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

GB/T 34571-2024

Replacing GB/T 34571-2017

**Railway applications - Rules for installation of cabling on rolling
stock**

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 34571-2017 "Railway Locomotive and Rolling Stock Wiring Rules". Compared with GB/T 34571-2017, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope has been changed, the scope of non-application of the standard has been supplemented, and the types of cables have been clarified (see Chapter 1, Chapter 1 of the 2017 edition);
- b) Added terms and definitions such as conductor and insulated core (see 3.1.2 to 3.1.5, 3.1.9, 3.1.13, 3.1.14, 3.1.16);
- c) Changed the relevant definitions of symbols (see 3.2.1, Chapter 4 of the 2017 edition);
- d) Added abbreviations (see 3.2.2);
- e) The general working conditions of wiring have been deleted (see Chapter 5 of the 2017 edition);
- f) Changed the requirements for environmental conditions and added requirements for connectors (see 4.1, 6.1 of the 2017 edition);
- g) The general requirements for cable selection have been changed (see 4.2.1, 6.2.1 of the 2017 edition);
- h) Changed the cable selection instructions for applications with higher thermal life requirements (see 4.2.2, 6.2.2 of the 2017 edition);
- i) Changed the selection of distribution cable size based on load current (see 4.2.3, 6.2.3 of the 2017 edition);
- j) Added requirements for motor cables (4.2.5, 6.5 of the 2017 edition);
- k) Changed the requirements for the selection of protective earthing cables (see 4.2.6, 6.2.6 of the 2017 edition);
- l) Added the cable selection instructions for short-time current cables (less than 5s) (see 4.2.7);
- m) The requirements for bundled cables have been changed (see 4.3, 6.4 of the 2017 edition);
- n) Changed the cable flexibility requirements (see 4.4, 6.5 of the 2017 edition);
- o) The grounding cable color requirements have been changed (see 4.6, 6.6 of the 2017

edition);

p) Changed the cable bending radius and other mechanical requirements (see 4.7, 6.7 of the 2017 edition);

q) Changed the requirements for connector plug termination (see 4.8, 6.8 of the 2017 edition);

r) Added busbar requirements (see 4.9);

s) Changed the cable safety isolation requirements and deleted the cable classification table based on safety isolation (see 4.11, 6.10 of the 2017 edition);

t) The inspection and maintenance requirements have been changed (see 4.12, 6.17 of the 2017 edition);

u) Changed the protection requirements for cables and cable laying materials, added cable transmittance, cable ITC (weighted toxicity index), cable Corresponding indicators and requirements for halogen content (see 4.13, 6.18 of the 2017 edition);

v) Changed the requirements for control backup lines and added backup provisions for auxiliary distribution cables (see 4.14, 6.11 of the 2017 edition);

w) The requirements for cable fixing and installation and the fire protection requirements for cable ties have been changed (see 4.15, 6.12 of the 2017 edition);

x) Changed the electrical termination requirements, added the termination mechanical test and electrical test related requirements (see 4.17, 6.13 of the 2017 edition);

y) Changed the requirements for heat shrink tubing used in fire resistance conditions (see 4.18, 6.14 of the 2017 edition);

z) Changed the return connection requirements (see 4.19, 6.16 of the 2017 edition);

aa) Added cable storage requirements (see 4.20);

bb) Added cable conduit requirements (see 4.21);

cc) Changed the electrical bolt connection requirements (see 4.22, 6.15 of the 2017 edition);

dd) Added other requirements for bus wiring (see 4.23);

ee) Changed the relevant requirements for EMC limits after wiring (see 5.1, 7.1 of the 2017 edition);

ff) Changed the EMC cable classification and supplementary instructions (see 5.2, 7.2 of the 2017 edition);

gg) Added relevant requirements for return wiring (see 5.4);

- hh) Shielding and grounding have been changed (see 5.6, 7.5 of the 2017 edition);
- i) Changed the cable and bus identification (see 6.2, 8.2 of the 2017 edition);
- j) Added electrical insulation test, and added requirements for withstand voltage and insulation test of electric passenger car wiring (see 7.2);
- kk) Appendices F, H and P were modified (see Appendices F, H and P, and Appendices C, E and L of the 2017 edition);
- l) Added busbar connection resistance inspection, other requirements for bus wiring, and connector and cable connection test (see Appendix L~Appendix Record N);
- mm) The passenger vehicle line number marking has been deleted (see Appendix K of the 2017 edition).

This document is modified to adopt IEC 62995:2018 "Rules for wiring of rail vehicles".

Compared with IEC 62995:2018, this document has more structural adjustments. The structural number changes between the two documents are shown in the table below.

See Appendix A.

This document has many technical differences compared to IEC 62995:2018.

A list of these technical differences and their reasons is given in Appendix B.

The following editorial changes were made to this document.

- In order to coordinate with the existing standards, the name of the standard is changed to "Railway Transportation Locomotive and Vehicle Wiring Rules";
- Added Appendix A (informative) "Structure number comparison list";
- Added Appendix B (informative) "List of technical differences and their causes";
- Added notes in "Cable safety isolation requirements", "Use of heat shrink tubing" and "Shielding and grounding" (see 4.11, 4.18, 5.6);
- Deleted 4.2.1, 4.2.3, Table 2, 4.2.7, 4.4, 4.7, 4.11, Figure 7, 4.12, 4.13, 4.15, 4.17.3, 4.18, 4.21, 4.22, 5.8, 6.2, 6.6, Appendix A, and the "Notes" in Appendix B;
- Deleted "Example" in 4.2.7 of IEC 62995:2018.

1 Scope

This document specifies the technical requirements for cable wiring of rail transit rolling stock and electrical cabinets installed on rolling stock, based on Cabling, marking and cabling inspection for EMC categories.

This document applies to the electrical equipment (including cables, busbars, terminal