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SOLAR ARRAY GENERATOR DEVELOPMENT EXPERIENCE FOR AMAZONIA 1 SATELLITE

Abstract

This paper presents the lessons learned of the design, manufacturing, assembling, integration and testing of the Solar Array Generator (SAG) for the Amazonia 1, which is the first Earth Observation satellite based on the Multi-Mission Platform (MMP) completely designed, integrated, and tested by the National Institute of Space Research (INPE). It was successfully launched by India's Polar Satellite Launch Vehicle PSLV-C51 on 28 February, 2021. The SAG is composed of double deployable wing type with 3 panels in which wing. Also comprises the triple junction type photovoltaic solar cell circuits, and associated cabling, assembled over three carbon-fiber facesheet with aluminum honeycomb core panel structures, each panel structure having 735 mm x 1429 mm lateral dimensions and deployment mechanisms. The SAG acceptance tests results are shown. The electrical performance test results show that SAG is capable of generating more than 1100 Watt (AM0, 25oC, 1353W/m²), exceeding the minimum power generation requirement. The in orbit power generation is also analysed and demonstrated that the brazilian space industry provided a reliable power generation technology for the Amazonia 1 Satellite.