

Milestone Review Flysheet

Institution University of Florida

Milestone Critical Design Review

Vehicle Properties	
Total Length (in)	96.75
Diameter (in)	4.03
Gross Lift Off Weigh (lb)	16.7
Airframe Material	Blue Tube Airframe
Fin Material	Carbon Fiber
Coupler Length	8 in. each

Motor Properties	
Motor Designation	AeroTech K700W
Max/Average Thrust (lb)	231lb/155lb
Total Impulse (lbf-s)	513lb-s
Mass Before/After Burn	71.8oz/26.2oz
Liftoff Thrust (lb)	225lb
Motor Retention	Manufactured retention components (thrust bulkhead and aft retaining ring)

Stability Analysis	
Center of Pressure (in from nose)	80.681
Center of Gravity (in from nose)	65.079
Static Stability Margin	3.88
Static Stability Margin (off launch rail)	2.2
Average Thrust-to-Weight Ratio	10.8
Rail Size and Length (in)	144
Rail Exit Velocity	105 ft/s

Ascent Analysis	
Maximum Velocity (ft/s)	820
Maximum Mach Number	0.74
Maximum Acceleration (ft/s^2)	463
Target Apogee (From Simulations)	5281
Stable Velocity (ft/s)	77
Distance to Stable Velocity (ft)	5810

Recovery System Properties				
Drogue Parachute				
Manufacturer/Model		Fruity Chutes/CFC-12		
Size		12 in.		
Altitude at Deployment (ft)		Apogee		
Velocity at Deployment (ft/s)		0 ft/s		
Terminal Velocity (ft/s)		69 ft/s		
Recovery Harness Material		Kevlar		
Harness Size/Thickness (in)		1/2 in.		
Recovery Harness Length (ft)		18 in.		
Harness/Airframe Interfaces		U-bolts/carabiners/swivel links		
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4
	N/A	N/A	N/A	N/A

Recovery System Properties				
Main Parachute - Forward				
Manufacturer		Fruity Chutes/CFC-24		
Size		24 in.		
Altitude at Deployment (ft)		1000 ft.		
Velocity at Deployment (ft/s)		69 ft/s		
Terminal Velocity (ft/s)		24.5 ft/s		
Recovery Harness Material		Kevlar		
Harness Size/Thickness (in)		1/2 in.		
Recovery Harness Length (ft)		63 in.		
Harness/Airframe Interfaces		U-bolts/carabiners/swivel links		
Kinetic Energy of Each Section (Ft-lbs)	Aft Section	Avionics	Section 3	Section 4
	40.1	39.4	N/A	N/A

Recovery System Properties	
Main Parachute - Forward (Back-Up)	
Manufacturer	Fruity Chutes/CFC-24
Size	24 in.
Altitude at Deployment (ft)	Dependant on flight parameters.
Velocity at Deployment (ft/s)	N/A

Terminal Velocity (ft/s)		25.0 ft/s		
Recovery Harness Material		Kevlar		
Harness Size/Thickness (in)		1/2 in.		
Recovery Harness Length (ft)		18 in.		
Harness/Airframe Interfaces		U-bolts/carabiners/swivel links		
Kinetic Energy of Each Section (Ft-lbs)	Forward Section	Section 2	Section 3	Section 4
	43.2	N/A	N/A	N/A

Recovery Electronics	
Altimeter(s)/Timer(s) (Make/Model)	Stratologger SL100
Redundancy Plan	A second Stratologger SL 100 is wired in series through a switch to a second 9V battery with e matches leading to a two new black powder charges to have a second charge push the main and drogue parachutes for proper deployment.
Pad Stay Time (Launch Configuration)	3 hours

Recovery Electronics	
Rocket Locators (Make/Model)	u-blox PAM-7Q GPS Module
Transmitting Frequencies	9600 Baud
Black Powder Mass Drogue Chute (grams)	0.75
Black Powder Mass Main Chute (grams)	0.75

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Payload	
Payload 1	Overview
	The vertical landing payload will use an autorotation system to steer towards one out of three 40ft by 40 ft tarps.
Payload 2	Overview

Test Plans, Status, and Results	
Ejection Charge Tests	An ejection charge test is scheduled preceding each launch. Ejection charge tests were conducted for the subscale rocket.
Sub-scale Test Flights	Subscale test flight was conducted on December 17th.

Full-scale Test
Flights

A fullscale flight test is scheduled for February 11th.

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Additional Comments

