SMB/3687/R

STRATEGIC POLICY STATEMENT

IEC/TC or SC	Secretariat	Date
38	Italy	2008-01-29

Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

Title of TC
TC38: Instrument Transformers

A. Background

Scope
The scope is: “To prepare International Standards for instrument transformers.”

History
TC 38 was established in 1951. From the beginning the scope has been the preparation of International Standards for instrument transformers, both for metering and protection applications. Initially only current and inductive voltage transformers were covered. Capacitive voltage transformers were introduced into the standards later on. In the eighties a major technical work was performed to study, define and standardise the transient performance of current transformers for protection applications.
In 2001-2002 standards were produced for electronic current and voltage instrument transformers, including the standardisation of a Digital Communication Protocol.
More recently TC38 has started the issue of the new layout of Instrument Transformers Standards, including a General Requirements document and several Specific Requirements documents.

Structure
The production of the standards in TC 38 is based on the activities of a number of working groups, ad-hoc working groups, maintenance teams and task forces.
At the moment the following groups are active:

- MT30: Maintenance of 60044-1 & 60044-2
- WG32: Current transformers (new IEC 61869-2)
- WG33: Inductive voltage transformers (new IEC 61869-3)
- WG34: Combined Instrument transformers (new IEC 61869-4)
- WG35: Capacitive voltage transformers (new IEC 61869-5)
- WG37: Electronic voltage and current transformers
- WG/AHG38: Ferro-resonance in substations
- MT39: Maintenance of IEV Clause 321: Instrument transformers
- MT40: Maintenance of IEC 60044-6

Publications and Projects
The following IEC standards have been issued by TC 38:
- IEC 60044-1/2003, Ed. 1.2 Consolidated – Part 1: Current transformers;
- IEC 60044-2/2003, Ed. 1.2 Consolidated – Part 2: Inductive voltage transformers;
- IEC 60044-3/2002 – Part 3: Combined transformers;
- IEC 60044-5/2004 - Part 5: Capacitive Voltage Transformers;
- IEC 60044-6/1992 – Part 6: Requirements for protective current transformers for transient performance;
- IEC 60044-7/1999 – Part 7: Electronic voltage transformers;
- IEC 60044-8/2002 - Part 8: Electronic Current transformers
- IEC 61869-1/2007 – Instrument Transformers - Part 1: General Requirements

Work is under way to reorganize the standards, providing a general publication concerning the common clauses (future IEC 61869-1) as well as to revise all the product standards accordingly.

The subjects at which special attention is being paid are the following:
- Gas-insulated transformers, both for GIS and AIS;
- Extension of the accuracy performance at the lowest burden;

- Criteria for estimating the uncertainties that can affect the accuracy measurements;
- Requirements and tests concerning the risk of explosions;
- Cooperation with TC 13 on the measuring systems for energy.
- Updates of the protocol for digital communication.
- New technologies and low power sensors;

TC 38 also actively contributes to the work of Sector Board SB 1 on HV substation equipment to specify HV substations for utilities, to standardise transmission and distribution equipment, to integrate components, to define common clauses and voltage limits, and to harmonize the TC/SC work.

Participation and Liaisons
The composition of TC38 is presently as follows:

Participating Countries (28): Australia, Austria, Belgium, Canada, China, Croatia, Czech Republic, Denmark, Egypt, Finland, France, Germany, India, Italy, Japan, Netherlands, Poland, Romania, Russian Federation, Serbia and Montenegro, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States of America.
Observer Countries (14): Brazil, Bulgaria, Hungary, Indonesia, Ireland, Israel, Korea (Republic of), Malaysia, New Zealand, Norway, Portugal, Singapore, Slovakia, Slovenia.

The following liaisons are active :
- IEC TC 10 (Mr. Jeanjean – FR)
- IEC SC 17/C (Mr. P.A. Monfils – BE)
- Type A:BIPM
- Type A:CIGRE/ SC 34
- Type A:OIML/TC 5

B. Environment

B.1 Business environment

Instrument transformers are essential items in the operation, monitoring and protection of generating plants, transmission and distribution systems. Instrument Transformers, which are covered by International Standards issued by TC38, are widely used at all voltage levels, ranging from low voltage up to 760 kV EHV substations.

