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PLATINO PLATFORM: AN INNOVATIVE ITALIAN ALL ELECTRIC SMALL SATELLITE
PLATFORM

Abstract

The PLATiNO Platform is a mini-satellite class platform under development by SITAEL and its partners (Thales Alenia Space, Leonardo, Space Engineering) in the frame of an Italian Space Agency National Project. The PLATiNO platform is a brand new all-electric small platform product with total launch mass in the range 200 - 250 kg, designed on three main drivers: performance, competitiveness and multi-applicability. The high level of technological innovation is provided by the usage of new units and technologies, specifically developed for the PLATiNO platform, internally by the consortium and by suppliers. These include the low power electric propulsion system based on SITAEL's HT100 small Hall Effect Thruster, the state-of-the-art AOCS with mini-CMGs, the advanced and integrated communication subsystem (ICU) and the integrated avionics (IPAC). The high product competitiveness (low recurrent cost being a Customer requirement), makes the PLATiNO platform ideal for deployment in EO multi-payload integrated constellations (SAR-Optical payloads) and for series production for Telecom mega-constellations. The "multi-purpose" approach drove the platform design since the early stages of the project providing the platform with the capability to satisfy different mission requirements and embark different payloads, within an envelope specified by the Customer requirements. In order to be fully multi-application, the platform design has been conceived with a high level of reconfigurability and scalability, e.g. multiple solar array configurations (body mounted/deployable/steerable), structural modular approach, compatibility with optional equipment to be utilized on the basis of the mission requirements, multipurpose payload interface design (capability to adapt power and data handling interfaces). The platform development is currently being finalized and the first two satellites are scheduled for launch in 2020 and 2022. The paper illustrates the platform features and the results of the on-going development phase (S-PDR completed, preparation for CDR in progress) with focus on the multi-mission approach, the key enabling technologies and the characteristic performances. Moreover, in order to illustrate the multi-mission approach and the capabilities of the platform, three applications and relative mission scenarios are presented: a passive/active SAR mission, a very-LEO TIR optical mission and a Telecom mission.