Lynk Towers 1-4 (Ka-band)

NARRATIVE STATEMENT

Lynk Global, Inc.
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EXPERIMENTAL STA APPLICATION
NARRATIVE STATEMENT

(1) Applicant Information.

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[redacted]

(2) Description of why experimental authorization is needed.

Lynk Global, Inc. ("Lynk") seeks experimental special temporary authority ("STA") to access and test the performance of ground equipment with Lynk's satellites *Lynk Tower 1*, *Lynk Tower 2*, *Lynk Tower 3*, and *Lynk Tower 4*.[1] Lynk is developing a cellular-based smallsat communications network that will provide global GSM and LTE cellular services using Low Earth Orbit ("LEO") satellites. There is the need to perform testing as soon as possible on satellite equipment to gather important information regarding the performance of feeder links and capabilities of the network/system control. Lynk requests to test feeder link operations in the 20.1-20.2 GHz and 29.9-30.0 GHz bands with an earth station located in Maui, Hawaii.[2]

(3) Description of the operation to be conducted and its purpose.

This application requests an STA to perform a series of very short tests via free-flying payloads when flying over the specifically referenced earth station herein located in Maui, Hawaii. A typical pass over the earth station site will last about nine (9) minutes and

[1] The *Lynk Tower 1* satellite is launched and in operation under File Number 0656-EX-CN-2021; the *Lynk Tower 2* satellite is authorized under File Number 1117-EX-CN-2021; and *Lynk Tower 3* and *Lynk Tower 4* are launched and in operation under File Number 0113-EX-CN-2022. *Lynk Tower 2* is expected to be launched in June 2023.

[2] The earth station site located in Maui, Hawaii is currently being considered for authorization under File Number SES-AMD-20220919-00979, and the ground station operator is seeking an STA for this earth station site under File Number 0316-EX-ST-2023. [redacted]

approximately three (3) times per day per satellite. All operations will be conducted on a non-interference basis and consistent with Lynk's small satellite authorization for the Lynk Smallsat System, which includes *Lynk Towers 1-4*.[3]

(4) Timing of proposed operation.
Lynk requests authorization for 6 months starting February 24, 2023.

(5) Class(es) of station (fixed, mobile, fixed & mobile) and call sign of station (if applicable).
The earth station will operate in a fixed mode, and the space stations will operate in non-geostationary orbit as launched and authorized.

(6) Description of the location(s) and, if applicable, geographical coordinates of the proposed operation.

Location	Latitude	Longitude	Proposed Operation
Maui, Hawaii	20° 49' 1.5 N	156° 27' 16.9 W	Feeder Link / Gateway

(7) Transmit equipment to be used.

# of Units	Equipment	Manufacturer	Model
1	Ka-band Antenna (space station)	Lynk	Custom

(8) Frequencies.

Operations	Downlink	Uplink
Feeder Link / Gateway	20.1-20.2 GHz	29.9-30.0 GHz

(9) Max effective radiated power (ERP) or equivalent isotropically radiated power (EIRP).
See below, Question (12).

(10) Emission designator.
See below, Question (12).

(11) Overall height of antenna structure above the ground.
Not applicable to space stations.

[3] *In the Matter of Lynk Global, Inc. Application to deploy and operate space stations filed under the FCC streamlined small space station authorization, 47 CFR § 25.122, Order and Authorization,* IBFS File No. SAT-LOA-20210511-00064.

(12) Supplemental Technical Information.

Feeder Link Testing		
Parameters	**Downlink (space-to-Earth)***	
Frequencies	20.1-20.2 GHz	
Center Frequency	Variable	
Channel Bandwidth	≤ 50 MHz	
Gain	23.17 dBiC	
Output Power	Amplifier	4 W
	Antenna	2.52 W
EIRP	27.19 dBW	
ERP (EIRP -2.15 dB)	25.04 dBW 319 W	
Emission Designator	50M0G7W	
Frequency Tolerance	0.00001%	
Modulating Signal	Digital on/off quantized	
Polarization	LHCP and RHCP	
Beam	Type	Steerable / Directional
	Width (at half power point)	7.92 degrees**
* Uplink (Earth-to-space) experimental operations is being sought by the ground station operator. ** Full cone beamwidth at half power.		