

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Technologies for Future Space Transportation Systems (5)

Author: Mr. Matteo Rendina
beyondgravity, Switzerland, matteo.rendina@ruag.com

RE-USABLE PAYLOAD FAIRING

Abstract

RUAG Space Switzerland is active in the development and production of payload fairings since 1975, namely Ariane 1. Since then RUAG Space has strived to provide his customers the most reliable and performing product at a competitive price. In order to keep the pace with the recent market evolution on launch prices, RUAG introduced lean production methods and new technologies. To further exploit cost reduction potential, a step into re-usability of Payload Fairings has been investigated. This paper will present the preliminary work conducted by RUAG and his subcontractors in different areas associated with re-usability, spanning from re-entry trajectory and recovery system to design for re-usability. Re-entry trajectory and associated loads have been calculated based on CFD analyses. Payload Fairing recovery systems (e.g. mid-air recovery and water recovery) have been analyzed and assessed for this specific application. Finally, design for re-usability has been initiated to identify the optimized product's configuration for this type of application. The final goal of this study has been to show feasibility of the technical concept and, more relevant, to identify the required boundary conditions to be fulfilled in order to make out of re-usability a sustainable business.