

---

---

**Road vehicles — Electrical  
disturbances from conduction and  
coupling —**

Part 1:  
**Vocabulary and general  
considerations**

*Véhicules routiers — Perturbations électriques par conduction et par  
couplage —*

*Partie 1: Vocabulaire et généralités*

[ISO 7637-1:2023](https://standards.iteh.ai/catalog/standards/sist/5a7fa862-2181-44c3-8daf-02e72089f221/iso-7637-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/5a7fa862-2181-44c3-8daf-02e72089f221/iso-7637-1-2023>



iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

[ISO 7637-1:2023](https://standards.iteh.ai/catalog/standards/sist/5a7fa862-2181-44c3-8daf-02e72089f221/iso-7637-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/5a7fa862-2181-44c3-8daf-02e72089f221/iso-7637-1-2023>



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

	Page
Foreword.....	iv
Introduction.....	v
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>1</b>
<b>4 General aim and practical use of the ISO 7637 series.....</b>	<b>4</b>
<b>5 General test conditions.....</b>	<b>6</b>
5.1 General.....	6
5.2 Test temperature.....	6
5.3 Supply voltage.....	6
5.4 Definition of test severity level.....	6
<b>Annex A (normative) Function performance status classification (FPSC).....</b>	<b>7</b>
<b>Bibliography.....</b>	<b>10</b>

iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

[ISO 7637-1:2023](https://standards.iteh.ai/catalog/standards/sist/5a7fa862-2181-44c3-8daf-02e72089f221/iso-7637-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/5a7fa862-2181-44c3-8daf-02e72089f221/iso-7637-1-2023>

## 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 document 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)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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*.

This fourth edition cancels and replaces the third edition (ISO 7637-1:2015), which has been technically revised.

The main changes are as follows:

- addition of ISO/TS 7637-4 in general aim and practical use;
- addition of supply voltage and tolerances for high voltage electrical systems.

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).

## 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 the ISO 7637 series.

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 the ISO 7637 series 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.

iteh standards  
(<https://standards.iteh.ai>)  
Document Preview

[ISO 7637-1:2023](#)

<https://standards.iteh.ai/catalog/standards/sist/5a7fa862-2181-44c3-8daf-02e72089f221/iso-7637-1-2023>

