



312 File Number: **SATMOD201804240029**

Filing Description

Question	Response
Description	Intelsat-16 MOD to relocate from 58.1EL to 76.2EL

**Satellite
Information**

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	Intelsat-16
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 (2)

Nature of service	Description	Frequency Band(s)	Mode Type
Fixed-Satellite Service		13750.0 MHz -14500.0 MHz	Receive
Fixed-Satellite Service		11700.0 MHz -12200.0 MHz	Transmit

Orbital Information For Geostationary Satellites

Section	Question	Response
Orbital Longitude Information	Orbital Longitude	76.0 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	0.1 degrees
Antenna Axis Attitude Accuracy	Roll	0.01 degrees
	Pitch	0.1 degrees
	Yaw	0.1 degrees

Receiving Beams 1:

Question	Response
Beam ID	CMDO
Receive Beam Frequency	13997.02 MHz -13997.98 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-90.9 dBW/m ²
Max. Saturation Flux Density	-90.8 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 2:

Question	Response
Beam ID	CMDW
Receive Beam Frequency	14499.02 MHz -14499.98 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees

Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-95.0 dBW/m2
Max. Saturation Flux Density	-94.9 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 3:

Question	Response
Beam ID	CMDH
Receive Beam Frequency	13997.02 MHz -13997.98 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-112.1 dBW/m2
Max. Saturation Flux Density	-112.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Receiving

Beams 4:

Question	Response
Beam ID	CMDV
Receive Beam Frequency	14499.02 MHz -14499.98 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-112.1 dBW/m2
Max. Saturation Flux Density	-112.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Receiving Beams 5:

Question	Response
Beam ID	CMDP
Receive Beam Frequency	13997.02 MHz -13997.98 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-112.1 dBW/m2
Max. Saturation Flux Density	-112.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Receiving Beams 6:

Question	Response
Beam ID	CMDU
Receive Beam Frequency	14499.02 MHz -14499.98 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-112.1 dBW/m2
Max. Saturation Flux Density	-112.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Receiving Beams 7:

Question	Response
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Beam ID	MHUL
Receive Beam Frequency	14000.0 MHz -14500.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	11.5 dB/K
Min. Saturation Flux Density	-108.5 dBW/m ²
Max. Saturation Flux Density	-83.5 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Mexico, Central America, the Caribbean, Puerto Rico

**Receiving
Beams 8:**

Question	Response
Beam ID	MVUL
Receive Beam Frequency	14000.0 MHz -14500.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees

G/T at Max. Gain Point	11.5 dB/K
Min. Saturation Flux Density	-108.5 dBW/m ²
Max. Saturation Flux Density	-83.5 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Mexico, Central America, the Caribbean, Puerto Rico

Receiving Channels (26)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
KU19	36.0	14380.0	Service Link
KU03	36.0	14060.0	Service Link
KU04	36.0	14080.0	Service Link
KU05	36.0	14100.0	Service Link
KU06	36.0	14120.0	Service Link
KU21	36.0	14420.0	Service Link
KU20	36.0	14400.0	Service Link
KU09	36.0	14180.0	Service Link
KU07	36.0	14140.0	Service Link
KU10	36.0	14200.0	Service Link
KU11	36.0	14220.0	Service Link
KU12	36.0	14240.0	Service Link
KU13	36.0	14260.0	Service Link
KU08	36.0	14160.0	Service Link
KU01	36.0	14020.0	Service Link
KU02	36.0	14040.0	Service Link
KU22	36.0	14440.0	Service Link
KU23	36.0	14460.0	Service Link
KU24	36.0	14480.0	Service Link
KU14	36.0	14280.0	Service Link
KU15	36.0	14300.0	Service Link
KU16	36.0	14320.0	Service Link
KU17	36.0	14340.0	Service Link
KU18	36.0	14360.0	Service Link

CMD1	0.5	13997.5	TT&C
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CMD2	0.5	14499.5	TT&C
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Transmitting Beams 1:

Question	Response
Beam ID	MHDL
Transmit Beam Frequency	11700.0 MHz -12200.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-16.9 dBW/Hz
Max. Transmit EIRP	54.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	Mexico, Central America, the Caribbean, Puerto Rico

Max. Power Flux Density

Information not provided.

