



312 File Number: **SATLOA2017052400078**

---

## Filing Description

Question	Response
Description	Galaxy 15 Replacement at 133 WL C- and Ku-bands

---

## Satellite Information

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	Galaxy 15R
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 (5)**

<b>Nature of service</b>	<b>Description</b>	<b>Frequency Band(s)</b>	<b>Mode Type</b>
<b>Fixed-Satellite Service</b>		5925.0 MHz -6425.0 MHz	Receive
<b>Fixed-Satellite Service</b>		13750.0 MHz -14500.0 MHz	Receive
<b>Fixed-Satellite Service</b>		3700.0 MHz -4200.0 MHz	Transmit
<b>Fixed-Satellite Service</b>		10950.0 MHz -11200.0 MHz	Transmit
<b>Fixed-Satellite Service</b>		11450.0 MHz -12200.0 MHz	Transmit

## Orbital Information For Geostationary Satellites

Section	Question	Response
<b>Orbital Longitude Information</b>	Orbital Longitude	133.0 degrees
	Hemisphere of Orbital Longitude	W
<b>Longitudinal Tolerance or East /West Station-Keeping</b>	Toward West	0.05 degrees
	Toward East	0.05 degrees
<b>Inclination Excursion or North /South Station-Keeping Tolerance</b>	Inclination Excursion or North /South Station-Keeping Tolerance	0.1 degrees
<b>Antenna Axis Attitude Accuracy</b>	Roll	0.1 degrees
	Pitch	0.1 degrees
	Yaw	0.1 degrees

## Receiving Beams 1:

Question	Response
Beam ID	CAHU
Receive Beam Frequency	5927.0 MHz -6403.0 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
G/T at Max. Gain Point	4.8 dB/K
Min. Saturation Flux Density	-106.1 dBW/m2
Max. Saturation Flux Density	-78.1 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	The United States including Alaska and Hawaii

## Receiving Beams 2:

Question	Response
Beam ID	CAVU
Receive Beam Frequency	5927.0 MHz -6403.0 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	4.8 dB/K
Min. Saturation Flux Density	-106.1 dBW/m2
Max. Saturation Flux Density	-78.1 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	The United States including Alaska and Hawaii

**Receiving Beams 3:**

Question	Response
Beam ID	CHLU
Receive Beam Frequency	5926.25 MHz -5927.25 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
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-80.0 dBW/m2
Max. Saturation Flux Density	-79.9 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

## Receiving Beams 4:

Question	Response
Beam ID	CMD
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	-89.9 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

## Receiving Beams 5:

Question	Response
Beam ID	CPLU
Receive Beam Frequency	6424.0 MHz -6425.0 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
G/T at Max. Gain Point	-99.0 dB/K
Min. Saturation Flux Density	-80.0 dBW/m2
Max. Saturation Flux Density	-79.9 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

**Receiving Beams 6:**

Question	Response
Beam ID	KSHU
Receive Beam Frequency	13754.0 MHz -14482.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	18.1 dB/K
Min. Saturation Flux Density	-100.9 dBW/m2
Max. Saturation Flux Density	-75.9 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	The United States including Alaska and Hawaii

**Receiving Beams 7:**

Question	Response
----------	----------



Beam ID	KSVU
Receive Beam Frequency	13754.0 MHz -14482.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
G/T at Max. Gain Point	18.1 dB/K
Min. Saturation Flux Density	-100.9 dBW/m <sup>2</sup>
Max. Saturation Flux Density	-75.9 dBW/m <sup>2</sup>
Co- or Cross Polar Mode	C
Service Area Description	The United States including Alaska and Hawaii

## Receiving Channels (23)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
CU07	36.0	6185.0	Service Link
CU08	36.0	6225.0	Service Link
CU09	36.0	6265.0	Service Link
CU10	36.0	6305.0	Service Link
CU11	36.0	6345.0	Service Link
CU12	36.0	6385.0	Service Link
CMD1	1.0	5926.75	TT&C
CMD2	1.0	6424.5	TT&C
CU01	36.0	5945.0	Service Link
CU02	36.0	5985.0	Service Link
CU03	36.0	6025.0	Service Link
CU04	36.0	6065.0	Service Link
CU05	36.0	6105.0	Service Link
KU01	84.0	13796.0	Service Link
KU06	72.0	14218.0	Service Link
KU02	84.0	13884.0	Service Link
KU03	84.0	13972.0	Service Link
KU04	84.0	14060.0	Service Link
KU05	72.0	14142.0	Service Link
KU07	72.0	14294.0	Service Link
KU08	72.0	14370.0	Service Link
KU09	72.0	14446.0	Service Link
CU06	36.0	6145.0	Service Link

