

Milestone Review Flysheet 2017-2018

Institution Boy Scout Troop 17

Milestone FRR - Full Scale Flight

Vehicle Properties

Total Length (in)	79.6
Diameter (in)	4.025
Gross Lift Off Weigh (lb.)	16.0
Airframe Material(s)	Fiber glass
Fin Material and Thickness (in)	Fiber glass .125
Coupler Length/Shoulder Length(s) (in)	Coupler 8 / Shoulder 4

Stability Analysis

Center of Pressure (in from nose)	61.25
Center of Gravity (in from nose)	46.9
Static Stability Margin (on pad)	3.54
Static Stability Margin (at rail exit)	3.1
Thrust-to-Weight Ratio	11.5
Rail Size/Type and Length (in)	1010/120
Rail Exit Velocity (ft/s)	101

Recovery System Properties

Drogue Parachute

Manufacturer/Model	Unknown			
Size/Diameter (in or ft)	12 inch			
Altitude at Deployment (ft)	5279			
Velocity at Deployment (ft/s)	5			
Terminal Velocity (ft/s)	82.1			
Recovery Harness Material	Kevlar			
Recovery Harness Size/Thickness (in)	.25/.125			
Recovery Harness Length (ft)	25			
Harness/Airframe Interfaces	1/4 20 1" u-bolt / 0.188 fiber glass lid / 1/4" oval quick link / 3 2-56 plastic bolt shear pins			
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4
	721	1011		

Recovery Electronics

Altimeter(s)/Timer(s) (Make/Model)	Missle Works RRC3 and RRC2
Redundancy Plan and Backup Deployment Settings	Apogee - RRC3 primary, RRC2 backup - 1 second after apogee. Main - RRC3 @ - 500 feet, RRC2 backup @ 300 feet
Pad Stay Time (Launch Configuration)	4 hours

Motor Properties

Motor Brand/Designation	Aerotech J800
Max/Average Thrust (lb.)	282/190
Total Impulse (lbf-s)	282
Mass Before/After Burn (lb.)	2.5/1.19
Liftoff Thrust (lb.)	285
Motor Retention Method	54mm Aero Pack

Ascent Analysis

Maximum Velocity (ft/s)	328
Maximum Mach Number	0.29
Maximum Acceleration (ft/s^2)	Not available
Predicted Apogee (From Sim.) (ft)	3554 / 3274

Recovery System Properties

Main Parachute

Manufacturer/Model	Sky Angle Classic			
Size/Diameter (in or ft)	60 inch			
Altitude at Deployment (ft)	500			
Velocity at Deployment (ft/s)	82.1			
Terminal Velocity (ft/s)	18.2			
Recovery Harness Material	Kevlar			
Recovery Harness Size/Thickness (in)	.25/.125			
Recovery Harness Length (ft)	25			
Harness/Airframe Interfaces	1/4-20 1" u-bolt / 0.188 fiber glass lid / 1/4" oval quick link / 3 2-56 plastic bolt shear pins			
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4
	37.8	20.2	18.4	

Recovery Electronics

Rocket Locators (Make/Model)	Missle Works - RTx	
Transmitting Frequencies (all - vehicle and payload)	900 MHz ISM radio band (902-928 MHz). Radio Network Addressing is XBee Pro 900HP Preamble ID: 5, XBee Pro 900HP Network ID's:	
Ejection System Energetics (ex. Black Powder)		
Energetics Mass - Drogue Chute (grams)	Primary	1.5
	Backup	2.0
Energetics Mass - Main Chute (grams)	Primary	2.0
	Backup	3.0
Energetics Masses - Other (grams) - If Applicable	Primary	
	Backup	

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Payload

Payload 1 (official payload)	Overview
Payload 2 (non- scored payload)	Overview

Test Plans, Status, and Results

Ejection Charge Tests	
Sub-scale Test Flights	
Full-scale Test Flights	<p style="text-align: center;">Ground test of charges was conducted on 2/25/18 for flight readiness flight on 2/27/18</p>
	<p style="text-align: center;">A full scale flight on a J800 was successful completed on 2/27/18. Altimeters were configured for a lower main (500') as per CDR recommendation.</p>

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Additional Comments