Transmitting Beams 2:

Question	Response
Beam ID	MVDL
Transmit Beam Frequency	11700.0 MHz -12200.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees

Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
Max. Transmit EIRP Density	-16.9 dBW/Hz
Max. Transmit EIRP	54.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	Mexico, Central America, the Caribbean, Puerto Rico

Max. Power Flux Density

Information not provided.

Transmitting Beams 3:

Question	Response
Beam ID	M2DL
Transmit Beam Frequency	11700.0 MHz -12200.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
Max. Transmit EIRP Density	-13.9 dBW/Hz
Max. Transmit EIRP	57.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	Mexico, Central America, the Caribbean, Puerto Rico

Max. Power Flux Density

Information not provided.

Transmitting Beams 4:

Question	Response
Beam ID	TLMO
Transmit Beam Frequency	12198.11 MHz -12198.89 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-47.6 dBW/Hz
Max. Transmit EIRP	6.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Max. Power Flux Density

Information not provided.

Transmitting Beams 5:

Question	Response
Beam ID	TLMW
Transmit Beam Frequency	12198.11 MHz -12198.89 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees

Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-40.6 dBW/Hz
Max. Transmit EIRP	13.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Max. Power Flux Density

Information not provided.

Transmitting Beams 6:

Question	Response
Beam ID	TLMH
Transmit Beam Frequency	12198.11 MHz -12198.89 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-40.9 dBW/Hz
Max. Transmit EIRP	13.1 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Max. Power Flux Density

Information not provided.

Transmitting Beams 7:

Question	Response
Beam ID	UPCH
Transmit Beam Frequency	12119.73 MHz -12119.77 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-25.4 dBW/Hz
Max. Transmit EIRP	15.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Max. Power Flux Density

Information not provided.

Transmitting Beams 8:

Question	Response
Beam ID	UPCV
Transmit Beam Frequency	11701.23 MHz -11701.27 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	dBi

Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.11 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
Max. Transmit EIRP Density	-25.4 dBW/Hz
Max. Transmit EIRP	15.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

Max. Power Flux Density

Information not provided.

Transmitting Channels (28)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
KD04	36.0	11780.0	Service Link
KD06	36.0	11820.0	Service Link
KD07	36.0	11840.0	Service Link
KD08	36.0	11860.0	Service Link
KD09	36.0	11880.0	Service Link
KD10	36.0	11900.0	Service Link
KD11	36.0	11920.0	Service Link
KD12	36.0	11940.0	Service Link
KD13	36.0	11960.0	Service Link
KD14	36.0	11980.0	Service Link
KD15	36.0	12000.0	Service Link
KD16	36.0	12020.0	Service Link
KD17	36.0	12040.0	Service Link
KD18	36.0	12060.0	Service Link
TLM1	0.5	12198.25	TT&C
TLM2	0.5	12198.75	TT&C
UPC1	0.025	11701.25	TT&C
KD19	36.0	12080.0	Service Link
KD20	36.0	12100.0	Service Link
KD21	36.0	12120.0	Service Link
KD01	36.0	11720.0	Service Link
KD02	36.0	11740.0	Service Link
KD03	36.0	11760.0	Service Link
KD05	36.0	11800.0	Service Link

UPC2	0.025	12119.75	TT&C
KD22	36.0	12140.0	Service Link
KD23	36.0	12160.0	Service Link
KD24	36.0	12180.0	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>is-16_apr2018.mdb</u>		GSO Antenna Gain Contour Data	GIMS file (*.mdb)	IS-16 at 76.2 W Beams