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# An on line radiation monitoring system for the LHC machine and experimental caverns

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With an unprecedented amount of electronic systems exposed to radiation in the LHC, reduced operational efficiency due to radiation induced failures in electronic equipment has become an issue for both the machine and the experiments. The RADMON radiation monitoring system presented here has been designed to measure radiation at the location of electronic equipment in the LHC tunnel and in the experimental caverns. On line measurements of the dose, dose rate, hadron flux and hadron fluence will be used to separate and identify radiation induced failures, to evaluate the performance of electronic equipment under irradiation, to provide insight into the way the machine is operating and to measure the efficiency of the shielding structures. The radiation sensors consist of 4 Mbit of commercial SRAM (0.5 ⊠m), 2 Radiation sensitive Mosfets with different gate oxides thicknesses and 3 PIN Photodiodes in series. A detailed description of the radiation tolerance readout board design will be given.

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