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Road vehicles — Environmental conditions and testing for electrical and electronic equipment —

Part 2: Electrical loads

Véhicules routiers — Spécifications d'environnement et essais de l'équipement électrique et électronique —

Partie 2: Contraintes électriques

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 document 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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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 32, *Electrical and electronic components and general system aspects*.

This fifth edition cancels and replaces the fourth edition (ISO 16750-2:2012), which has been technically revised.

The main changes are as follows:

— introduction of use of operating mode for the electrical tests;

— introduction of concept with redundant supplies for relevant test cases;

— more detailed specification of direct current supply voltage test;

— more detailed specification of jump start test (overvoltage test at RT);

— introduction of transient overvoltage test;

— complete update of superimposed alternating voltage test (e.g. updated test method, extension of frequency range to 200 kHz, etc.);

— more detailed specification of slow decrease and increase of supply voltage test;

— introduction of micro interruption in supply voltage test;

— more detailed specification of reset behaviour at voltage drop test;

— explanation of severity levels in starting profile test;

— more detailed specification of reversed voltage test;

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— more detailed specification of ground reference and supply offset test;

— single line interruption test divided in two test cases; static interruption (single interruption event) and dynamic interruption (multiple interruption events, i.e. bursts);

— short circuit protection test changed to short circuit/overload protection test. more detailed specification on test cases. Introduction of test case overloading of load circuits;

— more detailed description of origin of load dump pulse in Annex B;

— various editorial updates and clarifications.

A list of all parts in the ISO 16750 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.

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Road vehicles — Environmental conditions and testing for electrical and electronic equipment —

Part 2: Electrical loads

1 Scope

This document applies to electric and electronic systems/components for road vehicles. This document describes the potential environmental stresses and specifies tests and requirements for the specific mounting location on/in the road vehicle.

This document describes electrical loads.

This document is not intended to apply to environmental requirements or testing for systems and components of motorcycles and mopeds. Electromagnetic compatibility (EMC) is not covered by this document.

Electrical loads are independent from the mounting location, but can vary due to the electrical impedance (including both the resistance and the inductance) in the vehicle wiring harness and connection system.

Systems and their components released for production, or systems and their components already under development prior to the publication date of this document, can be exempted from fulfilling the changes in this edition compared to the previous one.

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 8820 (all parts), *Road vehicles — Fuse-links*

ISO 16750-1, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 1: General*

ISO 16750-4:2023, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 4: Climatic loads*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16750-1 apply.

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

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

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

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