



312 File Number: **SATMOD2020090900106**

Filing Description

Question	Response
Description	Galaxy 12 at 129W.L_231E.L operation on Seasonal basis

**Satellite
Information**

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	Galaxy 12
Estimated Lifetime of Satellite(s) From Date of Launch	22 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating Frequency Bands (2)

Nature of service	Description	Frequency Band(s)	Mode Type
Fixed-Satellite Service		5925.0 MHz -6425.0 MHz	Receive
Fixed-Satellite Service		3700.0 MHz -4200.0 MHz	Transmit

Orbital Information For Geostationary Satellites

Section	Question	Response
Orbital Longitude Information	Orbital Longitude	129.0 degrees
	Hemisphere of Orbital Longitude	W
Longitudinal Tolerance or East /West Station-Keeping	Toward West	0.05 degrees
	Toward East	0.05 degrees
Inclination Excursion or North /South Station-Keeping Tolerance	Inclination Excursion or North /South Station-Keeping Tolerance	1.39 degrees
Antenna Axis Attitude Accuracy	Roll	0.1 degrees
	Pitch	0.1 degrees
	Yaw	0.1 degrees

Receiving Beams 1:

Question	Response
Beam ID	NCHU
Receive Beam Frequency	5925.0 MHz -6425.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	30.78 dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	3.1 dB/K
Min. Saturation Flux Density	-116.1 dBW/m ²
Max. Saturation Flux Density	-81.1 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	This beam will bias on a seasonal basis (Winter season: approximately November to April and Summer season: approximately May to October). GXT for both seasons are attached

Receiving Beams 2:

Question	Response
Beam ID	NCVU

Receive Beam Frequency	5925.0 MHz -6425.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	30.73 dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
G/T at Max. Gain Point	3.2 dB/K
Min. Saturation Flux Density	-116.2 dBW/m ²
Max. Saturation Flux Density	-81.2 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	This beam will bias on a seasonal basis (Winter season: approximately November to April and Summer season: approximately May to October). GXT for both seasons are attached

Receiving Beams 3:

Question	Response
Beam ID	CMDG
Receive Beam Frequency	6424.0 MHz -6425.0 MHz
Beam Type	Fixed
Polarization	V

Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-90.0 dBW/m2
Max. Saturation Flux Density	-89.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global -Gain contours attachment not provided pursuant to section 25.114(c)(4)(vi)(A) of the FCC rules

Receiving Beams 4:

Question	Response
Beam ID	CMDO
Receive Beam Frequency	6424.0 MHz -6425.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-99.0 dB/K

Min. Saturation Flux Density	-90.0 dBW/m2
Max. Saturation Flux Density	-89.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Omni -Gain contours attachment not provided pursuant to section 25.114(c)(4)(vi)(A) of the FCC rules

Receiving Beams 5:

Question	Response
Beam ID	CMDW
Receive Beam Frequency	6424.0 MHz -6425.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.03 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-90.0 dBW/m2
Max. Saturation Flux Density	-89.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Waveguide-Gain contours attachment not provided pursuant to section 25.114(c)(4)(vi)(A) of the FCC rules

Receiving Channels (25)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
CU05	36.0	6025.0	Service Link
CU04	36.0	6005.0	Service Link
CU24	36.0	6405.0	Service Link
CU23	36.0	6385.0	Service Link
CU22	36.0	6365.0	Service Link
CU21	36.0	6345.0	Service Link
CU20	36.0	6325.0	Service Link
CU19	36.0	6305.0	Service Link
CU18	36.0	6285.0	Service Link
CU17	36.0	6265.0	Service Link
CU16	36.0	6245.0	Service Link
CU15	36.0	6225.0	Service Link
CU14	36.0	6205.0	Service Link
CU13	36.0	6185.0	Service Link
CU12	36.0	6165.0	Service Link
CU07	36.0	6065.0	Service Link
CU06	36.0	6045.0	Service Link
CMDG	1.0	6424.5	TT&C
CU01	36.0	5945.0	Service Link
CU02	36.0	5965.0	Service Link
CU03	36.0	5985.0	Service Link
CU08	36.0	6085.0	Service Link
CU09	36.0	6105.0	Service Link
CU10	36.0	6125.0	Service Link

CU11

36.0

6145.0

Service Link

4.0	-160.2	-160.1	-160.0	-159.9	-159.8	-159.0
kHz						

Transmitting Beams 2:

