NASA Student Launch Team Score Sheet

Design Division

2020-2021

Entity Information	University of California, Los Angeles

Preliminary Design Review

	Summary	Score Earned	Score Possible	Score Weight	Points Earned
Team Summary	Not Included	0	1	1	0
Vehicle Summary	Included	1	1	1	1
Payload Summary	Included	1	1	1	1
Changes Since Proposal	Included	1	1	1	1
Milestone Review Flysheet	Late, Incomplete, or Incorrect	2	4	1	2
Vehicle Criteria					
Preliminary Vehicle Design	Expected Quality	4	7	1.5	6
Preliminary Recovery System Design	Acceptable Detail	2	4	1	2
Mission Performance Predictions	Improvement Required	1	7	1	1
Payload Criteria					
Preliminary Payload Design	Improvement Required	1	7	1.5	1.5
Safety					
Safety Officer Identified-Responsibilities Defined	Included	1	1	1	1
Analysis of Failure Modes	Needs Improvement	2	7	1	2
Personal Hazard Analysis	Expected Quality	4	7	1	4
Environmental Concerns	Some Improvement Necessary	3	7	1	3
Project Plan					
Team Requirements Derivation	Improvement Required	1	7	1	1
Preliminary Budget	Expected Quality	4	7	0.5	2
Preliminary Timeline	Expected Quality	4	7	0.5	2
PDR Deliverables					
PDR Document Appearance	Strong Quality	5	7	1	5
PDR Presentation	Some Improvement Necessary	3	7	1	3
Presentation Professionalism	Expected Professionalism	7	7	1	7

PDR Earned	45.5
PDR Possible	97
PDR Percentage	46.91%
PDR Points (150)	**70.36**

2020-2021 PDR Comparison Data	
PDR Average Score	86.544
PDR Standard Deviation	17.16

Action Items
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Notes / Action Items

1. Parachute numbers need filled in. No data regarding descent velocities, but Kinetic Energy numbers were solved.
2. Descent time error, 3600 feet in 27 seconds is over 100 ft/sec descent velocity.
3. Payload redesign, not just a platform levelling a camera. Must adhere to intent of challenge of payload body being upright, self-righting, and self-levelling.
4. Main parachute lodging concerns based on location of BP charges, separation point, and location of main parachute.
5. Airframe bending analysis

Critical Design Review

	Summary	Score Earned	Score Possible	Score Weight	Points Earned
Team Summary	Included	1	1	1	1
Vehicle Summary	Included	1	1	1	1
Payload Summary	Included	1	1	1	1
Changes Since PDR	Included	1	1	1	1
PDR Action Items	Partially Addressed	4	7	1	4
Milestone Review Flysheet	Late, Incomplete, or Incorrect	2	4	1	2
Vehicle Criteria					
Final Vehicle Design	Strong Quality	5	7	1.5	7.5
Final Recovery System Design	Effective Detail	3	4	1	3
Mission Performance Predictions	Some Improvement Necessary	3	7	1	3
Payload Criteria					
Final Payload Design	Expected Quality	4	7	1.5	6
Safety					
Analysis of Failure Modes	Some Improvement Necessary	3	7	1	3
Personal Hazard Analysis	Expected Quality	4	7	1	4
Environmental Concerns	Some Improvement Necessary	3	7	1	3
Launch Concerns and Operation Procedures/Checklists	Strong Quality	5	7	1	5
Project Plan					
Vehicle Component Test Plans/Status	Expected Quality	4	7	1	4
Payload Test Plans/Status	Needs Improvement	2	7	1	2
NASA Requirements Verification	Expected Quality	4	4	1	4
Team Requirements Derivation & Verification	Some Improvement Necessary	3	7	1	3
Budget Status	Some Improvement Necessary	3	7	0.75	2.25
Timeline	Improvement Required	1	7	0.25	0.25
CDR Deliverables					
CDR Document Appearance	Strong Quality	5	7	1	5
CDR Presentation	Expected Quality	4	7	1	4
Presentation Professionalism	Expected Professionalism	7	7	1	7

CDR Earned	76
CDR Possible	128
CDR Percentage	59.38%
CDR Points (250)	**148.438**

2020-2021 CDR Comparison Data	
CDR Average Score	155.71
CDR Standard Deviation	36.91

Action Items

1. Coupler for separation point must be 1 body tube diameter minimum
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Notes / Action Items

