

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

Part 2: Electrical loads

ICS 43.040.10

National foreword

This British Standard reproduces verbatim ISO 16750-2:2006 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee AUE/16, Electrical and electronic equipment, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

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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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Documents

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16750-2 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

This second edition cancels and replaces the first edition (ISO 16750-2:2003), which has been technically revised.

ISO 16750 consists of the following parts, under the general title *Road vehicles — Environmental conditions and testing for electrical and electronic equipment*:

- *Part 1: General*
- *Part 2: Electrical loads*
- *Part 3: Mechanical loads*
- *Part 4: Climatic loads*
- *Part 5: Chemical loads*

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

Part 2: Electrical loads

1 Scope

This part of ISO 16750 applies to electric and electronic systems/components for vehicles. It describes the potential environmental stresses and specifies tests and requirements recommended for the specific mounting location on/in the vehicle.

This part of ISO 16750 describes the electrical loads. Electromagnetic compatibility (EMC) is not covered by this part of ISO 16750. Electrical loads are independent from the mounting location, but may vary due to the electrical resistance in the vehicle wiring harness and connection system.

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.

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

ISO 16750-1:2003, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 1: General*

ISO 16750-4:2003, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 4: Climatic loads*

3 Terms and definitions

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

4 Tests and requirements

4.1 General

If not otherwise specified, the following tolerances shall apply:

- frequency and time: $\pm 5 \%$;
- voltages: $\pm 0,2 \text{ V}$;
- resistance: $\pm 10 \%$.

4.2 D.C. supply voltage

4.2.1 Purpose

The purpose of this test is to verify equipment functionality at minimum and maximum supply voltage.

4.2.2 Test

Set the supply voltage as specified in Table 1 or Table 2 to all relevant inputs of the device under test (DUT). Operating modes are specified in ISO 16750-1.

Measure all voltages at the relevant terminals of the DUT.

The voltages which are listed in Table 1 or Table 2 are relevant within the operating temperature range as specified in ISO 16750-4, without time limits.

Table 1 — Supply voltage for $U_N = 12\text{ V}$ system devices

Code	Supply voltage V	
	$U_{S\text{ min}}$	$U_{S\text{ max}}$
A	6	16
B	8	16
C	9	16
D	10,5	16

Table 2 — Supply voltage for $U_N = 24\text{ V}$ system devices

Code	Supply voltage V	
	$U_{S\text{ min}}$	$U_{S\text{ max}}$
E	10	32
F	16	32
G	22	32

4.2.3 Requirement

All DUT functions shall remain class A, as defined in ISO 16750-1, when tested in the supply voltage ranges given in Table 1 or Table 2, respectively.