

Radiation to Electronics: Reality or Fata Morgana?

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A first year of successful LHC operation has passed reaching about 50pb⁻¹ of integrated luminosity (1‰ of nominal, 5% of 1fb⁻¹) and more than 1% of peak luminosity, as well as a successful ion run. It's thus time having a first look on the observed radiation levels around LHC critical areas and to compare them to available simulation results. In spite of the still very low integrated intensities and cumulative luminosities, we will try revisiting the failure rate predictions by looking at both the observed early failures, as well as the additional results from 2010 CNRAD tests. Upcoming possibly in early 2011, electron cloud and scrubbing issues and their impact on radiation levels will also be briefly discussed. Updated predictions for 2011 operation and beyond will be deduced, on the base of the envisaged LHC intensity, energy and luminosity reach. Starting from these estimates, priorities for short-term improvements and beam tests are discussed, as well as a brief overview of upcoming R2E driven mitigation actions.

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