

CIGRE Study Committee N° B5 – Protection & Automation

PROPOSAL FOR CREATION OF A NEW WORKING GROUP (WG)

WG* N° B5.24	Name of Convenor: Janez Zakonjsek, (RU)
Title of the Group: Protection Requirements on Transient Response of Voltage and Current Digital Acquisition Chain	
Scope, deliverables and proposed time schedule of the Group:	
Background: <p>The introduction of Station Bus within international station communication standard IEC 61850-9-2 makes possible use of different products (primary and secondary) from a number of different vendors to form digitized instantaneous value of a measured quantity (voltage and or current) intended for further processing in different protection, control and monitoring algorithms within different IEDs. Static accuracy of a complete measuring chain is well defined by different IEC and other standards while lack in definition of dynamic response represents a potential danger for required high availability of protection functions. It is supposed that transient response of conventional instrument transformers is well known and defined by existing international standards. For this reason, it is necessary to determine the minimum requirements on transient response of a complete signal processing chain, including first of all Merging Units and Non-conventional Instrument Transformers.</p>	
Scope:	
<ul style="list-style-type: none">➤ Study the transient response of different types of Non-conventional Instrument transformers (current as well as voltage) on different transients in primary power systems, generally recognized as important for dependable operation of different protection functions as well as for power quality measurement.➤ Study the transient response of different transducers intended for potential use in Merging Units. This includes between others also current and voltage input transformers (of conventional and non conventional design), passive and active filters used generally before A/D converters and the converters themselves.➤ Examine also the adequacy of proposals for further use in emerging protection technologies like protection functions based on traveling wave theory, and similar.➤ Propose on the basis of results obtained the minimum required transient accuracy of a complete conversion chain, which can be used as a basis for design of different protection, control and monitoring algorithms within IEDs. The final result should consider also the well-known transient response of conventional instrument transformers and should make possible comparison with performance of signal conditioning circuits within existing protective devices.	
References:	
<ul style="list-style-type: none">– International substation communication standard IEC 61850– IEC standards related to design and accuracy of conventional current and voltage instrument transformers, Related IEEE standards– Papers published in Journals and Conference Proceedings– Manufacturers published instructions and manuals	
Deliverables: Technical brochure with summary in Electra, and possibly report(s) to be published in Electra.	
Time Schedule: start: 2009	Final report: 2012
Comments from Chairmen of SCs concerned:	
Approval by Technical Committee Chairman: Klaus Fröhlich Date: 4/12/2008	