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STATION SERVICE VOLTAGE TRANSFORMERS (SSVT)

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It is published as an IEC/IEEE dual logo standard.

The text of this International Standard is based on the following IEC documents:

Draft	Report on voting
38/788/FDIS	38/789/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with the rules given in the ISO/IEC Directives, Part 2, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications/.

The IEC Technical Committee and IEEE Technical Committee have decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

STATION SERVICE VOLTAGE TRANSFORMERS (SSVT)

1 Scope

This document describes electrical and mechanical requirements of single-phase station service voltage transformers with system voltages of 46 kV or higher and with the maximum rated voltage of the power winding of 1 000 V.

This document is a basis for the establishment of performance and limited electrical and mechanical interchangeability requirements of the equipment are described. It is also a basis for assistance in the proper selection of such equipment.

A station service voltage transformer (SSVT) is a single-phase transformer to be connected line-to-earth on an effectively earthed system. It can be used either as an individual unit for supplying single-phase loads, or in a three-phase bank to support three-phase loads. A typical application is to supply substation power such as lighting, pump and motor loads. The SSVT can be provided with a measuring winding when requested by the user.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60060-1:2010, *High-voltage testing techniques – Part 1: General definitions and test requirements*

IEC 60060-2, *High-voltage testing techniques – Part 2: Measuring systems*

IEC 60071-2:2023, *Insulation co-ordination – Part 2: Application guidelines*

IEC 60076-1:2011, *Power transformers – Part 1: General*

IEC 60076-5, *Power transformers – Part 5: Ability to withstand short circuit*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*

IEC 60376, *Specification of technical grade sulphur hexafluoride (SF_6) and complementary gases to be used in its mixtures for use in electrical equipment*

IEC 60475, *Method of sampling insulating liquids*

IEC 60480, *Specifications for the re-use of sulphur hexafluoride (SF_6) and its mixtures in electrical equipment*

IEC 60567, *Oil-filled electrical equipment – Sampling of free gases and analysis of free and dissolved gases in mineral oils and other insulating liquids – Guidance*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60867, *Insulating liquids – Specifications for unused liquids based on synthetic aromatic hydrocarbons*

IEC 60836, *Specifications for used silicon insulating liquids for electrotechnical purposes*

IEC 60944, *Guide for the maintenance of silicon transformer liquids*

IEC 61099, *Insulating liquids – Specifications for unused synthetic organic esters for electrical purposes*

IEC 61869-1:2023, *Instrument transformers – Part 1: General requirements*

IEC 61869-3:2011, *Instrument transformers – Part 3: Additional requirements for inductive voltage transformers*

IEC 61869-99:2022, *Instrument transformers – Part 99: Glossary*

IEC 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK Code)*

IEC 62770, *Fluids for electrotechnical applications – Unused natural esters for transformers and similar electrical equipment*

ASTM D2225, *Standard Test Methods for Silicone Liquids Used for Electrical Insulation*

ASTM D3487, *Standard Specification for Mineral Insulating Oil Used in Electrical Apparatus*

ASTM D5222, *Standard Specification for High Fire-Point Mineral Electrical Insulating Oils*

ASTM D6871, *Standard Specification for Natural (Vegetable Oil) Ester Fluids Used in Electrical Apparatus*

CISPR TR 18-2:2017, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 2: Methods of measurement and procedure for determining limits*

IEEE Std 4™-2013, *High-Voltage Testing Techniques*

IEEE Std C57.12.70™, *IEEE Standard Terminal Markings and Connections for Distribution and Power Transformers*

IEEE Std C57.12.80™-2010, *IEEE Standard Terminology for Power and Distribution Transformers*

IEEE Std C57.12.90™-2015, *IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers*

IEEE Std C57.13™-2016, *IEEE Standard for Requirements for Instrument Transformers*

IEEE Std C57.13.5™, *IEEE Standard of Performance and Test Requirements for Instrument Transformers of a Nominal System Voltage of 115 kV and Above*

IEEE Std C57.19.100™, *IEEE Guide for Application of Power Apparatus Bushings*

IEEE Std 693™, *IEEE Recommended Practice for Seismic Design of Substations*

NEMA 107-2016, *Methods of measurement of radio influence voltage (RIV) of high-voltage apparatus*

NEMA 250, *Enclosures for Electrical Equipment (1000 Volts Maximum)*