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PRELIMINARY PRODUCT AND SYSTEM OBSERVATIONAL REQUIREMENTS FOR RODIO MISSION

Abstract

RODiO is an innovative mission concept selected by the Italian Space Agency (ASI) for a phase A study in the framework of Alcor program. RODiO consists in a cluster of 4 passive CubeSat receivers which aims at flying in a Large Baseline Bistatic (LBB) configuration with ASI PLATiNO-1 (PLT-1) Satellite.

Mission objective is to serve as in-orbit demonstrator of both Distributed Synthetic Aperture Radar (DSAR) concept and a novel hybrid propellant rocket propulsion system for fast formation reconfiguration. RODiO also aims at delivering new SAR products for scientific and commercial downstream. The DSAR image resulting from the coherent combination of the stack of low performance bistatic data can be exploited to complement information from the monostatic image generated by the illuminator. The incoherent combination of these images allows the generation of novel products, that will widen PLT-1's portfolio. These products actively contribute to several application domains such as Maritime monitoring, Georeferencing, Civil Protection Transport and Safety. This paper discusses the individuated products for RODiO mission and the correspondent system observational requirements for their generation.