

SPACE POWER SYMPOSIUM (C3)  
Small and Very Small Advanced Space Power Systems (4)

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ELECTRICAL POWER SYSTEM FOR TWIN NANO SATELLITE MISSION

**Abstract**

The backbone for successful working of a satellite is the power system. The power system defines the life of the satellite and it is essential to have an efficient power system for a successful mission. The main objectives of the power system is to condition the power obtained from the solar panels, to provide the common regulated voltage, to regulate the power to the distribution unit as well as the battery unit with minimum losses, to optimize the number of batteries and its usage and to log data to the On Board Computer (OBC).

More so in a Nano-satellite, the power system has to be designed within the constraints on size, cost and performance. The Power system design for STUDSAT-2 has three solar panel, one body mounted and two deployable. The solar cell used will be Improved Triple Junction (ITJ) solar cells with solar cell efficiency of 26.8

This paper presents the power profile for both body mounted and deployable solar panels per orbit with the solar panels deployed and without the panels deployed. It gives a brief description of how the power generated by the solar cells is tracked for maximum power using Maximum Power Point Trackers. The calculation battery sizing, the design and testing of battery charge and protection circuits, the power distribution unit and the fault monitoring. The current and voltage parameters are data logged using suitable interface with the On Board Computer.