



(DRAFT COPY - Not for submission) Schedule S

312 File Number:

Filing Description

Question	Response
Description	Technical characteristics of the BlueWalker 3 non-GEO satellite network.

**Satellite
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	BlueWalker 3
Estimated Lifetime of Satellite(s) From Date of Launch	5 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating Frequency Bands (8)

Nature of service	Description	Frequency Band(s)	Mode Type
Space Operation Service		2200.0 MHz -2290.0 MHz	Transmit
Space Operation Service		400.15 MHz -438.0 MHz	Transmit
Mobile-Satellite Service		758.0 MHz -894.0 MHz	Transmit
Fixed-Satellite Service		37500.0 MHz -42500.0 MHz	Transmit
Space Operation Service		2025.0 MHz -2110.0 MHz	Receive
Space Operation Service		400.15 MHz -438.0 MHz	Receive
Mobile-Satellite Service		788.0 MHz -849.0 MHz	Receive
Fixed-Satellite Service		47200.0 MHz -51400.0 MHz	Receive

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	1
Orbit Epoch Date	07/01/2021
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	97.5 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5793.0 seconds
Apogee	600.0 km
Perigee	500.0 km
Active Service Arc Begin Angle with respect to Ascending Node	-90.0 degrees
Active Service Arc End Angle with respect to Ascending Node	90.0 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	QUPL
Receive Beam Frequency	47200.0 MHz -51400.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	45.5 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	16.2 dB/K
Min. Saturation Flux Density	-100.5 dBW/m2
Max. Saturation Flux Density	-73.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 2:

Question	Response
Beam ID	QUPR
Receive Beam Frequency	47200.0 MHz -51400.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	45.5 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	16.2 dB/K
Min. Saturation Flux Density	-100.5 dBW/m2
Max. Saturation Flux Density	-73.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 3:

Question	Response
Beam ID	TCUL
Receive Beam Frequency	2025.0 MHz -2110.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	6.0 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	-21.0 dB/K
Min. Saturation Flux Density	-147.1 dBW/m2
Max. Saturation Flux Density	-147.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving

Beams 4:

Question	Response
Beam ID	TCUR
Receive Beam Frequency	2025.0 MHz -2110.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	6.0 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	-21.0 dB/K
Min. Saturation Flux Density	-147.1 dBW/m2
Max. Saturation Flux Density	-147.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

Receiving Beams 5:

Question	Response
Beam ID	UHUL
Receive Beam Frequency	400.15 MHz -438.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	0.0 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	-27.6 dB/K
Min. Saturation Flux Density	-110.1 dBW/m2
Max. Saturation Flux Density	-110.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

**Receiving
Beams 6:**

Question	Response
Beam ID	UHUR
Receive Beam Frequency	400.15 MHz -438.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	0.0 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	-27.6 dB/K
Min. Saturation Flux Density	-110.1 dBW/m2
Max. Saturation Flux Density	-110.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

**Receiving
Beams 7:**

Question	Response
Beam ID	GUPH
Receive Beam Frequency	788.0 MHz -849.0 MHz

Beam Type	Steerable
Polarization	H
Peak Gain	36.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	20.0 degrees
G/T at Max. Gain Point	9.0 dB/K
Min. Saturation Flux Density	-146.0 dBW/m2
Max. Saturation Flux Density	-126.0 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

**Receiving
Beams 8:**

Question	Response
Beam ID	GUPV
Receive Beam Frequency	788.0 MHz -849.0 MHz
Beam Type	Steerable
Polarization	V
Peak Gain	36.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	-70.0 degrees
G/T at Max. Gain Point	9.0 dB/K
Min. Saturation Flux Density	-146.0 dBW/m2
Max. Saturation Flux Density	-126.0 dBW/m2

Co- or Cross Polar Mode

C

Service Area Description

Visible Earth

Receiving Channels (7)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
QUP1	3000.0	48700.0	Feeder Link
L05U	4.0	847.0	Service Link
TC01	85.0	2067.5	TT&C
QUP2	1000.0	50900.0	Feeder Link
UHU1	0.85	400.575	TT&C
L14U	10.0	793.0	Service Link
UHU2	1.0	437.5	TT&C

Transmitting Beams 1:

Question	Response
Beam ID	QDNL
Transmit Beam Frequency	37500.0 MHz -42500.0 MHz
Beam Type	Steerable
Polarization	LHCP
Peak Gain	45.1 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	-40.9 dBW/Hz
Max. Transmit EIRP	56.1 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

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):	/BW):
1.0 MHz	-118.2	-116.5	-114.8	-113.4	-112.1	-105.9

Transmitting Beams 2:

Question	Response
Beam ID	QDNR
Transmit Beam Frequency	37500.0 MHz -42500.0 MHz

Beam Type	Steerable
Polarization	RHCP
Peak Gain	45.1 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	-40.9 dBW/Hz
Max. Transmit EIRP	56.1 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

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):	/BW):
1.0 MHz	-118.2	-116.5	-114.8	-113.4	-112.1	-105.9

Transmitting Beams 3:

Question	Response
Beam ID	GDNH
Transmit Beam Frequency	758.0 MHz -894.0 MHz
Beam Type	Steerable
Polarization	H
Peak Gain	36.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees

Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	20.0 degrees
Max. Transmit EIRP Density	-15.0 dBW/Hz
Max. Transmit EIRP	60.4 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

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):
4.0	-116.4	-114.6	-113.0	-111.6	-110.3	-104.0
kHz						

Transmitting Beams 4:

