

IAF SPACE POWER SYMPOSIUM (C3)  
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RESULTS OF BIRDS-4 SATELLITE ON-ORBIT POWER PERFORMANCE FOR ENHANCING 1U  
SATELLITE POWER SYSTEM RELIABILITY**Abstract**

As part of the BIRDS satellite program, the BIRDS-4 satellites were launched in 2021. The prime objective of Electrical Power System (EPS) in a CubeSat is to provide continuous power to all subsystems and payloads during the satellite's lifetime. While the satellites performed satisfactorily on-orbit, several points of failure in the EPS were noted based on the on-orbit operation of BIRDS-4 satellites despite extensive testing on the ground. This study aims to identify the issues of the power system failure and reasons that caused these failures in LEO. One of the major mistakes that was observed in these constellations were the workmanship error in the assembly of the solar cells that led to failure of one or more sides of solar panels on-orbit. This caused imbalance in the power budget. In this study, the authors analyzed and observed the some housekeeping data in the case of BIRDS-4 satellites. This paper also summarizes the lessons learnt based on the operation of the satellites on-orbit and recommendations on the testing procedure for EPS that could be resourceful for other lean satellite developers.