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

Federal Communications Commission

312 File Number: **SATLOI2017030700041**

Filing Description

Question	Response
Description	VIASAT-RDBS1 Satellite Network at 115 W.L.

Satellite Information

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	VIASAT-RDBS1
Estimated Lifetime of Satellite(s) From Date of Launch	15 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
17/24 GHz Broadcasting-Satellite Service		24750.0 MHz -25250.0 MHz	Receive
17/24 GHz Broadcasting-Satellite Service		17300.0 MHz -17700.0 MHz	Transmit
17/24 GHz Broadcasting-Satellite Service		17700.0 MHz -17800.0 MHz	Transmit

Orbital Information For Geostationary Satellites

Section	Question	Response
Orbital Longitude Information	Orbital Longitude	115.0 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
Eccentricity	Max. Eccentricity	4.6E-4
Antenna Axis Attitude Accuracy	Roll	0.1 degrees
	Pitch	0.1 degrees
	Yaw	0.1 degrees

Receiving Beams 1:

Question	Response
Beam ID	RX1R
Receive Beam Frequency	24750.0 MHz -25250.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Min. Cross-Polar Isolation within Service Area	25.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	10.8 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-80.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	-4 dB contour of beam RX1R.

Receiving Beams 2:

Question	Response
Beam ID	RX1L
Receive Beam Frequency	24750.0 MHz -25250.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi

Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Min. Cross-Polar Isolation within Service Area	25.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	10.8 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-80.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	-4 dB contour of beam RX1L.

Receiving Beams 3:

Question	Response
Beam ID	CMD
Receive Beam Frequency	24750.0 MHz -24754.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Min. Cross-Polar Isolation within Service Area	25.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	-10.3 dB/K
Min. Saturation Flux Density	-80.0 dBW/m2

Max. Saturation Flux Density	-60.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth. On-station commanding beam.

Receiving Channels (34)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
U11R	26.0	25067.6	Feeder Link
U11L	26.0	25067.6	Feeder Link
U10R	26.0	25038.44	Feeder Link
U10L	26.0	25038.44	Feeder Link
U1R	26.0	24776.0	Feeder Link
U2L	26.0	24805.16	Feeder Link
U1L	26.0	24776.0	Feeder Link
U16R	26.0	25230.32	Feeder Link
U15R	26.0	25201.16	Feeder Link
CMD2	1.0	24753.0	TT&C
CMD1	1.0	24751.0	TT&C
U8L	26.0	24980.12	Feeder Link
U9R	26.0	25009.28	Feeder Link
U9L	26.0	25009.28	Feeder Link
U8R	26.0	24980.12	Feeder Link
U7R	26.0	24950.96	Feeder Link
U7L	26.0	24950.96	Feeder Link
U6R	26.0	24921.8	Feeder Link
U6L	26.0	24921.8	Feeder Link
U5R	26.0	24892.64	Feeder Link
U5L	26.0	24892.64	Feeder Link
U4R	26.0	24863.48	Feeder Link
U4L	26.0	24863.48	Feeder Link
U3R	26.0	24834.32	Feeder Link

U3L	26.0	24834.32	Feeder Link
U2R	26.0	24805.16	Feeder Link
U16L	26.0	25230.32	Feeder Link
U15L	26.0	25201.16	Feeder Link
U14R	26.0	25172.0	Feeder Link
U14L	26.0	25172.0	Feeder Link
U13R	26.0	25125.92	Feeder Link
U13L	26.0	25125.92	Feeder Link
U12R	26.0	25096.76	Feeder Link
U12L	26.0	25096.76	Feeder Link

Transmitting Beams 1:

Question	Response
Beam ID	TX1L
Transmit Beam Frequency	17300.0 MHz -17700.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Min. Cross-Polar Isolation within Service Area	25.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-13.02 dBW/Hz
Max. Transmit EIRP	60.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	CONUS, Alaska and Hawaii

Max. Power Flux Density

* BW:	* Southeastern Region (dbW/m^2/BW):	* Northeastern Region (dbW/m^2/BW):	* Western Region (dbW/m^2 /BW):	* Other Regions (dbW/m^2 /BW):
1.0 MHz	-115.4	-118.0	-121.0	-121.0

Transmitting Beams 2:

