

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Vehicles in Service or in Development (1)

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ARIANE-5 MEA AFTER THE MINISTERIAL COUNCIL 2012

Abstract

The ESA Council at Ministerial Council held in Naples in November 2012 decided to go for the so-called “adapted Ariane-5 ME and Ariane-6” Programme; this Programme aims at continuing Ariane-5 ME activities and at starting A6 activities while maximising upper stage synergies between both launch systems. Therefore the adapted Ariane-5 Mid-life Evolution (A5-MEa) launcher project will evolve to implement a maximum of common elements and synergies with Ariane-6.

The Ariane-5 MEa configuration features a new cryogenic re-ignitable upper stage, a bigger Upper Part and relies on the common Lower Composite of the today’s operational Ariane-5 ECA and Ariane-5 ES launcher versions.

With its re-ignition capabilities, A5-MEa shall enable many different versatile missions which are of interest to institutional and scientific payloads and shall offer GTO+ mission capabilities to the commercial market. It shall also provide the de-orbitation capability of the new upper stage whenever the performance allows it to preserve the space environment. Ariane-5 MEa will increase the global performance of the launcher ensuring GTO dual launch capability which remains essential for competitiveness on the commercial market and its versatility shall provide flexibility for a mix of payloads’ accommodation. This new modernised version of Ariane-5 will replace within the decade both Ariane-5 ECA and Ariane-5 ES versions. The A5 ME development activities have passed the Launch System Concept Review (LSCR) in 2010 and the Launch System Preliminary Design Review (LSPDR) in 2011. A Maturity Key point was held in April 2012 and confirmed the major technical and programmatic assumptions of the Ariane 5 ME development and its readiness to move into the C/D Phases.

This paper presents the programme elements subscribed in 2012 and highlights the programmatic targets set in 2013 and 2014. An overview is given on the most significant achievements of the on-going development activities, its expected missions and performance capabilities. Finally, the paper provides a comprehensive overview of the A5MEa launcher configuration: the new cryogenic re-ignitable upper stage powered by the Vinci expander cycle engine, the new technologies considered for the stage attitude control and propellant settling system, cryogenic tanks designs, test-benches upgrades, etc.