



January 3, 2020

Public Release

Firefly Alpha is preparing for the first launch of the Firefly Alpha small satellite launch vehicle. In preparation for this launch, Firefly submits the following information.

Company Information

Firefly Aerospace, Inc.
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The Firefly Alpha is a two stage liquid oxygen / RP-1 kerosene, small satellite launch vehicle capable of delivering 1 metric ton to Low Earth Orbit (LEO) and 630 kg to 500 km Sun-Synchronous Orbit (SSO). The orbit for the first launch of Alpha is expected to be at a 146-degree inclination and an altitude of 300km.

The Firefly Alpha will acquire and transmit data vehicle telemetry. Camera views will also be captured and transmitted. The primary objective for this first flight is to acquire data on the performance of the vehicle, but several payloads will also be flown. The payloads for the first launch of the Alpha vehicle are summarized in the table below.

Firefly Alpha First Launch Payloads

Organization	Satellite Name	Description
Purdue University	Spinnaker 3	The FireSail payload is an 18 m2 dragsail, sized to provide deorbit capability for the Firefly upper stage from altitudes of up to 650 km.
Naval Postgraduate School, Center for Network Innovation and Experimentation (CENETIX)	NPS-CENETIX-Orbital 1	Bursty Orbital Mesh Networking (Dual radio communication board comprised of goTenna Pro X and LoRa radios with combined with Arduino microcontroller)
Teachers in Space, Inc.	Teachers in Space (TIS) Standard Classroom Cubekit Equipment	Collects flight data during the mission and make it available to the educational community for analysis and comparison to data collected on other flights and vehicles. Typical data collected: Atmospheric pressure, Temperature, Radiation via a matched pair of Geiger counters, one wrapped in experimental radiation protection material, one unwrapped.



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Hawaii Science and Technology Museum	Hiapo	Measure the electric field generated by the solar wind within the thermosphere.
Benchmark Space Systems	BSS1	Launch - Non-operational. Post payload deployment from launcher - System checkout, ground communications, scientific test of experimental propulsion unit. Track orbit location with GPS, TLE and sensors. Re-entry - Burn up
University of Southern California, Space Engineering Research Center (USC SERC)	Magneto	Payload objectives include creating a high fidelity map of magnetic field strength using Sponsor sensors, acquiring data in launch environment (to be transmitted once in orbit), and validating electronics on orbit.
Fossa Systems (Non-profit Juvenile Association)	FossaCon-1 (Free open source and aerospace constellation)	An 8P Pocketcube deployer to be used to deploy 8 picosatellites into space and test the worlds first fully free and open source telecommunications constellation
University of Cambridge	CRESST DREAM COMET	3U CubeSat to be deployed from a standard CubeSat dispenser to demonstrate a step change propulsion system that has the potential to permit every high school and university to have their own low-cost spacecraft for interplanetary exploration.
Firefly Aerospace	Firefly Capsule 1	Various nontechnical items from around the world such as photos, artwork, and children's books.

Documents related to first launch of the Firefly Alpha can be sent to:

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Please let me know if there are any questions or if there is any other information Firefly can provide.

Best regards,

Anne Chinnery
Director of Avionics