1. Coupler for separation point must be 1 body tube diameter minimum

Flight Readiness Review

	Summary	Score Earned	Score Possible	Score Weight	Points Earned
Team Summary	Included	1	1	1	1
Vehicle Summary	Included	1	1	1	1
Payload Summary	Included	1	1	1	1
Changes Since CDR	Included	1	1	1	1
CDR Action Items	Included	1	1	1	1
Milestone Review Flysheet	Included	4	4	1	4
Vehicle Criteria					
Vehicle Construction plans	Strong Quality	5	7	1	5
Vehicle Final Design	Full Detail	4	4	1	4
Recovery System Design	Effective Detail	3	4	1	3
As Designed Mission Performance Predictions	Some Improvement Necessary	3	7	1	3
Payload Criteria					
Payload Construction Plans	Strong Quality	5	7	1	5
Payload Final Design	Full Detail	4	4	1	4
Demonstration Flights					
Full Scale Demonstration Flight Test Results	Superior Quality	6	7	1.5	9
Safety					
Analysis of Failure Modes	Needs Improvement	2	7	1	2
Personnel Hazard Analysis	Needs Improvement	2	7	1	2
Environmental Concerns	Needs Improvement	2	7	1	2
Launch Operations Procedures					
Preparation and Launch Operations Procedures/Checklists	Expected Quality	4	7	1	4
Project Plan					
NASA Requirements Verification	Expected Quality	4	4	1	4
Team Requirements Verification	Some Improvement Necessary	3	7	1	3
Budget Status	Expected Quality	4	7	1	4
FRR Deliverables					
FRR Document Appearance	Strong Quality	5	7	1	5
FRR Presentation	Expected Quality	4	7	1	4
Presentation Professionalism	Expected Professionalism	7	7	1	7

FRR Earned	79
FRR Possible	119.5
FRR Percentage	66.11%
FRR Points (300)	**198.326**

2020-2021 FRR Comparison Data	
FRR Average Score	193.055
FRR Standard Deviation	15.838

Action Items

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Notes / Action Items

STEM Engagement

Summary		Score Earned	Points Possible
Number of Events Completed	1 pt - Minimum Requirement Met	1	5
Number of Participants Engaged	6 pts - Requirement Exceeded	6	10
Quality of Reports	5 pts - Expected Quality	5	10
		SE Earned	12
		SE Possible	25
		SE Percentage	48.00
		SE Points (50)	**24.00**

Notes / Action Items

Payload Modification Vehicle Redesign

	Summary	Score Earned	Score Possible	Score Weight	Points Earned
Team Summary	Included	1	1	1	1
Milestone Review Flysheet	Included	4	4	1	4
Vehicle Criteria					
Vehicle Re-Design	Superior Quality	6	7	1	6
Recovery System Design	Effective Detail	3	4	1	3
Mission Performance Predictions	Some Improvement Necessary	3	7	1.5	4.5
Payload Criteria					
Description of Changes to Payload & Payload Bay	Some Improvement Necessary	3	7	1.5	4.5
Safety					
New Personnel Hazards and Failure Modes	Some Improvement Necessary	3	7	1	3
Risk to Schedule, Resources, and Budget	Needs Detail	1	4	1	1
Project Plan					
Timeline	Expected Quality	4	4	1	4
Budget Status	Expected Quality	4	7	1	4
				PMVR Earned	35
				PMVR Possible	59
				PMVR Percentage	59.32%
				PMVR Points (150)	**88.9831**

Action Items
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Notes / Action Items

Penalties		Points To Be Deducted
Team Social Media Info Late Submission	No	0
PDR Report Late Submission	No	0
PDR Presentation Late Submission	No	0
CDR Report Late Submission	No	0
CDR Presentation Late Submission	No	0
FRR Report Late Submission	No	0
FRR Presentation Late Submission	No	0
Motor Change After Deadline	No	0
PMVR Late Submission	No	0
	Total Penalty Points	**0**

Totals (900 pts.)		
Preliminary Design Review	15%	70.36
Critical Design Review	25%	148.44
Flight Readiness Review	30%	198.33
STEM Engagement	5%	24.00
yload Modification Vehicle Redesi	15%	88.98
Penalties	Max 170 pts	0.00
	Total Score	530.11

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Final Rank	2nd