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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Technical specification of DC voltage transformer
(English Translation)**

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Foreword

This standard is compiled in accordance with GB/T 1.1-2009 "Guidelines for Standardization Part 1: Standard Structure and Compilation".

This standard was proposed by the China Electricity Council.

This standard is under the jurisdiction of the Power Transformer Standardization Committee (DL/T C 02) of the power industry.

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1 Scope

This standard specifies the terms and definitions, use conditions, technical requirements, structure and selection requirements, tests, markings, Use period, packaging, transportation and storage, etc.

This standard applies to the ordering, handover, acceptance, and transportation of DC voltage transformers for DC transmission systems with voltage levels of $\pm 1100\text{kV}$ and below.

Line and maintenance.

2 Normative references

The following documents are indispensable for the application of this standard. For dated reference documents, only the dated version applies to this standard quasi. For undated reference documents, the latest version (including all amendments) is applicable to this standard.

GB 311.1 Insulation coordination Part 1: Definitions, principles and rules GB/T 2900.94-2015 Electrical terminology transformer GB/T 4798.3 Environmental conditions for the application of electrical and electronic products Part 3: Stationary use in places with climate protection GB/T 4798.4 Environmental conditions for the application of electrical and electronic products Part 4: Stationary use in non-climate protected places GB/T 4824 Industrial science and medical (ISM) radio frequency equipment electromagnetic disturbance characteristic measurement method and limit GB/T 13540 Seismic requirements for high-voltage switchgear and control equipment GB/T 16927.2-2013 High Voltage Test Technology Part 2: Measurement System GB/T 17626.2 Electromagnetic compatibility test and measurement technology Electrostatic discharge immunity test GB/T 17626.3 Electromagnetic compatibility test and measurement technology Radio frequency electromagnetic field radiation immunity test GB/T 17626.4 Electromagnetic compatibility test and measurement technology Electrical fast transient pulse group immunity test GB/T 17626.5 Electromagnetic compatibility test and measurement technology surge (impact) immunity test GB/T 17626.8 Electromagnetic compatibility test and measurement technology Power frequency magnetic field immunity test GB/T 17626.9 Electromagnetic compatibility test and measurement technology Pulse magnetic field immunity test GB/T 17626.10 Electromagnetic compatibility test and measurement technology Damped oscillation magnetic field immunity test GB/T 17626.11 Electromagnetic compatibility test and measurement technology Voltage sag, short-term interruption and voltage change immunity test GB/T 17626.12 Electromagnetic compatibility test and measurement technology Ring wave immunity test GB/T 17626.13 Electromagnetic compatibility test and measurement technology AC power port harmonics, interharmonic waves and low frequency immunity test of power grid signals GB/T 17626.29 Electromagnetic compatibility test and measurement technology DC power input port voltage sag, short-term interruption and voltage change resistance Disturbance test GB 20840.1 Transformer Part 1: General technical requirements GB/T 20840.7 Transformer Part 7: Electronic Voltage Transformer GB/T 20840.8-2007 Transformer Part 8: Electronic Current Transformer GB/T 21429 Outdoor and indoor hollow composite insulators definition, test methods, acceptance criteria and design recommendations GB/T 26217-2010 DC voltage measuring device for high voltage DC transmission system GB/T 26218.1 Selection and size determination of high-voltage insulators used under dirty conditions Part 1: Definitions, information and general principles GB 50260 Code for seismic design of power facilities

3 Terms and definitions

GB/T 26217, GB 20840.1, GB 20840.7, GB 20840.8, GB/T 16927.2 and GB/T 2900.94 and the following the listed terms and definitions apply to this document. For ease of use, some terms are repeated below.

DC transformer

Transformers used to transmit relevant information in the DC system to measuring instruments, meters, and protection or measurement and control devices.

[GB/T 2900.94-2015, definition 2.6] 3.2 DC voltage transformer A DC transformer whose secondary voltage is substantially proportional to the primary voltage under normal use conditions. It consists of a DC voltage divider, a converter and Transmission system and other parts.

DC divider

A DC voltage conversion device composed of a high-voltage arm and a low-voltage arm. The DC input voltage is applied to the entire device, while the DC output voltage is taken Since the low pressure arm.

[GB/T 26217-2010, definition 3.1] 3.4 Converter A device that converts the signal from the DC voltage divider into a signal suitable for the transmission system (primary converter), or the transmission system the transmitted signal is converted into the quantity (secondary converter) supplied to measuring instruments, meters and control and protection devices.

[GB/T 26217-2010, definition 3.13] 3.4 Rated primary voltage the primary voltage value used as a benchmark for voltage transformer performance.

[GB/T 2900.94-2015, definition 4.8] 3.5 Maximum continuous voltage of equipment the highest DC voltage that the equipment can withstand for long-term operation.

Step response

When the input is a step wave signal, the relationship between the output of the system and time is shown in Figure 1.

Note 1: Rewrite GB/T 16927.2-2013, definition 3.5.3

Figure 1 Step response

Step response time (T_{sr}) step response time when the input has a step change, the output reaches the specified percentage of the difference between the final steady-state value and the initial steady-state value from the initial value for the first time time.

Settling time (T_s) settling time the minimum time required for the deviation between the output and the steady-state value to reach and remain within the specified allowable range ($\pm 5\%$).