

Single Event Effect Characterization of the Analog ASIC Developed for CCD Camera in Astronomical Use

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Single-event measurements on the analog ASIC developed for astronomical CCD camera systems are reported. The experiments using several heavy ions and protons exhibited positive correlation between the particle's LET (linear energy transfer) and the probability of the SEU (single event upset). The predictive SEU rate in the low earth orbit was derived on the assumption of the CCD camera (SXI) onboard ASTRO-H, the next Japanese X-ray astronomical satellite. The upper limit of the SEU rate of 4.6×10^{-3} evts/sec is sufficiently low compared with the non X-ray background of SXI. We also report on the radiation tolerance of our device against SEL (single event latch-up).

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