



312 File Number: **SATLOA2018032000023**

Filing Description

Question	Response
Description	Global 1-4 satellite network

Satellite Information

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	BlackSky Global Constellation
Estimated Lifetime of Satellite(s) From Date of Launch	3 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
Earth Exploration-Satellite Service		401.0 MHz -402.0 MHz	Transmit
Earth Exploration-Satellite Service		2025.0 MHz -2110.0 MHz	Receive
Earth Exploration-Satellite Service		449.75 MHz -450.25 MHz	Receive
Earth Exploration-Satellite Service		8025.0 MHz -8400.0 MHz	Transmit

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	4
Orbit Epoch Date	01/01/2019
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	97.59 degrees
Right Ascension of Ascending Node	62.86 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5760.7 seconds
Apogee	550.0 km
Perigee	550.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	0.0 degrees

Mean Anomaly For Each Satellite

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

Orbital Plane 2:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	97.73 degrees
Right Ascension of Ascending Node	257.86 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5804.4 seconds
Apogee	585.0 km
Perigee	585.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	0.0 degrees

Mean Anomaly For Each Satellite

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

Orbital Plane 3:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	45.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5648.8 seconds
Apogee	460.0 km
Perigee	460.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	0.0 degrees

Mean Anomaly For Each Satellite

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

Orbital Plane 4:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	45.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5667.4 seconds
Apogee	475.0 km

Perigee	475.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	0.0 degrees

Mean Anomaly For Each Satellite

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

Receiving Beams 1:

Question	Response
Beam ID	URC
Receive Beam Frequency	450.185 MHz -450.215 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	4.4 dBi
Antenna Pointing Error	2.0 degrees
Antenna Rotational Error	2.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-22.9 dB/K
Min. Saturation Flux Density	-53.3 dBW/m ²
Max. Saturation Flux Density	-37.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Ground Stations in North Pole, AK, USA and Awarua Plains, NZ

Receiving Beams 2:

Question	Response
Beam ID	SRC
Receive Beam Frequency	2071.775 MHz -2071.975 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	6.0 dBi
Antenna Pointing Error	2.0 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	-23.8 dB/K
Min. Saturation Flux Density	-33.0 dBW/m2
Max. Saturation Flux Density	-32.6 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Ground Stations in North Pole, AK, USA and Awarua Plains, NZ

Receiving Beams 3:

Question	Response
Beam ID	SRX
Receive Beam Frequency	2071.775 MHz -2071.975 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	-6.3 dBi
Antenna Pointing Error	2.0 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	-23.8 dB/K
Min. Saturation Flux Density	-45.8 dBW/m2
Max. Saturation Flux Density	-44.9 dBW/m2
Co- or Cross Polar Mode	X
Service Area Description	Ground Stations in North Pole, AK, USA and Awarua Plains, NZ

Receiving Beams 4:

Question	Response
Beam ID	URX
Receive Beam Frequency	450.185 MHz -450.215 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	1.4 dBi
Antenna Pointing Error	2.0 degrees
Antenna Rotational Error	2.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-25.9 dB/K
Min. Saturation Flux Density	-56.3 dBW/m ²
Max. Saturation Flux Density	-40.0 dBW/m ²
Co- or Cross Polar Mode	X
Service Area Description	Ground Stations in North Pole, AK, USA and Awarua Plains, NZ

**Receiving
Channels (2)**

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
SU	0.2	2071.875	TT&C
UHFU	0.03	450.2	TT&C

Transmitting Beams 1:

Question	Response
Beam ID	XTC
Transmit Beam Frequency	8025.0 MHz -8225.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	16.2 dBi
Antenna Pointing Error	2.0 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-55.7 dBW/Hz
Max. Transmit EIRP	23.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	Ground Stations in North Pole, AK, USA and Awarua Plains, NZ

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	-155.8	-153.8	-152.1	-150.5	-149.2	-142.7

Transmitting Beams 2:

