ICS 29.060.10
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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国国家标准

GB/T 18487.1-2001

Electric Vehicle Conductive Charging System

Part 1: General Requirements

电动车辆传导充电系统一般要求

Issued on November 02, 2001 **Implemented on: May 01, 2002**

Issued by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

Contents

Foreword

This Standard is equivalent to IEC 61851-1: 2001 *Electric vehicle conductive charging system – Part 1: General requirements*, and according to the domestic achievement and experience such as research on electric vehicle charging system, product development as well as charger test and operating, etc. in recent 10 years and after much discussion, deleted and revised some contents which not accord with domestic situation. Meanwhile, refer to SAE J1772 and JEVS G101 to G105 *Electric vehicle conductive charging system*, etc.

National Standards of electric vehicle conductive charging system consist of multiple and independent standards, three standards had compiled at present. The first Standard is equivalent to IEC 61851-1: 2001 *Electric vehicle conductive charging system – Part 1: General requirements*. The second standard is equivalent to IEC/CDV 61851-2-1 *Electric vehicle conductive charging system - Part 2-1: Electric vehicles requirements for conductive connection to an AC/DC supply*. The third standard is equivalent to IEC/CDV 61851-2-2 *Electric vehicle conductive charging system - Part 2-2: A.C. electric vehicles charging station* and IEC/CDV 61851-2-3 *Electric vehicles conductive charging system - Part 2-3: D.C. ... cells and batteries for electric vehicle propulsion applications*.

The annex A of this Standard is Normative.

The annex B of this Standard is Informative.

This Standard is proposed by State Bureau of Machine-Building Industry

This Standard is under the jurisdiction of National Technical Committee on Road Vehicles of Standardization Administration of China.

Main draft unit of this Standard: Tsinghua University.

Participating draft units of this Standard: Beijing Jiaotong University, Beijing C&W Electronics (Group) Co., Ltd. The 18th Research Institute of Ministry of Information Industry, Baoding Jin Fengfan Storage Battery Co., Ltd.

Main drafters of this Standard: Liu Zhongren, Qi Guoguang, Sun Xiaomin, Zhou Xide, Wang Changqing, Qu Xiaohong and Xu Changhong.

IEC FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61851-1 has been prepared by IEC technical committee 69: Electric road vehicles and electric industrial trucks. The text of this standard is based on the following documents:

FDIS	Report on voting
69/XX/FDIS	69/XX/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annexes A form an integral part of this standard.

Annex B, C, D and E is for information only.

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

— reconfirmed;
— withdrawn;
— replaced by a revised edition, or amended.

Several independent parts of *Electric vehicle conductive charging system* as follows:

— Part 1: General Requirements.
— Part 2-1: Electric vehicles requirements for conductive connection to an AC/DC supply
— Part 2-2: A.C. electric vehicles charging station
— Part 2-3: D.C. ... cells and batteries for electric vehicle propulsion applications.

Two versions of this Standard will be published in the near future.

Electric Vehicle Conductive Charging System
Part 1: General Requirements

1 Scope

This Standard is applicable to equipment for charging electric vehicles at standard a.c. supply voltages (as per GB 156-1993) up to 660V and at d.c. voltages up to 1000V.
This Standard is applicable to equipment for charging electric road vehicles.
This Standard is not applicable to the equipment for accumulator charging such as engine starting, lighting and ignitor or household as well as similar applications. This Standard is also not applicable to equipment for accumulator charging of non-road-use such as wheel chair, interior electric automobile, tramcar, trolleybus, railway vehicle and heavy duty truck for industry (e.g. lift truck), etc. Class II vehicles are not excluded in this Standard.
This Standard specifies the basic structure requirements for charging equipment, i.e. requirements for characteristic and operating environment of electric power supply unit and vehicle connection; and technical requirements for charging equipment and characteristic of vehicle which meet this requirement; requirements for power supply voltage and current. Requirements for charging modes; requirements for connection and interface of electric vehicle; requirements for specialized jack, connector, plug, pin and charging cable, etc. This Standard specifies the safety requirements for prevention of electric shock, however, excluding other safety requirements related with maintenance.

2 Normative References

The articles contained in the following documents have become this standard when they are quoted herein. For the dated documents so quoted, all the revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.
GB 156-1993 Standard voltages
GB 4208-1993 Degrees of protection provided by enclosure (IP code) (eqv IEC 60529: 1989)
GB 4943-1995 Safety of information technology equipment including electrical business equipment (idt IEC 60950: 1991)
GB 5013.1-1997 Rubber insulated cables of rated voltages up to and including 450/750V Part 1: General requirements (idt IEC 60245-1: 1994)
GB 5013.2-1997 Rubber insulated cables of rated voltages up to and including 450/750V Part 2:Test methods (idt IEC 60245-2: 1994)
GB 5013.3-1997 Rubber insulated cables of rated voltages up to and including 450/750V Part 3:Heat resistant silicone insulated cables (idt IEC 60245-3: 1994)
GB 5013.4-1997 Rubber insulated cables of rated voltages up to and including 450/750V Part 4：Cords and flexible cables (idt IEC 60245-4: 1994)
GB/T 11918-1989 Plugs socket-outlets and couplers for industrial purpose--General requirement (eqv IEC 60309-1: 1983)
GB 14821.1-1993 Electrical installations of buildings—Protection against electric shock (eqv IEC 60364-4-1: 1992)
GB 17627.1-1998 High-voltage test techniques for low-voltage equipment Part 1: Definitions, test and procedure requirements

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