

# Milestone Review Flysheet

**Institution** University of Florida

**Milestone** Flight Readiness Review

Vehicle Properties	
Total Length (in)	120
Diameter (in)	4.024
Gross Lift Off Weigh (lb)	22.6
Airframe Material	Carbon Fiber and Fiberglass
Fin Material	Carbon Fiber and Fiberglass
Coupler Length	12 in.

Motor Properties	
Motor Designation	Class K Cesaroni K660-CL
Max/Average Thrust (lb)	242.75 / 148.28
Total Impulse (lbf-s)	548.33
Mass Before/After Burn	68.22 / 25.69 oz
Liftoff Thrust (lb)	242.75
Motor Retention	Aero Pack 54mm Retainer

Stability Analysis	
Center of Pressure (in. from nose)	105
Center of Gravity (in. from nose)	72.9
Static Stability Margin (M 0.3)	7.99
Static Stability Margin (off launch rail)	6.22
Thrust-to-Weight Ratio	Max: 9.8 Avg: 8.0
Rail Size and Length (in)	144
Rail Exit Velocity	85 ft/s

Ascent Analysis	
Maximum Velocity (ft/s)	638
Maximum Mach Number	0.57
Maximum Acceleration (ft/s <sup>2</sup> )	311.4
Target Apogee (From Simulations)	5280 ft
Stable Velocity (ft/s)	200
Distance to Stable Velocity (ft)	75

Recovery System Properties	
Drogue Parachute - Launch Vehicle	
Manufacturer/Model	Sunward Group Ltd
Size	24 in.
Altitude at Deployment (ft)	5280 (Apogee)
Velocity at Deployment (ft/s)	0
Terminal Velocity (ft/s)	76.7
Recovery Harness Material	Kevlar
Harness Size/Thickness (in)	0.50
Recovery Harness Length (in)	300
Harness/Airframe Interfaces	Eye-bolts/swivel links
Kinetic Energy of Each Section (Ft-lbs)	Section 1   Section 2   Section 3   Section 4
	1312.14   N/A   N/A   N/A

Recovery System Properties	
Main Parachute - Launch Vehicle	
Manufacturer/Model	Fruity Chutes/IFC-48
Size	48 in.
Altitude at Deployment (ft)	500
Velocity at Deployment (ft/s)	76.7
Terminal Velocity (ft/s)	23.27
Recovery Harness Material	Kevlar
Harness Size/Thickness (in)	0.50
Recovery Harness Length (in)	300
Harness/Airframe Interfaces	Eye-Bolts/swivel links
Kinetic Energy of Each Section (Ft-lbs)	Section 1   Section 2   Section 3   Section 4
	27.43   59.84   N/A   N/A

Recovery System Properties	
Drogue Parachute - Payload	
Manufacturer	Sunward Group Ltd
Size	12
Altitude at Deployment (ft)	5151
Velocity at Deployment (ft/s)	64.4
Terminal Velocity (ft/s)	94.88

Recovery System Properties	
Main Parachute - Payload	
Manufacturer	Fruity Chutes/CFC-24
Size	24
Altitude at Deployment (ft)	500
Velocity at Deployment (ft/s)	94.88
Terminal Velocity (ft/s)	31.62

Recovery Harness Material		Kevlar			
Harness Size/Thickness (in)		0.5			
Recovery Harness Length (in)		180			
Harness/Airframe Interfaces		Eye-Bolts/swivel links			
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4	
	202.85	565.19	N/A	N/A	

Recovery Harness Material		Kevlar			
Harness Size/Thickness (in)		0.5			
Recovery Harness Length (in)		180			
Harness/Airframe Interfaces		Eye-Bolts/swivel links			
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4	
	22.53	62.77	N/A	N/A	

Recovery Electronics	
Altimeter(s)/Timer(s) (Make/Model)	Stratologger CF Altimeter
Redundancy Plan	Two altimeters will be used with delayed charges in case of separation failure
Pad Stay Time (Launch Configuration)	3 hours

Recovery Electronics	
Rocket Locators (Make/Model)	Big Red Bee BRB900
Transmitting Frequencies	900 Mghz
Black Powder Mass Drogue Chute (grams)	1.75
Black Powder Mass Main Chute (grams)	2

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Payload	
Payload 1	Overview
	The payload will come down under parachutes separate from the launch vehicle.
Payload 2	Overview

Test Plans, Status, and Results	
Ejection Charge Tests	An ejection charge test is scheduled preceding each launch.
Sub-scale Test Flights	A subscale flight test is scheduled for December 16th

Full-scale  
Test  
Flights

A fullscale flight test is scheduled for February 17th. Re-flight is scheduled for 3/10/18

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### Additional Comments