Question	Response
Beam ID	TX1R

Transmit Beam Frequency	17300.0 MHz -17700.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Min. Cross-Polar Isolation within Service Area	25.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-13.02 dBW/Hz
Max. Transmit EIRP	60.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	CONUS, Alaska and Hawaii

Max. Power Flux Density

* BW:	* Southeastern Region (dbW/m^2/BW):	* Northeastern Region (dbW/m^2/BW):	* Western Region (dbW/m^2 /BW):	* Other Regions (dbW/m^2 /BW):
1.0 MHz	-115.4	-118.0	-121.0	-121.0

Transmitting Beams 3:

Question	Response
Beam ID	TX2L
Transmit Beam Frequency	17700.0 MHz -17800.0 MHz
Beam Type	Fixed

Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Min. Cross-Polar Isolation within Service Area	25.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-13.02 dBW/Hz
Max. Transmit EIRP	60.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	Mexico

Max. Power Flux Density

* BW:	* Southeastern Region (dbW/m^2/BW):	* Northeastern Region (dbW/m^2/BW):	* Western Region (dbW/m^2 /BW):	* Other Regions (dbW/m^2 /BW):
1.0 MHz	-115.3	-115.3	-115.3	-115.3

Transmitting Beams 4:

Question	Response
Beam ID	TX2R
Transmit Beam Frequency	17700.0 MHz -17800.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.1 degrees

Antenna Rotational Error	0.1 degrees
Min. Cross-Polar Isolation within Service Area	25.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-13.02 dBW/Hz
Max. Transmit EIRP	60.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	Mexico

Max. Power Flux Density

* BW:	* Southeastern Region (dbW/m^2/BW):	* Northeastern Region (dbW/m^2/BW):	* Western Region (dbW/m^2 /BW):	* Other Regions (dbW/m^2 /BW):
1.0 MHz	-115.3	-115.3	-115.3	-115.3

Transmitting Beams 5:

Question	Response
Beam ID	TLM
Transmit Beam Frequency	17300.0 MHz -17304.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Min. Cross-Polar Isolation within Service Area	25.0 dB
Polarization Switchable	

Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-31.0 dBW/Hz
Max. Transmit EIRP	25.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth. On-station telemetry beam.

Max. Power Flux Density

* BW:	* Southeastern Region (dbW/m^2/BW):	* Northeastern Region (dbW/m^2/BW):	* Western Region (dbW/m^2 /BW):	* Other Regions (dbW/m^2 /BW):
1.0 MHz	-133.1	-133.1	-133.1	-133.1

Transmitting Channels (34)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
TLM2	1.0	17301.0	TT&C
TLM1	1.0	17301.0	TT&C
D9R	26.0	17559.28	Service Link
D9L	26.0	17559.28	Service Link
D8R	26.0	17530.12	Service Link
D8L	26.0	17530.12	Service Link
D7R	26.0	17500.96	Service Link
D7L	26.0	17500.96	Service Link
D6R	26.0	17471.8	Service Link
D6L	26.0	17471.8	Service Link
D5R	26.0	17442.64	Service Link
D5L	26.0	17442.64	Service Link
D4R	26.0	17413.48	Service Link
D4L	26.0	17413.48	Service Link
D3R	26.0	17384.32	Service Link
D3L	26.0	17384.32	Service Link
D2R	26.0	17355.16	Service Link
D2L	26.0	17355.16	Service Link
D1R	26.0	17326.0	Service Link
D1L	26.0	17326.0	Service Link
D16L	26.0	17780.32	Service Link
D15R	26.0	17751.16	Service Link
D15L	26.0	17751.16	Service Link
D14R	26.0	17722.0	Service Link

D14L	26.0	17722.0	Service Link
D13R	26.0	17675.92	Service Link
D13L	26.0	17675.92	Service Link
D12R	26.0	17646.76	Service Link
D12L	26.0	17646.76	Service Link
D11R	26.0	17617.6	Service Link
D11L	26.0	17617.6	Service Link
D10R	26.0	17588.44	Service Link
D10L	26.0	17588.44	Service Link
D16R	26.0	17780.32	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?	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?	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)?	No

Attachments

File Name	Beam	Field	Attachment Type	Description
VIASAT-RDBS1 GIMSDB.mdb		GSO Antenna Gain Contour Data	GIMS file (*. mdb)	