## Transmitting Beams 1:

Question	Response
Beam ID	CAHD
Transmit Beam Frequency	3702.0 MHz -4178.0 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	-29.9 dBW/Hz
Max. Transmit EIRP	49.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	UNITED STATES

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
<b>4.0 kHz</b>	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0

## Transmitting Beams 2:

Question	Response
Beam ID	CAVD
Transmit Beam Frequency	3702.0 MHz -4178.0 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
Max. Transmit EIRP Density	-29.9 dBW/Hz
Max. Transmit EIRP	49.5 dBW
Co- or Cross Polar Mode	C
Service Area Description	UNITED STATES

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
<b>4.0 kHz</b>	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0

### Transmitting Beams 3:

Question	Response
Beam ID	CLHD
Transmit Beam Frequency	4199.737 MHz -4199.763 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	-37.8 dBW/Hz
Max. Transmit EIRP	6.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

### Max. Power Flux Density

	* 0° - 5° (dBW/m <sup>2</sup> ) /BW:	* 5° - 10° (dBW/m <sup>2</sup> ) /BW:	* 10° - 15° (dBW/m <sup>2</sup> ) /BW:	* 15° - 20° (dBW/m <sup>2</sup> ) /BW:	* 20° - 25° (dBW/m <sup>2</sup> ) /BW:	* 25° - 90° (dBW/m <sup>2</sup> ) /BW:
<b>4.0 kHz</b>	-152.1	-149.5	-147.0	-144.5	-142.0	-142.0

### Transmitting Beams 4:

Question	Response
Beam ID	KLRD
Transmit Beam Frequency	11450.987 MHz -11451.013 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-33.0 dBW/Hz

Max. Transmit EIRP	11.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

### Max. Power Flux Density

	* 0° - 5° (dBW/m <sup>2</sup> )	* 5° - 10° (dBW/m <sup>2</sup> )	* 10° - 15° (dBW/m <sup>2</sup> )	* 15° - 20° (dBW/m <sup>2</sup> )	* 20° - 25° (dBW/m <sup>2</sup> )	* 25° - 90° (dBW/m <sup>2</sup> )
<b>* BW:</b>	<b>/BW):</b>	<b>/BW):</b>	<b>/BW):</b>	<b>/BW):</b>	<b>/BW):</b>	<b>/BW):</b>
<b>4.0 kHz</b>	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0

### Transmitting Beams 5:

Question	Response
Beam ID	KSHD
Transmit Beam Frequency	10950.0 MHz -11198.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-15.6 dBW/Hz
Max. Transmit EIRP	62.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	UNITED STATES

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
<b>4.0</b>	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
<b>kHz</b>						

## Transmitting Beams 6:

Question	Response
Beam ID	KSHE
Transmit Beam Frequency	11454.0 MHz -12194.0 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-15.6 dBW/Hz
Max. Transmit EIRP	62.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	UNITED STATES

## Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
<b>4.0</b>	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
<b>kHz</b>						

## Transmitting Beams 7:

Question	Response
Beam ID	KSVD
Transmit Beam Frequency	10950.0 MHz -11198.0 MHz
Beam Type	Fixed
Polarization	V
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
Max. Transmit EIRP Density	-15.6 dBW/Hz
Max. Transmit EIRP	62.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	UNITED STATES

## Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
<b>4.0 kHz</b>	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0

## Transmitting Beams 8:

Question	Response
Beam ID	KSVE
Transmit Beam Frequency	11454.0 MHz -12194.0 MHz



Beam Type	Fixed
Polarization	V
Peak Gain	dBi
Antenna Pointing Error	0.19 degrees
Antenna Rotational Error	0.34 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
Max. Transmit EIRP Density	-15.6 dBW/Hz
Max. Transmit EIRP	62.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	UNITED STATES

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
<b>4.0 kHz</b>	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0

