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A TESTBED FOR SPACE-BASED COMMUNICATION AND NAVIGATION PURPOSES

Abstract

During the last decade, the usage of small satellites and their constellations has increased exponentially for scientific measurements and technological missions. One of the frequent missions is providing the possibility for testing various systems in real operating conditions. In this research, an innovative testbed is proposed in the form of a 3U CubeSat for testing Communication and Navigation functions that employs a Software Defined Radio (SDR) payload for communication, navigation and other Radio Frequency (RF) application such as inter-satellite links, satellite-ground links, multi-GNSS navigational algorithms, and spectrum monitoring etc. The obtained results, can help to troubleshoot and improve the functions before implementing them on the main platform.