
Environmental Function Test Result of the Silicon Charge Detector for the CREAM Ultra Long Duration Balloon Mission

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We present results on environmental function test of the CREAM silicon charge detector (SCD) at SaTRec. Mostly thermal and vacuum test were performed for an assembled ladder which consists of 7 silicon sensors, 1 analogue electronics PCB and ladder support frame, and a silicon sensor alone. The environmental requirement of CREAM is from -5 deg. to 40 deg. in temperature and from 3 mbar to 100 mbar in pressure for working condition, while from -20 deg. to +55 deg. in temperature and the same pressure for survival. Pedestal level and leakage current were recorded simultaneously by varying temperature and pressure ranging from -15 deg. to +55 deg. and from 1 atm to 10⁻⁵ torr, respectively.