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Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy —

Part 8: Immunity to magnetic fields

Véhicules routiers — Méthodes d'essai d'un équipement soumis à des perturbations électriques par rayonnement d'énergie électromagnétique en bande étroite —

Partie 8: Méthodes d'immunité aux champs magnétiques

Reference number
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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 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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 32, *Electrical and electronic components and general system aspects*.

This second edition cancels and replaces the first edition (ISO 11452-8:2007), of which it constitutes a minor revision.

ISO 11452 consists of the following parts, under the general title *Road vehicles — Component test methods for electrical disturbances for narrowband radiated electromagnetic energy*:

— *Part 1: General principles and terminology*

— *Part 2: Absorber-lined shielded enclosure*

— *Part 3: Transverse electromagnetic mode (TEM) cell*

— *Part 4: Harness excitation methods*

— *Part 5: Stripline*

— *Part 7: Direct radio frequency (RF) power injection*

— *Part 8: Immunity to magnetic fields*

— *Part 9: Portable transmitter*

— *Part 10: Immunity to conducted disturbances in the extended audio frequency range*

— *Part 11: Reverberation chamber*

Annex A of this part of ISO 11452 is for information only.

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Introduction

Immunity measurements of complete road vehicles are generally able to be carried out only by the vehicle manufacturer, owing to, for example, high costs of absorber-lined shielded enclosures, the desire to preserve the secrecy of prototypes, or a large number of different vehicle models.

For research, development, and quality control, a laboratory measuring method can be used by both vehicle manufacturers and equipment suppliers to test electronic components.

ISO 11452-1 specifies general test conditions, definitions, practical use, and basic principles of the test procedure.

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Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy —

Part 8: Immunity to magnetic fields

1 Scope

This part of ISO 11452 specifies tests for electromagnetic immunity of electronic components for passenger cars and commercial vehicles, regardless of the propulsion system (e.g. spark-ignition engine, diesel engine, electric motor), to magnetic fields. These sources are classified into "internal magnetic field" (sources internal to the vehicle, e.g. vehicle electro-mechanical motors, actuators,...) and "external magnetic field" (sources external to the vehicle e.g. power transmission lines, generating stations,...). To perform this test, the device under test (DUT) is exposed to a magnetic disturbance field.

The radiating loop method can be applied to small DUTs or to larger DUTs by positioning the coil in multiple locations.

The Helmholtz coil is sometimes used as an alternative method. This technique is limited by the relationship between the size of the DUT and the size of the coils. The electromagnetic disturbances considered in this part of ISO 11452 are limited to continuous narrowband electromagnetic fields.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11452-1, *Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 1: General principles and terminology*

VG 95377-13:1993, *Electromagnetic compatibility — Measuring devices and measuring equipment — measuring antennas, measuring coils and field probes*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11452-1 apply.

4 Test conditions

4.1 General

The applicable frequency range of this test method is d.c. and 15 Hz to 150 kHz.

The users shall specify the test severity level(s) over the frequency range. Suggested test severity levels are included in Annex A.

Standard test conditions are given in ISO 11452-1 for the following:

— test temperature;

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