



DoubleSShot

Mission Goals

Rev. 2010/09/26

Introduction

This document declares the Mission Statement and states the primary objectives for the *DoubleSShot* project.

The Objectives are to be used as a guide in development of the Technical Requirements, as well as for providing direction for project management. Upon completion of the project, the Objectives are to be reviewed to establish the overall degree of project success.

***DoubleSShot* Mission Statement**

To launch and safely recover a rocket, serving as a capability demonstrator, powered by sugar-propellant, dimensionally scaled to 2/3 that of the proposed *ExSShot* rocket, to an altitude of no less than 33 km, thereby achieving 1/3 the ultimate apogee goal of the *Sugar Shot to Space* program's *ExSShot* space rocket.

***DoubleSShot* Project Objectives**

- G-1 Achieve a minimum apogee of 33 kilometres (108k feet)
- G-2 Serve as a 2/3 scale version of the anticipated *ExSShot* with regard to vehicle design, fabrication and payload [note 1]
- G-3 Attain a vehicle propellant mass-fraction of 0.72 (i.e. 72% of liftoff mass is propellant) [note 2]
- G-4 Recover fully-intact all key portions of the vehicle
- G-5 Develop a large-scale propellant manufacturing process that is scaleable to *ExSShot*.
- G-6 Record essential on-board flight data that will describe in detail the ballistic performance of the rocket vehicle including basic data on the performance of the rocket propulsion system
- G-7 Demonstrate long-range telemetry of in-flight data
- G-8 Successfully track rocket vehicle throughout entire flight
- G-9 Demonstrate a descent/recovery technique that is applicable to *ExSShot*
- G-10 Develop and implement method of accurate touchdown location prediction
- G-11 Expand project membership to spread workload such that no teams or individual members are "overburdened" with tasks
- G-12 Costs to be 100% covered by fund-raising, sponsorship and donation of goods and services
- G-13 Project to have minimal detrimental impact on the environment

G-14 Safety to all participants and general public to be considered as paramount in all aspects of the project

G-15 Launch *DoubleSShot* before the end of 2011

Notes

[1] scale of 2/3 is guideline; actual scale may be based on practical considerations

[2] excluding non-essential payload -- this goal is related to the necessity of achieving a mass-fraction of 0.80 for *ExSShot*