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IEC 61851-23, Ed. 1.0 (2014)

AS IEC 61851.23:2014

Australian STANDARD

Electric vehicle conductive charging system

Part 23: D.C. electric vehicle charging station

STANDARDS Australia

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- Australian Automobile Association
- Australian Electric Vehicle Association
- Australian Industry Group
- Auto Skills Australia
- ChargePoint
- Consumers Federation of Australia
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- Federal Chamber of Automotive Industries
- Motor Trades Association of Australia
- National Association of Testing Authorities Australia
- Transport for NSW
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- Victorian Automobile Chamber of Commerce

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PREFACE

This Standard was prepared by the Standards Australia Committee EM-001, Electric Vehicle Operation.

The objective of this Standard is to, together with IEC 61851-1, Ed. 2.0 (2010), give the requirements for d.c. electric vehicle (EV) charging stations, herein also referred to as 'DC charger', for conductive connection to the vehicle, with an a.c. or d.c. input voltage up to 1 000 V a.c. and up to 1 500 V d.c. according to IEC 60038.

This Standard is identical with, and has been reproduced from IEC 61851-23, Ed. 1.0 (2014), *Electric vehicle conductive charging system*—Part 23: *D.C. electric vehicle charging station.*

This Standard is to be read in conjunction with IEC 61851-1, Ed. 2.0 (2010).

The clauses of particular requirements in this Standard supplement or modify the corresponding clauses in IEC 61851-1, Ed. 2.0 (2010). Where the text of subsequent clauses indicates an '*addition*' to or a '*replacement*' of the relevant requirement, test specification or explanation of Part 1, these changes are made to the relevant text of Part 1, which then becomes part of this Standard. Where no change is necessary, the words 'This clause of Part 1 is applicable' are used. Additional clauses, tables and figures which are not included in Part 1 have a number starting from 101. Additional annexes are lettered AA, BB etc.

In this Standard, the following print types are used:

– *test specifications and instructions regarding application of Part 1: italic type*.

– notes: smaller roman type.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this part of IEC 61851' should read 'this Australian Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
IEC		AS/NZS	
60950	Information technology equipment—Safety	60950	Information technology equipment—Safety
60950-1	Part 1: General requirements	60950.1	Part 1: General requirements (IEC 60950-1, Ed. 2.0 (2005), MOD)
61558	Safety of power transformers, power supplies, reactors and similar products	61558	Safety of Power Transformers, Power Supplies, Reactors and Similar Products
61558-1	Part 1: General requirements and tests	61558.1	Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)
		AS	
62052	Electricity metering equipment (AC)—General requirements, tests and test conditions	62052	Electricity metering equipment (AC)—General requirements, tests and test conditions
62052-11	Part 11: Metering equipment	62052.11	Part 11: Metering equipment (IEC 62052-11, Ed.1.0 (2003) MOD)

IEC		AS	
62053	Electricity metering equipment (a.c.)—Particular requirements	62053	Electricity metering equipment (AC)—Particular requirements
62053-21	Part 21: Static meters for active energy (classes 1 and 2)	62053.21	Part 21: Static meters for active energy (classes 1 and 2) (IEC 62053-21, Ed.1.0 (2003) MOD)

Only normative references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex to which they apply. A ‘normative’ annex is an integral part of a Standard, whereas an ‘informative’ annex is only for information and guidance.

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INTRODUCTION

The introduction and commercialisation of electric vehicles has been accelerated in the global market, responding to the global concerns on CO_2 reduction and energy security. Concurrently, the development of charging infrastructure for electric vehicles has also been expanding. As a complement to the a.c. charging system, d.c. charging is recognized as an effective solution to extend the available range of electric vehicles. The international standardization of charging infrastructure is indispensable for the diffusion of electric vehicles, and this standard is developed for the manufacturers' convenience by providing general and basic requirements for d.c. EV charging stations for conductive connection to the vehicle.

AUSTRALIAN STANDARD

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Part 23:
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1 Scope

This part of IEC 61851, together with IEC 61851-1:2010, gives the requirements for d.c. electric vehicle (EV) charging stations, herein also referred to as "DC charger", for conductive connection to the vehicle, with an a.c. or d.c. input voltage up to 1 000 V a.c. and up to 1 500 V d.c. according to IEC 60038.

NOTE 1 This standard includes information on EV for conductive connection, but limited to the necessary content for describing the power and signaling interface.

This part covers d.c. output voltages up to 1 500 V.

Requirements for bi-directional power flow are under consideration.

NOTE 2 Typical diagrams and variation of d.c. charging systems are shown in Annex DD.

This standard does not cover all safety aspects related to maintenance.

This part specifies the d.c. charging systems A, B and C as defined in Annexes AA, BB and CC.

NOTE 3 Typical configuration of d.c. EV charging system is shown in Annex EE.

EMC requirements for d.c. EV charging stations are defined in IEC 61851-21-2.

This standard provides the general requirements for the control communication between a d.c. EV charging station and an EV. The requirements for digital communication between d.c. EV charging station and electric vehicle for control of d.c. charging are defined in IEC 61851-24.

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

IEC 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*

IEC/TS 60479-1:2005, *Effects of current on human beings and livestock - Part 1: General aspects*

IEC 60950-1:2005, *Information technology equipment - Safety - Part 1: General requirements*
Amendment 1:2009
Amendment 2:2013

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

