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Electrically propelled road vehicles — Test specification for electric propulsion components —

Part 4: Performance testing of the DC/DC converter

Véhicules à propulsion electrique — Spécification d'essai pour les composants de propulsion électrique —

Partie 4: Essais de performance pour le convertisseur DC/DC

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 37, *Electrically propelled vehicles*.

A list of all parts in the ISO 21782 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Electrically propelled road vehicles — Test specification for electric propulsion components —

Part 4: Performance testing of the DC/DC converter

1 Scope

This document specifies performance tests and each evaluation for the DC/DC converter in the voltage class B electric propulsion system of electrically propelled road vehicles.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 21782-1:2019, *Electrically propelled road vehicles — Test specification for electric propulsion components — Part 1: General test conditions and definitions*

ISO 21498-1, *Electrically propelled road vehicles — Specification of voltage sub-classes for voltage class B*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21782-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Symbols and abbreviated terms

For the purposes of this document, the symbols and abbreviated terms given in ISO 21782-1 apply.

5 Tests

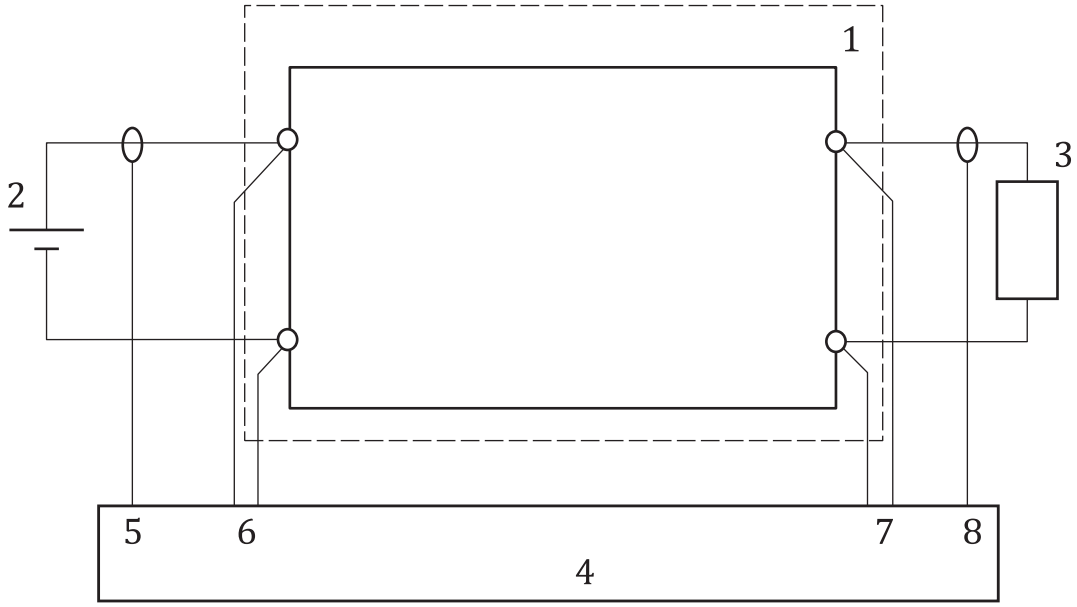
5.1 Measurement of loss and efficiency

5.1.1 General

The purpose of this test is to operate the DC/DC converter under the specified conditions and to measure the loss and the efficiency of the DC/DC converter in order to ensure the performance is as designed.

5.1.2 Test diagram

The test diagram is shown in Figure 1.



Key

1 DUT
2 DC power supply
3 load
4 power meter
5 DC/DC converter input current (in A)
6 DC/DC converter input voltage (in V)
7 DC/DC converter output voltage (in V)
8 DC/DC converter output current (in A)

Figure 1 — Diagram for loss and efficiency test of the DC/DC converter

5.1.3 Test conditions

Test conditions are shown in Table 1.

Table 1 — Conditions for loss and efficiency test of the DC/DC converter

Test conditions	Value	Remark
DC/DC converter input voltage	— Maximum voltage for unlimited operating capability as specified in ISO 21498-1 — Minimum voltage for unlimited operating capability as specified in ISO 21498-1 — Rated voltage as defined in ISO 21782-1:2019, 3.22	For DC/DC converter input voltage tolerance, see ISO 21782-1:2019, 5.3.
Operating points	Test points as defined in Figure B.1 — "p_1" to "p_{18}"	
Ambient conditions	Room temperature (RT) and humidity as defined in ISO 21782-1:2019, 5.4	