

**Kuiper Systems LLC**  
**Application for Special Temporary Authority**  
**Narrative Statement**

Pursuant to Sections 5.51, 5.54(a)(2), and 5.61 of the rules<sup>1</sup> of the Federal Communications Commission (“Commission”), Kuiper Systems LLC, a wholly owned subsidiary of Amazon.com Services LLC (“Amazon”), hereby respectfully requests six months of special temporary authority (“STA”) commencing January 10<sup>th</sup>, 2023 to operate an earth station in Kapolei, Hawaii to provide telemetry, tracking, and control (“TT&C”) to the experimental KuiperSat-1 and KuiperSat-2 (ELS Call Sign WM2XKY) (the “Experimental Kuiper System”).<sup>2</sup> TT&C services will be provided using the following frequencies: 19.3-19.4 GHz (space-to-Earth), and 27.5-27.6 GHz (Earth-to-space).

In support of its request, Amazon provides the following additional information required by Section 5.61:

**(1) Name, address, phone number (also email address and facsimile number, if available) of the applicant.**

<i>Amazon Stop Buzzer Contact</i>	<i>Amazon FCC Contact</i>
KuiperSat Operations	Dave Kaufman
Email: kuipersat-ops@amazon.com	Amazon.com
Phone: (571) 400-5227	1800 South Bell Street
	Arlington, VA 22202
	davkaufm@amazon.com
	(571) 400-5227

**(2) Explanation of why an STA is needed.**

Amazon seeks special temporary authority to support its testing of KuiperSat-1 and KuiperSat-2 and provide further redundancy for operation of the Experimental Kuiper System.

Amazon is preparing to deliver high-capacity, low-latency broadband communications services to tens of millions of unserved and underserved consumers and businesses with the Kuiper System. Amazon’s Kuiper System, licensed by the Commission in July 2020, will be comprised of 3,236 satellites at altitudes of 590 km, 610 km, and 630 km.<sup>3</sup> This grant would serve the public interest by enabling Amazon to further enhance and validate the satellite components of the Kuiper System.

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<sup>1</sup> 47 C.F.R. §§ 5.51, 5.54(a)(2), 5.61.

<sup>2</sup> See ELS File No. 0956-EX-CN-2021, Call Sign WM2XKY (granted June 9, 2022); ELS File No. 0234-EX-CM-2022, Call Sign WM2XKY (granted Dec. 5, 2022).

<sup>3</sup> See *Kuiper Systems LLC, Application for Authority to Deploy and Operate a Ka-band Non-Geostationary Satellite Orbit System*, Order and Authorization, 35 FCC Rcd 8324 (2020).

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

This Earth station will be a single, 2.4-meter TT&C Earth station antenna in support of the Experimental Kuiper System. The Earth station antenna will be located at 21.336121°N, 158.088996°W in Kapolei, Hawaii, where it will be co-located with planned gateway Earth stations that will support the commercial Kuiper System.<sup>4</sup> Elevation angles for connectivity between the KuiperSats and the TT&C Earth station will be greater than or equal to 5 degrees. Technical specifications for the TT&C Earth station are identified in the sections below.

**(4) Time and dates of proposed operation.**

Amazon requests special temporary authority for a six-month period and seeks to commence testing on January 10, 2023.

**(5) Class(es) of station (e.g., fixed, mobile, or both) and call sign of station (if applicable).**

The Earth station is a fixed station; there is no call sign associated with the station.

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

The Earth station is located at 21.336121°N, 158.088996°W in Kapolei, Hawaii. Amazon recognizes that experimental operations must not cause harmful interference to authorized facilities, and, prior to commencing operations, Amazon will coordinate with any incumbent licensees as needed to ensure that Amazon's operations do not interfere with authorized operations. In the unlikely event that interference should occur, Amazon will take immediate steps to resolve the interference, including by discontinuing operations if necessary. In furtherance of this commitment, Amazon provides a stop buzzer point of contact in item (1), above.

**(7) Equipment to be used, including name of manufacturer, model and number of units.**

Manufacturer	Model Number	Number of units
Kuiper	Cobham Tracker 2400	1

**(8) Frequency (or frequency bands) requested.**

The requested frequency bands are 19.3-19.4 GHz (space-to-Earth) and 27.5-27.6 GHz (Earth-to-space).

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<sup>4</sup> See IBFS File No. SES-LIC-20210730-01290, Call Sign E210299 (filed July 30, 2021).

**(9) Minimum and maximum effective radiated power (ERP).**

<b>Frequency Band(s) (GHz)</b>	<b>Minimum ERP (W)</b>	<b>Minimum ERP (dBW)</b>	<b>Maximum ERP (W)</b>	<b>Maximum ERP (dBW)</b>
27.5-27.6	2089554.9	63.2	2089554.9	63.2
19.3-19.4	6.1	7.85	6.1	7.85

**(10) Emission designator or describe emission (bandwidth, modulation, etc.).**

<b>Frequency Band(s) GHz</b>	<b>Emission Type/Designator</b>	<b>Modulating Signal</b>	<b>Frequency Stability</b>
27.5-27.6	2M50D7W	SC-OFDM	0.001%
19.3-19.4	2M50G1D	SC-OFDM	0.002%

**(11) Overall height of antenna structure above the ground.**

The transmitting antenna is 4.3 meters above ground.

**(12) Beam information.**

<b>Beamwidth at half power point</b>	<b>Orientation in horizontal plane</b>	<b>Orientation in vertical plane</b>
0.3 degrees	0-360 degrees	5-90 degrees above local horizon

**(13) RF exposure compliance.**

The Commission’s rules for radiofrequency (“RF”) exposure “reflect the best available information concerning safe levels of RF exposure for workers and members of the general public” and “specify methods that RF equipment operators can use to mitigate the risk of excess exposure.”<sup>5</sup> Amazon will comply with these RF exposure guidelines with respect to the prototype antennas and test station transmissions, for uncontrolled (general population) and controlled (occupational) environments, as specified by Section 1.1310 of the Commission’s rules. The testing will occur on private property, with restricted access only to authorized personnel. Hence, any transmissions will not occur in proximity to and will comply with the exposure limits with respect to the general population. All Amazon personnel operating and maintaining the equipment will be trained on proper handling of the equipment to mitigate radiofrequency exposure. Furthermore, all transmissions will be positively controlled by Amazon personnel during testing who will be able to cease transmissions at any time.

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<sup>5</sup> *Proposed Changes in the Commission’s Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields*, Report and Order, Notice of Proposed Rulemaking, Memorandum Opinion and Order, 34 FCC Rcd 11687, paras. 2-3 (2019).