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EM Analysis of ITER Diagnostics Upper Port Plugs 14 (US port) and its in-Port components during Plasma Disruptions

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ITER diagnostic port plugs perform many functions including nuclear shielding, structural support of diagnostic system, while allowing for diagnostic access to the plasma. With design advancing, the in-port diagnostic components are integrated into the port plug structure, and the diagnostic shield modules (DSM) are customized to accommodate various in-port diagnostic components. This paper summarizes results of transient electro-magnetic analysis using Opera 3d in support of recent design activities for ITER diagnostic upper port plug 14 (UPP14). A complete distribution of disruption loads on each component in UPP14 is presented. Impacts of different design features, such as the locations of the electrical contact, to the EM loads are discussed, and the solutions for improving the port structure are proposed.

Eligible for student paper award?

No

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