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

Part 3: Transverse electromagnetic (TEM) cell

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

Partie 3: Cellule électromagnétique transverse (TEM)

Reference number
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Foreword

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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 fourth edition cancels and replaces the third edition (ISO 11452-3:2016), of which it constitutes a minor revision. The changes are as follows:

— Formula (1) in 6.2.2 was modified.

A list of all parts in the ISO 11452 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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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.

The TEM cell method has the major advantage of not radiating energy into the surrounding environment. The method can be used for testing either the immunity of a component with the field coupling to the wiring harness or the immunity of the component alone with minimum exposure to the wiring harness.

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

Part 3:
Transverse electromagnetic (TEM) cell

1 Scope

This document specifies transverse electromagnetic (TEM) cell tests for determining the immunity of electronic components of passenger cars and commercial vehicles to electrical disturbances from narrowband radiated electromagnetic energy, regardless of the vehicle propulsion system (e.g. spark-ignition engine, diesel engine, electric motor).

The electromagnetic disturbances considered are limited to continuous narrowband electromagnetic fields.

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

3 Terms and definitions

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

4 Test conditions

The upper frequency range limit of the TEM cell is a direct function of the TEM cell dimensions.

For testing automotive electronic systems, a 0,01 MHz to 200 MHz TEM cell should be used. See Annex A for suggested cell dimensions. See Annex B for methods to determine TEM-cell frequency range.

The user shall specify the test severity level or levels over the frequency range. See Annex E for suggested test severity levels.

Standard test conditions shall be those given in ISO 11452-1 for:

— test temperature;

— supply voltage;

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