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Author: Dr. Chantal Cappelletti
G.A.U.S.S. Srl, Italy, chantal.cappelletti@gmail.com

Mr. Giuseppe Martinotti
Scuola di Ingegneria Aerospaziale, Italy, martinotti.giuseppe@gmail.com
Prof. Filippo Graziani
Sapienza University of Rome, Italy, filippo.graziani@gaussteam.com

A PLATFORM TO LAUNCH UNIVERSITY SATELLITES: UNIPLAT

Abstract

The launch of satellites is the final and most crucial phase of all space programs and it is troublesome for the launch services providers to interact with a great many customers of small dimensions satellites. Several university systems and payload never been tested on space since they never had the possibility to procure a launch with a limited budget. The possibility to integrate more small satellites in a single platform can allows to the university group to achieve the 'in orbit phase' with a reasonable price and to the launch providers to interact only with a customer that represent all the groups. For this reason GAUSS group at University of Rome is proposing to be the coordinator of the european universities for integrating the satellites in a unique platform ready to launch. The aim of Uniplat project will be the integration and separation of several satellites with different dimensions from pocketsats to cubesats to bigger microsatellites. The collision risk between the deployed satellites has been taken into account during the design of the separation procedure in order to avoid any kind of accident in orbit. The platform has been designed also to board its own payload and one of the main payload considered is a telescope. At the end of the operative life Uniplat will deploy a big surface for deorbiting using the atmospheric drag effects. The maximum platform dimensions are 1x1x1 meters, it is equipped with external solar panels, in order to be autonomous after the release from the rocket. The platform has been designed to be boarded on a Dnepr launch vehicle, but it is possible to adapt the system also for other launchers. This paper deals with the design and preliminary tests of Uniplat. In particular different release mechanism has been considered and analyzed. A preliminary test for cubesats and pocketsats deployment system could be planned using UNISAT5 satellite on 2012 launch.