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

Federal Communications Commission

312 File Number: **SESLIC2022020700162**

Filing Description

Question	Response
Description	Chandrayaan-2 Lunar Mission

Satellite Information

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	Chandrayaan-2
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 (3)

Nature of service	Description	Frequency Band(s)	Mode Type
Space Research Service		8480.0 MHz -8488.0 MHz	Transmit
Space Research Service		2216.62 MHz -2217.62 MHz	Transmit
Space Research Service		2041.098 MHz -2042.098 MHz	Receive

Orbital Information For Non-Geostationary Satellites

Question	Response
Total Number of Satellites in the active constellation	1
Orbit Epoch Date	09/24/2019
Celestrial Reference Body	Moon

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	91.7 degrees
Right Ascension of Ascending Node	270.0 degrees
Argument of Perigee	300.0 degrees
Orbital Period	7080.0 seconds
Apogee	1.0 km
Perigee	1.0 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	181.0

Receiving Beams 1:

Question	Response
Beam ID	1
Receive Beam Frequency	2041.098 MHz -2042.098 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	0.0 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-34.3 dB/K
Min. Saturation Flux Density	-105.0 dBW/m2
Max. Saturation Flux Density	-95.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Naalehu, Hawaii, USA (Lat. 19 deg 0 min 49.6 sec North / Long. 155 deg 39 min 46.6 sec West). Point to point communication.

Receiving Channels (1)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
TC	0.5	2041.598	TT&C

Transmitting Beams 1:

Question	Response
Beam ID	SBan
Transmit Beam Frequency	2216.62 MHz -2217.62 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	2.5 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-54.0 dBW/Hz
Max. Transmit EIRP	35.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Naalehu, Hawaii, USA (Lat. 19 deg 0 min 49.6 sec North / Long. 155 deg 39 min 46.6 sec West). Point to point communication.

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	-200.0	-200.0	-200.0	-200.0	-200.0	-200.0

Transmitting

Beams 2:

Question	Response
Beam ID	XBan
Transmit Beam Frequency	8480.0 MHz -8488.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	31.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-54.8 dBW/Hz
Max. Transmit EIRP	1.2 dBW
Co- or Cross Polar Mode	X
Service Area Description	Naalehu, Hawaii, USA (Lat. 19 deg 0 min 49.6 sec North / Long. 155 deg 39 min 46.6 sec West). Point to point communication.

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):
Hz	-199.1	-199.1	-199.1	-199.1	-199.1	-199.1

Transmitting Channels (2)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
XBan	8.0	8484.0	Service Link
SBan	1.0	2217.12	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?	Yes
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?	
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.