Question	Response
Beam ID	GDNV
Transmit Beam Frequency	758.0 MHz -894.0 MHz
Beam Type	Steerable
Polarization	V
Peak Gain	36.0 dBi
Antenna Pointing Error	0.1 degrees
Antenna Rotational Error	0.1 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	-70.0 degrees
Max. Transmit EIRP Density	-15.0 dBW/Hz
Max. Transmit EIRP	60.4 dBW
Co- or Cross Polar Mode	C

Service Area Description

Visible Earth

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):	/BW):
4.0 kHz	-116.4	-114.6	-113.0	-111.6	-110.3	-104.0

Transmitting Beams 5:

Question	Response
Beam ID	TMDL
Transmit Beam Frequency	2200.0 MHz -2290.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	6.0 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	-51.0 dBW/Hz
Max. Transmit EIRP	6.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

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):	/BW):
4.0 kHz	-160.2	-158.0	-155.9	-153.8	-151.9	-140.0

Transmitting Beams 6:

Question	Response
Beam ID	TMDR
Transmit Beam Frequency	2200.0 MHz -2290.0 MHz
Beam Type	Steerable
Polarization	RHCP
Peak Gain	6.0 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	-51.0 dBW/Hz
Max. Transmit EIRP	6.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

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):	/BW):
4.0 kHz	-160.2	-158.0	-155.9	-153.8	-151.9	-140.0

Transmitting Beams 7:

Question	Response
Beam ID	UHDL
Transmit Beam Frequency	400.15 MHz -438.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	0.0 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	-40.0 dBW/Hz
Max. Transmit EIRP	7.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

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):
4.0 kHz	-141.3	-139.6	-138.0	-136.5	-135.3	-129.0

Transmitting Beams 8:

Question	Response
Beam ID	UHDR
Transmit Beam Frequency	400.15 MHz -438.0 MHz
Beam Type	Fixed
Polarization	RHCP

Peak Gain	0.0 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	-40.0 dBW/Hz
Max. Transmit EIRP	7.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	Visible Earth

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):	/BW):
4.0	-141.3	-139.6	-138.0	-136.5	-135.3	-129.0
kHz						

Transmitting Channels (7)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
TM01	90.0	2245.0	TT&C
QDN2	500.0	42250.0	Feeder Link
QDN1	4500.0	39750.0	Feeder Link
L14D	10.0	763.0	Service Link
UHD2	1.0	437.5	TT&C
UHD1	0.85	400.575	TT&C
L05D	4.0	892.0	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?	Yes
Are the applicable full-frequency-reuse requirements of 25.210 met?	
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_Rx.gxt</u>	QUPL	NGSO Antenna Gain Data	GXT file (*.gxt)	Gateway steerable
<u>Gateway_Rx.gxt</u>	QUPR	NGSO Antenna Gain Data	GXT file (*.gxt)	Gateway steerable
<u>TTC_S-band_Rx.gxt</u>	TCUR	NGSO Antenna Gain Data	GXT file (*.gxt)	Telecommand steerable
<u>TTC_UHF_Rx.gxt</u>	UHUL	NGSO Antenna Gain Data	GXT file (*.gxt)	Telecommand steerable
<u>TTC_S-band_Rx.gxt</u>	TCUL	GSO Antenna Gain Contour Data	GXT file (*.gxt)	Telecommand steerable
<u>TTC_UHF_Rx.gxt</u>	UHUR	NGSO Antenna Gain Data	GXT file (*.gxt)	Telecommand steerable
<u>User_Rx_Beam.gxt</u>	GUPV	NGSO Antenna Gain Data	GXT file (*.gxt)	User beam - shapeable and steerable.
<u>User_Rx_Beam.gxt</u>	GUPH	NGSO Antenna Gain Data	GXT file (*.gxt)	User beam - shapeable and steerable.
<u>User_Rx_Isolines.gxt</u>	GUPV	NGSO Antenna Gain Data	GXT file (*.gxt)	User beam isolines
<u>User_Rx_Isolines.gxt</u>	GUPH	NGSO Antenna Gain Data	GXT file (*.gxt)	User beam isolines
<u>Gateway_Tx.gxt</u>	QDNL	NGSO Antenna Gain Data	GXT file (*.gxt)	Gateway steerable
<u>Gateway_Tx.gxt</u>	QDNR	NGSO Antenna Gain Data	GXT file (*.gxt)	Gateway steerable
<u>User_Tx_Beam.gxt</u>	GDNH	NGSO Antenna Gain Data	GXT file (*.gxt)	User beam - shapeable and steerable
<u>User_Tx_Beam.gxt</u>	GDNV	NGSO Antenna Gain Data	GXT file (*.gxt)	User beam - shapeable and steerable

<u>User</u> <u>Tx_Isolines.gxt</u>	GDNV	NGSO Antenna Gain Data	GXT file (*. gxt)	User beam isolines
<u>User</u> <u>Tx_Isolines.gxt</u>	GDNH	NGSO Antenna Gain Data	GXT file (*. gxt)	User beam isolines
<u>TTC S-</u> <u>band Tx.gxt</u>	TMDL	NGSO Antenna Gain Data	GXT file (*. gxt)	Telemetry steerable
<u>TTC S-</u> <u>band Tx.gxt</u>	TMDR	NGSO Antenna Gain Data	GXT file (*. gxt)	Telemetry steerable
<u>TTC_UHF_Tx.</u> <u>gxt</u>	UHDL	NGSO Antenna Gain Data	GXT file (*. gxt)	Telemetry steerable
<u>TTC_UHF_Tx.</u> <u>gxt</u>	UHDR	NGSO Antenna Gain Data	GXT file (*. gxt)	Telemetry steerable
