

Milestone Review Flysheet 2017-2018

Institution Pennsylvania State University

Milestone PDR

Vehicle Properties	
Total Length (in)	112
Diameter (in)	5.56
Gross Lift Off Weigh (lb.)	34.25
Airframe Material(s)	Carbon Fiber Wrapped Blue Tube
Fin Material and Thickness (in)	G10 FR4 Fiberglass 3/16
Coupler Length/Shoulder Length(s) (in)	0.53

Motor Properties	
Motor Brand/Designation	Cerseroni/ L995
Max/Average Thrust (lb.)	316/224
Total Impulse (lbf-s)	814
Mass Before/After Burn (lb.)	392 oz/ 271 oz
Liftoff Thrust (lb.)	258
Motor Retention Method	Aluminum casing/Plywood centering rings

Stability Analysis	
Center of Pressure (in from nose)	89.9
Center of Gravity (in from nose)	68.8
Static Stability Margin (on pad)	3.84
Static Stability Margin (at rail exit)	2.87
Thrust-to-Weight Ratio	8.2
Rail Size/Type and Length (in)	1.5/144
Rail Exit Velocity (ft/s)	74.3

Ascent Analysis	
Maximum Velocity (ft/s)	632
Maximum Mach Number	0.57
Maximum Acceleration (ft/s^2)	244
Predicted Apogee (From Sim.) (ft)	5264

Recovery System Properties			
Drogue Parachute			
Manufacturer/Model	Fruity Chutes Elliptical		
Size/Diameter (in or ft)	14" Diameter		
Altitude at Deployment (ft)	5280		
Velocity at Deployment (ft/s)	-		
Terminal Velocity (ft/s)	102		
Recovery Harness Material	Kevlar		
Recovery Harness Size/Thickness (in)	0.5		
Recovery Harness Length (ft)	30		
Harness/Airframe Interfaces	3/8" Steel U-Bolt		
Kinetic Energy of Each Section (Ft-lbs)	Nose/Payload	Avionics Bay	Booster
	1142	1245	1668

Recovery System Properties			
Main Parachute			
Manufacturer/Model	Fruity Chute Iris Ultra		
Size/Diameter (in or ft)	84" Diameter		
Altitude at Deployment (ft)	600		
Velocity at Deployment (ft/s)	102		
Terminal Velocity (ft/s)	16.8		
Recovery Harness Material	Kevlar		
Recovery Harness Size/Thickness (in)	0.5		
Recovery Harness Length (ft)	40		
Harness/Airframe Interfaces	3/8" Steel U-Bolt		
Kinetic Energy of Each Section (Ft-lbs)	Nose/Payload	Avionics Bay	Booster
	38.96	33.63	44.05

Recovery Electronics	
Altimeter(s)/Timer(s) (Make/Model)	Stratologger Cf
Redundancy Plan and Backup Deployment Settings	Single level redundancy for drogue and main event
Pad Stay Time (Launch Configuration)	2 hours

Recovery Electronics		
Rocket Locators (Make/Model)	SPYTEC STI GL300	
Transmitting Frequencies (all vehicle and payload)	***Required by CDR***	
Ejection System Energetics (ex. Black Powder)	Black Powder	
Energetics Mass - Drogue Chute (grams)	Primary	5
	Backup	5
Energetics Mass - Main Chute (grams)	Primary	4
	Backup	4
Energetics Masses - Other (grams) - If Applicable	Primary	N/A
	Backup	N/A

Institution Pennsylvania State University

Milestone PDR

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	

Institution Pennsylvania State University

Milestone PDR

Additional Comments

Large empty rectangular box for additional comments.