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ON THE DESIGN OF A MODULAR MINIATURIZED SATELLITE COMMUNICATION SYSTEM
FOR LOW EARTH ORBIT APPLICATIONS

Abstract

The increase in demand for small, cost-effective, and fast development of products is a driving factor towards the design and implementation of modular systems. Modular systems are easily designed, integrated, tested, and reconfigured. The design of a modular communication system encompasses attaining reconfigurability in the main pillars of a communication system: modulation scheme, data rate, and output power. Having a vast options of supported modulation schemes bridges the gap between attaining higher data rates and complying with regulation constraints. Additionally, having different data rates and output power options that can be reconfigured in flight or before flight makes the system adaptable to different missions. This paper outlines the design and testing of a modular miniaturized satellite communication system for low earth orbit applications. The paper begins by a description of what makes the system modular and how it is modular followed by a preliminary design representation of the system, a detail design, and test results.