ITER REMOTE MAINTENANCE SYSTEM CONFIGURATION MODEL OVERVIEW

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The ITER Remote Maintenance Systems (IRMS) [1] shall provide the mean to support the remote maintenance operations for in-vessel components, remote transfer [2] of activated components between the Vacuum Vessel (VV) and the Hot Cell Facililty and remote repairing, refurbishing and/or processing operations in the Hot Cell Facility [3].

In order to control the machine configuration and ensure proper design integration, the ITER project has implemented the so-called "Configuration Management Models" (CMM), aimed at controlling and managing the machine systems' interfaces. For each system to be integrated, the configuration model defines the physical interfaces with other system and identifies the necessary space allocation.

The CMM of the IRMS have special features because they are not static components, i.e. during their operation their position relative to the surrounding buildings changes. E.g. the transfer casks moves from the port cells in the Tokamak building to the Hot Cell building through the galleries and the lift, and then occupy different hot Cell locations in different operation phases. Also, during IRMS operation, at a given position relative to the building, their configuration may change because of the kinematics of the system. E.g. the In Vessel Transporter (IVT) or the Multi Purpose Deployer (MPD) systems' configuration changes in time during their deployment in the VV or in the Hot Cell Remote Handling Test Stand.

In order manage appropriately the design integration of the IRMS in the ITER project, we are currently developing a dedicated design methodology to build the configuration model that covers IRMS specificities. The scope is to draw guidelines for systematic review of features the IRMS configuration model shall have.

This paper describes the proposed features required to define accurately IRMS specificities and propose a methodology for implementation into ITER project. Its implementation into CMM and relevance to ITER project is discussed through typical examples where IRMS are operated in different ITER building areas. This first set of examples is used to assess the relevance of this methodology to help the IRMS design integration process.

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