

Milestone Review Flysheet

Institution	Rensselaer Polytechnic Institute	Milestone	PDR
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Vehicle Properties	
Total Length (in)	104
Diameter (in)	4.02
Gross Lift Off Weight (lb)	14.903
Airframe Material	Phenolic
Fin Material	G-10 Fiberglass
Drag	Polished Surfaces

Motor Properties	
Motor Manufacturer	Aerotech
Motor Designation	K1103X
Max/Average Thrust (lb)	233.69
Total Impulse (lbf-s)	396.34
Mass Before/After Burn	14.903/11.528
Liftoff Thrust (lb)	233.69

Stability Analysis	
Center of Pressure (in from nose)	72
Center of Gravity (in from nose)	48
Static Stability Margin	6.1
Static Stability Margin (off launch rail)	9.14
Thrust-to-Weight Ratio	15.74
Rail Size and Length (in)	39.37
Rail Exit Velocity	63.6 ft/s

Ascent Analysis		
Maximum Velocity (ft/s)	785	
Maximum Mach Number	0.697	
Maximum Acceleration (ft/s^2)	677	
Target Apogee (From Simulations)	5434	
Stable Velocity (ft/s)	750	
Distance to Stable Velocity (ft)	590	

Recovery System Properties				
Drogue Parachute				
Manufacturer/Model		SkyAngle Cert-3 Drogue		
Size		6.3 sq. ft		
Altitude at Deployment (ft)		5434		
Velocity at Deployment (ft/s)		0		
Terminal Velocity (ft/s)		50		
Recovery Harness Material		Kevlar		
Harness Size/Thickness (in)		5\8		
Recovery Harness Length (ft)		20.8		
Harness/Airframe Interfaces		Swivel Joint, 1500 lbf max; 1.5 in eyebolt fixed to forward motor centering ring and rear payload section bulkhead		
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4
	44.94	495.83	304.16	N/A

Recovery System Properties				
Main Parachute				
Manufacturer/Model		SkyAngle Cert-3 Large Main		
Size		57 sq. ft		
Altitude at Deployment (ft)		800		
Velocity at Deployment (ft/s)		50		
Terminal Velocity (ft/s)		14.5		
Recovery Harness Material		Kevlar		
Harness Size/Thickness (in)		5\8		
Recovery Harness Length (ft)		20.8		
Harness/Airframe Interfaces		Swivel Joint, 1500 lbf max; 1.5 in eyebolt fixed to forward motor centering ring and rear payload section bulkhead		
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4
	3.78	41.7	25.58	N/A

Recovery Electronics	
Altimeter(s)/Timer(s) (Make/Model)	PerfectFlite ALT15K/WD Rev2
Redundancy Plan	Jolly Logic Altimeter Two
Pad Stay Time (Launch)	1 hour

Recovery Electronics	
Rocket Locators (Make/Model)	GPS Radio Link
Transmitting Frequencies	***Required by CDR***
Black Powder Mass Drogue Chute (grams)	2.1
Black Powder Mass Main	1.7

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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
Payload 2	Overview

Test Plans, Status, and Results

Ejection Charge Tests	
Sub-scale Test Flights	
Full-scale Test Flights	

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Additional Comments

