



312 File Number: **SATMPL2022031100029**

Filing Description

Question	Response
Description	Space Norway Arctic Satellite Broadband Mission (ASBM)

**Satellite
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	ASBM
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		19700.0 MHz -20200.0 MHz	Transmit
Fixed-Satellite Service		29500.0 MHz -30000.0 MHz	Receive
Other Satellite Service (please specify)	Gateway band (Ka)	27500.0 MHz -29100.0 MHz	Receive
Other Satellite Service (please specify)	Gateway band (Ka)	17700.0 MHz -19800.0 MHz	Transmit

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	2
Orbit Epoch Date	02/01/2024
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	2
Inclination Angle	62.6 degrees
Right Ascension of Ascending Node	60.4 degrees
Argument of Perigee	268.9 degrees
Orbital Period	57480.0 seconds
Apogee	43536.0 km
Perigee	8076.0 km
Active Service Arc Begin Angle with respect to Ascending Node	31.0 degrees
Active Service Arc End Angle with respect to Ascending Node	64.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	77.5
2	257.5

Receiving Beams 1:

Question	Response
Beam ID	RGW1
Receive Beam Frequency	27500.0 MHz -29100.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	45.6 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	15.6 dB/K
Min. Saturation Flux Density	-105.0 dBW/m2
Max. Saturation Flux Density	-80.0 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Nominal pointing between Tromso (19E, 69.7 N) and Bardufoss (18.5E, 69.1N)

Receiving Beams 2:

Question	Response
Beam ID	RKA7
Receive Beam Frequency	29900.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees

Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	6.0 dB/K
Min. Saturation Flux Density	-120.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Arctic north of 55N

Receiving
Beams 3:

Question	Response
Beam ID	RKA6
Receive Beam Frequency	29800.0 MHz -29900.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	6.0 dB/K
Min. Saturation Flux Density	-120.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Arctic north of 55N

Receiving

Beams 4:

Question	Response
Beam ID	RKA5
Receive Beam Frequency	29700.0 MHz -29800.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	6.0 dB/K
Min. Saturation Flux Density	-120.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Arctic north of 55N

Receiving Beams 5:

Question	Response
Beam ID	RKA4
Receive Beam Frequency	29600.0 MHz -29700.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	6.0 dB/K
Min. Saturation Flux Density	-120.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Arctic north of 55N

Receiving Beams 6:

Question	Response
Beam ID	RKA3
Receive Beam Frequency	29800.0 MHz -29900.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	6.0 dB/K
Min. Saturation Flux Density	-120.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Arctic north of 55N

Receiving Beams 7:

Question	Response
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Beam ID	RKA1
Receive Beam Frequency	29600.0 MHz -29700.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	6.0 dB/K
Min. Saturation Flux Density	-120.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Arctic north of 55N

**Receiving
Beams 8:**

Question	Response
Beam ID	RKA2
Receive Beam Frequency	29700.0 MHz -29800.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	6.0 dB/K
Min. Saturation Flux Density	-120.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Arctic north of 55N

Receiving
Channels (8)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
RKA3	100.0	29850.0	Service Link
RKA1	100.0	29650.0	Service Link
RKA2	100.0	29750.0	Service Link
RGW1	1600.0	28300.0	Feeder Link
RKA4	100.0	29650.0	Service Link
RKA5	100.0	29750.0	Service Link
RKA7	100.0	29950.0	Service Link
RKA6	100.0	29850.0	Service Link

**Transmitting
Beams 1:**

Question	Response
Beam ID	TKA7
Transmit Beam Frequency	20140.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-24.1 dBW/Hz
Max. Transmit EIRP	53.7 dBW
Co- or Cross Polar Mode	X
Service Area Description	North of 55N

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):
1.0 MHz	-125.6	-125.5	-125.4	-125.2	-125.1	-124.2

**Transmitting
Beams 2:**

Question	Response
Beam ID	TKA6
Transmit Beam Frequency	20080.0 MHz -20140.0 MHz

Beam Type	Steerable
Polarization	LHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-24.1 dBW/Hz
Max. Transmit EIRP	53.7 dBW
Co- or Cross Polar Mode	X
Service Area Description	North of 55N

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):
1.0 MHz	-125.6	-125.5	-125.4	-125.2	-125.1	-124.2

Transmitting Beams 3:

Question	Response
Beam ID	TKA5
Transmit Beam Frequency	20020.0 MHz -20080.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees

Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-24.1 dBW/Hz
Max. Transmit EIRP	53.7 dBW
Co- or Cross Polar Mode	X
Service Area Description	North of 55N

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	-125.6	-125.5	-125.4	-125.2	-125.1	-124.2

Transmitting Beams 4:

Question	Response
Beam ID	TKA4
Transmit Beam Frequency	19960.0 MHz -20020.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-24.1 dBW/Hz

Max. Transmit EIRP	53.7 dBW
Co- or Cross Polar Mode	X
Service Area Description	North of 55N

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	-125.6	-125.5	-125.4	-125.2	-125.1	-124.2

Transmitting Beams 5:

Question	Response
Beam ID	TKA3
Transmit Beam Frequency	20080.0 MHz -20140.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-24.1 dBW/Hz
Max. Transmit EIRP	53.7 dBW
Co- or Cross Polar Mode	X
Service Area Description	North of 55N

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	-125.6	-125.5	-125.4	-125.2	-125.1	-124.2

Question	Response
Beam ID	TKA2
Transmit Beam Frequency	20020.0 MHz -20080.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-24.1 dBW/Hz
Max. Transmit EIRP	53.7 dBW
Co- or Cross Polar Mode	X
Service Area Description	North of 55N

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):
1.0 MHz	-125.6	-125.5	-125.4	-125.2	-125.1	-124.2

Transmitting
Beams 7:

Question	Response
Beam ID	TKA1
Transmit Beam Frequency	19960.0 MHz -20020.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	35.0 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-24.1 dBW/Hz
Max. Transmit EIRP	53.7 dBW
Co- or Cross Polar Mode	X
Service Area Description	North of 55N

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	-125.6	-125.5	-125.4	-125.2	-125.1	-124.2

Transmitting
Beams 8:

Question	Response
Beam ID	TGW1
Transmit Beam Frequency	17700.0 MHz -19800.0 MHz

Beam Type	Steerable
Polarization	RHCP
Peak Gain	42.8 dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-25.4 dBW/Hz
Max. Transmit EIRP	54.6 dBW
Co- or Cross Polar Mode	X
Service Area Description	Nominally pointed between Tromso (19E 69.7N) and Bardufoss, Norway (18.5E, 69.1N)

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):
1.0 MHz	-126.9	-126.8	-126.7	-126.5	-126.4	-125.5

Transmitting
Channels (8)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
TKA5	60.0	20050.0	Service Link
TKA4	60.0	19990.0	Service Link
TKA3	60.0	20110.0	Service Link
TGW1	2100.0	18750.0	Feeder Link
TKA7	60.0	20170.0	Service Link
TKA6	60.0	20110.0	Service Link
TKA2	60.0	20050.0	Service Link
TKA1	60.0	19990.0	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

Information not provided.