



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

GB/T 25119-2021

**Railway applications - Electronic equipment used on rolling
stock**

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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 of Standardization Documents"

drafted:

This document replaces GB/T 25119-2010 "Electronic Devices for Rail Transit Locomotives", compared with GB/T 25119-2010, except

In addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) Changed the scope: added electronic devices suitable for diagnostic functions, deleted inapplicable content and added residual risk

related content (see Chapter 1, Chapter 1 of the:2010 edition);

b) Changed terms and definitions (see 3:3, 3:9, 3:11, 3:12, 3:14, 3:15 and 3:16, 3:3, 3:9, 3:11, 3:12,

3:14, 3:15 and 3:16);

c) Changed the environmental conditions: the ambient temperature is divided into T1~TX grades, the humidity is divided into annual average relative humidity and 30d relative humidity

Humidity, removed installation conditions and added requirements for air pollution (see Chapter 4, Chapter 4 of the:2010 edition);

d) Changed the requirements for the selection of nominal voltage levels for battery power supply (see 5:1:1:1, 5:1:1 of the:2010 edition);

e) Changed the structure and technical content of Table 2 (see 5:1:1:2, 5:1:1:1 of the:2010 edition);

f) Changed surge and electrostatic discharge requirements: added electrical fast transient burst immunity requirements and removed surge levels (see

5:4, 5:4 of the:2010 edition);

- g) Changed the service life, and changed the service life from 20 years to be determined through negotiation between the supply and demand sides (see 6:2, 6:2 of the:2010 edition);
- h) Changed on-board diagnostic requirements: changed to on-board diagnostic and repair requirements, that is, online replaceable units do not need to be removed for repair or diagnosis
or replace any part in the in-line replaceable unit (see 6:4:1, 6:4:1 of the:2010 edition);
- i) Changed the requirements for component selection (see 8:1:6, 8:1:6 of the:2010 edition);
- j) Changed the hardware and software documentation requirements (see 11:3, 11:2 of the:2010 edition);
- k) Changed the names of test items 6, 7 and 8 in Table 3 (see 12:2:1, 12:2 of the:2010 edition);
- l) Change the low temperature test method: select the temperature value according to Table 1, and change the holding time from 2h to not less than 2h (see 12:2:4, :2010 edition 12:2:3);
- m) The high-temperature test method is changed: select the temperature value according to Table 1, and the over-temperature test is modified for the product installed in the cabinet or chassis:
(see 12:2:5, 12:2:4 of the:2010 edition);
- n) The intermediate detection conditions of the alternating damp heat test are added (see 12:2:6);
- o) Changed the table of Figure 5 for power supply overvoltage: removed the requirements of 1:3Un and power supply, and modified the maximum value of time D to the minimum value, removed Figure 3 (see 12:2:7, 12:2:6:1 of the:2010 edition);
- p) The specific provisions of surge, electrostatic discharge, electrical fast transient burst immunity test and radio frequency test have been changed:
GB/T 24338:4-2018 stipulates implementation (see 12:2:8, 12:2:9, 12:2:6:2, 12:2:6:3, 12:2:6:4, :2010 edition 12:2:6:5, 12:2:7, 12:2:8);
- q) The stipulation of "The insulation test has been done in the factory inspection, it should not be repeated in the type inspection" of the insulation test requirements is deleted:
The provisions contradict Table 3 (see 12:2:9 of the:2010 edition);
- r) The requirements for shock and vibration tests have been changed: the specific

provisions of shock and vibration tests have been deleted, and the implementation shall be carried out in accordance with the provisions of GB/T 21563

(see 12:2:12, 12:2:11 of the:2010 edition);

s) Changed the water tightness test to the enclosure protection level test (IP code) (see 12:2:13, 12:2:12 of the:2010 edition);

t) Changed the content of the loading and running test to Appendix B (see Appendix B, 12:2:15 of the:2010 edition):

This document uses the redrafting method to modify and adopt IEC 60571:2012 "Electronic Devices of Rail Transit Locomotive Vehicles":

Compared with IEC 60571:2012, this document has made the following structural adjustments:

--- Deleted 10:2 of IEC 60571:2012;

---10:2 corresponds to 10:3 of IEC 60571:2012;

---10:3 corresponds to 10:4 of IEC 60571:2012;

--- Added Chapter 13;

--- Added Appendix B:

There are many technical differences between this document and IEC 60571:2012:

A single line (I) is marked: These technical differences and their reasons are as follows:

--- Changed the scope of application, and added the power supply mode of the electronic device and generator suitable for the diagnostic function: The following text has the diagnostic function:

At the same time, my country's diesel locomotives are powered by generators, so they need to be supplemented (see Chapter 1):

--- Regarding normative reference documents, this document has made adjustments with technical differences to adapt to the technical conditions of our country and the circumstances of the adjustment:

The situation is reflected in Chapter 2 "Normative References", and the specific adjustments are as follows:

* Replace IEC 60850 (see 5:1:4) with GB/T 1402 modified to adopt international standards:

* Replace IEC 60068-2-1 (see 12:2) with GB/T 2423:1 which is equivalent to the international standard:

* Replace IEC 60068-2-2 (see 12:2) with GB/T 2423:2 which is equivalent to the

international standard:

- * Replace IEC 60068-2-30 (see 12:2) with GB/T 2423:4 which is equivalent to the international standard:
- * Replace IEC 60529 (see 9:9) with GB/T 4208 which is equivalent to the international standard:
- * Replace IEC 61082 (all parts) with GB/T 6988:1 which is equivalent to adopting international standards (see 11:4:5):
- * Replace IEC 62236-3-2:2008 (see 5:4, 5:5 and 12:2) with GB/T 24338:4-2018 modified to adopt international standards:
- * Replace IEC 60352-2 (see 9:3:3) with GB/T 18290:2 which is equivalent to the international standard:
- * Replace ISO 9001 with GB/T 19001 which is equivalent to adopting international standards (see 7:1:1, 7:3:1, 8:1:2 and 11:1):
- * Replace IEC 60297 (see 9:1:4) with GB/T 19520:12 which is equivalent to the international standard:
- * Replace IEC 61373 (see 4:1:3, 12:2:12) with GB/T 21563 modified to adopt international standards:
- * Replace IEC 62498-1:2010 (see 4:1:1, 4:1:4) with GB/T 32347:1-2015, which has been modified to adopt international standards:
- * Added normative reference document TB/T 3213 (see 4:1:1):
- * Added normative reference document GB/T 21413:1 (see 5:1:1:1):
- * Deleted normative reference IEC 61124 (see 6:1:2):
- * Use GB/T 4728 (all parts) instead of IEC 60617 (see 11:4), the degree of consistency between the parts of the two standards

as follows:

- * GB/T 4728:1-2018 Graphical Symbols for Electrical Diagrams Part 1: General Requirements (IEC 60617database, IDT);
 - * GB/T 4728:2-2018 Graphical Symbols for Electrical Diagrams Part 2: Symbol Elements, Qualification Symbols and Others
- Other common symbols (IEC 60617database, IDT);
- * GB/T 4728:3-2018 Graphical Symbols for Electrical Diagrams Part 3: Conductors and