

Milestone Review Flysheet 2017-2018

Institution Purdue University

Milestone

Vehicle Properties	
Total Length (in)	122
Diameter (in)	5.15
Gross Lift Off Weigh (lb.)	30
Airframe Material(s)	FWFG
Fin Material and Thickness (in)	3/16" G10 FG
Coupler Length/Shoulder Length(s) (in)	12/5

Motor Property	
Motor Brand/Designation	A
Max/Average Thrust (lb.)	
Total Impulse (lbf-s)	
Mass Before/After Burn (lb.)	
Liftoff Thrust (lb.)	
Motor Retention Method	Ae

Stability Analysis	
Center of Pressure (in from nose)	94.11
Center of Gravity (in from nose)	77.75
Static Stability Margin (on pad)	3.18
Static Stability Margin (at rail exit)	2.25
Thrust-to-Weight Ratio	9.4
Rail Size/Type and Length (in)	1.5, 144
Rail Exit Velocity (ft/s)	81.25

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

Recovery System Properties				
Drogue Parachute				
Manufacturer/Model	Skyangle B2			
Size/Diameter (in or ft)	24"			
Altitude at Deployment (ft)	Apogee			
Velocity at Deployment (ft/s)	2			
Terminal Velocity (ft/s)	89.5			
Recovery Harness Material	Tubular Kevlar			
Recovery Harness Size/Thickness (in)	1/2" Thick			
Recovery Harness Length (ft)	40'			
Harness/Airframe Interfaces	1/4" SS quick link through looped tether ends and 1/4" SS U-bolts through bulkheads			
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4
	2403	1207	585	N/A

Recovery System Properties		
Main Parachute		
Manufacturer/Model		
Size/Diameter (in or ft)		
Altitude at Deployment (ft)		
Velocity at Deployment (ft/s)		
Terminal Velocity (ft/s)		
Recovery Harness Material		
Recovery Harness Size/Thickness (in)		
Recovery Harness Length (ft)		
Harness/Airframe Interfaces	1/4" SS quick ends and 1/4"	
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2
	54.6	27.5

Recovery Electronics	
Altimeter(s)/Timer(s) (Make/Model)	Altus Metrum Telemetry, Missileworks RRC3+ Sport
Redundancy Plan and Backup Deployment Settings	Fully redundant and independent systems with individual batteries, switches, wires, and ejection charges
Pad Stay Time (Launch Configuration)	

Recovery Electronics	
Rocket Locators (Make/Model)	Altus Metrum
Transmitting Frequencies (all - vehicle and payload)	
Ejection System Energetics (ex. Black Powder)	
Energetics Mass - Drogue Chute (grams)	Primary Backup
Energetics Mass - Main Chute (grams)	Primary Backup
Energetics Masses - Other (grams) - If Applicable	Primary Backup

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Payload

	Overview
Payload 1 (official payload)	Our payload is programmed to identify three 40'x40' tarps with known RGB values in real time. This is done by processing live camera with a Rasberry Pi.
	Overview
Payload 2 (non-scored payload)	N/A

Test Plans, Status, and Results

Ejection Charge Tests	Will perform continuity checks using light bulbs to detect opens or shorts and ensure a complete circuit. Will also ground test u to ensure proper pressurization and recovery gear deployment.
Sub-scale Test Flights	To be completed at a later date.
Full-scale Test Flights	Will fly a full scale rocket on a full scale motor as if it were the scored flight. The rocket will contain a working redundant ca different colors will be staked to the ground. This will ensure that the design is sound and stable, our ejection system and reco and the payload functions properly

Milestone Review Worksheet 2017-2018

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Milestone

Additional Comments

N/A



CDR

ies

erotech L1520-T
352.5
835.16
8.05/4.09
340.1
eropack Retainer

is

649.7
0.58
300.2
5281

properties

ite

Skyanele B2
100"
700
86
13.5
Tubular Kevlar
1/2" Thick
40'

◀ link through looped tether
SS U-bolts through bulkheads

Section 3	Section 4
13.25	N/A

onics

etrum Telemetrum

70cm ham band

Black Powder
4
4
3.2
3.2
N/A
N/A





CDR



video taken from an onboard



using energetics prior to flight

mera system and tarps of
very gear works as intended,





CDR

