BS ISO 7637-1:2015

BSI Standards Publication

Road vehicles — Electrical disturbances from conduction and coupling

Part 1: Definitions and general considerations

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National foreword

This British Standard is the UK implementation of ISO 7637-1:2015.

The UK participation in its preparation was entrusted to Technical Committee AUE/32, Electrical and electronic components and general system aspects (Road vehicles).

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Part 1: Definitions and general considerations

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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).

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).

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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 7637-1:2002), which has been technically revised. It also incorporates the Amendment ISO 7637-1:2002/Amd 1: 2008.

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.

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Introduction

Electrical and radio-frequency disturbances occur during normal operation of many items of motor vehicle equipment. They are generated over a wide frequency range and can be distributed to on-board electronic devices and systems by conduction, coupling or radiation.

In recent years, an increasing number of electronic devices for controlling, monitoring and displaying a variety of functions have been introduced into vehicle designs. It is necessary to consider the electrical and electromagnetic environment in which these devices operate and, in particular, the disturbances generated in the vehicle electrical system itself. Such disturbances can cause degradation (temporary malfunction or even permanent damage) of the electronic equipment. Moreover, "worst-case" situations are usually those resulting from disturbances generated inside the vehicle by, for example, ignition systems, generator and alternator systems, electric motors and actuators.

Annex A specifies a general method for function performance status classification (FPSC). Typical severity levels are included in an annex of each of the other parts of ISO 7637.

While narrowband signals generated on or outside the vehicle (by broadcasting and radio-transmitters) can also affect the performance of electronic devices, and recognizing that protection from such potential disturbances has to be considered as part of total system certification, these matters are nevertheless outside the scope of ISO 7637 and are not covered by it.

ISO 11451 and ISO 11452 specify test methods for immunity to radiated disturbances for vehicles and for components, respectively. ISO 10605 specifies test methods for immunity to electrostatic discharge (ESD) for vehicle and for components.

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