



Appendix C: Functions and Metrics

Table 4: Targets and Functions

Function	Target
Holds cryogenic fluid without failure	<ul style="list-style-type: none"> Withstand 6 G's of force on takeoff Maintain structural integrity for two weeks
Maintains pressure	<ul style="list-style-type: none"> Keep pressure between 80 and 90 psi for entire mission
Reduce fuel loss	<ul style="list-style-type: none"> Less than 1% per day mass boil off for the duration of the mission
Increases heat dissipated	<ul style="list-style-type: none"> Dispel all but 10 kJ of energy per unit volume per day
Decreases heat transfer	<ul style="list-style-type: none"> Inner tank will be subject to less than 10 kJ of energy per day
Communicate to user	<ul style="list-style-type: none"> Information display synchronized to instruments to the accuracy of a second
Displays on container	<ul style="list-style-type: none"> Digital presentation: at least 300 nit displays, 14 point font size or larger Analog Presentation: Gauges or dials clear and easy to read
Attaches to space craft interior	<ul style="list-style-type: none"> Attaching brackets can withstand 3 Gs of force upon takeoff Tank is fixed on inner walls of spaceship
Attaches inner and outer shell	<ul style="list-style-type: none"> Inner Struts can withstand 3 G's of force on takeoff Useable for up to five missions If the storage container leaks, alerts user within 5 seconds with 80 decibels If metal becomes too brittle alert user with 80 decibels