4	-115.0	-114.7	-114.3	-114.0	-111.6

Transmitting Beams 7:

Question	Response
Beam ID	TLM2
Transmit Beam Frequency	19295.0 MHz -19300.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-22.5 dBW/Hz
Max. Transmit EIRP	26.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-115.4	-115.0	-114.7	-114.3	-114.0	-111.6

Transmitting Beams 8:

Question	Response

Beam ID	UT1G
Transmit Beam Frequency	17800.0 MHz -18100.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 9:

Question	Response
Beam ID	UT2G
Transmit Beam Frequency	18090.0 MHz -18350.0 MHz
Beam Type	Steerable
Polarization	LHCP

Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 10:

Question	Response
Beam ID	UT3G
Transmit Beam Frequency	18340.0 MHz -18600.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 11:

Question	Response
Beam ID	UT4N
Transmit Beam Frequency	18800.0 MHz -19050.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C

Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 12:

Question	Response
Beam ID	GT3G
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 13:

Question	Response
Beam ID	TL1
Transmit Beam Frequency	17700.0 MHz -20200.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-22.5 dBW/Hz
Max. Transmit EIRP	55.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Max. Power Flux Density

* BW:	* 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	-115.4	-115.0	-114.7	-114.3	-114.0	-111.6

Transmitting Beams 14:

Question	Response
Beam ID	TR1
Transmit Beam Frequency	17700.0 MHz -20200.0 MHz
Beam Type	Both Steerable and Shapeable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-22.5 dBW/Hz
Max. Transmit EIRP	55.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Max. Power Flux Density

* BW:	* 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	-115.4	-115.0	-114.7	-114.3	-114.0	-111.6

Transmitting Beams 15:

Question	Response
Beam ID	GT1G
Transmit Beam Frequency	17800.0 MHz -18600.0 MHz

Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 16:

Question	Response
Beam ID	UT5N
Transmit Beam Frequency	19037.5 MHz -19287.5 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees

Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 17:

Question	Response
Beam ID	UT6G
Transmit Beam Frequency	17800.0 MHz -18100.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz

Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 18:

Question	Response
Beam ID	UT7G
Transmit Beam Frequency	18090.0 MHz -18350.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 19:

Question	Response
Beam ID	UT8G
Transmit Beam Frequency	18340.0 MHz -18600.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 20:

Question	Response
Beam ID	UT9G
Transmit Beam Frequency	18800.0 MHz -19050.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 21:

Question	Response

Beam ID	UT10
Transmit Beam Frequency	19037.5 MHz -19287.5 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 22:

Question	Response
Beam ID	GT4G
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	LHCP

Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 23:

Question	Response
Beam ID	UT11
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 24:

Question	Response
Beam ID	UT12
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-26.6 dBW/Hz
Max. Transmit EIRP	49.7 dBW
Co- or Cross Polar Mode	C

Service Area Description	Visible Earth latitudes above 13 deg N or S with elevation angle at least 5 degrees.

Max. Power Flux Density

* BW:	* 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	-119.2	-118.8	-118.5	-118.2	-118.0	-115.7

Transmitting Beams 25:

Question	Response
Beam ID	VTL1
Transmit Beam Frequency	37500.0 MHz -40000.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-16.0 dBW/Hz
Max. Transmit EIRP	55.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Max. Power Flux Density

* BW:	* 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	-120.5	-116.8	-113.0	-109.3	-106.3	-106.2

Transmitting Beams 26:

Question	Response
Beam ID	VTR1
Transmit Beam Frequency	37500.0 MHz -40000.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-16.0 dBW/Hz
Max. Transmit EIRP	55.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Max. Power Flux Density

* BW:	* 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	-120.5	-116.8	-113.0	-109.3	-106.3	-106.2

Transmitting Beams 27:

Question	Response
Beam ID	VTR2
Transmit Beam Frequency	40000.0 MHz -42500.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-16.0 dBW/Hz
Max. Transmit EIRP	55.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Max. Power Flux Density

* BW:	* 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	-115.5	-113.1	-110.5	-108.0	-105.7	-105.7

Transmitting Beams 28:

Question	Response
Beam ID	VTL2
Transmit Beam Frequency	40000.0 MHz -42500.0 MHz

Beam Type	Steerable
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.6 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-16.0 dBW/Hz
Max. Transmit EIRP	55.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth with elevation angles greater than or equal to 5 degrees.

