

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

Author: Mr. Roberto Mancini
ELV S.p.A., Italy, roberto.mancini@elv.it

Mr. Stefano Gallucci
ELV S.p.A., Italy, stefano.gallucci@elv.it

MULTIPLE SATELLITE LAUNCH CAPABILITIES WITH VEGA LAUNCH VEHICLE

Abstract

After the completion of VEGA development leading to the Qualification Flight of VEGA, the second flight is aimed to qualify the capability to carry into different orbits more satellites (1 main payload and up to 6 microsattellites). The flexibility of LV allows to have satellites placed into two different orbits with possibility to have significant altitude changes (with small payloads even more than 1000km) and inclination changes up to 6 degrees. The version of LV with double/multiple satellites is made possible without changing the avionics nor the LV up to the fourth stage but only replacing the conical adapter with one 937 I/F with a multiple I/F structure named VESPA whose conception is similar to the one used on Ariane 4. All Launch Vehicle aspects as well as dynamics, aerodynamics, mechanical and thermal loads, EMC, GNC and Flight Program Software are only slightly affected by the double/multiple launch upgrade. The paper describes the range of possible missions against all possible satellites and makes an overview on the design choice adopted on the Launch Vehicle to permit the double/multiple satellite launches.