



312 File Number: **SATMOD2020022100017**

Filing Description

Question	Response
Description	SW2 MOD to move to 138.9W

**Satellite
Information**

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	SPACEWAY 2
Estimated Lifetime of Satellite(s) From Date of Launch	20 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating Frequency Bands (4)

Nature of service	Description	Frequency Band(s)	Mode Type
Fixed-Satellite Service		19700.0 MHz -20200.0 MHz	Transmit
Fixed-Satellite Service		28350.0 MHz -28600.0 MHz	Receive
Fixed-Satellite Service		18300.0 MHz -18800.0 MHz	Transmit
Fixed-Satellite Service		29250.0 MHz -30000.0 MHz	Receive

Orbital Information For Geostationary Satellites

Section	Question	Response
Orbital Longitude Information	Orbital Longitude	139.0 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	0.05 degrees
Antenna Axis Attitude Accuracy	Roll	0.1 degrees
	Pitch	0.1 degrees
	Yaw	0.1 degrees

Receiving Beams 1:

Question	Response
Beam ID	RX5L
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	50.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m ²
Max. Saturation Flux Density	-90.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 2:

Question	Response
Beam ID	RX1L

Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	50.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m ²
Max. Saturation Flux Density	-90.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 3:

Question	Response
Beam ID	CMD
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot

Polarization	LHCP
Peak Gain	51.3 dBi
Antenna Pointing Error	0.3 degrees
Antenna Rotational Error	0.3 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 4:

Question	Response
Beam ID	RX7L
Receive Beam Frequency	28350.0 MHz -28600.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	50.0 dBi

Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 5:

Question	Response
Beam ID	RX6L
Receive Beam Frequency	28350.0 MHz -28600.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	50.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees

Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 6:

Question	Response
Beam ID	RX5R
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	50.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 7:

Question	Response
Beam ID	RX4R
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	50.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees

G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 8:

Question	Response
Beam ID	RX3R
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	50.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2

Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 9:

Question	Response
Beam ID	RX2R
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	50.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C

Receiving Beams 10:

Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S
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Question	Response
Beam ID	RX1R
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	50.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	50.1 dB/K
Min. Saturation Flux Density	-100.0 dBW/m ²
Max. Saturation Flux Density	-90.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 11:

Question	Response
Beam ID	RX4L
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	50.2 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 12:

Question	Response
Beam ID	RX3L

Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	50.2 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

Receiving Beams 13:

Question	Response
Beam ID	RX2L
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot

Polarization	LHCP
Peak Gain	50.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	22.0 dB/K
Min. Saturation Flux Density	-100.0 dBW/m ²
Max. Saturation Flux Density	-90.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour. Note that receive beam is not fed into transponder as this satellite has on-board processing. Saturation flux density values above were entered to satisfy Schedule S

**Receiving
Channels (2)**

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
RL03	62.5	29531.25	Service Link
RL01	165.0	28442.5	Service Link

Transmitting Beams 1:

Question	Response
Beam ID	TLM
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Shapeable
Polarization	LHCP
Peak Gain	47.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-24.7 dBW/Hz
Max. Transmit EIRP	59.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	Service area is within -6 dB contour of this double humped beam

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):
1.0 MHz	-147.2	-142.2	-137.2	-127.2	-127.2	-133.2

Transmitting Beams 2:

Question	Response
Beam ID	TX4R
Transmit Beam Frequency	18300.0 MHz -18800.0 MHz

Beam Type	Fixed
Polarization	RHCP
Peak Gain	22.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-30.6 dBW/Hz
Max. Transmit EIRP	45.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Service area is Alaska

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:
1.0 MHz	-133.0	-133.0	-133.0	-133.0	-133.0	-133.0

Transmitting Beams 3:

Question	Response
Beam ID	TX4L
Transmit Beam Frequency	18300.0 MHz -18800.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	22.0 dBi
Antenna Pointing Error	0.1 degrees

Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-30.6 dBW/Hz
Max. Transmit EIRP	45.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Service ares is Alaska

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:
1.0 MHz	-133.0	-133.0	-133.0	-133.0	-133.0	-133.0

Transmitting Beams 4:

Question	Response
Beam ID	TX3R
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	51.4 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-16.1 dBW/Hz

Max. Transmit EIRP	59.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB contour

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):
1.0 MHz	-138.0	-128.0	-120.0	-118.0	-118.0	-122.0

Transmitting Beams 5:

Question	Response
Beam ID	TX2R
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	51.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-16.1 dBW/Hz
Max. Transmit EIRP	59.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	Service area is -6 dB gain contour of spot beam

1.0	-124.0	-124.0	-118.0	-118.0	-118.0	-122.0
MHz						

Transmitting Beams 7:

Question	Response
Beam ID	TX1L
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Shapeable
Polarization	LHCP
Peak Gain	0.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-16.1 dBW/Hz
Max. Transmit EIRP	59.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	Eastern Alaska

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):
1.0	-120.0	-120.0	-120.0	-122.0	-124.0	-126.0
MHz						

Transmitting Channels (2)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
TL01	165.0	18447.5	Service Link
TL03	62.5	19731.25	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
RX1L.gxt	RX1L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX2L.gxt	RX2L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX4L.gxt	RX4L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX5L.gxt	RX5L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX1R.gxt	RX1R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX2R.gxt	RX2R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX3R.gxt	RX3R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX4R.gxt	RX4R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX5R.gxt	RX5R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX6L.gxt	RX6L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX7L.gxt	RX7L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX1L.gxt	TX1L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX1R.gxt	TX1R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX2R.gxt	TX2R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX3R.gxt	TX3R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX4L.gxt	TX4L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	

<u>TX4R.gxt</u>	TX4R	GSO Antenna Gain Contour Data	GXT file (*.gxt)
<u>TMLL.gxt</u>	TLM	GSO Antenna Gain Contour Data	GXT file (*.gxt)
<u>CMD.gxt</u>	CMD	GSO Antenna Gain Contour Data	GXT file (*.gxt)
<u>RX3L.gxt</u>	RX3L	GSO Antenna Gain Contour Data	GXT file (*.gxt)