Question	Response
Beam ID	NCVD
Transmit Beam Frequency	3700.0 MHz -4200.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	28.51 dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
Max. Transmit EIRP Density	-33.4 dBW/Hz
Max. Transmit EIRP	42.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	this beam will bias on a seasonal basis (Winter season: approximately November to April and Summer season: approximately May to October), GXT for both seasons are attached

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	-160.6	-160.5	-160.4	-160.3	-160.2	-159.4

Transmitting Beams 3:

Question	Response
Beam ID	ULDG
Transmit Beam Frequency	4197.75 MHz -4198.25 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-38.0 dBW/Hz
Max. Transmit EIRP	19.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Beacon un-modulated

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	-165.2	-165.1	-165.0	-164.9	-164.8	-164.8

Transmitting Beams 4:

Question	Response
Beam ID	ULDO
Transmit Beam Frequency	4197.75 MHz -4198.25 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-38.0 dBW/Hz
Max. Transmit EIRP	19.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Beacon unmodulated

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	-165.2	-165.1	-165.0	-164.9	-164.8	-164.8

Transmitting Beams 5:

Question	Response
Beam ID	ULDW
Transmit Beam Frequency	4197.75 MHz -4198.25 MHz

Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-38.0 dBW/Hz
Max. Transmit EIRP	19.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Beacon Unmodulated

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	-165.2	-165.1	-165.0	-164.9	-164.8	-164.8

Transmitting Beams 6:

Question	Response
Beam ID	TMDG
Transmit Beam Frequency	4199.75 MHz -4200.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees

Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-38.0 dBW/Hz
Max. Transmit EIRP	19.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	TM Global CF is 4199.875 with 0.5 MHz allocated BW,

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):
4.0 kHz	-165.2	-165.1	-165.0	-164.9	-164.8	-164.8

Transmitting Beams 7:

Question	Response
Beam ID	TMDO
Transmit Beam Frequency	4199.75 MHz -4200.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-38.0 dBW/Hz
Max. Transmit EIRP	19.0 dBW

Co- or Cross Polar Mode	C
Service Area Description	TM Omni, CF is 4199.875 with 0.5 MHz Allocated BW

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	-165.2	-165.1	-165.0	-164.9	-164.8	-164.8

Transmitting Beams 8:

Question	Response
Beam ID	TMDW
Transmit Beam Frequency	4199.75 MHz -4200.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	No
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-38.0 dBW/Hz
Max. Transmit EIRP	19.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	TM waveguide,CF is 4199.875 with 0.5 MHz allocated BW

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
* BW:	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):
4.0 kHz	-165.2	-165.1	-165.0	-164.9	-164.8	-168.8

Transmitting Channels (26)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
CD09	36.0	3880.0	Service Link
CD10	36.0	3900.0	Service Link
CD03	36.0	3760.0	Service Link
CD02	36.0	3740.0	Service Link
CD11	36.0	3920.0	Service Link
CD12	36.0	3940.0	Service Link
CD13	36.0	3960.0	Service Link
CD14	36.0	3980.0	Service Link
CD08	36.0	3860.0	Service Link
CD07	36.0	3840.0	Service Link
CD06	36.0	3820.0	Service Link
CD05	36.0	3800.0	Service Link
CD04	36.0	3780.0	Service Link
CD18	36.0	4060.0	Service Link
CD15	36.0	4000.0	Service Link
CD16	36.0	4020.0	Service Link
CD17	36.0	4040.0	Service Link
CD19	36.0	4080.0	Service Link
CD21	36.0	4120.0	Service Link
CD23	36.0	4160.0	Service Link
TMDG	0.25	4199.875	TT&C
ULDG	0.5	4198.0	TT&C
CD20	36.0	4100.0	Service Link
CD22	36.0	4140.0	Service Link

CD01	36.0	3720.0	Service Link
-------------	------	--------	--------------

CD24	36.0	4180.0	Service Link
-------------	------	--------	--------------

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?	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?	N/A
Are the applicable full-frequency-reuse requirements of 25.210 met?	Yes
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
<u>G12_winter.mdb</u>		GSO Antenna Gain Contour Data	GIMS file (*.mdb)	
<u>G12_summer.mdb</u>		GSO Antenna Gain Contour Data	GIMS file (*.mdb)	