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#03-186 Towards the Evaluation of Radiation Tolerance of Scientific Cameras for ITER Diagnostics

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ITER Diagnostic systems will use about 200 scientific-grade UV, visible and IR cameras for real time monitoring of the plasma and of the in-vessel components during operation. These cameras will be exposed to nuclear radiation during the deuterium-tritium operation phase. Impacted systems rely currently on the use of commercial-off-the-shelf cameras not designed to withstand ITER harsh environment. Among the different mitigation strategies to cope with radiation effects, radiation mitigation plans are based on a combination of countermeasures including camera relocation, local shielding, periodical replacement, assessment of radiation tolerance and adapted system operational procedures. In this paper, the different options are reviewed with an emphasis on the methodology for the development of radiation test plan for the evaluation of radiation-tolerance of semiconductor imagers. Potential camera standardization are also evaluated towards the need of radiation assured electronics.

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