



312 File Number: **SESLIC2022070800734**

Filing Description

Question	Response
Description	Tyvak requests authority to identify the following non-U.S. authorized satellites as an authorized point of communication for the earth station covered by this application: Tyvak-0821, ITU notice ID number of 121545232.

**Satellite
Information**

Question	Response
Select Orbit Type	NGSO
Space Station or Satellite Network Name	TYVAK-0821
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 (3)

Nature of service	Description	Frequency Band(s)	Mode Type
Space Operation Service		401.0 MHz -402.0 MHz	Receive
Space Operation Service		401.0 MHz -402.0 MHz	Transmit
Earth Exploration-Satellite Service		2200.0 MHz -2290.0 MHz	Transmit

**Orbital
Information For
Non-
Geostationary
Satellites**

Question	Response
Total Number of Satellites in the active constellation	1
Orbit Epoch Date	05/25/2022
Celestial Reference Body	Earth

Orbital Plane 1:

Question	Response
Number of Satellites in Plane	1
Inclination Angle	97.6 degrees
Right Ascension of Ascending Node	0.0 degrees
Argument of Perigee	0.0 degrees
Orbital Period	5760.0 seconds
Apogee	550.0 km
Perigee	550.0 km
Active Service Arc Begin Angle with respect to Ascending Node	0.0 degrees
Active Service Arc End Angle with respect to Ascending Node	0.0 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	003
Receive Beam Frequency	401.166 MHz -401.194 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	2.0 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	0.0066 dB/K
Min. Saturation Flux Density	-110.8 dBW/m2
Max. Saturation Flux Density	-100.8 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	USA, NOR, I, UAE, AUS, ATA, CHL, MLA, NZL, GRC, E MAU, GRL, AFS, PNR, SNG, KOR, J, IRL, S, AUS

Receiving
Channels (1)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
003	0.028	401.18	TT&C

Transmitting
Beams 1:

Question	Response
Beam ID	001
Transmit Beam Frequency	2233.0 MHz -2237.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	7.0 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-56.02 dBW/Hz
Max. Transmit EIRP	10.0 dBW
Co- or Cross Polar Mode	C
Service Area Description	USA, NOR, I, UAE, AUS, ATA, CHL, MLA, NZL, GRC, E MAU, GRL, AFS, PNR, SNG, KOR, J, IRL, S, AUS

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):
4.0 kHz	-174.0	-162.3	-159.9	-158.9	-157.4	-145.8

Transmitting
Beams 2:

Question	Response
Beam ID	002

Transmit Beam Frequency	401.166 MHz -401.194 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	2.0 dBi
Antenna Pointing Error	0.0 degrees
Antenna Rotational Error	0.0 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-39.6 dBW/Hz
Max. Transmit EIRP	5.01 dBW
Co- or Cross Polar Mode	C
Service Area Description	USA, NOR, I, UAE, AUS, ATA, CHL, MLA, NZL, GRC, E MAU, GRL, AFS, PNR, SNG, KOR, J, IRL, S, AUS

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	-157.6	-145.9	-143.5	-142.5	-141.0	-129.4

Transmitting
Channels (2)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
001	4.0	2235.0	TT&C
002	0.028	401.18	TT&C

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?	
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?	
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>T-0821 Master Market Access Exhibit 6 30 2022.pdf</u>		NGSO Antenna Gain Data	PDF file (*.pdf)	