virtual digital platform for testing and integration of data acquisition and control systems in iter [[1]](#footnote-1)\*)

DOI: 10.34854/ICPAF.2020.47.1.209

Portone S., Semenov O., Mironova E., Larionov A., Semenov I., Nagornyi N., Sorokin A., Lazareva S., Mironov A.

Institution «Project Center ITER», support@iterrf.ru

In nearest future, design stage of data acquisition and control systems will be finalized and production, shipmentand commissioning of supplying systems for ITER facility will begin. The task will be to conduct tests in order to verify the correct operation of the functions of the supplied systems. An important aspect is the ability to perform the most detailed checks of data acquisition and control systems at the factory site of suppliers and at Project Center ITER, in order to confirm compliance with the project requirements before shipment to the ITER Organization.

Virtual Digital Platform is a hardware-software complex created to simulate the core of central control system of the ITER and its network architecture. Such a platform will allow testing the operation of the commissioned systems using a variety of software services specific to the ITER project, will provide opportunities for debugging software units, and improve the readiness of the systems for integration to ITER. Despite of mini-CODAC (limited software emulation of the central control system), the Virtual Digital Platform will include a set of servers repeating such parts of the central system as the Central Archive, Channel Access gateway, CODAC services, operators’ terminals. In addition, the Virtual Digital Platform will repeat the networks of the central installation management system: Synchronous Data Network, Plant Operation Network, Data Archiving Network and Time Synchronization Network and all other aspects central control system.

To create a Virtual Digital Platform, it will be necessary to put together all the virtual services offered by the ITER International Organization, to work out and implement the hardware architecture of the platform, create software, and provide for the use of tools to simulate various signals and effects on diagnostic systems when connected to the Virtual Digital Platform.

The work was carried out within the framework of the state contract “Development, experimental production, testing, and delivery preparation for scientific equipment to secure commitment of Russian Federation to ITER project in 2019”, N 4A.241.19.19.1009 of 26 December 2018.

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