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日本が調達するITER プラズマ計測装置の詳細設計

Detailed Design of ITER Plasma Diagnostics Systems by Japanese Procurement

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In-vessel components of the MFC system is in the final design phase. Demonstration of installation and RT of welding for the feed-through is on-going. PDR of PA2 diagnostic systems, such as ETS, PoPola, IRTh and DIM, is schedule in 2015-2016. Preliminary design of PoPola is completed and its preliminary design review (PDR) is scheduled in this November.

1. Micro Fission Chamber (MFC)

In-vessel components of the MFC system, except MFC detector, were reviewed in the preliminary design review (PDR) and approved in the last year.

Since the feed-through forms the vacuum boundary, the feed-through must comply with the SIC (Safety Important Component). In the final design phase, manufacturability and installation of the feed-through and Radiographic Testing (RT) of the welding must be demonstrated. A mock-up of the feed-through and a dummy feed-out was made

Fig.1. RT of welding part of the Feedthrough

2. Detailed design of the PA2 Diagnostics

PDR of the diagnostic systems under the second procurement arrangement (PA2), such as the edge Thomson scattering measurement (ETS), Poloidal Polarimeter (PoPola), Infrared Thermography (IRTh) and Divertor Impurity Monitor (DIM) are scheduled in 2015 – 2016. The preliminary design of PoPola is completed and the PDR of PoPola is scheduled in this November. The design shows engineering sound design in the ITER environment and compliance with applicable codes and standards for ITER and several French orders related to nuclear facility, while the required accuracy of the measurement is satisfied (see Fig. 2). The preliminary design of ETS is being matured and the PDR is scheduled in the next February.

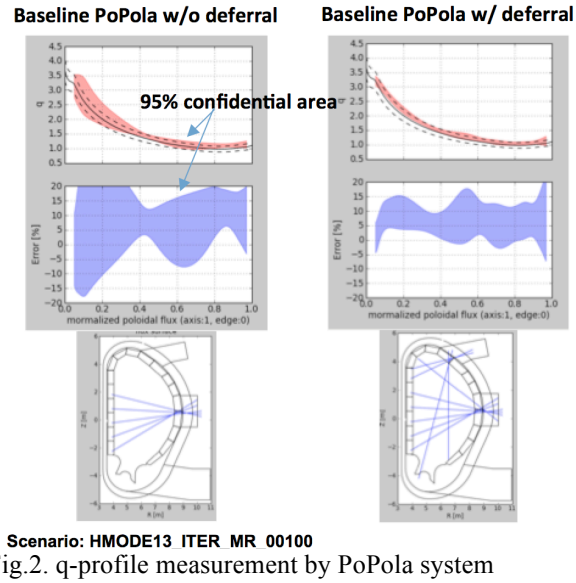

Fig.2. q-profile measurement by PoPola system