DEMONSTRATION OF TESTING RESULTS OF COOLING SHIRT OF DETECTORS OF the upper VERTICAL NEUTRON CAMERA

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The vertical neutron chamber for installation the ITER will consist of two parts, each of them will contain six detector chambers combined into hermetic diagnostic modules equipped with pumping and water cooling system. The upper VNC will be installed in the upper port (UP) № 18 and should be part of the DSM of this port.

To confirm the performance and identify the technological difficulties of design of the water cooling system of the detector block of the upper Vertical Neutron Camera, a model of the water cooling system and technological mockups of the VNC design elements were produced.

The presented report demonstrates the produced mock-up of the VNC cooling system, as well as the results of a series of tests carried out with the layout of the cooling system.

Over the past year, the design of the water cooling system of the detector module of the Upper Vertical Neutron Camera has been redesigned, the VNC 3D models, water cooling systems, neutron protection have been modified, and the electrical commutation of the detectors has been modernized.

The results of the tests can be used in the design of other diagnostics supplied to the ITER installation, as well as for large experimental thermonuclear installations such as tokamak.