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Replacing GB/T 10411-2005

DC electric traction systems of urban rail transit

城市轨道交通直流牵引供电系统

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes GB/T 10411-2005 "DC Traction Power Supply System for Urban Rail Transit" and is consistent with GB/T 10411-2005. Aside from structural adjustments and editorial

changes, the main technical changes are as follows:

- a) The scope of application has been changed to include monorail systems (straddle-type and suspended types) and medium- and low-speed maglev systems powered by DC traction. Power supply systems for urban rail transit, such as automated guided track systems and trams (see Chapter 1, Chapter 1 of the.2005 edition);
- b) Terms and definitions have been changed (see Chapter 3, Chapter 3 of the.2005 edition);
- c) General requirements have been added (see Chapter 4);
- d) The application scope of Level 1 load has been changed (see 5.1.3, 4.3 in the.2005 version);
- e) An external power supply is required (see 5.2);
- f) The requirements for the distribution of traction substations have been changed (see 6.1, 5.2 of the.2005 edition);
- g) The capacity requirements for traction substation equipment have been changed (see 6.2, 5.1 of the.2005 edition);
- h) The power supply efficiency of the traction substation has been changed (see 6.4.4, 5.5.4 in the.2005 version);

1 Scope

GB/T 10411-2025 is the Chinese national standard on dc electric traction systems of urban rail transit, in the field of electrical engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 31 October 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2026. Classification: ICS 29.280, CCS S 80. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the general requirements, power supply methods, and external power supply for urban rail transit DC traction power supply systems (hereinafter referred to as "the System"). Main performance indicators and equipment operation of power source, traction substation, cables, contact network, return current, system grounding and

overvoltage protection, and power monitoring system characteristic. This document applies to DC traction power supply systems for urban rail transit.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 2900.36 Electrical Engineering Terminology - Electric Traction

GB/T 14549 Power Quality - Harmonics in Public Power Grids GB/T (Z)17626 (all parts) Electromagnetic compatibility testing and measurement techniques

GB 17799 (all parts) General Standard for Electromagnetic Compatibility

GB/T 24338 (all parts) Electromagnetic compatibility of rail transit

GB/T 25890 (all parts) DC switchgear for ground installations in rail transit

GB/T 28026.2 Electrical safety, grounding and return current of ground installations for rail transit - Part 2: DC traction power supply systems Protective measures against dissipated current

GB/T 36572 Guidelines for Network Security Protection of Power Monitoring Systems

GB/T 50062 Design Code for Relay Protection and Automatic Devices of Power Installations

GB/T 50064 Code for Design of Overvoltage Protection and Insulation Coordination of AC Electrical Installations

GB/T 50065 Grounding Design Code for AC Electrical Installations

GB 50157 Metro Design Code

GB 55033 Standard for Urban Rail Transit Engineering Projects CJJ/T

49 Technical Standard for Stray Current Corrosion Protection in Subways

3 Terms and Definitions

The terms and definitions defined in GB/T 2900.36 and the following terms and definitions apply to this document.

3.1 nominal voltage U_n The voltage selected for system design.

Note. In this document, "system" refers to a combination of wires (circuits) and equipment

connected to operate under a common nominal voltage. [Source: GB/T 1402-2010, 3.3]

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