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PLATINO PROJECT: A NEW ITALIAN MULTI-APPLICATION SMALL SATELLITE PLATFORM
FOR HIGHLY COMPETITIVE MISSIONS.

Abstract

The paper presents the advanced technologies under development by SITAEL and its partners (Thales Alenia Space, Leonardo, Space Engineering) in the frame of the ASI National Project PLATiNO for a small satellite-class platform, called S-200. The S-200 is a brand new all-electric small platform product in the mini-satellites class with total mass in the range of 150-200 kg (launch mass), designed to be compatible to a wide range of applications (multi-applicability). The platform design requirements and technological solutions are strictly linked to the multi-purpose high level requirement for this product, aimed to serve different mission scenarios. S-200 small platform is ideal for EO multi-payload integrated constellations (i.e SAR-Optical), thanks to the flexible platform-payload I/F and the key features (electric propulsion for constellation deployment, mini-CMG for agile re-pointing, ISL for formation flying, high data rate active antenna for EO Data management). Constellation design can enable hourly image refresh, with weekly global coverage. S-200 is also suitable for series production for Telecom mega-constellation, by implementing available H/W options (SADA, PLIU) and taking benefit of low recurrent costs. In order to comply with multi-application feature, the platform foresees 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 used on the basis of the mission requirements, multipurpose payload interface design. Moreover, the S-200's high performances are guaranteed by some key mission enabling technologies, including a low power electric propulsion system based on SITAEL's HT100 (1 km/s delta-V), state-of-the-art AOCS with mini-CMGs (5 deg/s slew rate), advanced and integrated communication subsystem. The paper presents the results of the Phase B design PDR completed), with focus on the design drivers, key performances and architecture of the different configurations. Moreover, the paper will present an overview of some targeted space applications for the S-200 and relative reference mission scenarios.