

312 File Number: **SATMOD2017091200129** 

### Filing Description

Question	Response
Description	SW1 MOD to move to 139W

#### Satellite Information

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	SPACEWAY 1
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		18300.0 MHz -18800.0 MHz	Transmit
Fixed-Satellite Service		28350.0 MHz -28600.0 MHz	Receive
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	degrees 0.1 degrees

## Receiving Beams 1:

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/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	С
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	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	С
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	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	С
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	RX5L
Receive Beam Frequency	29250.0 MHz -30000.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	50.1 dBi

0.1 degrees
0.1 degrees
45.0 degrees
22.0 dB/K
-100.0 dBW/m2
-90.0 dBW/m2
С
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	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

45.0 degrees
50.1 dB/K
-100.0 dBW/m2
-90.0 dBW/m2
С
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	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	С
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	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	С
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	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	С
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	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	С

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 10:

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	С
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	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	С
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	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/m2
Max. Saturation Flux Density	-90.0 dBW/m2
Co- or Cross Polar Mode	С
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	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	С
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	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	С
Service Area Description	Eastern Alaska

### Max. Power Flux Density

* BW:	•	* 5° - 10° (dbW/m² /BW):	* 10° - 15° (dbW/m² /BW):	* 15° - 20° (dbW/m² /BW):	* 20° - 25° (dbW/m² /BW):	* 25° - 90° (dbW/m² /BW):
1.0 MHz	-120.0	-120.0	-120.0	-122.0	-124.0	-126.0

## Transmitting Beams 2:

Question	Response
Beam ID	TX1R
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz

Beam Type	Shapeable
Polarization	RHCP
Peak Gain	44.3 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	С
Service Area Description	Western Alaska

* BW:	• •	* 5° - 10° (dbW/m² /BW):		* 15° - 20° (dbW/m² /BW):	* 20° - 25° (dbW/m <sup>2</sup> /BW):	* 25° - 90° (dbW/m² /BW):
1.0 MHz	-124.0	-124.0	-118.0	-118.0	-118.0	-122.0

### Transmitting Beams 3:

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	С
Service Area Description	Service area is -6 dB gain contour of spot beam

* BW:	* 0° - 5° (dbW/m² /BW):		* 10° - 15° (dbW/m² /BW):	* 15° - 20° (dbW/m² /BW):	* 20° - 25° (dbW/m <sup>2</sup> /BW):	* 25° - 90° (dbW/m² /BW):
1.0 MHz	-133.0	-128.0	-120.0	-118.0	-118.0	-120.0

# 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	С
Service Area Description	Service area is -6 dB contour

* BW:	* 0° - 5° (dbW/m² /BW):	• .•	* 10° - 15° (dbW/m² /BW):	* 15° - 20° (dbW/m² /BW):	* 20° - 25° (dbW/m <sup>2</sup> /BW):	* 25° - 90° (dbW/m² /BW):
1.0 MHz	-138.0	-128.0	-120.0	-118.0	-118.0	-122.0

### Transmitting Beams 5:

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	С
Service Area Description	Service ares is Alaska

* BW:	* 0° - 5° (dbW/m² /BW):	(dbW/m <sup>2</sup>	15°	* 15° - 20° (dbW/m² /BW):	* 20° - 25° (dbW/m² /BW):	* 25° - 90° (dbW/m² /BW):
1.0 MHz	-133.0	-133.0	-133.0	-133.0	-133.0	-133.0

## Transmitting Beams 6:

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	С
Service Area Description	Service area is Alaska

### **Max. Power Flux Density**

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
* BW:	•	(dbW/m <sup>2</sup>		(dbW/m <sup>2</sup> /BW):		

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

## Transmitting Beams 7:

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	С
Service Area Description	Service area is within -6 dB contour of this double humped beam

### **Max. Power Flux Density**

* BW:	• •	* 5° - 10° (dbW/m² /BW):	15°	* 15° - 20° (dbW/m² /BW):	* 20° - 25° (dbW/m² /BW):	* 25° - 90° (dbW/m <sup>2</sup> /BW):
1.0 MHz	-147.2	-142.2	-137.2	-127.2	-127.2	-133.2

# Transmitting Channels (2)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
TL03	62.5	19731.25	Service Link
TL01	165.0	18447.5	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**

Eile			Attach mant	
File Name	Beam	Field	Attachment Type	Description
CMD.gxt	CMD	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TMLL. gxt	TLM	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX4R. gxt	TX4R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX4L.gxt	TX4L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX3R. gxt	TX3R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX2R. gxt	TX2R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX1R. gxt	TX1R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
TX1L.gxt	TX1L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX7L. gxt	RX7L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX6L. gxt	RX6L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX5R. gxt	RX5R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX4R. gxt	RX4R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX3R. gxt	RX3R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX2R. gxt	RX2R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX1R. gxt	RX1R	GSO Antenna Gain Contour Data	GXT file (*.gxt)	
RX5L. gxt	RX5L	GSO Antenna Gain Contour Data	GXT file (*.gxt)	

RX4L. gxt	RX4L	GSO Antenna Gain Contour Data	GXT file (*.gxt)
RX3L. gxt	RX3L	GSO Antenna Gain Contour Data	GXT file (*.gxt)
RX2L. gxt	RX2L	GSO Antenna Gain Contour Data	GXT file (*.gxt)
RX1L.	RX1L	GSO Antenna Gain Contour Data	GXT file (*.gxt)