Notional Probe Properties and Constraints for Phase IV System capability

Property	Value	Constraint	Note
Volume	.7m x 1m approx.	Max size	Critical property for test chamber usage. Also important for space mission. Assume max dim is .7m cylinder x 1 m long
Mass	100 kg	Max	Arbitrary for test conditions but critical property for space mission.
Power	2900 W-h /5800W-h	Min for 5/ 15hrs	Assume draws of 230W for payload and 270W for communication, for first 5 hours then 50% of these values for balance of mission operation (Total 15 hours)
Communication	TBD	Min data rates	TBD
Duration	5 hrs	Min	Min. required time for science ops is 5 hours; which is the Level 1 success criteria. Teams surviving 5 hours qualify for the head to head phase to determine which probe survives the longest

POTENTIAL PRIZE AWARD CRITERIA AND PRIZE AMOUNTS

Phase I – Electronics and Mechanisms capability

Level	Success Criteria	Prize	Notes
1	Nominal operations for 5 hours min at Venus surface pressures and atmosphere temperature at 400ºC	Up to $500K	$500K prize shared among teams meetings Level 1 Success Criteria.

2	An additional 10 hours operations at Venus surface pressures and atmosphere temperature at 500ºC	Up to $500K	Additional $500K prize shared among teams meetings Level 2 Success Criteria.
Winner	Longest life after achieving Level 2 criteria (up 150 hours max in test)	$1M	If multiple teams achieve 150 hours, probe with lowest mass wins

Phase II – Thermal Management capability

Level	Success Criteria	Prize	Notes
1	Nominal operations for 5 hours min at Venus surface pressures and atmosphere temperature at 500ºC	Up to $500K	$500K prize shared among teams meetings Level 1 Success Criteria.
2	An additional 10 hours operations at Venus surface pressures and atmosphere temperature at 500ºC	Up to $500K	Additional $500K prize shared among teams meetings Level 2 Success Criteria.
Winner	Longest life (up 150 hours)	$1M	If multiple teams achieve 150 hours, probe with lowest mass wins

Phase III – Power capability

Level	Success Criteria	Prize	Notes
1	Nominal operations for 5 hours min at Venus surface pressures and atmosphere temperature at 500ºC	Up to $500K	$500K prize shared among teams meetings Level 1 Success Criteria.

2	An additional 10 hours of operations at Venus surface pressures and atmosphere temperature at 500ºC	Up to $500K	Additional $500K prize shared among teams meetings Level 2 Success Criteria.
Winner	Longest life (up to 150 hours max in test)	$1M	If multiple teams achieve 150 hours, probe with lowest mass wins

Phase IV - System capability

Level	Success Criteria	Prize	Notes
1	Nominal operations for 5 hours min at Venus surface pressures and atmosphere temperature at 500ºC	Up to $500K	$500K prize shared among winners.
Winner	Longest life (up to 150 hours max in test)	$2.5M	If multiple teams achieve 150 hours, probe with lowest mass wins

Prizes will be offered to entries that meet specific requirements that will be detailed in the final rules, should a challenge be announced.