

Milestone Review Flysheet

Institution University of Alabama Huntsville

Milestone CDR

Vehicle Properties

Total Length (in)	119 inches
Diameter (in)	6 inches
Gross Lift Off Weigh (lb)	51.1
Airframe Material	Fiberglass
Fin Material	G-10 Fiberglass
Coupler Length	14 inches

Motor Properties

Motor Designation	Aerotech L2200
Max/Average Thrust (lb)	697.07 / 481.82
Total Impulse (lbf-s)	1147.43
Mass Before/After Burn	10.5 / 4.92
Liftoff Thrust (lb)	537.61
Motor Retention	Tail Cone Snap Ring

Stability Analysis

Center of Pressure (in from nose)	89.82 inches
Center of Gravity (in from nose)	73.43 inches
Static Stability Margin	2.97 (Burnout)
Static Stability Margin (off launch rail)	2.17
Thrust-to-Weight Ratio	9.67
Rail Size and Length (in)	1515 / 96 inches
Rail Exit Velocity (ft/s)	73.79

Ascent Analysis

Maximum Velocity (ft/s)	655.11	
Maximum Mach Number	0.6	
Maximum Acceleration (ft/s ²)	1492.7	
Target Apogee (From Simulations)	5281	feet
Stable Velocity (ft/s)	N/A	
Distance to Stable Velocity (ft)	N/A	

Recovery System Properties

Dogue Parachute

Manufacturer/Model	Fruity Chute/CFC-18	
Size (ft ²)	1.77	
Altitude at Deployment (ft)	5281	
Velocity at Deployment (ft/s)	0	
Terminal Velocity (ft/s)	120.76	
Recovery Harness Material	Nylon	
Harness Size/Thickness (in)	1	
Recovery Harness Length (ft)	50	
Harness/Airframe Interfaces	Connected between lower bulkhead and aft end of avionics bay coupler.	
Kinetic Energy of Each Section (Ft-lbs)	Upper Airframe	Lower Airframe
	4386.1	5280.5

Recovery System Properties

Main Parachute

Manufacturer/Model	SkyAngle/Cert-3 XLarge			
Size (ft ²)	89			
Altitude at Deployment (ft)	600			
Velocity at Deployment (ft/s)	120.76			
Terminal Velocity (ft/s)	12.81			
Recovery Harness Material	Nylon			
Harness Size/Thickness (in)	1			
Recovery Harness Length (ft)	50			
Harness/Airframe Interfaces	Connected between forward end of avionics bay coupler and nose cone bulkhead.			
Kinetic Energy of Each Section (Ft-lbs)	Nose Cone	Upper Airframe	Lower Airframe	
	9.5	26.1	65.1	

Recovery Electronics

Altimeter(s)/Timer(s) (Make/Model)	Perfectflite Stratologger SL100
Redundancy Plan	Dual, 100% independently operating systems
Pad Stay Time (Launch Configuration)	6 hours

Recovery Electronics

Rocket Locators (Make/Model)	XBee Radio/Atenova GPS Chip Combination
Transmitting Frequencies	902-928 Mhz
Black Powder Mass Main Chute (grams)	3.10 grams

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Autonomous Ground Support Equipment (MAV Teams Only)

Capture Mechanism	Overview
Container Mechanism	Overview
Launch Rail Mechanism	Overview
	Include Description of rail locking mechanism
Igniter Installation Mechanism	Overview

Payload

Payload 1	Overview
	Roll controlling payload using three control surfaces actuated by three independent servos with a single power source. Using a National Instruments myRIO for a controller fins will be able to induce rotation and produce a counter roll to stop rotation. Inputs will come from a Sparkfun 9 DOF IMU.
Payload 2	Overview

Test Plans, Status, and Results

Ejection Charge Tests	Will be conducted prior to full-scale test flight
Sub-scale Test Flights	Two subsacle vehicles built and flown, results in CDR document
Full-scale Test Flights	Will be conducted at a later date

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Additional Comments