Interdisciplinary Aerodynamic Group

Low Earth Orbit Satellite Snatcher (LEOSS)
Abstract

The LEOSS project is a feasibility study for a mission aiming at making a rendezvous with the Swisscube (currently in orbit around Earth), grabbing it, storing it in a safe place and bringing it back to Earth via a high speed re-entry. Such a project would be useful for validation and demonstration of different techniques that could be reused.
Abstract

The project is divided in two parts: the first one dealing with the mission definition including launch of the probe, rendezvous techniques and Earth re-entry; the second one regarding the system with the designs of the capturing, landing and securing systems for the Swisscube.
Goals

• Define launch, rendezvous and re-entry trajectories
• Assess heat loads during the re-entry
• Calculate fuel masses and total weight of the spacecraft
• Assess the footprint and find a location for landing of the probe
• Design a subsystem for the capture of the Swisscube
• Design a subsystem for ensuring a safe re-entry
• Assess all the other subsystems for a total mass estimation of the re-entry probe
Requirements

• System shall resist to a 7 km/s re-entry

• Total mass of 50 kg (± 10%)

• Low cost mission
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