

عنوان مقاله:

Next generation space launchers and micro-launchers development within ESA

محل انتشار:

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خلاصه مقاله:

Current aerospace launchers market consists of both state funded enterprises and private enterprise. Within this context the European Space Agency (ESA) has launched several initiatives in order to secure Europe's future access to space amongst which one of the newest initiatives is represented by the micro-launcher development programme. This program aims at developing a micro-launcher with a capability of up to 50 kg to Low Earth Orbit (LEO). Besides launching satellites the micro-launcher will serve also as a technological test bed for new technologies to be validated before being implemented on larger launchers (e.g.: new guidance techniques). Romanian Space Agency (ROSA) is the main driving force behind the micro-launcher development programme with an investment of 19 million Euros over several years. Overall satellite market is outlined in our research showing several windows of opportunity for micro-launchers. SSL (solid-solid liquid) configuration is discussed in detail from the optimization point of view. Solid propulsion is the preferred option of several other launchers especially when low cost is needed [1], [2]. Several results of an internal ballistic code developed in-house are shown including erosive burn on composite solid rocket motor. These results are relevant in the context of micro-launcher development for the 1st and 2nd stage configuration. Numerical results of the internal ballistic model are compared with experimental results obtained on a test stand. Conclusions end the current research with an outline of future developments envisioned for the micro-launcher programme.

کلمات کلیدی:

space launchers, ESA, Maximum, microlaunchers

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