Base line design of FTD sub-detector power distribution system for ILD

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Summary

The synchronization of the FEE power consumption with the beam duty cycle in the future ILC experiments is critical to save energy. It will force to design a power system topology compatible with these requirements. The system should be able to supply the power remotely and generate the high currents locally to minimize transient effects. Several power distribution topologies are actually under study for the FTD sub-detector of the ILD experiment. One is based on DC-DC converters and the other is based on super-capacitors and low voltage regulators. This contribution presents a general overview of the distribution system of the FTD system. A comparison between both power systems is presented. Special attention is paid on power dissipation of the systems, Electromagnetic Compatibility (EMC) aspects as well as preliminary analysis of radiation effects on super-capacitors.