

MATERIALS AND STRUCTURES SYMPOSIUM (C2)  
Space Structures I - Development and Verification (Space Vehicles and Components) (1)

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SPACE QUALIFICATION TESTS PERFORMED BY CIRA ON THE ALTA HALL EFFECT  
ELECTRIC THRUSTER HT100D

**Abstract**

This paper describes the experimental activities performed by CIRA Space Qualification Lab aimed at obtaining an assessment of the mechanical performance of the new Hall Effect ALTA electric Thruster (HET) HT-100D. Alta's HT-100 is the smallest and lowest power HET ever developed in Europe. It has been conceived for application to microsatellites with limited power and volume budgets for the electric propulsion (EP) system; nevertheless its performance is of interest also for coarse maneuvers in scientific missions and drag compensation in very-LEO Earth Observation applications. More recently, a new version of HT-100, named HT-100D, has been developed in order to increase the thrust range up to 20 mN. The thruster qualification has been carried considering the mechanical environment of the VEGA launcher. In this paper the results and test procedures for the following qualification tests: in flight steady state mechanical environment, sine-equivalent dynamics, random vibrations and mechanical pyro-shocks are fully explained. Furthermore details regarding the design and realization of a new pyro-shock test facility for CIRA Space Qualification Lab are reported.