Max. Power Flux Density

* BW:	* 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	-115.5	-113.1	-110.5	-108.0	-105.7	-105.7

Transmitting Channels (48)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
T6R	500.0	19950.0	Service Link
T6L	500.0	19950.0	Service Link
TS1	1.0	19296.6	TT&C
TM9	1.0	19298.2	TT&C
TM11	1.0	19298.6	TT&C
TM10	1.0	19298.4	TT&C
TM5	1.0	19297.4	TT&C
TM2	1.0	19296.8	TT&C
TM16	1.0	19299.6	TT&C
TM15	1.0	19299.4	TT&C
TM14	1.0	19299.2	TT&C
TM13	1.0	19299.0	TT&C
TS6	1.0	19297.6	TT&C
TM12	1.0	19298.8	TT&C
T4L	250.0	18925.0	Service Link
T3R	260.0	18470.0	Service Link
T3L	260.0	18470.0	Service Link
T2R	260.0	18220.0	Service Link
TS2	1.0	19296.8	TT&C
TLM1	5.0	19297.5	TT&C
TM8	1.0	19298.0	TT&C
TM7	1.0	19297.8	TT&C
TM6	1.0	19297.6	TT&C
TM4	1.0	19297.2	TT&C

TM3	1.0	19297.0	TT&C
T2L	260.0	18220.0	Service Link
T1R	300.0	17950.0	Service Link
T1L	300.0	17950.0	Service Link
TS7	1.0	19297.8	TT&C
TS4	1.0	19297.2	TT&C
TS3	1.0	19297.0	TT&C
TM1	1.0	19296.6	TT&C
T001	2500.0	18950.0	Service Link
TS9	1.0	19298.2	TT&C
TS8	1.0	19298.0	TT&C
TS16	1.0	19299.6	TT&C
TS15	1.0	19299.4	TT&C
TS14	1.0	19299.2	TT&C
TS13	1.0	19299.0	TT&C
TS12	1.0	19298.8	TT&C
TS11	1.0	19298.6	TT&C
TS10	1.0	19298.4	TT&C
TS5	1.0	19297.4	TT&C
T5R	250.0	19162.5	Service Link
T5L	250.0	19162.5	Service Link
T4R	250.0	18925.0	Service Link
VT01	2500.0	38750.0	Service Link
VT02	2500.0	41250.0	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?	No
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
O3b TX-RX antenna pattern equation.pdf	GT1N	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	GT2G	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	GT2N	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR3G	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR2G	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR1G	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR5N	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR6G	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR7G	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR8G	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR9N	NGSO Antenna Gain Data	PDF file (*.pdf)	
O3b TX-RX antenna pattern equation.pdf	UR10	NGSO Antenna Gain Data	PDF file (*.pdf)	

O3b TX-RX antenna pattern equation.pdf	GR1N	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	GR2G	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	GR1G	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	GR2N	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UR4N	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UR11	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	GR3G	NGSO Antenna Gain Data	PDF file (*.pdf)
RX_beams.pdf	RL1	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	GR4G	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UT1G	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UT2G	NGSO Antenna Gain Data	PDF file (*.pdf)
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O3b TX-RX antenna pattern equation.pdf	UT4N	NGSO Antenna Gain Data	PDF file (*.pdf)

O3b TX-RX antenna pattern equation.pdf	GT3G	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UR12	NGSO Antenna Gain Data	PDF file (*.pdf)
TX_beams.pdf	TL1	NGSO Antenna Gain Data	PDF file (*.pdf)
TX_beams.pdf	TR1	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	GT1G	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UT5N	NGSO Antenna Gain Data	PDF file (*.pdf)
RX_beams.pdf	RR1	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UT6G	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UT7G	NGSO Antenna Gain Data	PDF file (*.pdf)
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O3b TX-RX antenna pattern equation.pdf	GT4G	NGSO Antenna Gain Data	PDF file (*.pdf)

O3b TX-RX antenna pattern equation.pdf	UT11	NGSO Antenna Gain Data	PDF file (*.pdf)
O3b TX-RX antenna pattern equation.pdf	UT12	NGSO Antenna Gain Data	PDF file (*.pdf)
V_RX beams.pdf	VRL1	NGSO Antenna Gain Data	PDF file (*.pdf)
V_TX beams.pdf	VTR1	NGSO Antenna Gain Data	PDF file (*.pdf)
V_TX beams.pdf	VTL1	NGSO Antenna Gain Data	PDF file (*.pdf)
V_TX beams.pdf	VTR2	NGSO Antenna Gain Data	PDF file (*.pdf)
V_TX beams.pdf	VTL2	NGSO Antenna Gain Data	PDF file (*.pdf)
V_RX beams.pdf	VRR1	NGSO Antenna Gain Data	PDF file (*.pdf)