

TITLE

Overview of IFMIF EVEDA Test Facility Design

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PAPER

IFMIF (International Fusion Material Irradiation Facility) is an accelerator based intense neutron source for studying and qualifying structural and functional materials for DEMO and future fusion nuclear power plants. In the current EVEDA (Engineering Validation and Engineering Design Activities) phase, engineering design of the test facility (TF), one of the three key facilities of IFMIF, has been conducted under the European-Japanese “Broader Approach” framework. The TF includes the systems required to accommodate the Test Modules (TMs) at a controlled environment and conditions for irradiation as well as all the systems required for assembling and disassembling the TMs and the equipments for sending the irradiated specimens to post irradiation facility.

In the current IFMIF EVEDA TF design, the TF comprises a series of TMs, in which material specimens are installed, one Test Cell (TC), which accommodates all TMs and part of lithium target system for irradiation experiments, one access cell, where remote handling systems are installed to transport TMs and to perform maintenances in the TC, four test module handling cells for processing irradiated TMs and assembling TMs, and test facility ancillary systems, which provide media and power to other TF systems and receive/process signals.

In this paper, major functions and specifications of the TF and the above mentioned systems are outlined, the basic configuration of the TF is described, and the current status of the engineering design of key components is overviewed.