ANALYSIS OF REQUIREMENTS TO DATA ACQUISITION AND CONTROL SYSTEMS IN ITER AS A BASIS FOR DESIGN A VIRTUAL PLATFORM [[1]](#footnote-1)\*)

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For the successful integration of the data acquisition and control systems of diagnostic and technological systems into the ITER central control system, a number of special design requirements must be observed. The main document governing development is the Plant Control Design Handbook. One part of the requirements is aimed at ensuring standardization and hardware integration of equipment into the central control system, and other part is responsible for compliance with the rules in software development. Carrying out detailed checks for compliance with the requirements of an international project is an important task for suppliers of technological and diagnostic systems.

The Virtual Digital Platform is a hardware and software complex created to simulate the central control system of the ITER facility and its network architecture. This platform will allow developing, testing and acceptance testing of diagnostic systems in accordance with the standards used in the ITER project. Unlike mini-CODAC (software emulation of the central control system with a mostly reduced functionality and offered by ITER), the Virtual Digital Platform will allow testing mechanisms for transmitting calculated plasma parameters, data archiving, error handling systems and electronic logs. During design of the Virtual Digital Platform, it is necessary to take into account all the requirements for diagnostic and technological systems, as well as for the ITER central control system. By making a rough estimate of the generated data streams, it is possible to estimate the required volumes of servers for storing and presenting information.

This article presents an analysis of the requirements for diagnostic data collection and control systems, on the basis of which the requirements for a virtual digital platform are formulated. Based on the platform requirements, a preliminary hardware and network configuration of the platform is proposed.

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1. \*) [abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/XLVIII/E/ru/ID-Zvonareva.docx) [↑](#footnote-ref-1)