



312 File Number: **SATLOI2019101100113**

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## Filing Description

Question	Response
Description	Kineis NGSO non-voice System

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**Satellite  
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	kineis
Estimated Lifetime of Satellite(s) From Date of Launch	8 Years
Will the space station(s) operate on a Common Carrier basis?	No

## Operating Frequency Bands (5)

<b>Nature of service</b>	<b>Description</b>	<b>Frequency Band(s)</b>	<b>Mode Type</b>
<b>Earth Exploration-Satellite Service</b>		401.0 MHz -403.0 MHz	Receive
<b>Earth Exploration-Satellite Service</b>		2200.0 MHz -2290.0 MHz	Transmit
<b>Mobile-Satellite Service</b>		400.15 MHz -401.0 MHz	Transmit
<b>Mobile-Satellite Service</b>		156.762 MHz -162.038 MHz	Receive
<b>Mobile-Satellite Service</b>		399.9 MHz -400.05 MHz	Receive

**Orbital  
Information For  
Non-  
Geostationary  
Satellites**

Question	Response
Total Number of Satellites in the active constellation	25
Orbit Epoch Date	01/01/2020
Celestial Reference Body	Earth

## Orbital Plane 1:

Question	Response
Number of Satellites in Plane	5
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5851.0 seconds
Apogee	650.0 km
Perigee	650.0 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	47.5
2	270.0
3	180.0
4	90.0
5	0.0

## Orbital Plane 2:

Question	Response
Number of Satellites in Plane	5
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	36.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5851.0 seconds
Apogee	650.0 km

Perigee	650.0 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	114.5
2	288.0
3	198.0
4	108.0
5	18.0

### Orbital Plane 3:

Question	Response
Number of Satellites in Plane	5
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	72.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5851.0 seconds
Apogee	650.0 km
Perigee	650.0 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	36.0

2	126.0
3	216.0
4	182.5
5	306.0

### Orbital Plane 4:

Question	Response
Number of Satellites in Plane	5
Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	108.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5851.0 seconds
Apogee	650.0 km
Perigee	650.0 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	54.0
2	144.0
3	234.0
4	324.0
5	259.5

### Orbital Plane 5:

Question	Response
Number of Satellites in Plane	5

Inclination Angle	98.0 degrees
Right Ascension of Ascending Node	144.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5851.0 seconds
Apogee	650.0 km
Perigee	650.0 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	72.0
2	162.0
3	252.0
4	342.0
5	335.5



## Receiving Beams 1:

Question	Response
Beam ID	UU
Receive Beam Frequency	399.9 MHz -400.05 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	4.2 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	-23.6 dB/K
Min. Saturation Flux Density	-90.0 dBW/m <sup>2</sup>
Max. Saturation Flux Density	-80.0 dBW/m <sup>2</sup>
Co- or Cross Polar Mode	C
Service Area Description	Area above 5 degree angle of arrival

## Receiving Beams 2:

Question	Response
Beam ID	MAR
Receive Beam Frequency	156.762 MHz -162.038 MHz
Beam Type	Both Steerable and Shapeable
Polarization	V
Peak Gain	8.0 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	-17.7 dB/K
Min. Saturation Flux Density	-90.0 dBW/m2
Max. Saturation Flux Density	-80.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible earth

### Receiving Beams 3:

Question	Response
Beam ID	TCU
Receive Beam Frequency	401.58 MHz -401.61 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	4.2 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	-23.6 dB/K
Min. Saturation Flux Density	-90.0 dBW/m2
Max. Saturation Flux Density	-80.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Area above 5 degree angle of arrival

## Receiving Channels (23)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
UU8	0.01	399.975	Service Link
UU7	0.01	399.965	Service Link
UU6	0.01	399.955	Service Link
UU5	0.01	399.945	Service Link
UU4	0.01	399.935	Service Link
UU3	0.01	399.925	Service Link
UU2	0.01	399.915	Service Link
UU15	0.01	400.045	Service Link
UU14	0.01	400.035	Service Link
UU13	0.01	400.025	Service Link
UU12	0.01	400.015	Service Link
AIS1	0.025	161.975	Service Link
AIS2	0.025	162.025	Service Link
AIS3	0.025	156.775	Service Link
AIS4	0.025	156.825	Service Link
ASM1	0.025	161.95	Service Link
ASM2	0.025	162.0	Service Link
TCU	0.03	401.595	TT&C
UU0	0.15	399.975	Service Link
UU1	0.01	399.905	Service Link
UU10	0.01	399.995	Service Link
UU11	0.01	400.005	Service Link
UU9	0.01	399.985	Service Link

## Transmitting Beams 1:

Question	Response
Beam ID	DU
Transmit Beam Frequency	400.15 MHz -401.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	4.2 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	-28.8 dBW/Hz
Max. Transmit EIRP	7.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	Area above 5 degree angle of arrival

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
	(dBW/m <sup>2</sup> )	(dBW/m <sup>2</sup> )	(dBW/m <sup>2</sup> )	(dBW/m <sup>2</sup> )	(dBW/m <sup>2</sup> )	(dBW/m <sup>2</sup> )
*	/BW:	/BW:	/BW:	/BW:	/BW:	/BW:
<b>4.0 kHz</b>	-125.1	-125.1	-125.1	-125.1	-125.1	-125.1

## Transmitting Beams 2:

Question	Response
Beam ID	DS
Transmit Beam Frequency	2200.0 MHz -2290.0 MHz

Beam Type	Fixed
Polarization	RHCP
Peak Gain	3.4 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
Max. Transmit EIRP Density	-52.6 dBW/Hz
Max. Transmit EIRP	6.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	Area above 5 degree angle of arrival

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
<b>4.0 kHz</b>	-154.1	-154.1	-151.6	-149.1	-146.6	-144.1

**Transmitting  
Channels (2)**

<b>Channel ID</b>	<b>Channel Bandwidth (MHz)</b>	<b>Center Frequency s (MHz)</b>	<b>Feeder Link, Service Link or TT&amp;C</b>
<b>DS0</b>	1.0	2245.0	TT&C
<b>DU0</b>	0.004	400.575	Service Link

## 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
<a href="#"><u>Beam MAR.pdf</u></a>	MAR	NGSO Antenna Gain Data	PDF file (*.pdf)	
<a href="#"><u>Beam DS.pdf</u></a>	DS	NGSO Antenna Gain Data	PDF file (*.pdf)	
<a href="#"><u>Beam UU.pdf</u></a>	UU	NGSO Antenna Gain Data	PDF file (*.pdf)	
<a href="#"><u>Beam DU.pdf</u></a>	TCU	NGSO Antenna Gain Data	PDF file (*.pdf)	
<a href="#"><u>Beam TCU.pdf</u></a>	TCU	NGSO Antenna Gain Data	PDF file (*.pdf)	