

Milestone Review Flysheet

PDR, CDR, FRR

Institution Name	The Phelps School
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Milesone	FRR
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Rocket Properties	
Diameter (in)	4 in
Length (in)	105 in
Gross Liftoff Weight (lbm)	22.35 lbs
Launch lug/button size	80/20
Motor Retention	Aeropack Ring Retention

Motor Properties	
Manufacturer	Aerotech
Designation	K1050W-P
Peak, Avg Thrust	2172 N, 1132.9 N
Mass (before, after burn)	2203 g, 938 g
Total Impulse	2426.4 N*s

Stability Analysis	
CP, CG (in. from nose)	73.6 in, 64.6 in
Stability Margin	2.26
Thrust-to-Weight Ratio	11.39 : 1
Rail size, Length	80/20 , 10 ft

Ascent Analysis	
Max Velocity (ft/s)	733.9 ft/s
Max Acceleration (ft/s ²)	432.38 ft/s ²
Peak Altitude (ft)	5,280
Rail Exit Velocity (ft/s)	84 ft/s

Recovery System Properties	
Drogue Parachute	
Size	6.3 ft ²
Configuration	3 shroud lines
Alt. at Deployment (ft.)	4900-5500 ft
Velocity at Deployment (ft/s)	22.33 ft/s

Recovery System Properties	
Main Parachute	
Size	39.3 ft/s ²
Configuration	3-60 inch tethers
Alt. at Deployment (ft.)	600 ft
Velocity at Deployment (ft/s)	74 ft/s
Velocity upon Landing (ft/s)	26.5 ft/sec

Recovery System Properties			
Electronics/Ejection			
Altimeter(s) Make, Model	Dual Mini Alt/WD+ flight computers/altimeters		
Redundancy Plan (altimeters, switches, batteries, etc.)	2 Altimeters wired independently to crucibles in each of the two compartments, each computer has its own battery, switch, and LED		
Pad Stay Time (launch configuration)	9+ hours		
Rocket Locator (Make, Model)	Main: Big Red Bee GPS Second: Big Red Bee 100mW transmitter		
Frequencies of Transmitting Electronics	433.500, 433.400		
Black Powder Mass (grams)	Main	4 g	Drogue 4g

Payload/Science	
Succinct Overview of Payload/Science Experiment	Dual TOCON UV sensors measure UV levels which are recorded on independent dataloggers at a rate of 1 measurement per second
Identify Major Components	2 TOCON Standard UV sensors and 2 OMEGA Voltage reading dataloggers in rocket; 1 TOCON Standard UV sensor and 1 OMEGA Voltage reading datalogger at ground level.
Mass of Payload/Science	6 ounces plus mounting hardware

Test Plan Schedule / Status	
Ejection Charge Test(s)	Several tests conducted in February and March 2010
Subscale Launches	March 20th and 21st, 2010
Full-Scale Launches	March 20th and 21st, 2010