

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Future Space Transportation Systems Verification and In-Flight Experimentation (6)

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DESIGN, DEVELOPMENT, AND IMPLEMENTATION OF THE IXV SYSTEM DROP TEST

Abstract

In the frame of IXV Program, CIRA as Sub-Contractor of ESA Prime (THALES ALENIA SPACE Italia), supports the IXV Qualification Test activities foreseen at system level with the responsibility to design and execute the IXV System Drop Test. The Drop Test aims at demonstrating that the Main Parachute of the Descent sub-system and the Recovery sub-system are able to guarantee the safe recovery of the IXV vehicle. Together with the DRS, also parts of the other subsystems participating to the descent and recovery functions will be jointly tested (i.e. jettisoning panels). The test will be carried out by dropping the 1:1-scale IXV mock-up from an 3000m altitude by means of a CH-47 helicopter in order to reach as far as feasible and as far as practical representative conditions of the IXV Main Parachute descent flight. On-board avionics designed by CIRA, will manage the entire flight sequence from drop, to parachute deployment till the activation of floatation bags at splashdown in the sea. This paper deals with presentation of the overall development process of the Drop Test highlighting the up-to-date outcomes of definition, design and AIV/AIT stages. Moreover it provides the description of the Drop Test Mission Operations plan and scenario from pre-flight till post-recovery.