Question	Response
Beam ID	UTC
Transmit Beam Frequency	401.485 MHz -401.515 MHz

Beam Type	Fixed
Polarization	H
Peak Gain	4.1 dBi
Antenna Pointing Error	2.0 degrees
Antenna Rotational Error	2.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-32.3 dBW/Hz
Max. Transmit EIRP	6.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	Worldwide periodic transmission once every 30s, which can be disabled (intended for early operations only). Ground Stations in North Pole, AK, USA and Awarua Plains, NZ

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	-132.4	-130.4	-128.7	-127.1	-125.8	-119.3

Transmitting Beams 3:

Question	Response
Beam ID	UTX

Transmit Beam Frequency	401.485 MHz -401.515 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	1.1 dBi
Antenna Pointing Error	2.0 degrees
Antenna Rotational Error	2.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-35.3 dBW/Hz
Max. Transmit EIRP	3.7 dBW
Co- or Cross Polar Mode	X
Service Area Description	Worldwide periodic transmission once every 30s, which can be disabled (intended for early operations only). Ground Stations in North Pole, AK, USA and Awarua Plains, NZ

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	-135.4	-133.4	-131.7	-130.1	-128.8	-122.3

Transmitting Beams 4:

Question	Response
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Beam ID	XTX
Transmit Beam Frequency	8025.0 MHz -8225.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	2.9 dBi
Antenna Pointing Error	2.0 degrees
Antenna Rotational Error	0.5 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-69.0 dBW/Hz
Max. Transmit EIRP	9.92 dBW
Co- or Cross Polar Mode	X
Service Area Description	Ground Stations in North Pole, AK, USA and Awarua Plains, NZ

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	-169.1	-167.1	-165.4	-163.8	-162.5	-156.0

Transmitting Channels (2)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
XD	200.0	8125.0	TT&C
UHFD	0.03	401.5	TT&C

Certification Questions

Question	Response
<p>Are the applicable service area coverage requirements of 25.143(b)(2) (ii) and (iii), or 25.144(a)(3)(i), or 25.145 (c)(1) and (2), or 25.146(i)(1) and (2), or 25.148(c), or 25.225 met?</p>	<p>N/A</p>
<p>Are the applicable frequency tolerances of 25.202(e) and out-of-band emission limits of 25.202(f)(1),(2), and (3) met?</p>	<p>Yes</p>
<p>Are the cessation of emissions requirements of 25.207 met?</p>	<p>Yes</p>
<p>Are the applicable power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?</p>	
<p>For NGSO applications, are the applicable equivalent-power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?</p>	<p>N/A</p>
<p>Are the applicable full-frequency-reuse requirements of 25.210 met?</p>	
<p>If the application is for a 17/24 GHz BSS space station, will it be operated at an offset location with full power and interference protection in accordance with 25.262(b)?</p>	

Attachments

File Name	Beam	Field	Attachment Type	Description
<u>SRX_585km IVC.pdf</u>	SRX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>URC_460km FAL.pdf</u>	URC	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>URC_460km IVC.pdf</u>	URC	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>UTC_550km FAL.pdf</u>	UTC	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>UTX_475km IVC.pdf</u>	UTX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>SRX_585km FAL.pdf</u>	SRX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>SRX_550km IVC.pdf</u>	SRX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>URC_475km FAL.pdf</u>	URC	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>URC_475km IVC.pdf</u>	URC	NGSO Antenna Gain Data	PDF file (*.pdf)	

<u>UTC</u> <u>550km IVC.</u> <u>pdf</u>	UTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTC</u> <u>585km FAL.</u> <u>pdf</u>	UTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTC</u> <u>585km IVC.</u> <u>pdf</u>	UTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTX</u> <u>460km FAL.</u> <u>pdf</u>	UTX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTX</u> <u>460km IVC.</u> <u>pdf</u>	UTX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URC</u> <u>550km FAL.</u> <u>pdf</u>	URC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URC</u> <u>550km IVC.</u> <u>pdf</u>	URC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URC</u> <u>585km FAL.</u> <u>pdf</u>	URC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URC</u> <u>585km IVC.</u> <u>pdf</u>	URC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTC</u> <u>460km FAL.</u> <u>pdf</u>	UTC	NGSO Antenna Gain Data	PDF file (*.pdf)

