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

GB/T 25121.3-2018

**Railway applications -- Rolling stock equipment -- Capacitors
for power electronics -- Part 3: Electric double-layer capacitors**

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Foreword

GB/T 25121 "Railway Locomotive Vehicle Equipment Power Electronic Capacitor" is divided into three parts.

--- Part 1. Paper/plastic film capacitors;

---Part 2. Non-solid electrolyte aluminum electrolytic capacitors;

--- Part 3. Electric double layer capacitors.

This part is the third part of GB/T 25121.

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

This section uses the redrafting method to modify the use of IEC 61881-3.2013 "railway locomotive vehicle equipment power electronic capacitors

Part 3. Double Electrolyte Capacitors.

This section differs from IEC 61881-3.2013 in terms of structure, and the 3.12, 3.21, 5.2.4 "acceptance test" is deleted, which will be "constant".

After the damp heat test, the capacitor unit (if applicable) or the capacitor and the outer casing of the capacitor bank shall be tested for insulation in accordance with 5.5" from 5.8.2.4

Move to 5.8.2.6.

This section has technical differences compared to IEC 61881-3.2013, 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.

--- Revised the scope of Chapter 1, supplementing the content of the standard;

---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 60721-3-5 with GB/T 4798.5-2007 modified with international standards (see 4.1.3, 4.2);
- * Replace IEC 62498-1.2010 with GB/T 32347.1-2015 modified with international standards (see 4.1.2);
- * Replace GB/T 32350.1-2015 with international standards instead of IEC 62497-1 see 5.5.2.1, 9.7);
- * Replace IEC 60068-2-78 with GB/T 2423.3 using international standards (see 5.8.2.4);
- * Replace IEC 60068-2-20 with GB/T 2423.28 equivalent to the international standard (see 5.9.1);
- * Replace IEC 60068-2-21 with GB/T 2423.60 equivalent to the international standard (see 5.9.1);
- * Replace IEC 61373.2010 with GB/T 21563 modified with international standards (see 5.9.3);
- * Replace IEC 62236-3-2 with GB/T 24338.4 modified with international standards (see 5.14);
- * Replace IEC 60571.1998 with GB/T 25119-2010 modified with international standards (see 5.14);
- * Replace IEC 62391-1.2006 with IEC 62391-1.2015 (see 5.4.1, 5.4.2, 5.12, 5.13);
- * Added normative reference document GB/T 2691-2016 (see 8.1.1, 8.1.2);

--- Modified 3.1 capacitor components (or components), 3.8 pressure relief structure, 3.14 operating temperature, 3.15 working environment temperature, 3.16 upper limit

The term temperature definition of the category temperature and the lower limit category temperature of 3.17 is unified with the other two parts;

--- Modified the terminology of 3.7 power electronic capacitors, changed to electric double layer capacitors, this part of the standard mainly involves power electronic capacitors

Electric double layer capacitor;

--- Removed Tamb in 3.18, 3.12 maximum peak current, 3.21 steady state temperature, not used in the text;

--- Modified 4.1.2 altitude requirements, the current main product use altitude range increased from 1400m to 2500m to suit me

National condition

--- Revised the "climate ambient temperature" in 4.1.3, 4.2, 9.3.2 as "ambient temperature" to comply with GB/T 4798.5-2007

description;

--- Modified 4.1.3 temperature range, from -25 ° C ~ 40 ° C to -40 ° C ~ 40 ° C, to adapt to China's national conditions;

--- Increased the heat treatment time requirement in 5.1.5, and clarified the experimental method;

--- Removed the 5.2.4 "acceptance test" to meet the actual situation in China;

--- Added the requirements of 5.3.1 unless otherwise specified by the supplier and the buyer to adapt to China's national conditions;

--- Revised the voltage holding capacity test time in 5.4.2, changed from "16h, 24h or 48h" to "16h, 24h, 48h or 72h,

In line with China's national conditions;

--- Increased the exposure duration requirement in 5.8.1.4 to improve the test assessment requirements;

--- Increased the insulation test of the constant damp heat test in 5.8.2.6 to adapt to China's national conditions;

--- Revised the "appearance inspection" of 5.9.2 as "general inspection" and increased the weighing requirements, in line with China's national conditions;

--- Increased the qualification criteria for capacitors that do not explode or deform in 5.13, in line with China's national conditions;

--- Revised the capacitance deviation in 8.1.1, changed from "%" to "% or the deviation generation specified in Chapter 5 of GB/T 2691-2016

Code, optional", in line with China's national conditions.

This section also made the following editorial changes.

--- Removed the notes of 3.17, 3.18, 5.1.2;

--- Modified 1A and 1B, 2A and 2B in Table 1 are 1, 2;

--- Revised the "self-discharge" test item in Table 1 for the "voltage holding capacity" commonly used in the industry;

--- Fixed the wrong parameter unit in 5.5.1.1.2;

--- Modified Note 1 and Note 2 of 8.2;

--- Revised the name of Appendix A, consistent with the content, deleted the number and

title of A.1, there is no A.2 in this part.

1 Scope

This part of GB/T 25121 specifies the operating conditions, quality requirements and inspection, overload, safety requirements and standards of electric double layer capacitors.

Guidelines for the identification, installation and application.

This section applies to high-power DC double-layer capacitors used in rail vehicles and their modules or groups.

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 2421.1-2008 Overview and guidelines for environmental testing of electrical and electronic products (IEC 60068-1.1988, IDT)

GB/T 2423.3 Environmental Test Part 2. Test Method Test Cab. Constant Damp Heat Test (GB/T 2423.3-2016,

IEC 60068-2-78.2012, IDT)

GB/T 2423.22-2012 Environmental testing - Part 2. Test methods Test N. Temperature change (IEC 60068-2-14.

2009, IDT)

GB/T 2423.23-2013 Environmental testing - Part 2. Test methods test Q. Seals (IEC 60068-2-17.1994,

IDT)

GB/T 2423.28 Environmental testing of electrical and electronic products - Part 2. Test methods Test T. Soldering (GB/T 2423.28-

2005, IEC 60068-2-20.1979, IDT)

GB/T 2423.60 Environmental testing for electric and electronic products - Part 2. Test methods Tests U. Terminals and overall mountings are strong

Degree (GB/T 2423.60-2008, IEC 60068-2-21.2006, IDT)

GB/T 2691-2016 Marking code for resistors and capacitors (IEC 60062.2004, IDT)

GB/T 4798.5-2007 Environmental conditions for the application of electric and electronic