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Progress of the EU activities for the ITER Divertor Inner Vertical Target procurement

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F4E undertook the qualification of so-called "Additional Suppliers" in order to enhance competition among the potential bidders and secure the procurement of the ITER Divertor Inner Vertical Target.

In order to assess the performances of W armoured Plasma Facing Components under the conditions expected in the divertor target strike point region, a total of 36 W monoblock mock-ups were manufactured by ATMOSTAT (F) by Diffusion Bonding, and by CNIM (F) and Research Instruments GmbH (D) by brazing. 24 mock-ups were High Heat Flux (HHF) tested in IDTF (Efremov Institute Saint Petersburg, Russian Federation) electron beam test facility.

The HHF testing program foresaw the performance of 5000 cycles at 10 MW/m2 and 300+700 cycles at 20 MW/m2 with 10 s power on and 10 s dwell time. The coolant conditions were representative of the Inner Vertical Target ones and a swirl tape (twist ratio = 2) turbulence promoter was provided.

The test results showed some significant improvements, in particular the issues of W monoblocks macrocracking and heat sink thermo-mechanical fatigue performances, identified during previous HHF tests campaigns. Some critical heat flux experiments were also performed.

The main results will be presented and discussed in the paper.

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