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SPACEBORNE SAR SYSTEM OF LIGHT-WEIGHT AND HIGH-AGILITY

Abstract

In this paper, the most recent and advanced Synthetic Aperture Radar(SAR) satellite system in concept of multi-polar, multi-mode, light-weight and high-agility is introduced. This system differs to classic SAR satellites mainly in two technique features. Firstly, its structure design is based on a new paradigm named Multi-Functional Structures(MFS) which is designed to decrease satellite's light-weight, small-volume and low-cost; Secondly, it uses newly spacecraft design techniques such as integrated-electronics technique, autonomous mission planning technique, Compact polarimetry technique and electronic beam steering combined with mechanical steering used to ground observation to improve the satellite's agility and efficiency. The satellite system can operate in Wide-Coveragemode(ScanSAR, TopSAR), various strip modes, a number of spot modes, and can reach the highest 1m imaging resolution.