

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
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VEGA LAUNCHER: STATUS OF DEVELOPMENT AND PREPARATION FOR THE
QUALIFICATION FLIGHT.

Abstract

VEGA Launcher is being developed within a European Programme promoted by the European Space Agency (ESA), as a cooperative project with Member States within the ESA framework. The final development and qualification activities are running and will lead to the Qualification Flight from Europe's Spaceport in French Guiana in 2011. Two main milestones must be finalized to complete the VEGA preparation for the first flight:

- the Launch System Ground Qualification Review (LGQSR);
- the Combined Test Campaign in French Guiana.

The Ground Qualification Review of the Launch System started in March 2010 has to assess the flight readiness of the launch system, and to identify actions and recommendations that shall be closed before the start of the launch campaign or before the flight. For the Vega Launch System qualification baseline, the Review has to assess the qualification status of the launch system to verify the conformity against the requirements of the "generic" Vega, and to identify actions and recommendations, that if not linked to the maiden flight, will be closed following the first flight, in the Exploitation flights phase (VERTA Programme). The LSGQR first step identified the major criticalities; these issues are currently being assessed and discussed in the frame of the Review's second step.

For what concerns the Combined Test Campaign this consists in a complete verification test plan between the Inert Static Vehicle and the control bench infrastructure, thus validating all the test procedures that will be used during the Launch Campaign. The test campaign is currently running and it is being finalized, with several parallel activities carried out in Kourou at the Vega Launch Complex.

The main passenger of the maiden flight is the LARES experiment developed by ASI. This spacecraft is a satellite laser-ranging (SLR) experiment, completely passive with no sensors or on-board electronics. LARES will be deployed at an altitude of 1450 km with 71 degrees of inclination. The secondary payloads of the maiden flight are educational micro-satellites. The qualification flight mission has been defined taking into account different targets: mitigation of risks inherent to the first flight, representativity of the mission within the flight qualification domain, compliance with ground/flight safety and programmatic constraints.

This paper will present the status of the development, the outcomes of the VEGA Launch System Ground Qualification Review as well as the results of the Combined Tests Campaign, summarizing the readiness of the VEGA Launcher for its Qualification Flight.