

# Data Acquisition Electronics with Timing for the IREN Test Facility

V.N. Zamrii

*Joint Institute for Nuclear Research, 141980, Dubna, Russia*

## **Abstract**

The construction of the electronics system intended for timed data acquisition and a control on the IREN test facility is offered. The full-scale test facility is developed to research performances of the designed equipment of the electron accelerator intended for the IREN source of intense resonance neutrons. The monitoring system of an electron beam and neutron multiplication target is checked also on the assembly IBR-30. The data clusters include parameters of short and powerful pulses and high-frequency signals, and of analog signals of both very high and of low level, under conditions of intensive interferences.

The available front-end electronics includes grouped together different analog-to-digital converters with storage devices. The modules of the system with timing for fast channels of the amplitude ADC and nanosecond TDC, and also for analogue noise-resistant channels are represented. The organizing of the system of the clocked measurings and storing of the data for the tasks of monitoring are considered at short duty cycles.

The possibilities of the programmed system of the data acquisition electronics are extended with the purpose to provide a feedback control and operating protection of the equipment duties. The schemes of data acquisition for the control and protection of the operation modes with possibility of the fast locking of the duty cycles are developed.