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

GB/T 21413.1-2018

Replacing GB/T 21413.1-2008

**Railway applications -- Electric equipment for rolling stock --
Part 1: General service conditions and general rules**

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Foreword

GB/T 21413 "Electrical Equipment for Rail Vehicles" consists of the following parts.

- Part 1. General conditions of use and general rules;
- Part 2. General rules for electrical equipment;
- Part 3. DC circuit breaker rules for electrical equipment;
- Part 4. Electrical circuit breaker circuit breaker rules;
- Part 5. Rules for high voltage fuses for electrical equipment.

This part is the first part of GB/T 21413.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 21413.1-2008 "Electrical equipment for railway applications of rolling stock - Part 1. General conditions of use and

With the Rules, compared with GB/T 21413.1-2008, the main technical changes except editorial changes are as follows.

- Modified the standard name;
- Revised scope (see Chapter 1, Chapter 1 of the.2008 edition);
- Revised the normative reference document (see Chapter 2, Chapter 2 of the.2008 edition);
- Modified terms and definitions (see Chapter 3, Chapter 3 of the.2008 edition);
- Added abbreviations (see Chapter 4);
- Revised the description of the classification (see Chapter 5, Chapter 4 of the.2008 edition);
- Modified the description of the attribute values of the application category (see Chapter 6, Chapter 5 of the.2008 edition);
- Revised the description of the usual use conditions (see Chapter 8, Chapter 7 of

the.2008 edition);

--- Revised structural and performance requirements (see Chapter 9, Chapter 8 of the.2008 edition);

--- Modified the test (see Chapter 10, Chapter 9 of the.2008 edition);

--- Removed Appendix A "Measurement of Clearance and Creepage Distance", Appendix C "Determining Clearance and Creepage Distance" (see.2008 edition)

Appendix A, Appendix C);

--- Added Appendix B "Example of heat resistance calculation for insulation systems for specific applications", Appendix C "Types of equipment and factory dielectrics

Test (1 min)" (see Appendix B, Appendix C).

This section uses the redrafting method to modify the use of IEC 60077-1.2017 "railway rolling stock electrical equipment part 1. one

General Conditions of Use and General Rules.

This section has structural differences compared with IEC 60077-1.2017, with 3.7 being the fourth chapter and Chapter 4 being the fifth chapter.

The order is adjusted in order, and the order of Appendix B and Appendix C is adjusted.

There are technical differences between this part and IEC 60077-1.2017, and the terms involved in these differences have been passed on the outside margins.

The vertical single line (|) of the position is marked. The specific technical differences and their causes are as follows.

---About the normative reference documents, this part has made technical adjustments to adapt to China's technical conditions, adjustments

The situation is reflected in Chapter 2, "Regulatory Citations", and the specific adjustments are as follows.

* Replace IEC 62497-1 with GB/T 32350.1 modified with international standards (see 6.2.3, 6.2.4, 6.2.5, 8.9, 8.10,

9.2.6, 10.3.3.2.1, 10.3.3.2.3, 10.3.3.3.1, 10.3.3.3.2, 10.3.3.3.3);

* Replace IEC 60850 with GB/T 1402 modified with international standards (see 6.3.1, 9.2.1.2.);

* Replace IEC 61991 with GB/T 21414 equivalent to the international standard (see 6.3.3.1, 9.1.1);

* Replace IEC 60529 with GB/T 4208-2017 equivalent to the international standard (see

7.1, 9.1.4);

* Replace IEC 60721-3-5 with GB/T 4798.5-2007 modified with international standards (see 8.1, 8.5, 8.6, 8.7);

* Replace IEC 62498-1.2010 with GB/T 32347.1-2015 modified with international standards (see 8.1, 8.2, 8.3, 8.4);

* Replace IEC 61373 with GB/T 21563 modified with international standards (see 8.8, 9.2.10, 10.3.5);

* Replace IEC 60085 with GB/T 11021 equivalent to the international standard (see 9.2.2.5.1);

* Replace IEC 60216-1 with GB/T 11026.1 equivalent to the international standard (see 9.2.2.5.1);

* Replace IEC 60505 with GB/T 20112 equivalent to the international standard (see 9.2.2.5.1);

* Replace IEC 62236-3-2 with GB/T 24338.4 modified by international standards (see 9.2.4, 10.3.6);

* Replace IEC 61992-1 with GB/T 25890.1 equivalent to the international standard (see 10.3.2.4);

* Replace IEC 60068-2-1 with GB/T 2423.1 equivalent to the international standard (see 10.3.8);

* Replace IEC 60068-2-2.2007 with GB/T 2423.2 equivalent to the international standard (see 10.3.8);

* Replace IEC 60068-2-78.2012 with GB/T 2423.3 equivalent to the international standard (see 10.3.8);

* Replace IEC 60068-2-30.2005 with GB/T 2423.4 equivalent to the international standard (see 10.3.8);

* Replace IEC 60068-2-52 with GB/T 2423.18 equivalent to the international standard (see 10.3.8);

* Added reference to GB/T 11026.1 (see 9.2.2.5.1, 9.2.2.5.2);

--- Revised the contact network in 6.3.1, 9.2.1.2 as the contact network (rail) to meet the situation in China;

--- Deleted Table 2 of IEC 60077-1.2017, directly referring to Table 2 of GB/T 32347.1-2015 to adapt to the situation in China;

--- Removed the test voltage with a frequency of 60 Hz in the power frequency voltage test

in 10.3.3.3.1, because this voltage does not exist in China.

This section also made the following editorial changes.

--- Revised the note 3.6.2 note 2, 6.3.3.2 note 1 contact network is the contact network (rail).

1 Scope

This part of GB/T 21413 specifies the electrical circuit for the main circuit, auxiliary circuit, control circuit and indicating circuit of rail transit vehicles.

General conditions and requirements for preparation.

Note. Some of these rules can be applied to equipment on other rolling stock (such as mining locomotives, trolley buses, etc.) after consultation between the manufacturer and the user.

The purpose of this section is to standardize the common rules and requirements in the electrical equipment of rolling stock to meet the equipment requirements and test.

Consistency of inspections to avoid trials by different standards.

This section covers all requirements related to expected environmental conditions, structure, performance and corresponding general tests under normal conditions of use.

And special areas that are widely concerned and applied, such as temperature rise and dielectric properties.

When this section is inconsistent with certain requirements of the relevant product standard, the requirements of the product standard are prioritized.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1402 rail transit traction power supply system voltage (GB/T 1402-2010, IEC 60850.2007, MOD)

GB/T 2423.1 Environmental testing of electrical and electronic products - Part 2. Test methods Test A. Low temperature (GB/T 2423.1-2008, IEC 60068-2-1..2007, IDT)

GB/T 2423.2 Environmental testing of electrical and electronic products - Part 2. Test methods Test B. High temperature (GB/T 2423.2-