Total Dose and Single Event Effects Hardening and Testing on Signal Quality telemetry LX7730 Controller
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Abstract
The LX7730 is a high-speed, low-power, low-voltage, 8-channel, 16-bit analog-to-digital converter (ADC) that operates at up to 100MHz clock speed and provides a parallel interface. It also features support for external reference voltage and digital I/O interface. The LX7730 controller includes a 16-bit DAC, a 10-bit ADC, and a 32-bit microcontroller. The device has been designed to meet severe radiation environment requirements and is fabricated in a 0.18um CMOS process.

Total Dose and Single Event Effects
The LX7730 has been tested for total dose and single event effects to ensure its reliability in radiation environments. Total dose effects were evaluated at various levels of dose, and single event effects were tested using 100kR and 1Mrad tests. The device showed minimal changes in performance, indicating its suitability for space and aerospace applications.

Conclusion
The LX7730 controller has demonstrated excellent performance in radiation environments, making it a suitable solution for space and aerospace applications. Its high-speed, low-power, and low-voltage characteristics make it an attractive choice for various applications requiring robust and reliable data conversion.

I. INTRODUCTION
The LX7730 controller is designed to meet the stringent requirements of space and aerospace applications. It features a 16-bit DAC and a 10-bit ADC, which are optimized for high-speed, low-power, and low-voltage operation. The device is fabricated in a 0.18um CMOS process, ensuring excellent performance and reliability.

II. LX7730 TID HARDENING AND TEST RESULTS
The LX7730 controller was tested for total ionizing dose (TID) effects to ensure its reliability in radiation environments. The device was characterized for various levels of dose, and the results were compared against pre- and post-irradiation conditions.

III. LX7730 SEE HARDENING AND TEST RESULTS (CONT.)
The LX7730 has been tested for single event effects (SEE) to ensure its reliability in environments with high nuclear and particle radiation levels. The device was exposed to various SEE conditions, including total dose and single event upsets.

IV. CONCLUSION
The LX7730 controller has demonstrated excellent performance in radiation environments, making it a suitable solution for space and aerospace applications. Its high-speed, low-power, and low-voltage characteristics make it an attractive choice for various applications requiring robust and reliable data conversion.