



312 File Number: **SATLOA2021050300058**

Filing Description

Question	Response
Description	AprizeSat

Satellite Information

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	AprizeSat
Estimated Lifetime of Satellite(s) From Date of Launch	12 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating Frequency Bands (5)

Nature of service	Description	Frequency Band(s)	Mode Type
Other Satellite Service (please specify)	Data downlink	2300.0 MHz -2305.0 MHz	Transmit
Space Operation Service		400.5 MHz -400.65 MHz	Transmit
Space Operation Service		145.9 MHz -146.0 MHz	Receive
Space Operation Service		399.9 MHz -400.05 MHz	Receive
Other Satellite Service (please specify)	Maritime Mobile Satellite Service (AIS)	156.5 MHz -162.5 MHz	Receive

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	2
Orbit Epoch Date	01/01/2021
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	97.568 degrees
Right Ascension of Ascending Node	92.97 degrees
Argument of Perigee	7.96 degrees
Orbital Period	5833.0 seconds
Apogee	662.0 km
Perigee	589.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-90.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	352.2

Orbital Plane 2:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	97.73 degrees
Right Ascension of Ascending Node	283.65 degrees
Argument of Perigee	183.1 degrees
Orbital Period	5889.2 seconds
Apogee	729.0 km
Perigee	611.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-90.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	177.0

Receiving Beams 1:

Question	Response
Beam ID	AISU
Receive Beam Frequency	156.5 MHz -162.5 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	1.08 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
G/T at Max. Gain Point	-23.5 dB/K
Min. Saturation Flux Density	-138.0 dBW/m ²
Max. Saturation Flux Density	-124.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 2:

Question	Response
Beam ID	VUR
Receive Beam Frequency	145.9 MHz -146.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	0.48 dBi
Antenna Pointing Error	1.0 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	-24.1 dB/K
Min. Saturation Flux Density	-139.0 dBW/m2
Max. Saturation Flux Density	-117.3 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	USA

**Receiving
Beams 3:**

Question	Response
Beam ID	UUL
Receive Beam Frequency	399.9 MHz -400.05 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	2.51 dBi
Antenna Pointing Error	1.0 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	-22.1 dB/K
Min. Saturation Flux Density	-127.5 dBW/m2
Max. Saturation Flux Density	-105.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	USA

**Receiving
Beams 4:**

Question	Response
Beam ID	UUR
Receive Beam Frequency	399.9 MHz -400.05 MHz

Beam Type	Fixed
Polarization	RHCP
Peak Gain	2.51 dBi
Antenna Pointing Error	1.0 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	-22.1 dB/K
Min. Saturation Flux Density	-127.5 dBW/m2
Max. Saturation Flux Density	-105.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	USA

**Receiving
Beams 5:**

Question	Response
Beam ID	VUL
Receive Beam Frequency	145.9 MHz -146.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	0.48 dBi
Antenna Pointing Error	1.0 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	-24.1 dB/K
Min. Saturation Flux Density	-139.0 dBW/m2
Max. Saturation Flux Density	-117.3 dBW/m2

Co- or Cross Polar Mode

C

Service Area Description

USA

**Receiving
Channels (10)**

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
AU13	0.025	156.825	Service Link
AU14	0.025	161.975	Service Link
AU15	0.025	162.025	Service Link
UU1	0.025	399.925	TT&C
UU2	0.025	399.95	TT&C
UU3	0.025	399.975	TT&C
AU12	0.025	156.775	Service Link
AU11	0.025	156.525	Service Link
VU1	0.02	145.958	TT&C
UU4	0.025	400.025	TT&C

Transmitting Beams 1:

Question	Response
Beam ID	UDV
Transmit Beam Frequency	400.5 MHz -400.65 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	2.24 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
Max. Transmit EIRP Density	-37.75 dBW/Hz
Max. Transmit EIRP	6.26 dBW
Co- or Cross Polar Mode	C
Service Area Description	USA

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):
4.0 kHz	-139.0	-137.4	-136.0	-134.6	-133.4	-127.3

Transmitting Beams 2:

Question	Response
Beam ID	SDR
Transmit Beam Frequency	2300.0 MHz -2305.0 MHz
Beam Type	Fixed

Polarization	RHCP
Peak Gain	4.87 dBi
Antenna Pointing Error	1.0 degrees
Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-51.7 dBW/Hz
Max. Transmit EIRP	1.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	USA and Sweden

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	-151.1	-149.5	-148.0	-146.7	-145.5	-139.4

Transmitting Channels (5)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
UD3	0.025	400.575	TT&C
UD1	0.025	400.525	TT&C
SD1	0.4	2302.0	Service Link
UD2	0.025	400.555	TT&C
UD4	0.025	400.595	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>Yes</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>APRIZESAT.mdb</u>		NGSO Antenna Gain Data	GIMS file (*.mdb)	GIMS container with GXT files for all beams.
