Interface Definition and Integration in the Equatorial Port 01 of the ITER In-Port Radial Neutron Camera

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Abstract

The ITER Radial Neutron Camera is a diagnostic whose objective is measuring neutron emissivity and fusion power density through an array of detectors placed in collimating structures. The RNC is composed of two subsystems (In-Port RNC and Ex-Port RNC), located in the Equatorial Port 01 of the ITER tokamak. Although the measurements from the RNC are required for ITER D-T phase, its In-Port components must be ready to be installed in the Port Plug before the date foreseen for the closure of ITER cryostat. Consequently, the two subsystems will be delivered at different times.

At the current status of the design the In-Port RNC interfaces must be defined, if not fully specified, in order to allow for the subsystem integration in the Port Plug. A thorough assessment of the interfaces of the subsystem with all the diagnostics, plants and services in the port has been made, taking into account the concurrent development of the Equatorial Port 01 and the progress in the design of some of the subsystem components that may affect the identification of interfacing Plant Systems.

This paper deals with the process that led to definition of the internal and external interfaces of the In-Port RNC, highlighting the main issues and the solutions adopted to perform integration within the Equatorial Port Plug 01.

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