

RESULTS OF THE CMM STAND ALONE TESTS AT DTP2

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A full scale physical test facility, DTP2 (Divertor Test Platform 2) has been established into Finland for demonstrating and refining the RH equipment designs for ITER using prototypes. The major objective of the DTP2 environment is the proof of concept studies of various RH devices. In practice this means verifying of requirements settled for hardware and software but also specifying of proofed methods and operating principles.

This paper focuses on presenting the test results of the Cassette Multifunctional Mover (CMM) stand alone tests, which is a part of F4E grant “DTP2 test facility operation and upgrade preparation”. CMM equipped with Second Cassette End Effector (SCEE) was the first RH equipment delivered to DTP2 October 2008. The main purpose of the tests was to prove, that CMM/SCEE prototype can be used successfully for 2nd cassette operations.

The paper presents successful and proved process for 2nd cassette operations. It specifies main phases of the processes, used methods to control joints (automatic/manual), utilized sensor information and typical cycle times for 2nd cassette operations.

Development of 2nd cassette operation processes was started from the factory floor level, where the operator can see the real environment all the time. However, at the same time several actions were done in order to bring the system into a condition, which enables successful execution of 2nd cassette operations remotely from the specific control room without visual communication to the real device. The paper will clarify actions and conditions, which are needed for successful remote operation.

CMM is meant to be multifunctional device, which can be used for not only for 2nd cassette operation but also for transporting all the other divertor cassettes (central, standard), CTM, diagnostic rack etc. During the CMM stand alone trials different kinds of measurements have been done by applying EN ISO 9283 in order to define CMM performance criteria. These results are essential, when procedures for future CMM operations are defined and relating mechanics is designed. The presented results include pose and path repeatability and absolute accuracy of CMM.