

The MISSION DESCRIPTION

Space Telecommunications, Inc. (“STI”) herein requests six months special temporary authority to construct and launch an 8U cubesat, known as “CTC-0,” to test direct-to-device mobile connectivity outside the United States. CTC-0 will be deployed as part of the SpaceX Bandwagon-2 rideshare mission and thus action on this STA is requested by no later than **September 1, 2024** given current launch service provider requirements. STI further requests that this STA commence from the date of launch, currently scheduled for NET **November 1, 2024**.

STI is an early-stage space company that has partnered with Gluwa, Inc. (“Gluwa”) to expand the reach and benefit of decentralized capital markets through the optimization of space-based technologies. Based in San Francisco, Gluwa is the top-rated real-world assets platform in the world. By providing an end-to-end decentralized financial ecosystem, Gluwa connects capital from developed markets to emerging market lending opportunities through blockchain technology. This decentralized infrastructure allows users to raise and disburse capital anywhere in the world, securing immutable credit data on Creditcoin, and empowering a new generation of users with economic tools, information, and accessibility; redefining the way entrepreneurs and companies gain access to global capital markets.

Since its founding, Gluwa has worked closely with partners in central Africa to facilitate financial transactions and improve access to capital markets.¹ However, slow internet connectivity remains a significant barrier to digital inclusivity, particularly in rural and remote regions. To help overcome this challenge, STI seeks to introduce a satellite-based solution specifically designed to extend low-cost mobile data connectivity to rural areas, and enabling its partner, Gluwa, to extend access to capital markets through a new immutable credit data instrument, Spacecoin. The CTC-0 mission is thus designed to demonstrate the capabilities of a functional, scalable 5G-non-terrestrial network (“NTN”) new radio (“NR”) network to provide basic, affordable mobile connectivity in rural regions of the globe, helping to close the connectivity gap and benefitting the public writ large.

Specifically, STI’s planned experimental operations will consist of a single 8U Endurosat cubesat, CTC-0, equipped with two full duplex transceivers and directional panel antennas, communicating with unmodified mobile handsets and fixed ground stations. For the direct-to-device component test, CTC-0 will connect directly with unmodified 5G consumer handsets or other STI-operated simulated user equipment. Only handset devices identified for the experiment will receive signals from CTC-0.² A single high-gain directional fixed ground station in Lagos, Nigeria will be used

¹ See, e.g., Press Release, “Liberia’s President Meets with Gluwa,” MEDIUM (Mar. 14, 2024), <https://medium.com/gluwa-blog/liberias-president-meets-with-gluwa-abcad770feb>; Press Release, “Gluwa partners with Lagos government to digitize agricultural assets,” COINTELEGRAPH (Oct. 27, 2022), <https://cointelegraph.com/press-releases/gluwa-partners-with-lagos-government-to-digitize-agricultural-assets>; Kofi Ansah, “Gluwa and Aella Announce Over 1 Million Transactions across Africa on Blockchain,” COINSPEAKER (Sept. 23, 2021), <https://www.coinspeaker.com/gluwa-aella-1m-transactions/>.

² STI will limit signals to a closed list of International Mobile Equipment Identity device numbers. Only devices on this list will be able to transmit to and receive signals from the CTC-0 spacecraft over Nigeria. STI will obtain all necessary licenses and approvals from the Government of Nigeria prior to commencing any testing in the country.

for connectivity between the satellite and a ground based 5G gNodeB base station. Telemetry, tracking, and command (“TT&C”) will be conducted via third-party commercial ground station-as-a-service networks, as described in Attachment A.

The CTC-0 satellite plans to operate in the radiofrequency bands outlined in the table below. Satellite transmissions can be turned on and off by ground telecommand in compliance with Commission rules.³

Type of Link and Transmission Direction	Frequency Ranges
Payload Downlink (space-to-Earth)	2170-2200 MHz
TT&C Downlink (space-to-Earth)	401.4875-401.5125 MHz 2240.375-2240.625 MHz
Payload Uplink (Earth-to-space)	1980-2010 MHz
TT&C Uplink (Earth-to-space)	402.4875-402.5125 MHz 2067.375-2067.625 MHz

STI will maintain a complete and accurate set of current and planned radiofrequency transmissions for the satellite and will provide any necessary technical information to other space station operators in order to identify and promptly resolve any potential causes of radio frequency interference between systems.

The CTC-0 satellite is manifested for launch as a rideshare on SpaceX’s Bandwagon-2 mission NET November 2024. Following deployment from the Falcon 9 launch vehicle, the CTC-0 satellite described in this application will operate at an altitude of 510 km +/- 20 km at an inclination of 45° +/- 1.1°. ⁴ At these orbital parameters, the CTC-0 satellite is expected to naturally decay within five years following the end of the operational mission. ⁵

As described more fully in the accompanying orbital debris assessment report (“ODAR”), the CTC-0 satellite is equipped with flight proven, state-of-the-art hardware and software solutions to ensure safe and efficient mission operations. The spacecraft is capable of making orbital

³ See Attachment F (Stop Buzzer); 47 C.F.R. § 5.107.

⁴ Since the launch mission includes multiple payloads, discretion over the final deployment parameters remains exclusively with SpaceX. STI will notify the Commission of any changes in orbital deployment parameters within thirty (30) days following deployment.

⁵ See Mitigation of Orbital Debris in the New Space Age, Second Report and Order, IB Docket Nos. 18-313 & 22-271, FCC 22-74 (2022); see also ODAR at 13 (The DAS estimates a worst-case 530 km altitude, with CTC-0 naturally re-entering in less than 5 years from deployment from the launch vehicle).

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adjustments and performing collision avoidance maneuvers by utilizing differential drag, but will not carry propulsive systems.

Prior to launch, STI will register the spacecraft with the U.S. Space Force's 18th Space Defense Squadron ("SDS") or the appropriate successor entity and share information regarding initial spacecraft deployment, ephemeris, and planned maneuver information. CTC-0 will utilize a unique telemetry marker at deployment to assure the spacecraft can be identified. The 18th SDS will be able to contact the STI satellite operations team 24 hours per day/seven days per week to ensure that STI can coordinate collision avoidance measures to the extent possible.

ATTACHMENT LIST:

- A. Ground Segment
- B. Orbital Debris Assessment Report
- C. NTIA Space Record
- D. Stop Buzzer
- E. Antenna Patterns
- F. ITU Cost Recovery Letter