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

**Part 9:
Portable transmitters**

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

Partie 9: Émetteurs portables



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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 11452-9 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 11452 consists of the following parts, under the general title *Road vehicles — Component test methods for electrical disturbances from 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 transmitters*
- *Part 10: Immunity to conducted disturbances in the extended audio frequency range*
- *Part 11: Reverberation chamber*

Introduction

Immunity measurements of complete road vehicles can generally only be carried out 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.

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

Part 9: Portable transmitters

1 Scope

This part of ISO 11452 specifies test methods and procedures for testing electromagnetic immunity to portable transmitters of electronic components for passenger cars and commercial vehicles, regardless of the propulsion system (e.g. spark-ignition engine, diesel engine, electric motor). The device under test (DUT), together with the wiring harness (prototype or standard test harness), is subjected to an electromagnetic disturbance generated by portable transmitters inside an absorber-lined shielded enclosure, with peripheral devices either inside or outside the enclosure. The electromagnetic disturbances considered are limited to continuous narrowband electromagnetic fields.

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

Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). International Commission on Non-Ionizing Radiation Protection (ICNIRP)

3 Terms and definitions

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

4 Test conditions

The applicable frequency range of the test method is 26 MHz to 5,85 GHz.

The user of this International Standard shall specify the test severity level or levels over the frequency bands. The test severity level shall take into account

- typical portable transmitter characteristics (frequency bands, power level and modulation), given in Annex A, and
- the characteristics of the antenna(s) used for this test.

NOTE Users of this International Standard are advised that Annex A is for information only and cannot be considered as an exhaustive description of various portable transmitters available in all countries.

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

- test temperature;
- supply voltage;