



## Energy Balancing and Analysis of Power System for BCCSAT-1 Satellite

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**Abstract.** This paper presents the energy balance and the analysis of the power system of BCCSAT-1 in the BCC Space Program, a high school aerospace engineering program created by Bangkok Christian Collage in unison with King Mongkut's University of technology North Bangkok. BCCSAT-1 is a 1U CubeSat satellite, which heritage the design of KNACKSAT. The power system which has been adapted from the design of KNACKSAT power system to accommodate the mission to capture multispectral images using four cameras with different filters. The power system has been designed for continuous operation with high efficiency. It consists of four parts, power generation, power storage, power distribution and power management. The energy balance consists of determining the energy generation, which is determined by the altitude of the satellite, and the energy usage of the satellite. The analysis is performed by analysing the design of the power functionality in space, this is determined by testing the power system in space-like condition in test such as Vibration, Thermal Vacuum and Thermal Cycle testing.