



BSI Standards Publication

## Road Vehicles — Electrical disturbance by conduction and coupling

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

## National foreword

This Published Document is the UK implementation of ISO/TS 7637-4:2020.

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

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**Road Vehicles — Electrical  
disturbance by conduction and  
coupling —**

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

*Vehicules routiers — Perturbations electriques par conduction et par  
couplage —*

*Partie 4: Conduction transitoire electrique seulement le long des  
lignes à haute tension blindées*



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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](http://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](http://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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 32, *Electrical and electronic components and general system aspects*.

A list of all parts in the ISO 7637 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](http://www.iso.org/members.html).

# Road Vehicles — Electrical disturbance by conduction and coupling —

## Part 4:

# Electrical transient conduction along shielded high voltage supply lines only

## 1 Scope

This document specifies test methods and procedures to ensure the compatibility to conducted electrical transients along shielded high voltage supply lines of equipment installed on passenger cars and commercial vehicles fitted with electrical systems with voltages higher than 60 V d.c. and lower than 1 500 V d.c. and a power supply isolated from the vehicle body. It describes bench tests for both, injection and measurement of transients. It is applicable to all types of electrical independent driven, road vehicles (e.g. battery electrical vehicle (BEV) or hybrid electrical vehicle (HEV), plugin hybrid electric vehicle (PHEV)).

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

## 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

## 4 Test methods

### 4.1 General

Various types of transients appear on the high voltage supply lines generated by the switching of various devices. Pulse A represents ringing caused by switching operations of high voltage semiconductors. Pulse B represents sinusoidal waves generated by harmonics from the grid and revolutions from, for example, electric propulsion motors.

Methods for measuring the transient emission on shielded high-voltage supply lines and test methods for the immunity of devices against transients are given in this document. These tests, called "bench tests", are performed in a laboratory.

The bench-test methods provide comparable and reproducible results between laboratories. They also give a test basis for the development of devices and systems and may be used during the production phase.