

Radiation hardened sensors and electronics: studies and guidelines

The demand for devices for space science and economy is increasing due to the improved conditions (cost, availability of carriers, ...) for sending satellites and satellite constellation in orbit. Sensors and related readout and communication electronics are always key components of the payload: the success of the mission or operations of the satellites depends on their performance. All the satellite equipment undergoes to unshieldable radiation damage, with strongly different rates depending on the orbit. The determination and enhancement of the working lifetime of sensor and electronics components is a crucial aspect of space mission planning. Precise determination, modelling and testing of degradation of silicon chips operating in radiation fields is a subject of intense investigation.