INTERNATIONAL STANDARD

ISO 7637-3

Third edition
2016-07-01

Road vehicles — Electrical disturbances from conduction and coupling —

Part 3: Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines

Véhicules routiers — Perturbations électriques par conduction et par couplage —

Partie 3: Transmission des perturbations électriques par couplage capacitif ou inductif le long des lignes autres que les lignes d'alimentation

Reference number
ISO 7637-3:2016(E)

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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 third edition cancels and replaces the second edition (ISO 7637–3:2007), which has been technically revised.

ISO 7637 consists of the following parts, under the general title *Road vehicles — Electrical disturbances from conduction and coupling*:

— *Part 1: Definitions and general considerations*

— *Part 2: Electrical transient conduction along supply lines only*

— *Part 3: Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines*

The following parts are under preparation:

— *Part 4: Electrical transient conduction along shielded high voltage supply lines only*

— *Part 5: Enhanced definitions and verification methods for harmonization of pulse generators according to ISO 7637-2* [Technical Report]

Annex A forms an integral part of this part of ISO 7637.

Annex B and Annex C are informative.

Introduction

The fast transient pulse test uses bursts composed of a number of fast transient pulses, which are coupled into lines (I/O lines in particular) of electronic equipment. The fast rise time, the repetition rate and the low energy of the fast transient bursts are significant to the test.

The slow transient pulse test applies a number of single pulses, as used for conducted transient pulse test, to the DUT.

Road vehicles — Electrical disturbances from conduction and coupling —

Part 3:
Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines

1 Scope

This part of ISO 7637 defines bench test methods to evaluate the immunity of devices under test (DUTs) to transient pulses coupled to lines other than supply lines. The test pulses simulate both fast and slow transient disturbances caused by the switching of inductive loads and relay contact bounce.

The following three test methods are described in this part of ISO 7637:

— capacitive coupling clamp (CCC) method;

— direct capacitive coupling (DCC) method;

— inductive coupling clamp (ICC) method.

This part of ISO 7637 applies to road vehicles fitted with nominal 12 V or 24 V electrical systems.

For transient pulses immunity, Annex B provides recommended test severity levels in line with the functional performance status classification (FPSC) principle described in ISO 7637-1.

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 7637-1, *Road vehicles — Electrical disturbances from conduction and coupling — Part 1: Definitions and general considerations*

ISO 7637-2, *Road vehicles — Electrical disturbances from conduction and coupling — Part 2: Electrical transient conduction along supply lines only*

ISO 11452-4, *Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 4: Harness excitation methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7637-1 apply.