

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

312 File Number: **SATRPL2021081200102**

**Filing
Description**

Question	Response
Description	SES-21 C-band replacement satellite at 103.05 W.L.

**Satellite
Information**

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	SES-21
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 (2)**

Nature of service	Description	Frequency Band(s)	Mode Type
Fixed-Satellite Service		3700.0 MHz -4200.0 MHz	Transmit
Fixed-Satellite Service		5900.0 MHz -6425.0 MHz	Receive

**Orbital
Information For
Geostationary
Satellites**

Section	Question	Response
Orbital Longitude Information	Orbital Longitude	103.0 degrees
	Hemisphere of Orbital Longitude	W
Longitudinal Tolerance or East /West Station-Keeping	Toward West	0.1 degrees
	Toward East	0.1 degrees
Inclination Excursion or North /South Station-Keeping Tolerance	Inclination Excursion or North /South Station-Keeping Tolerance	0.1 degrees
	Roll	0.1 degrees
Antenna Axis Attitude Accuracy	Pitch	0.1 degrees
	Yaw	0.1 degrees

**Receiving
Beams 1:**

Question	Response
Beam ID	CRH
Receive Beam Frequency	5900.0 MHz -6425.0 MHz
Beam Type	Steerable
Polarization	H
Peak Gain	29.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	Yes
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	2.7 dB/K
Min. Saturation Flux Density	-99.7 dBW/m ²
Max. Saturation Flux Density	-74.7 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	CONUS, Alaska, Hawaii, and parts of Canada, Mexico, Central America, and the Caribbean

**Receiving
Beams 2:**

Question	Response
Beam ID	CRV
Receive Beam Frequency	5900.0 MHz -6425.0 MHz
Beam Type	Steerable
Polarization	V
Peak Gain	29.1 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	Yes
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
G/T at Max. Gain Point	2.7 dB/K
Min. Saturation Flux Density	-99.7 dBW/m ²
Max. Saturation Flux Density	-74.7 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	CONUS, Alaska, Hawaii, and parts of Canada, Mexico, Central America, and the Caribbean

**Receiving
Beams 3:**

Question	Response
Beam ID	CGR
Receive Beam Frequency	6420.8 MHz -6423.7 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	11.49 dBi
Antenna Pointing Error	0.1 degrees

Antenna Rotational Error	0.0 degrees
Polarization Switchable	Yes
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
G/T at Max. Gain Point	-19.4 dB/K
Min. Saturation Flux Density	-95.0 dBW/m ²
Max. Saturation Flux Density	-75.0 dBW/m ²
Co- or Cross Polar Mode	C
Service Area Description	Global

**Receiving
Channels (22)**

Channel ID	Channel Bandwidth (MHz)	Center Frequency s(MHz)	Feeder Link, Service Link or TT&C
W68R	72.0	6065.0	Service Link
W57R	72.0	6045.0	Service Link
W24R	72.0	5985.0	Service Link
W13R	72.0	5965.0	Service Link
TC2	0.4	6421.0	TT&C
TC1	0.4	6423.5	TT&C
24R	36.0	6405.0	Service Link
23R	44.0	6390.0	Service Link
22R	36.0	6365.0	Service Link
21R	36.0	6345.0	Service Link
20R	36.0	6325.0	Service Link
19R	36.0	6305.0	Service Link
18R	36.0	6285.0	Service Link
09R	36.0	6105.0	Service Link
10R	36.0	6125.0	Service Link
11R	36.0	6145.0	Service Link
12R	36.0	6165.0	Service Link
13R	36.0	6185.0	Service Link
14R	36.0	6205.0	Service Link
15R	36.0	6225.0	Service Link
16R	36.0	6245.0	Service Link
17R	36.0	6265.0	Service Link

**Transmitting
Beams 1:**

Question	Response
Beam ID	CTH
Transmit Beam Frequency	3704.0 MHz -4198.0 MHz
Beam Type	Steerable
Polarization	H
Peak Gain	26.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	Yes
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-32.2 dBW/Hz
Max. Transmit EIRP	43.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	CONUS, Alaska, Hawaii, and parts of Canada, Mexico, Central America, and the Caribbean

Max. Power Flux Density

* BW:	* 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):
4.0 kHz	-159.6	-159.5	-159.3	-159.2	-159.1	-159.1

**Transmitting
Beams 2:**

Question	Response
Beam ID	CTV
Transmit Beam Frequency	3704.0 MHz -4198.0 MHz
Beam Type	Steerable
Polarization	V
Peak Gain	26.3 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	Yes
Polarization Alignment Relative to the Equatorial Plane	90.0 degrees
Max. Transmit EIRP Density	-31.9 dBW/Hz
Max. Transmit EIRP	43.6 dBW
Co- or Cross Polar Mode	C
Service Area Description	CONUS, Alaska, Hawaii, and parts of Canada, Mexico, Central America, and the Caribbean

Max. Power Flux Density

**Transmitting
Beams 3:**

* BW:	* 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):
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4.0 kHz	-159.3	-159.2	-159.0	-158.9	-158.8	-158.7
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Question	Response
Beam ID	CGT
Transmit Beam Frequency	4197.0 MHz -4199.7 MHz
Beam Type	Fixed
Polarization	H
Peak Gain	22.45 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	Yes
Polarization Alignment Relative to the Equatorial Plane	0.0 degrees
Max. Transmit EIRP Density	-45.8 dBW/Hz
Max. Transmit EIRP	10.2 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

Max. Power Flux Density

* BW:	* 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):
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4.0 kHz	-174.1	-174.0	-173.8	-173.6	-173.3	-173.2
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Transmitting Channels (22)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s(MHz)	Feeder Link, Service Link or TT&C
W68T	72.0	3840.0	Service Link
W57T	72.0	3820.0	Service Link
W24T	72.0	3760.0	Service Link
W13T	72.0	3740.0	Service Link
24T	36.0	4180.0	Service Link
23T	44.0	4165.0	Service Link
21T	36.0	4120.0	Service Link
16T	36.0	4020.0	Service Link
15T	36.0	4000.0	Service Link
14T	36.0	3980.0	Service Link
13T	36.0	3960.0	Service Link
12T	36.0	3940.0	Service Link
11T	36.0	3920.0	Service Link
10T	36.0	3900.0	Service Link
09T	36.0	3880.0	Service Link
20T	36.0	4100.0	Service Link
17T	36.0	4040.0	Service Link
TM1	0.4	4199.5	TT&C
TM2	0.4	4197.25	TT&C
19T	36.0	4080.0	Service Link
18T	36.0	4060.0	Service Link
22T	36.0	4140.0	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
SES-21_103W_FCC_ScheduleS.mdb		GSO Antenna Gain Contour Data	GIMS file (*.mdb)	