

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
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ARIANE 5 ES LAUNCH VEHICLE BETWEEN ATV AND NEW MISSIONS INTO MEDIUM EARTH
ORBIT

Abstract

In spring 2012 the third ATV (Automated Transfer Vehicle) will be launched with the ARIANE 5 launcher in order to serve the ISS (International Space Station). Then the ARIANE 5 launcher has delivered P/Ls (Payloads) into LEO (Low Earth Orbit), SSO (Sun Synchronous Orbit), GTO (Geostationary Transfer Orbit) and on Earth Liberation Orbit by using the full versatility of the EPS (Etage à Propergols Stockables) upper stage with long ballistic flight phases and several re-ignitions.

This paper summarizes the main achievements and lessons learned out of the performed A5ES missions. The focus is hereby put on the FPS (Functional Propulsion System) behavior of the ARIANE 5 upper stage EPS including the AESTUS Engine re-ignition behavior in flight under different thermal conditions and the performance of the pressurization system PCA (Pressure Control Assembly). Also the flight results of the SCA (Système de Contrôle d'Attitude) of the VEB (Vehicle Equipment Bay) are presented and discussed.

Also an outlook is given on the adaptation activities of the ARIANE 5 launch vehicle towards the deployment of Galileo navigation satellites into a MEO in terms of functional aspects. in order to fulfill the performance requirement and functional verification of the EPS upper stage towards the reference mission profile into a MEO (Medium Earth Orbit).

It is concluded that the A5ES launch vehicle is able to deliver P/Ls in a big variety of orbits until the arrival of the new re-ignitable cryogenic upper stage of the A5ME launch vehicle currently in development until 2017.

The content of this paper is new and was hence not presented at previous conferences. Also the attendance of the authors in Naples, Italy to deliver the paper is assured.