

About the EMC of Non-conventional Electronic Instrument Transformer. Case Study

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Abstract— The modernization of the control, monitoring, measurement and protection equipment from electric power grid has been for a long time a normal process which at present is much accelerated by the spreading of smart grid, sustained by the existence of the new generation of equipment, containing low signal, electronic modules/subassemblies, like the voltage and current non-conventional instrument transformers (NCIT), merging units or modern information transmission systems. Assurance of electromagnetic compatibility (EMC) and especially of the immunity of this inherently sensitive equipment in severe electromagnetic environment, specific to electric substations, is a very important requirement because it determines the compliant operation, under normal or failure duty, of the measurement, protection, monitoring a.s.o. functions. In this paper there are approached the EMC issues related to non-conventional instrument transformers by the presentation of EMC requirements provided in the specific standards in force and also in those ones under approval, followed by an analysis of the application difficulties (high sizes, voltages, currents) and a reporting of the sources of possible uncertainty regarding the test results. Further on, it is presented a case study referring to EMC tests for a 24 kV, 200 A electronic current transformer developed at ICMET Craiova.