



312 File Number: **SATMOD2020052600057**

Filing Description

Question	Response
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Description	Amendment to Application for Authority for Audacy Corporation's NGSO Data Relay System.
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**Satellite
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	Audacy Data Relay Network
Estimated Lifetime of Satellite(s) From Date of Launch	12 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
Fixed-Satellite Service		18800.0 MHz -20200.0 MHz	Transmit
Fixed-Satellite Service		17700.0 MHz -18600.0 MHz	Transmit
Fixed-Satellite Service		27500.0 MHz -30000.0 MHz	Receive

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	3
Orbit Epoch Date	01/01/2019
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	25.0 degrees
Right Ascension of Ascending Node	157.64 degrees
Argument of Perigee	0.0 degrees
Orbital Period	28721.4 seconds
Apogee	13892.3 km
Perigee	13892.3 km
Active Service Arc Begin Angle with respect to Ascending Node	-179.9 degrees
Active Service Arc End Angle with respect to Ascending Node	180.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0

Orbital Plane 2:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	25.0 degrees
Right Ascension of Ascending Node	217.64 degrees
Argument of Perigee	0.0 degrees
Orbital Period	28721.4 seconds
Apogee	13892.3 km
Perigee	13892.3 km
Active Service Arc Begin Angle with respect to Ascending Node	-179.9 degrees

Active Service Arc End Angle with respect to Ascending Node	180.0 degrees
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Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0

Orbital Plane 3:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	25.0 degrees
Right Ascension of Ascending Node	277.64 degrees
Argument of Perigee	0.0 degrees
Orbital Period	28721.4 seconds
Apogee	13892.3 km
Perigee	13892.3 km
Active Service Arc Begin Angle with respect to Ascending Node	-179.9 degrees
Active Service Arc End Angle with respect to Ascending Node	180.0 degrees

Mean Anomaly For Each Satellite

Satellite Number	Mean Anomaly (degrees) at the Orbit Epoch Date
1	0.0

Receiving Beams 1:

Question	Response
Beam ID	SUR1
Receive Beam Frequency	27500.0 MHz -29500.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	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	17.5 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-75.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 2:

Question	Response
Beam ID	SUL1
Receive Beam Frequency	27500.0 MHz -29500.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	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	17.5 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-75.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Global

Receiving Beams 3:

Question	Response
Beam ID	FUR1
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	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	21.4 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-75.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	See "Gateway Service Area.pdf".

Receiving

Beams 4:

Question	Response
Beam ID	FUL1
Receive Beam Frequency	29500.0 MHz -30000.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	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	21.4 dB/K
Min. Saturation Flux Density	-100.0 dBW/m2
Max. Saturation Flux Density	-75.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	See "Gateway Service Area. pdf".

Receiving Channels (43)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
SU31	56.0	29240.0	Service Link
SU32	56.0	29298.0	Service Link
SU35	56.0	29472.0	Service Link
FU08	56.0	29972.0	Feeder Link
FU07	56.0	29908.0	Feeder Link
FU06	56.0	29844.0	Feeder Link
FU05	56.0	29780.0	Feeder Link
FU04	56.0	29717.0	Feeder Link
FU03	56.0	29654.0	Feeder Link
FU02	56.0	29591.0	Feeder Link
FU01	56.0	29528.0	Feeder Link
SU30	56.0	29182.0	Service Link
SU29	56.0	29124.0	Service Link
SU28	56.0	29067.0	Service Link
SU27	56.0	29010.0	Service Link
SU26	56.0	28953.0	Service Link
SU25	56.0	28896.0	Service Link
SU24	56.0	28839.0	Service Link
SU23	56.0	28782.0	Service Link
SU22	56.0	28725.0	Service Link
SU21	56.0	28668.0	Service Link
SU20	56.0	28611.0	Service Link
SU19	56.0	28554.0	Service Link
SU18	56.0	28497.0	Service Link

SU17	56.0	28440.0	Service Link
SU16	56.0	28383.0	Service Link
SU15	56.0	28326.0	Service Link
SU14	56.0	28269.0	Service Link
SU13	56.0	28212.0	Service Link
SU12	56.0	28155.0	Service Link
SU05	56.0	27756.0	Service Link
SU06	56.0	27813.0	Service Link
SU07	56.0	27870.0	Service Link
SU08	56.0	27927.0	Service Link
SU09	56.0	27984.0	Service Link
SU10	56.0	28041.0	Service Link
SU11	56.0	28098.0	Service Link
SU34	56.0	29414.0	Service Link
SU33	56.0	29356.0	Service Link
SU01	56.0	27528.0	Service Link
SU02	56.0	27585.0	Service Link
SU03	56.0	27642.0	Service Link
SU04	56.0	27699.0	Service Link