### Transmitting Beams 9:

Question	Response
Beam ID	TGHD
Transmit Beam Frequency	4197.0 MHz -4199.8 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	-43.3 dBW/Hz
Max. Transmit EIRP	13.7 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>	(dBW/m <sup>2</sup>
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
<b>4.0 kHz</b>	-162.0	-159.0	-157.0	-154.5	-152.0	-152.0

### Transmitting Beams 10:

Question	Response
Beam ID	THLD
Transmit Beam Frequency	4197.0 MHz -4199.8 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	-45.1 dBW/Hz

Max. Transmit EIRP	11.9 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

### Max. Power Flux Density

	* 0° - 5° (dBW/m <sup>2</sup> )	* 5° - 10° (dBW/m <sup>2</sup> )	* 10° - 15° (dBW/m <sup>2</sup> )	* 15° - 20° (dBW/m <sup>2</sup> )	* 20° - 25° (dBW/m <sup>2</sup> )	* 25° - 90° (dBW/m <sup>2</sup> )
<b>* BW:</b>	<b>/BW):</b>	<b>/BW):</b>	<b>/BW):</b>	<b>/BW):</b>	<b>/BW):</b>	<b>/BW):</b>
<b>4.0 kHz</b>	-162.0	-159.0	-157.0	-154.5	-152.0	-152.0

### Transmitting Beams 11:

Question	Response
Beam ID	TPLD
Transmit Beam Frequency	4197.0 MHz -4199.8 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	-41.6 dBW/Hz
Max. Transmit EIRP	15.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	GLOBAL

### Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
* BW:	(dbW/m <sup>2</sup> ) /BW:	(dbW/m <sup>2</sup> ) /BW:	(dbW/m <sup>2</sup> ) /BW:	(dbW/m <sup>2</sup> ) /BW:	(dbW/m <sup>2</sup> ) /BW:	(dbW/m <sup>2</sup> ) /BW:
<b>4.0 kHz</b>	-162.0	-159.5	-157.0	-154.5	-152.0	-152.0

---

## Transmitting Channels (30)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
ULPK	0.025	11451.0	TT&C
ULPC	0.025	4199.75	TT&C
TLM4	0.5	4199.25	TT&C
TLM3	0.5	4198.75	TT&C
TLM2	0.5	4198.25	TT&C
KD12	84.0	12152.0	Service Link
KD11	84.0	12064.0	Service Link
KD10	84.0	11976.0	Service Link
KD09	84.0	11888.0	Service Link
KD08	84.0	11800.0	Service Link
KD07	72.0	11718.0	Service Link
KD06	72.0	11642.0	Service Link
KD05	72.0	11566.0	Service Link
KD04	72.0	11490.0	Service Link
KD03	84.0	11156.0	Service Link
KD02	84.0	11068.0	Service Link
KD01	72.0	10986.0	Service Link
CD12	36.0	4160.0	Service Link
CD11	36.0	4120.0	Service Link
CD10	36.0	4080.0	Service Link
CD09	36.0	4040.0	Service Link
CD08	36.0	4000.0	Service Link
CD07	36.0	3960.0	Service Link
CD06	36.0	3920.0	Service Link

<b>CD05</b>	36.0	3880.0	Service Link
<b>CD04</b>	36.0	3840.0	Service Link
<b>CD03</b>	36.0	3800.0	Service Link
<b>CD02</b>	36.0	3760.0	Service Link
<b>CD01</b>	36.0	3720.0	Service Link
<b>TLM1</b>	0.5	4197.75	TT&C

## Certification Questions

Question	Response
<p>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?</p>	<p>N/A</p>
<p>Are the applicable frequency tolerances of 25.202(e) and out-of-band emission limits of 25.202(f)(1),(2), and (3) met?</p>	<p>Yes</p>
<p>Are the cessation of emissions requirements of 25.207 met?</p>	<p>Yes</p>
<p>Are the applicable power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?</p>	<p>Yes</p>
<p>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?</p>	<p>N/A</p>
<p>Are the applicable full-frequency-reuse requirements of 25.210 met?</p>	<p>Yes</p>
<p>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)?</p>	

## Attachments

File Name	Beam	Field	Attachment Type	Description
<a href="#"><u>Galaxy 15R Beams May 2017 v2.mdb</u></a>		GSO Antenna Gain Contour Data	GIMS file (*. mdb)	GXT files for Galaxy15R Beams

---