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Charging Cables for Electric Vehicles
电动汽车充电用电缆

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Charging Cables for Electric Vehicles

1 SCOPE

This standard specifies the service characteristics, designation methods, technical requirements, marking, test methods and requirements, inspection rules as well as the packaging, transportation and storage of charging cables for electric vehicles.

This standard is applicable to charging cables of rated voltages up to and including AC 450/750V and DC 1.0kV (may include signal or control wire core) for connection set for conductive charging of electric vehicles.

2 NORMATIVE REFERENCES

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 1690-2010 Rubber, Vulcanized or Thermoplastic - Determination of the Effect of Liquids

GB/T 2423.3-2006 Environmental Testing for Electric and Electronic Products - Part 2: Testing Method - Test Cab: Damp Heat, Steady State

GB/T 2900.10 Electrotechnical Vocabulary - Electric Cables

GB/T 2951.11-2008 Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables - Part 11: Methods for General Application - Measurement of Thickness and Overall Dimensions - Tests for Determining the Mechanical Properties

GB/T 2951.12-2008 Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables - Part 12: Methods for General Application - Thermal Ageing Methods

GB/T 2951.13-2008 Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables - Part 13: Methods for General Application - Measurement for Determining the Density - Water Absorption Tests - Shrinkage Test

GB/T 2951.14-2008 Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables - Part 14: Methods for General Application - Test at Low Temperature

GB/T 2951.21-2008 Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables - Part 21: Methods Specific to Elastomeric Compounds - Ozone Resistance, Hot Set and Mineral Oil Immersion Tests

GB/T 2951.31-2008 Common Test Methods for Insulating and Sheathing Materials of Electric and Optical Cables - Part 31: Methods Specific to PVC Compounds - Pressure Test at High Temperature - Test for Resistance to Cracking

GB/T 3048.4-2007 Test Methods for Electrical Properties of Electric Cables and Wires - Part 4: Test of DC Resistance of Conductors

GB/T 3048.5-2007 Test Methods for Electrical Properties of Electric Cables and Wires - Part 5: Test of Insulation Resistance

GB/T 3048.8-2007 Test Methods for Electrical Properties of Electric Cables and Wires - Part 8: AC Voltage Test

GB/T 3048.9-2007 Test Methods for Electrical Properties of Electric Cables and Wires - Part 9: Spark Test of Insulated Cores

GB/T 3048.14-2007 Test Methods for Electrical Properties of Electric Cables and Wires - Part 14: DC Voltage Test

GB/T 3956-2008 Conductors of Insulated Cables

GB/T 4909.2-2009 Test Methods for Bare Wires - Part 2: Measurement of Dimensions

GB/T 5013.2-2008 Rubber Insulated Cables of Rated Voltages Up to and Including 450/750V - Part 2: Test Methods

GB/T 16422.2-2014 Plastics - Methods of the Exposure to Laboratory Light Sources - Part 2: Xenon-arc Sources

GB/T 17650.1-1998 Test on Gases Evolved during Combustion of Materials from Cables - Part 1: Determination of the Halogen Acid Gas Content

GB/T 17650.2-1998 Test on Gases Evolved during Combustion of Materials from Cables - Part 2: Determination of Degree of Acidity of Gases by Measuring pH and Conductivity

GB/T 17737.1-2000 Radio-frequency Cables - Part 1: Generic Specification - General, Definitions, Requirements and Test Methods

GB/T 18380.12-2008 Test on Electric and Optical Fibre Cables under Fire Conditions - Part 12: Test for Vertical Flame Propagation for A Single Insulated Wire or Cable - Procedure for 1kW Pre-mixed Flame

GB 29518-2013 Diesel Engines NOx Reduction Agent - Aqueous Urea Solution (AUS 32)

JB/T 8137 (All Parts) Delivery Drums for Electric Wires and Cables

JB/T 10696.6-2007 Test Methods for Determining Mechanical Physical and Chemical Properties of Electric Cables and Wires - Part 6: Test for Abrasion of Oversheaths

ISO 48:2010 Rubber, Vulcanized or Thermoplastic - Determination of Hardness (Hardness between 10 IRHD and 100 IRHD)

IEC 60684-2:2011 Flexible Insulation Sleeving - Part 2: Methods of Test

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions given in GB/T 2900.10 and the followings apply.

3.1

Nominal value

“Nominal value” means the value by which a quantity is designated and which is often used in tables.

Note: Usually, in this standard, nominal values give rise to values to be checked by measurements taking into account specified tolerances.

3.2

Median value

“Median value” means, when several test results have been obtained and ordered in an increasing (or decreasing) succession, the middle value if the number of available values is odd, and the mean of the two middle values if the number is even.

3.3

Rated voltage

“Rated voltage” means the reference voltage for which the cable is designed and operated, and which serves to define the electrical tests.

Note: In an alternating-current system, the rated voltage is expressed by U_0/U . U_0 is the r.m.s. value between any insulated conductor and "earth" (metallic screen, metal covering or the surrounding medium); U is the r.m.s. value between any two phase conductors of a multi-core cable or of a system of single-core cable system. The rated voltage of a cable shall be at least equal to the nominal voltage of the cable system for which it is intended. This condition applies both to the value U_0 and to the value U . In a direct current system, the rated voltage is expressed by U_0 ; U_0 is the r.m.s. value between the conductor and the screen; the operating voltage of the system shall not exceed 1.1 times the nominal voltage of the system.



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