The importance of the standards produced by TC 38 is due to the fact that control, protection and measuring systems are supplied through instrument transformers.

B.2 Market demand

Market
The main market and application of TC 38 standards is in the **system integration** of instrument transformers, circuit breakers, metering and protection relays. These are used by manufacturers and users in conjunction with other standards from other IEC Technical Committees.

IEC standards for Instrument Transformers are widely used throughout the world. There is only one important country were different standards are used - the U.S.A. and countries directly influenced by the U.S.A., where IEEE standards are applied. Harmonisation with the US standards is therefore aimed.

Users of TC 38 standards
TC 38 standards are used by utilities and contractors for the specification of new installations (e.g. substations and power plants) as well as renewal or overhaul of old plant and equipment. Manufacturers of Instrument Transformers also use TC 38 standards. The specifications and performances of various kinds of relays, meters and controls are also based on TC 38 standards.

Participation in TC 38 work
The Technical Committee in developing the range of standards relies mainly on its working groups. Participation in these WGs is mainly by members coming from manufacturers of Instrument Transformers and, to a lesser degree, from utility companies. A larger representation from manufacturers of relays and meters would be desirable.

B.3 Trends in technology and trade

After decades of the manufacture and use of inductive instrument transformers and capacitive voltage transformers, TC 38 now has to consider new technologies, electronic and optical systems which are under development.

As with the development of Capacitive Voltage Transformers (CVTs), the introduction in the market place of new products results in new manufacturers with cheaper products. Now the market is facing a similar situation with the new technologies of gas-insulated transformers, electronic transformers, low-burden transformers and digital communication.
The advent of new manufacturers and new products is welcomed by the deregulated market because of the associated cost reduction.
This creates a need for clear standardisation to avoid loss of quality of service and incompatibility between equipments from different manufacturers.

The application of recently developed horizontal Standards is also needed, such as EMC Standards and Safety Standards.

B.4 Ecological environment

Ecological issues are not generally a major concern, since the lifetime of equipment is very long and, in addition, all the materials used are recyclable or environmentally friendly.

However, some problems would be faced concerning:
- Disposal of oil, SF6 and other organic materials;

Risk of explosion when fire occurs inside the instrument transformers.

C. Work programme

C.1 Current work

C.2 Resources/infrastructure needed

Meetings are held approximately every two years ; 1995: Helsinki, 1997: Perth, 1999: Milan, 2001: Shenyang, 2003: Montreal, 2005: Opatija, 2007: Paris.
Although there are currently 28 P-member countries, it is not always easy to find a host for the TC meeting.

All CDV and FDIS documents are currently circulated as bilingual versions due to strong support by France within the Technical Committee.

C.3 Safety aspects (only for committees which do not have a reference to safety in their scope)

D. Future work

- Equipment including diagnostic functions;
- Safety of equipment and environmental damage in case of internal failure;
- Electromagnetic compatibility in the field of instrument transformers;
- Improvement of the requirements of instrument transformers in view of the evolution of the market.

E. Maintenance cycle

Publication no.	Date of publication	Review date	Maintenance result date	Responsibility (Maintenance Team)
60044-1, Ed.1.2,	2003	2006	2009	MT30,WG32
60044-2, Ed.1.2.	2003	2006	2009	MT30, WG33
60044-3, Ed.2	2002	2006	2009	MT30, WG34
60044-5, Ed.1	2004	2006	2009	WG35
60044-6, Ed.1	1992	2006	2009	MT40
60044-7, Ed.1	1999	2006	2009	WG37
60044-8, Ed.1	2002	2006	2009	WG37
61869-1, Ed.1	2007	2009	2011	n/a yet

Name or signature of the secretary

F. Frugoni (Italy)