Transmitting
Beams 1:

Question	Response
Beam ID	SDR1
Transmit Beam Frequency	17700.0 MHz -18600.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	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	-24.1 dBW/Hz
Max. Transmit EIRP	53.4 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°
* (dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):	(dBW/m ² /BW):
1.0 MHz	-120.5	-120.3	-120.0	-119.8	-119.6	-117.9

Transmitting
Beams 2:

Question	Response
Beam ID	SDL1
Transmit Beam Frequency	17700.0 MHz -18600.0 MHz

Beam Type	Steerable
Polarization	LHCP
Peak Gain	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	-24.1 dBW/Hz
Max. Transmit EIRP	53.4 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°
	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-120.5	-120.3	-120.0	-119.8	-119.6	-117.9

Transmitting Beams 3:

Question	Response
Beam ID	SDR2
Transmit Beam Frequency	18800.0 MHz -19700.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	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	-24.1 dBW/Hz
Max. Transmit EIRP	53.4 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°
	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
1.0 MHz	-120.5	-120.3	-120.0	-119.8	-119.6	-117.9

Transmitting Beams 4:

Question	Response
Beam ID	SDL2
Transmit Beam Frequency	18800.0 MHz -19700.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	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	-24.1 dBW/Hz

Max. Transmit EIRP	53.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	Global

Max. Power Flux Density

	* 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):
1.0 MHz	-120.5	-120.3	-120.0	-119.8	-119.6	-117.9

Transmitting Beams 5:

Question	Response
Beam ID	FDR1
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	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	-16.7 dBW/Hz
Max. Transmit EIRP	70.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	See "Gateway Service Area.pdf".

Max. Power Flux Density

Transmitting Beams 6:

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
* BW:	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):
1.0 MHz	-113.1	-112.9	-112.6	-112.4	-112.2	-110.5

Question	Response
Beam ID	FDL1
Transmit Beam Frequency	19700.0 MHz -20200.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	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	-16.7 dBW/Hz
Max. Transmit EIRP	70.3 dBW
Co- or Cross Polar Mode	C
Service Area Description	See "Gateway Service Area.pdf".

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
* BW:	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):	(dbW/m ² /BW):
1.0 MHz	-113.1	-112.9	-112.6	-112.4	-122.2	-110.5

**Transmitting
Channels (40)**

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
SD31	56.0	19615.0	Service Link
SD30	56.0	19558.0	Service Link
SD29	56.0	19501.0	Service Link
SD28	56.0	19444.0	Service Link
SD27	56.0	19388.0	Service Link
SD26	56.0	19332.0	Service Link
SD25	56.0	19276.0	Service Link
SD24	56.0	19220.0	Service Link
SD23	56.0	19164.0	Service Link
SD22	56.0	19108.0	Service Link
SD19	56.0	18940.0	Service Link
SD18	56.0	18884.0	Service Link
SD17	56.0	18828.0	Service Link
SD32	56.0	19672.0	Service Link
SD16	56.0	18572.0	Service Link
SD01	56.0	17728.0	Service Link
SD02	56.0	17784.0	Service Link
SD03	56.0	17840.0	Service Link
SD04	56.0	17896.0	Service Link
SD05	56.0	17952.0	Service Link
SD06	56.0	18008.0	Service Link
SD07	56.0	18064.0	Service Link
SD08	56.0	18120.0	Service Link
SD09	56.0	18176.0	Service Link

SD10	56.0	18232.0	Service Link
SD11	56.0	18288.0	Service Link
SD12	56.0	18344.0	Service Link
SD13	56.0	18401.0	Service Link
SD14	56.0	18458.0	Service Link
SD15	56.0	18515.0	Service Link
FD08	56.0	20172.0	Feeder Link
FD01	56.0	19728.0	Feeder Link
FD02	56.0	19791.0	Feeder Link
FD03	56.0	19854.0	Feeder Link
FD04	56.0	19917.0	Feeder Link
FD05	56.0	19980.0	Feeder Link
FD06	56.0	20044.0	Feeder Link
FD07	56.0	20108.0	Feeder Link
SD20	56.0	18996.0	Service Link
SD21	56.0	19052.0	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?	No
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?	Yes
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>Gateway Service Area.pdf</u>	FDR1	Service Area Diagram	PDF file (*.pdf)	
<u>Gateway Service Area.pdf</u>	FDL1	Service Area Diagram	PDF file (*.pdf)	
<u>Gateway Service Area.pdf</u>	FUR1	Service Area Diagram	PDF file (*.pdf)	
<u>Gateway Service Area.pdf</u>	FUL1	Service Area Diagram	PDF file (*.pdf)	