

# Milestone Review Flysheet

CDR

<b>Institution Name</b>	University of California, Davis
-------------------------	---------------------------------

<b>Milestone</b>	CDR
------------------	-----

Vehicle Properties	
Diameter (in)	4"
Length (in)	71.5"
Gross Liftoff Weight (lb)	15.28
Launch Lug/button Size	Standard 1"
Motor Retention	Slimline ogive boat-tail retainer

Motor Properties	
Motor Manufacturer	Aerotech
Motor Designation	K513FJ-M
Max/Average Thrust (N/lb)	658.25/556.24
Total Impulse (N-sec/lb-sec)	1496.27
Mass pre/post Burn (lb)	3.65/2.087

Stability Analysis	
Center of Pressure (in from nose)	56.2187
Center of Gravity (in from nose)	46.9731
Static Stability Margin	1.25
Thrust-to-Weight Ratio	8.19
Rail Size (in) / Length (in)	1"/96"

Ascent Analysis	
Rail Exit Velocity (ft/s)	35 ft/s
Max Velocity (ft/s)	538.63
Max Mach Number	0.47
Max Acceleration (ft/s^2)	249.3
Peak Altitude (ft)	4,225

Recovery System Properties				
Drogue Parachute				
Manufacturer/Model		Fruity Chutes/Classical Elliptical		
Size		18"		
Altitude at Deployment (ft)		Apogee		
Velocity at Deployment (ft/s)		0		
Terminal Velocity (ft/s)		106 (from flight test)		
Recovery Harness Material		Kevlar and 3,000 lb Nylon		
Harness Size/Thickness (in)		Kevlar: 1/2" / Nylon: 11/16		
Recovery Harness Length (ft)		19		
Harness/Airframe Interfaces		There will be u-bolts secured by nuts and epoxy that attach to recovery harness via a quick link connector		
Kinetic Energy During Descent (ft-lb)	Section 1	Section 2	Section 3	Section 4
	622 (forward)	1256 (aft)		

Recovery System Properties				
Main Parachute				
Manufacturer/Model		Fruity Chutes/Iris Ultra		
Size		72"		
Altitude at Deployment (ft)		800		
Velocity at Deployment (ft/s)		106		
Landing Velocity (ft/s)		17.12		
Recovery Harness Material		Kevlar and 3,000 lb Nylon		
Harness Size/Thickness (in)		Kevlar: 1/2" / Nylon: 11/16		
Recovery Harness Length (ft)		14		
Harness/Airframe Interfaces		There will be u-bolts secured by nuts and epoxy that attach to recovery harness via a quick link connector		
Kinetic Energy Upon Landing (ft-lb)	Section 1	Section 2	Section 3	Section 4
	17.3 (nose)	15.9 (altm)	67.1 (aft)	

Recovery System Properties				
Electronics/Ejection				
Altimeter(s) Make/Model		Raven 3 by Featherweight Altimeters, StratoLogger by PerfectElite		
Redundancy Plan		Raven 3 programmed to be main altimeter, StratoLogger programmed with delays for back-up (4 charges total)		
Pad Stay Time (Launch Configuration)		2 hrs		

Recovery System Properties				
Electronics/Ejection				
Rocket Locators (Make, Model)		GPS (ArduPilot 2.5) with 915Mhz transceiver		
Transmitting Frequencies		915 MHz		
Black Power Mass Drogue Parachute (gram)		2		
Black Power Mass Main Parachute (gram)		2		

# Milestone Review Flysheet

CDR

**Institution Name**

University of California, Davis

**Milestone**

CDR

## Payload/Science

Succinct Overview of Payload/Science Experiment	To gather data on atmospheric conditions as well as physical data on the rockets flight. This will include rocket acceleration, velocity, flight path, solar irradiance, barometric pressure, temperature, and humidity.
Identify Major Components	ArduPilot Mega 2.5, MPXV7002, AM2302, TSL250R, 3DR 915 MHz Transceiver
Mass of Payload/Science	0.28 lbs

## Test Plan Schedule/Status

Ejection Charge Test(s)	Ejection charge tests are completed. 1.25 grams of FFFFg black powder was not enough to deploy drogue chute. 2 grams of FFFFg proved to be enough to deploy both the drogue and the main chutes.
Sub-scale Test Flights	None
Full-scale Test Flights	One full-scale flight test has been completed.

## Additional Comments

--