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# TOTAL IONIZING DOSE (TID) TESTING OF DC-DC CONVERTERS IRRADIATED WITH CO-60 SOURCE

**Abstract**

This paper investigates the possibility of using commercial-off-the-shelf (COTS) DC-DC converter for LEO missions. Owing to the low cost, availability and wider capability of COTS components, designers of space industry prefer to use COTS based components in their design. Besides performance verification, these components must be tested against radiation and mitigation of its effects. Using commercially available software tools like SPENVIS, maximum TID (Total Ionizing Dose) that a device can absorb in orbit can be easily determined. The paper presents the typical requirement of TID on DC-DC converters for LEO based satellite with mission life of around three years. It also provides the details of ARDUINO based test-bed developed for testing DC-DC converters using Co-60 irradiation source. Besides this the performance parameters monitored and results will be presented. Based on the measurement results of TID against performance parameters, the feasibility of using DC-DC converters is discussed.