For validation and analysis of the design choices the solidworks FEA and Topology optimization for structural design and testing, testing for aerodynamics was done through solidworks Flow simulation.

The Topology optimization took a mold design and iteratively removed material to rescue mass while maintaining a relatively close stiffness. This resulted in a 28% weight reduction with a constant FOS of 8.3.

The ¾ parabolic nose cone was tested using Computational fluid dynamics analysis in normal flight conditions compared to the cone design. This resulted in a 12.5% decrease in drag compared to the cone.

Additionally, the Coefficient of drag was calculated from the descent portion using 50 m/s. This resulted in a 1.427 coefficient of drag which was used in the trajectory analysis.