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PLT-1 SAR MISSION - PLATINO MULTI-MISSION PLATFORM APPROACHING FIRST FLIGHT

Abstract

The paper presents the development status of PLATiNO platform and its first SAR mission (namely PLT-1), after design phase completion and during its system qualification phase. PLATiNO is an Italian Space Agency (ASI) program, led by the industrial consortium composed by SITAEL, Thales Alenia Space - Italia, Leonardo and Airbus- Italia. PLATiNO platform is a new all-electric small platform product in the mini-satellites class with total mass in the range of 200-350 kg (S/C launch mass), designed to be compatible with a wide range of applications (multi-applicability feature). The platform design aspects and state-of-art technological solutions (i.e. electric propulsion for V-LEO orbits, mini-CMG for fast re-pointing, ISL for formation flying/constellations, high data rate active antenna for EO Data management) are strictly linked to the multi-purpose feature in order to provide a standard product compatible with several payloads/missions (EO – SAR, Optical – TLC – Science). PLATiNO platform consolidated (CDR) design is presented, with a focus on each subsystem (Thermo-structure, Power System, Avionics, Electric Propulsion, Communications), showing the main performances and multi-mission capabilities (Platform-to-Payload I/F, solar array configurations, optional equipment). It is also presented the upcoming first mission PLT-1, a high resolution SAR mission, based on Thales Alenia Space small-SAR, that will fly by end of 2022. PLT-1 SAR mission is composed by two different phases: the first phase (1 year) with a Bistatic mission with COSMO-Skymed and COSMO-SG at 600km altitude, the second phase (1.5 years, after 6 months re-positioning) with a Monostatic mission at 400km. PLT-1 SAR satellite will operate both in Stripmap and Spotlight modes, providing up to 5