

SPACE PROPULSION SYMPOSIUM (C4)  
Propulsion System (2) (2)

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VEGA SOLID ROCKET MOTORS QUALIFICATION STATUS AFTER LAUNCHER MAIDEN  
FLIGHT**Abstract**

This paper presents a technical and programmatic overview of the Vega Launcher achieved during last year with a particular focus on solid rocket propulsion. The propulsion system of the Vega LV at solid rocket motors level is composed of AP-based monolithic boosters, namely P80 (1st stage), Zefiro 23 (2nd stage) and Zefiro 9 (3rd stage). Several programmatic milestones have been successfully achieved so far: starting from the System Design Review in 2004 and following System Critical Design Reviews in 2007, the Launch System Ground Qualification Review (GQR) started in 2010 and, after completion of subsystems qualification certification by the end of 2011, also Launcher Ground qualification has been successfully reached in January 2012. Concerning SRM propulsion, being the qualification already acquired for Z23 SRM since 2008 with no major technical issue, the qualification of P80 and Z9 SRM has been closed in 2010; in particular for Z9 SRM, in the improved version Z9A with nozzle and grain redesign for performance increasing at launch vehicle level, a delta qualification review has been held after the third firing test with modified igniter successfully performed in May 2010 in order to reduce negative thrust reaction peak during ignition. In 2011 all Flight Unit models have been therefore completely delivered, leading to the successfully Qualification Flight in French Guyana on 13th February 2012. Flight Qualification Review (FQR) is planned by middle 2012.