

IAF SPACE POWER SYMPOSIUM (C3)
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PRELIMINARY DESIGN ELECTRONIC POWER SYSTEM (EPS) LOW EARTH ORBIT (LEO)
COMMUNICATION MICROSATELLITE

Abstract

The development of satellite technology provides great benefits in various fields, one of which is eliminating the distance limit in communicating between human beings inside the hemisphere. The role of satellite technology is not simplest in the telecommunications sector, however in almost all fields such as the defence sector, marine sector, plantation sector, agriculture sector, etc. Electronic Power System (EPS) is a crucial parts of a satellite system that capability to generate, store and distribute power to all satellite electronic devices. If the EPS fails, the power supply to all electronic devices in the satellite device may be disrupted. This paper describes the preliminary design in the designing of EPS for LEO micro-communication satellites based on basic satellite level parameters such as orbital altitude, orbital slope, mission operation and mission duration. The results of this study is an EPS for satellites that have 28 V bus voltage which serves to distribute current and voltage on each channel used at 3.3 V, 5 V and 12 V, and is able to control the current and voltage when overload. This EPS also provides minimum 5 Automatic Fuses (AF), minimum 13 Fuses (FS), and minimum 25 switches (S) to control each device in the satellite system.