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

GB/T 18384.3-2015

**[Including 2017-XG1 Modification] Electrically propelled road
vehicles -- Safety specifications -- Part 3: Protection of persons
against electric shock
(English Translation)**

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Foreword

GB/T 18384 "Electrically propelled road vehicles - Safety specifications" is divided into three parts.

- Part 1. On-board rechargeable energy storage system (REESS);
- Part 2. Vehicle operational safety means and protection against failures;
- Part 3. Protection of persons against electric shock.

This Part is Part 3 of GB/T 18384.

This Part was drafted according to the given rules of GB/T 1.1-2009.

This Part replaces GB/T 18384.3-2001 "Electric vehicles - Safety specification - Part 3.

Protection of persons against electric shock". Compared with GB/T 18384.3-2001, except for structure difference in article and chapter and editorial modification, the main technical changes are as follows.

- Modify the applicable scope of the standard (see Chapter 1; Chapter 1 in version 2001);
- Delete the terms and definitions that have already been defined in the GB/T 19596

(see Chapter 3 in version 2001);

- Add the definition of the rechargeable energy storage system (see 3.1);
- Add the definition of "voltage Class A electric circuits" (see 3.2);
- Add the definition of "voltage Class B electric circuits" (see 3.3);
- Add the definition of "basic protection" (see 3.4);
- Add the definition of "barriers" (see 3.5);
- Add the definition of "enclosures" (see 3.6);
- Modify the definition of "potential equalization" (see 3.7);
- Add the definition of "balance of electric power system" (see 3.8);
- Modify the voltage class division (see Chapter 4; Chapter 4 in version 2001).
- Add the marking requirements (see Chapter 5);
- Modify the protection in case of basic protection failure (see 6.3; 5.3 and Chapter 6 in version 2001);
- Modify the requirements of isolation resistance (see 6.3.2; 6.2 in version 2001);
- Add the capacitance coupling requirements (see 6.3.3);
- Add power-off requirements (see 6.3.4);
- Modify the barriers/enclosures requirements (see 6.6; 6.3 in version 2001);
- Modify the measuring method of isolation resistance (see 7.2; 6.2.2 in version 2001).
- Modify the test method of withstand voltage (see 7.3; 6.2.3 in version 2001);
- Modify the test method of potential equalization (see 7.4; 6.4 in version 2001);
- Modify the waterproof requirements (see Chapter 8; Chapter 7 in version 2001).

This Part uses redrafting method to modify and adopt ISO 6469-3.2011 "Electrically propelled road vehicles - Safety specifications - Part 3. Protection of persons against electric shock".

The technical differences between this Part and ISO 6469-3.2011 and its reasons are as follows.

- Delete some terms and definitions that have already been defined in the GB/T 19596, see Chapter 3.

- Delete the explanation statement in Chapter 4 Environment and Operating Conditions in ISO 6469-1.2009. The related contents have been included in the experimental condition; the numbers of later sections and chapters are increased sequentially, see Chapter 4;
- Add the waterproof requirements;
- Delete the requirements about REESS crash test. There have been corresponding crash standards in China; the numbers of later sections and chapters are increased sequentially, see Chapter 7.

This Part was proposed by the Ministry of Industry and Information Technology of People's Republic of China.

This Part shall be under jurisdiction of the National Vehicle Standardization Technical Committee (SAC/TC 114).

Responsible drafting organizations of this Part. China Automotive Technology Research Center, Anhui Ankai Vehicle Co., Ltd., Hunan CSR Times Electric Vehicle Co., Ltd., and Shanghai Motor Vehicle Inspection Center.

This Part was first-time issued in July 2001; this is the first revision.

1 Scope

This Part of GB/T 18384 specifies the requirements for the electric vehicle's electric drive system and auxiliary system of conduction connection (if any), so as to protect the persons in car and out of the car from electric shock.

2 Normative references

The following documents are essential to the application of this document. For dated references, only the dated version is applicable to this document. For undated references, its latest version (including all amendments) is applicable to this document.

GB 2893 Safety colours (GB 2893-2008, ISO 3864-1.2002, MOD)

GB 2894 Safety signs and guideline for the use

GB 4208 Degrees of protection provided by enclosures (IP code) (GB 4208-2008, IEC 60529.2001, IDT)

GB 4943.1 Information technology equipment - Safety - Part 1.General requirements
(GB 4943.1-2011, IEC 60950-1.2005, MOD)

3 Terms and definitions

For the purpose of this document, the following terms and definitions AND those defined in GB/T 19596 shall apply.

3.1 Rechargeable energy storage system

REESS

Energy storage system which is rechargeable and can provide electricity, such as batteries, capacitors.

3.2 Voltage class A electric circuits

Electric modules or circuits of which the maximum working voltage is less than or equal to

4 Voltage Classes

Voltage class B's electric energy storage systems, such as REESS and fuel cell stack, shall be marked with the symbol as shown in Figure 1.

The outer layer of cable and wire-harness in Class B electric circuit shall be distinguished by orange, except for those inside the enclosures or behind the barriers.

6.1 General rule

Protection shall prevent persons to directly contact the live part of Class B electric circuit.

Protection shall be achieved by the following two methods or one of them.

Generally, exposed conductive parts of voltage class B's electric devices which include exposed conductive barriers and enclosures, shall be connected to electric chassis in accordance with 6.9 to maintain potential equalization.

7 Test method of electric shock protection

In principle, the protection method mentioned in Chapter 6 shall be under the condition that power inlet is disconnected; such method shall be tested and confirmed in each Class B electric circuit on the vehicle.