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SPACE POWER SYMPOSIUM (C3)
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Author: Dr. Kun Chen
Shanghai Engineering Center for Microsatellites, China

Dr. Shufan Wu
Shanghai Engineering Center for Microsatellite, China

DESIGN AND IMPLEMENTATION OF ELECTRICAL SYSTEM FOR STU-2 CUBESATS

Abstract

Cube Satellites have developed rapidly to be a mature platform in recent years. With the rapid developing trend, an innovative nanosatellite mission with three CubeSats, named as STU-2, has been approved as the first batch of CubeSat projects in China. Aiming for polar region earth observation and marine/air traffic monitoring, the mission of STU-2 consist of one 3U CubeSat and two 2U CubeSats, carrying payloads including optical camera, MEMS cold-gas micro-propulsion, ADS-B, and AIS. To satisfy the purpose of matching the mission requirements and integrating the payloads smoothly, the electrical system including EPS and HUB is designed to enhance the capability of power management and expand the interface. In this paper, the detailed design scheme of the electrical system would be introduced, with the function and architecture of EPS and HUB described, and the testing approach and situation was showed. On 25th Sept. 2015, the STU-2 has been successfully launched into the expected orbit. The CubeSats, specifically the electrical system, have been implemented with wonderful in orbit results, which are shown in this paper as well. Finally, the summary and learned lessons are proposed, which may be helpful to other CubeSats.