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

Federal Communications Commission

312 File Number: **SATLOA2022050400047**

Filing Description

Question	Response
Description	Application for authority to deploy and operate Vigoride-5, a non geo-stationary orbit, in-orbit services vehicle.

Satellite Information

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	VIGORIDE-5
Estimated Lifetime of Satellite(s) From Date of Launch	1 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating Frequency Bands (3)

Nature of service	Description	Frequency Band(s)	Mode Type
Other Satellite Service (please specify)	Space Telemetering for hosted payload experimental operations.	9900.0 MHz -10000.0 MHz	Transmit
Space Operation Service		2025.0 MHz -2110.0 MHz	Receive
Space Operation Service		8025.0 MHz -8400.0 MHz	Transmit

Orbital Information For Non-Geostationary Satellites

Question	Response
Total Number of Satellites in the active constellation	1
Orbit Epoch Date	01/01/1970
Celestrial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	97.5 degrees
Right Ascension of Ascending Node	63.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5800.0 seconds
Apogee	550.0 km
Perigee	550.0 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	0.0

Receiving Beams 1:

Question	Response
Beam ID	UP
Receive Beam Frequency	2074.95 MHz -2075.05 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	7.0 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	-26.0 dB/K
Min. Saturation Flux Density	-93.5 dBW/m2
Max. Saturation Flux Density	-74.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 2:

Question	Response
Beam ID	CHUP
Receive Beam Frequency	2074.95 MHz -2075.05 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	7.0 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	-26.0 dB/K
Min. Saturation Flux Density	-93.5 dBW/m2
Max. Saturation Flux Density	-74.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Channels (3)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
UP2	0.032	2075.0	TT&C
CHUP	0.1	2075.0	TT&C
UP	0.1	2075.0	TT&C

Transmitting Beams 1:

Question	Response
Beam ID	DWN
Transmit Beam Frequency	8199.5 MHz -8200.5 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	6.0 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	-54.7 dBW/Hz
Max. Transmit EIRP	2.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

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):
4.0 kHz	-157.1	-155.0	-153.1	-151.5	-150.1	-143.6

Transmitting Beams 2:

Question	Response
Beam ID	CHDN
Transmit Beam Frequency	8199.5 MHz -8200.5 MHz

Beam Type	Fixed
Polarization	RHCP
Peak Gain	6.0 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	-54.7 dBW/Hz
Max. Transmit EIRP	2.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

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):
4.0 kHz	-157.1	-155.0	-153.1	-151.5	-150.1	-143.6

Transmitting Beams 3:

Question	Response
Beam ID	SSPD
Transmit Beam Frequency	9979.0 MHz -9989.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	10.2 dBi
Antenna Pointing Error	1.0 degrees

Antenna Rotational Error	1.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-38.2 dBW/Hz
Max. Transmit EIRP	8.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	CA, USA

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	-145.0	-142.8	-141.0	-139.3	-137.9	-131.5

Transmitting Channels (5)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
DWN2	0.5	8200.0	TT&C
DWN3	0.25	8200.0	TT&C
DWN4	0.1	8200.0	TT&C
SSPD	10.0	9984.0	TT&C
DWN1	1.0	8200.0	TT&C

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?	N/A
Are the applicable frequency tolerances of 25.202(e) and out-of-band emission limits of 25.202(f)(1),(2), and (3) met?	N/A
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?	
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?	N/A
Are the applicable full-frequency-reuse requirements of 25.210 met?	
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
VR-5 October-22 STA NGSO Antenna Gain Plots Rev2 Final.pdf	DWN	NGSO Antenna Gain Data	PDF file (*.pdf)	