<u>UTC</u> <u>460km IVC.</u> <u>pdf</u>	UTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTC</u> <u>475km FAL.</u> <u>pdf</u>	UTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTC</u> <u>475km IVC.</u> <u>pdf</u>	UTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTX</u> <u>475km FAL.</u> <u>pdf</u>	UTX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRX</u> <u>550km FAL.</u> <u>pdf</u>	SRX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRX</u> <u>475km IVC.</u> <u>pdf</u>	SRX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRX</u> <u>475km FAL.</u> <u>pdf</u>	SRX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRX</u> <u>460km IVC.</u> <u>pdf</u>	SRX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRX</u> <u>460km FAL.</u> <u>pdf</u>	SRX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRC</u> <u>550km IVC.</u> <u>pdf</u>	SRC	NGSO Antenna Gain Data	PDF file (*.pdf)

<u>SRC</u> <u>585km IVC.</u> <u>pdf</u>	SRC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRC</u> <u>585km FAL.</u> <u>pdf</u>	SRC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRC</u> <u>550km FAL.</u> <u>pdf</u>	SRC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRC</u> <u>475km IVC.</u> <u>pdf</u>	SRC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRC</u> <u>475km FAL.</u> <u>pdf</u>	SRC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRC</u> <u>460km IVC.</u> <u>pdf</u>	SRC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>SRC</u> <u>460km FAL.</u> <u>pdf</u>	SRC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTX</u> <u>550km FAL.</u> <u>pdf</u>	UTX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTX</u> <u>550km IVC.</u> <u>pdf</u>	UTX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>UTX</u> <u>585km FAL.</u> <u>pdf</u>	UTX	NGSO Antenna Gain Data	PDF file (*.pdf)

<u>UTX</u> <u>585km IVC.</u> <u>pdf</u>	UTX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URX</u> <u>460km FAL.</u> <u>pdf</u>	URX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URX</u> <u>460km IVC.</u> <u>pdf</u>	URX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URX</u> <u>475km FAL.</u> <u>pdf</u>	URX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URX</u> <u>475km IVC.</u> <u>pdf</u>	URX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URX</u> <u>550km FAL.</u> <u>pdf</u>	URX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URX</u> <u>550km IVC.</u> <u>pdf</u>	URX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URX</u> <u>585km FAL.</u> <u>pdf</u>	URX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>URX</u> <u>585km IVC.</u> <u>pdf</u>	URX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTC</u> <u>460km FAL.</u> <u>pdf</u>	XTC	NGSO Antenna Gain Data	PDF file (*.pdf)

<u>XTC</u> <u>460km IVC.</u> <u>pdf</u>	XTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTC</u> <u>475km FAL.</u> <u>pdf</u>	XTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTC</u> <u>475km IVC.</u> <u>pdf</u>	XTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTC</u> <u>550km FAL.</u> <u>pdf</u>	XTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTC</u> <u>550km IVC.</u> <u>pdf</u>	XTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTC</u> <u>585km FAL.</u> <u>pdf</u>	XTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTC</u> <u>585km IVC.</u> <u>pdf</u>	XTC	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTX</u> <u>460km FAL.</u> <u>pdf</u>	XTX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTX</u> <u>460km IVC.</u> <u>pdf</u>	XTX	NGSO Antenna Gain Data	PDF file (*.pdf)
<u>XTX</u> <u>475km FAL.</u> <u>pdf</u>	XTX	NGSO Antenna Gain Data	PDF file (*.pdf)

<u>XTX</u> <u>475km IVC.</u> <u>pdf</u>	XTX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>XTX</u> <u>550km FAL.</u> <u>pdf</u>	XTX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>XTX</u> <u>550km IVC.</u> <u>pdf</u>	XTX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>XTX</u> <u>585km FAL.</u> <u>pdf</u>	XTX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>XTX</u> <u>585km IVC.</u> <u>pdf</u>	XTX	NGSO Antenna Gain Data	PDF file (*.pdf)	
<u>NGSO</u> <u>Antenna</u> <u>Gain Data</u> <u>map.txt</u>		NGSO Antenna Gain Data	Text file (*.txt)	Comma separated file which maps NGSO Antenna Gain files to specific ground stations, beams, and orbital planes.