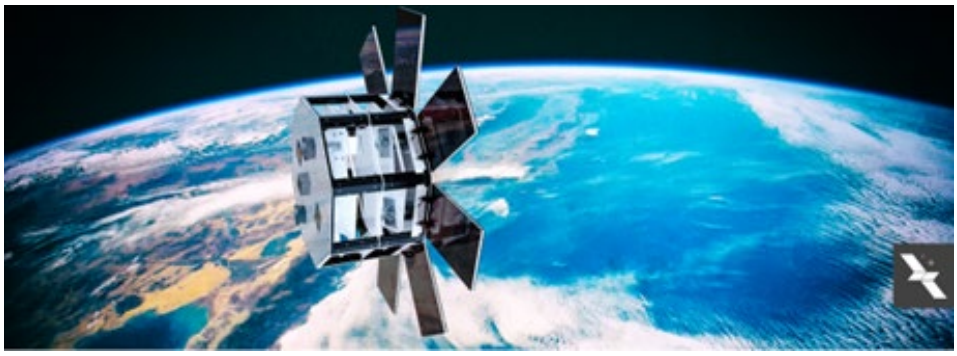
MISSION DESCRIPTION: LIZZIESAT-2

Sidus is a publicly-traded, vertically-integrated provider of Space-as-a-Service solutions, including end-to-end satellite support, based in Merritt Island, Florida. Founded on a vision of conveying spaceflight heritage to new technologies that advance delivery of data and predictive analytics, Sidus combines mission critical hardware manufacturing, multi-disciplinary engineering services, and full lifecycle mission planning and operations, with in-orbit support and space-based data collection for customers domestically and abroad.

Sidus has designed and is now building a multi-mission satellite constellation using its hybrid, 3D-printed multipurpose satellite, LizzieSat ("LS"), to provide continuous, near real-time Earth Observation and Internet-of-Things ("IOT") data for the global space economy (the "LizzieSat Satellite Constellation"). The LizzieSat Satellite Constellation will consist of one hundred (100) LS satellites operating in diverse orbits between 28°-98° inclination and 300-650 km altitude. LS-2 is intended to serve as a technology demonstrator and pathfinder mission, designed to validate the LS bus when deployed from the International Space Station ("ISS") and ensure that LS meets all technical performance requirements prior to the deployment of the full constellation.

Leveraging Sidus's existing manufacturing operations, flight hardware manufacturing experience, and commercial off the shelf subsystem hardware, the LizzieSat Satellite Constellation will provide a platform through which Sidus can deliver customer sensors to orbit in months, rather than years. The deployment of the LizzieSat Satellite Constellation will enable Sidus to deliver high-impact data for insights on aviation, maritime, weather, space services, Earth intelligence and observation, financial technology (Fintech) and the Internet of Things.

Each LS satellite is custom-built by Sidus in its Merritt Island manufacturing facility, with a total mass of one hundred kilograms (100 kg),[1] including thirty-five kilograms (35 kg) (in the aggregate since no propulsion onboard) available for Sidus or third-party payloads, including remote sensing instruments. The payloads will collect data over multiple Earth-based locations, record the data onboard, and downlink via commercial ground stations across the globe to Sidus Mission Control Center ("MCC") in Merritt Island, Florida.



The LS-2 satellite will have one experimental payload and one sensor. The first payload

[1] As a non-propulsive system, LizzieSat has the same wet and dry mass.

is an experimental 0.5U (0.5 kg) data processing unit ("DPU") developed by Exo-Space, Inc., called "FeatherEdge." FeatherEdge is an image-analysis device that is intended to provide onboard image processing using machine vision algorithms contained within the DPU to detect objects within its field of view. During the LS-2 mission, the FeatherEdge payload will seek to demonstrate: (i) basic operations, (ii) machine vision processing of optical sensor data; (iii) a capability to update existing data processing models; and (iv) the ability to add new data processing models. All power and command signals will be sent to the FeatherEdge payload via the LS-2 bus operated from the Sidus MCC.

LS-2 will also host the HyperScape 100 Sensor Unit, manufactured by SimeraSense. The HyperScape 100 houses front-end electronics based on a CMOS sensor fitted with an optical filter that includes panchromatic and continuously variable hyperspectral bands. The HyperScape 100 has a frame rate of 300 fps and a ground sampling distance of 3.79 m at 400 km. The sensor is operated by Sidus and licensed by the National Oceanic and Atmospheric Administration ("NOAA"). The sensor does not transmit.[2]

The LS-2 satellite plans to operate in the radiofrequency bands outlined in the table below. Satellite downlink transmissions can be turned on and off by ground telecommand in compliance with Commission rules.[3]

Type of Link and Transmission Direction	**Frequency Ranges**
TT&C Uplink (Earth-to-space)	2025-2110 MHz,
TT&C and Data Downlink (space-to-Earth)	2200-2290 MHz
EESS Data Downlink (space-to-Earth)	8025-8400 MHz
GPS Signals (receive only)	L1 and L2 GPS frequency bands

LS-2 is manifested to launch on a NASA Commercial Resupply Services mission to the ISS no earlier than November 2023. This mission, Northrup-Grumman-20 ("NG-20"), will launch from Wallops Island, Virginia in the Cygnus capsule atop an Antares rocket. Upon arrival, LS-2 will be moved from the capsule to the ISS where it will remain until the ISS crew is scheduled to deploy the spacecraft approximately 30-60 days after arrival.

Upon deployment from the ISS, LS-2 will operate at an altitude of approximately 400 km and 51.6° inclination (below ISS orbit altitude).[4] At this altitude, the LS-2 satellite is expected to fully decay naturally within one (1) year after deployment. As described more fully in the accompanying orbital debris assessment report ("ODAR"), LS-2 is equipped with state-of-the-art hardware and software solutions to ensure safe and efficient mission operations. LS-2 will be

[2] Sidus's NOAA license covers the entire LS-2 satellite at 400 km (as well as LS-3-LS-8 at 550 km), not just the HyperScape 100 sensor.

[3] *See* Attachment E (*Stop Buzzer*); 47 C.F.R. § 5.107.

[4] Sidus will notify the Commission of any changes in orbital deployment parameters within thirty (30) days of deployment. *See* Attachment B (*ODAR*) at 4.

capable of making orbital adjustments and performing collision avoidance maneuvers by utilizing differential drag, but will not carry propulsive systems.[5]

ATTACHMENT LIST:

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

[5] *Id*.