Milestone Review Flysheet

PDR, CDR, FRR

Institution Name	Harding University

Milestone	CDR

Vehicle Properties	
Diameter (inches)	6.16
Length (inches)	110
Gross Liftoff Weight (pounds)	40.2
Launch lug/button size	Public Missile Linear Launch Rail Lugs
Motor Retention Method	75 mm API Flange Mounted Quick-Change Motor Retainer

Motor Properties	
Motor Manufacturer(s)	Contrail Rockets
Motor Designation(s)	L-1222-SM
Max, Average Thrust (Newtons)	Maximum: 2540 Average: 1191.7
Total Impulse (Newton-seconds)	3694
Mass before/after burn (pounds)	Before: 40.2 After: 31.6

Stability Analysis	
Center of Pressure (inches from nose)	83.45
Center of Gravity (inches from nose)	68.24
Thrust-to-Weight Ratio	6.66
Rail Size/Length	1 inch x 8 feet
Rail Exit Velocity (feet/second)	54.28

Ascent Analysis	
Max Velocity (feet/second)	608.2
Max Mach Number	0.42
Max Acceleration (feet/second^2)	472
Peak Altitude (feet)	5255

Recovery System Properties	
Drogue Parachute	
Manufacturer/Model	SkyAngle Classic 44"
Size	44"
Altitude at Deployment (feet)	5255
Velocity at Deployment (feet/second)	1.2

Recovery System Properties	
Main Parachute	
Manufacturer/Model	Public Missile 120"
Size	120"
Altitude at Deployment (feet)	750
Velocity at Deployment (feet/second)	62.7
Velocity at Landing (feet/second)	between 17 and 22

Recovery System Properties	
Electronics/Ejection	
Altimeter(s) Make/Model	PerfectFlight Mini Altimeter

Recovery System Properties	
Electronics/Ejection	
Rocket Locators (Make, Model)	Walston Retreival System

Redundancy Plan	2 altimeters on board
Pad Stay Time (Launch Configuration)	>60 minutes

Transmitting Frequencies	Unknown
Black Powder Mass Main Parachute (grams)	3 oz.
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Payload/Science	
Succinct Overview of Payload/Science Experiment	We will take data for the temperature, humidity, pressure, solar irradiance, and ultraviolet radiation during descent and after landing. We will also take three pictures during descent and three pictures after the payload has landed. We intend to separate the payload from the airframe at 2,500 feet.
Identify Major Components	1. Payload pod 2. Camera 3. Humidity Sensor 4. Temperature Sensor 5. Pressure Sensor 6. Ultraviolet Radiation Sensor 7. Solar Irradiance Sensor 8. Payload Computer 9. Payload Parachute 10. GPS Tracking System 11. Altimeter
Mass of Payload/Science	64 ounces.

Test Plan Schedule/Status	
Ejection Charge Test(s)	Initial tests completed. More to be done in February after the competition rocket is completed.
Sub-scale Test Flights	Two attempts have been completed. We plan to do another scale test in early March.
Full-scale Test Flights	Test fligt set for March

Additional Comments