

Milestone Review Flysheet

PDR, CDR, FRR

Institution Name	Georgia Institute of Technology
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Milestone	FRR
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Vehicle Properties	
Diameter (in)	5.125
Length (in)	110.125
Gross Liftoff Weight (lb)	32
Launch Lug/button Size	1010 button
Motor Retention	Plate

Motor Properties	
Motor Manufacturer	Aerotech
Motor Designation	L850
Max/Average Thrust (N/lb)	1866.2 N / 191.1 lb
Total Impulse (N-sec/lb-sec)	3,946.2 N-sec/ 887.1 lb-sec
Mass pre/post Burn (lb)	8.25/ 4.62

Stability Analysis	
Center of Pressure (in from nose)	83.6
Center of Gravity (in from nose)	70.3
Static Stability Margin	2.50
Thrust-to-Weight Ratio	5.97
Rail Size (in) / Length (in)	1.0/97

Ascent Analysis	
Rail Exit Velocity (ft/s)	57
Max Velocity (ft/s)	655.8
Max Mach Number	0.57
Max Acceleration (ft/s ²)	250
Peak Altitude (ft)	5,312

Recovery System Properties				
Drogue Parachute				
Manufacturer/Model		Legacy Hardware		
Size		48"		
Altitude at Deployment (ft)		5,312		
Velocity at Deployment (ft/s)		Approx. 0		
Terminal Velocity (ft/s)		50		
Recovery Harness Material		Nylon Webbing		
Harness Size/Thickness (in)		1		
Recovery Harness Length (ft)		30		
Harness/Airframe Interfaces		3/8" diameter steel cable		
Kinetic Energy During Descent (ft-lb)	Nose cone	Booster Section	Payload Section	Section 4
	61.9	295.5	538	N/A

Recovery System Properties				
Main Parachute				
Manufacturer/Model		Legacy Hardware		
Size		120"		
Altitude at Deployment (ft)		500		
Velocity at Deployment (ft/s)		50		
Landing Velocity (ft/s)		17		
Recovery Harness Material		Nylon Webbing		
Harness Size/Thickness (in)		1		
Recovery Harness Length (ft)		30		
Harness/Airframe Interfaces		U-Bolt/ 3/8" diameter steel cable		
Kinetic Energy Upon Landing (ft-lb)	Nose Cone	Booster Section	Payload Section	Section 4
	7.2	34.2	62.2	N/A

Recovery System Properties				
Electronics/Ejection				
Altimeter(s) Make/Model		Perfect Flite Stratologgers		
Redundancy Plan		2 Altimeters will be wired independently to both the main and drogue parachutes		
Pad Stay Time (Launch Configuration)		> 2 hours		

Recovery System Properties				
Electronics/Ejection				
Rocket Locators (Make, Model)		Fastrax GPS / Xbee Pro combination		
Transmitting Frequencies		902.0 MHz		
Black Power Mass Drogue Parachute (gram)		3		
Black Power Mass Main Parachute (gram)		4		

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Payload/Science

Succinct Overview of Payload/Science Experiment	Levitate and isolate a platform from the vibrations of the rocket.
Identify Major Components	Neodymium Magnets embedded in a balsa wood platform, Solenoids, LiFePo Battery, A.P.E.S. Flight Computer (BeagleBoard xM), Flight Computer (Arduino Mega).
Mass of Payload/Science	0.5 lb Payload 1.0 lb Flight Avionics

Test Plan Schedule/Status

Ejection Charge Test(s)	18-Feb-12
Sub-scale Test Flights	Skin & Skin Fastner Subscale Test - 10-Dec-2011
Full-scale Test Flights	10-Mar-2012/31-Mar-2012

Additional Comments