



IEC/TC or SC TC 42	Secretariat Canada	Date December 2012
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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
High-voltage and high-current test techniques

A Background

IEC TC 42 was established in July 1955 in London. TC 42 is responsible for dealing with high-voltage testing techniques and to prepare international standards for different types of tests belonging thereto such as high-voltage a.c., d.c. and impulse tests and high-current tests.

The adaptation of TC42 Standards to UHV test-requirements is already under way. Improved and novel methods to detect the possibility of electrical failure are considered in TC42 working groups. The use of fast digital recorders and the associated software is well advanced.

International collaboration between the developed and developing countries is at the heart of the Technical Committees.

B Business Environment

B.1 General

We are at an exciting time with electricity being transmitted at higher and higher voltages(>1MV). At the same time older plant is being utilised for longer and at higher ratings.

The business environment is characterized by:

- a mature high-voltage and high-current business,
- the development of in-service testing techniques,
- requirements for the standardization of digital techniques,
- harmonization of standards with those of other standard writing organizations,
- development of standards related to testing at UHV

B.2 Market demand

The standards prepared by TC 42 are used by high-voltage apparatus manufacturers, high-voltage and high-current test equipment manufacturers and testing and calibration laboratories and their clients. They are also used by low-voltage apparatus manufacturers and other users who require high voltage tests.

The market demand is increasingly driven by renewable energy and the continued development of UHV. New and revised standards in these areas as well as standards to cover testing in the field are required.

B.3 Trends in technology

The trends in technology are characterized by:

- the application of digital techniques and the development of automated test equipment,
- better quality control and simplification of tests and standards without reducing effectiveness,
- increased use of UHV transmission (both AC and DC voltages)
- increased use of DC transmission.
- introduction of new technologies in testing and calibration laboratories

B.4 Market trends

The market trend driven by renewable energy utilisation and efficiency demands has lead to better use of UHV and high current techniques requiring the further standardization of more sophisticated measurement and analysis techniques. These require the increased application of digital technologies.

B.5 Ecological environment

Good measurement standards ensure that equipment design meets environmental and energy efficiency requirements. TC42 will continue to produce standards for testing and development that will ensure better, safer and more economical transmission of electrical energy.

C System approach aspects

TC 42 is a horizontal committee whose standards are used by other committees. TC 42 is active in establishing liaisons with these committees cooperates with these committees to insure the standards meet their needs.

TC 42 has established liaisons with:

- IEC TC 14 Power Transformers
- IEC TC 28 Insulation coordination
- IEC TC 36 Insulators
- IEC TC 37 Surge Arresters
- IEC TC 109 Insulation co-ordination for low-voltage equipment
- IEC TC 112 Evaluation and qualification of electrical insulating materials and systems
- IEC TC 115 High Voltage Direct Current (HVDC transmission for DC voltages above 100 kV
- CIGRE/SC D1 Materials and emerging test techniques

D Objectives and strategies (3 to 5 years)

1. Work will continue on the updating of TC 42 standards.
2. Following the demands of renewable energy the objective is that the standards have to specify the requirements for UHV transmission equipment.
3. Following the change of technologies in the digital instruments area the objective is to provide complete requirements for digital instruments and their software.
4. Partial discharge standards will be reviewed to accommodate digital instrumentation and acoustic and higher frequency electromagnetic detection.
5. Development of atmospheric correction factors which will be used by other technical committees

E Action plan

1. Review the existing standards for the need of updating at the annual meeting.
2. Hold a technical committee meeting once a year with review and report of all workings groups, maintenance teams and liaisons.
3. Arrange for maintenance teams and working groups to meet at the TC meeting location prior to the TC 42 meeting.
4. Issue documents as required for the operation of TC 42.
5. Preparation of a document on "Adaptation of TC 42 standards to UHV test requirements" will continue with the expectation that the draft CD will be ready in December of 2012 and will be circulated as a CD to the National Committees for their comments at the end of January of 2013 .
6. The work on a new standard on "Requirements for software for tests with alternating and direct voltages and currents" will continue with the expectation that the document will be available as a CD by the end of April of 2013.
7. Preparation of a standard "Requirements for Instruments for tests with alternating and direct voltages and currents" will continue with an expected completion date of August 2014.
8. JWG 22 has been established with the goal of reviewing atmospheric corrections and proposing modifications to the atmospheric corrections and altitude corrections in the existing standards, has been established with its first meeting being held in September of 2012. The group is working in close cooperation with CIGRE WG D1.50.

F Useful links to IEC web site

[TC 42 dashboard](#) giving access to Membership, TC/SC Officers, Scope, Liaisons, WG/MT/PT structure, Publications issued along with their Stability Dates, Work Programme and similar information for SCs, if any.

Name or signature of the secretary

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