NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 28046.2-2019

Road vehicles -- Environmental conditions and testing for electrical and electronic equipment -- Part 2: Electrical loads

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Foreword

GB/T 28046 "Road vehicles - Environmental conditions and testing for electrical and electronic equipment" includes the following 5 parts.

- Part 1.General;
- Part 2.Electrical loads;
- Part 3.Mechanical loads;
- Part 4.Climatic loads;
- Part 5.Chemical loads.

This Part is Part 2 of GB/T 28046.

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

This Part replaces GB/T 28046.2-2011 "Road vehicles - Environmental conditions and testing for electrical and electronic equipment - Part 2.Electrical loads". Compared with GB/T 28046.2-2011, the main technical changes of this Part are as follows.

- ADD 18 V~32 V gear for d.c. power supply voltage range (see Table 2);
- Improve compliance criteria requirements for overvoltage test at room temperature of 12 V system (see 4.3.1.2.3);
- ADD "All voltage curves are no-load"; ADD "The test harness should be a real vehicle harness or may be determined by negotiation between the supplier and the purchaser" (see 4.1);
- ADD "Severity 4"; CHANGE the previous "50 Hz~20 kHz" to "50 Hz~25 kHz"; UPDATE Figure 3 (see 4.4.2);
- ADD "or in steps not greater than 25 mV" (see 4.5.2);
- Delete "In the supply voltage range of Table 1 or Table 2, the functional status shall be class A" (see 4.5.3 of the 2011 edition);
- ADD load dump related content (ADD Figure 8, Figure 9, Table 5, Table 6; CHANGE the previous Table 5 to Table 7 accordingly) (see 4.6.4);
- Increase the functional class requirement from C to A (see 4.7.3);
- Delete the requirement to cut off the grounding (for safety reasons) (see **4.10.2.1 of the 2011 edition);**
- Modify Figure 6 and Figure 7 and add a description of physical quantities in the figures;
- Modify relevant parameters in Table 3 and Table 4;
- ADD Annex A (Informative) Origin of load dump in vehicle electrical systems and Annex B (Normative) Test load dump pulse generator verification.

Adjust the previous Annex A to Annex C.

This Part uses the redraft law to modify and adopt ISO 16750-2.2012 "Road

vehicles - Environmental conditions and testing for electrical and electronic equipment - Part 2.Electrical loads".

Compared with ISO 16750-2.2012, this Part is structurally adjusted as follows.

- Adjust the numbers of Annex A and Annex B, to meet the requirements of standard writing;

- Adjust the suspended paragraph under B.3 to B.3.1 and change the previous B.3.1 to B.3.2.

The technical differences between this Part and ISO 16750-2.2012 and their causes are as follows.

- As for the normative references, this Part has adjusted the technical differences, to adapt to the technical conditions of China. The adjustments are mainly reflected in Clause 2 "Normative references". The specific adjustments are as follows.

? Replace ISO 16750-1 with GB/T 28046.1 which modifies and adopts the international standard;

? Replace ISO 16750-4.2006 with GB/T 28046.4-2011 which modifies and adopts the international standard;

? Replace ISO 8820 (all parts) with GB/T 31465 (all parts). The degree of consistency between the parts of the two standards is as follows.

? GB/T 31465.1-2015 Road vehicles - Fuse-link - Part 1.Definitions and general test requirements (ISO 8820-1.2008, MOD);

? GB/T 31465.2-2015 Road vehicles - Fuse-link - Part 2.Users guide (ISO 8820-2.2005, MOD);

? GB/T 31465.3-2015 Road vehicles - Fuse-link - Part 3.Fuse-link with blade type (ISO 8820-3.2010, MOD);

? GB/T 31465.4-2015 Road vehicles - Fuse-link - Part 4.Fuse-links with female contacts and bolt-in contacts (ISO 8820-4.2010, MOD);

? GB/T 31465.5-2015 Road vehicles - Fuse-link - Part 5.Fuse-links

with axial terminals (strip fuse-links) (ISO 8820-5.2007, MOD);

? GB/T 31465.6-2017 Road vehicles - Fuse-links - Part 6.Fuse-links with bolt-in contacts with high voltage (ISO 8820-8.2012, MOD);

? GB/T 31465.7-2017 Road vehicles - Fuse-links - Part 7.Fuse-links with shortened tabs (ISO 8820-9.2014, MOD).

- ADD footnotes to Table 4, which is convenient for use and meets the requirements for standard writing (see 4.6.3.2).

- In the text of the international standard, Annex A is not mentioned. In order to meet the requirements for standard writing, add "see Annex A for the origin" to 4.6.4.1.

- Because this Part does not include electromagnetic compatibility, delete the descriptions of electromagnetic compatibility in the scope and documents (see the international standard Clause 1 and Bibliography).

- Delete the unreasonable stipulation in the international standard 4.5.3 that "The functional status inside the supply voltage range (see Table 1 or Table 2) shall be as specified in 4.2.3 (class A)".

- In order to improve the operability, add "The test harness should be a real vehicle harness or may be determined by negotiation between the supplier and the purchaser" to 4.1.

- ADD a note "For the definition of functional status class in each test requirement, refer to GB/T 28046.1" to 4.1, to avoid repeated references to GB/T 28046.1 in each subclause.

- MOVE the formula for calculating internal resistance in 4.6.4.2.2 to 4.6.4.2.1, which is more logical.

- With reference to 4.6.4, add the description "(see GB/T 28046.1)" to the UA in 4.8.2.

- To avoid misunderstanding, delete "NOTE This is not a test for connectors" in 4.9 of the international standard, because there are many tests that are not suitable for connectors.