

Milestone Review Flysheet 2018-2019

Institution LionTech Rocket Labs

Milestone PDR

Vehicle Properties	
Total Length (in)	120
Diameter (in)	6
Gross Lift Off Weigh (lb)	31.7
Airframe Material(s)	Carbon Fiber, Fiberglass, Blue Tube
Fin Material and Thickness (in)	Fiberglass, 1/4"
Coupler Length/Shoulder Length (in)	12 / 6

Motor Properties	
Motor Brand/Designation	Cesaroni L890SS-P
Max/Average Thrust (lb)	259 / 203.5
Total Impulse (lbf-s)	830.7
Mass Before/After Burn (lb)	9.6 / 3.7
Liftoff Thrust (lb)	259
Motor Retention Method	Plywood centering rings, steel-infused epoxy

Stability Analysis	
Center of Pressure (in. from nose)	94.3
Center of Gravity (in. from nose)	76.4
Static Stability Margin (on pad)	2.99
Static Stability Margin (at rail exit)	2.2
Thrust-to-Weight Ratio	7.7
Rail Size/Type and Length (in)	15-15 / 144
Rail Exit Velocity (ft/s)	74.5

Ascent Analysis	
Maximum Velocity (ft/s)	689
Maximum Mach Number	0.6
Maximum Acceleration (ft/s^2)	231
Target Apogee (ft)	5280
Predicted Apogee (From Sim.) (ft)	5380

Recovery System Properties - Overall	
Total Descent Time (s)	81.8
Total Drift in 20 mph winds (ft)	2395.6

Recovery System Properties - Energetics		
Ejection System Energetics (ex. Black Powder)	4F Black Powder	
Energetics Mass - Drogue Chute (grams)	Primary	1.5
	Backup	2
Energetics Mass - Main Chute (grams)	Primary	2
	Backup	3
Energetics Mass - Other (grams) - If Applicable	Primary	
	Backup	

Recovery System Properties - Recovery Electronics	
Primary Altimeter Make/Model	Perfect Flight StrologgerCF
Secondary Altimeter Make/Model	Perfect Flight StrologgerCF
Other Altimeters (if applicable)	NA
Rocket Locator (Make/Model)	Americaloc GW300
Additional Locators (if applicable)	NA
Transmitting Frequencies (all - vehicle and payload)	***Required by CDR*** (Complete on pages 3 and 4)
Describe Redundancy Plan (batteries, switches, etc.)	9V battery, quick snap connector
Pad Stay Time (Launch Configuration)	2 hours

Recovery System Properties - Drogue Parachute				
Manufacturer/Model		Fruity Chutes, Classical Ultra		
Size or Diameter (in or ft)		12 in		
Main Altimeter Deployment Setting		Apogee		
Backup Altimeter Deployment Setting		Apogee + 2 seconds		
Velocity at Deployment (ft/s)		52		
Terminal Velocity (ft/s)		142		
Recovery Harness Material, Size, and Type (examples - 1/2 in. tubular Nylon or 1 in. flat Kevlar strap)		1/4 in kevlar flat strap		
Recovery Harness Length (ft)		11		
Harness/Airframe Interfaces		3/8 in steel U-Bolt		
Kinetic Energy of Each Section (ft-lbs)	Section 1	Section 2	Section 3	Section 4
	2534.62	2706.01	1730.07	NA

Recovery System Properties - Main Parachute				
Manufacturer/Model		Fruity Chutes, Iris Ultra		
Size or Diameter (in)		72		
Main Altimeter Deployment Setting (ft)		700		
Backup Altimeter Deployment Setting (ft)		650		
Velocity at Deployment (ft/s)		140		
Terminal Velocity (ft/s)		19.6		
Recovery Harness Material, Size, and Type (examples - 1/2 in. tubular Nylon or 1 in. flat Kevlar strap)		1/2 in kevlar flat strap		
Recovery Harness Length (ft)		26		
Harness/Airframe Interfaces		3/8 in steel U-Bolt		
Kinetic Energy of Each Section (ft-lbs)	Section 1	Section 2	Section 3	Section 4
	54.85	53.89	72.99	NA

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Payload

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

Test Plans, Status, and Results

Ejection Charge Tests	
Sub-scale Test Flights	
Vehicle Demon- stration Flights	
Payload Demon- stration Flights	

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Transmitter #1

Location of transmitter:			
Purpose of transmitter:			
Brand		RF Output Power (mW)	
Model		Specific Frequency used by team (MHz)	
Handshake or frequency hopping? (explain)			
Distance to closest e-match or altimeter (in)			
Description of shielding plan:			

Transmitter #2

Location of transmitter:			
Purpose of transmitter:			
Brand		RF Output Power (mW)	
Model		Specific Frequency used by team (MHz)	
Handshake or frequency hopping? (explain)			
Distance to closest e-match or altimeter (in)			
Description of shielding plan:			

Transmitter #3

Location of transmitter:			
Purpose of transmitter:			
Brand		RF Output Power (mW)	
Model		Specific Frequency used by team (MHz)	
Handshake or frequency hopping? (explain)			
Distance to closest e-match or altimeter (in)			
Description of shielding plan:			

Transmitter #4

Location of transmitter:			
Purpose of transmitter:			
Brand		RF Output Power (mW)	
Model		Specific Frequency used by team (MHz)	
Handshake or frequency hopping? (explain)			
Distance to closest e-match or altimeter (in)			
Description of shielding plan:			

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Transmitter #5

Location of transmitter:			
Purpose of transmitter:			
Brand		RF Output Power (mW)	
Model		Specific Frequency used by team (MHz)	
Handshake or frequency hopping? (explain)			
Distance to closest e-match or altimeter (in)			
Description of shielding plan:			

Transmitter #6

Location of transmitter:			
Purpose of transmitter:			
Brand		RF Output Power (mW)	
Model		Specific Frequency used by team (MHz)	
Handshake or frequency hopping? (explain)			
Distance to closest e-match or altimeter (in)			
Description of shielding plan:			

Additional Comments

