
**Road vehicles — Test methods for
electrical disturbances from electrostatic
discharge**

*Véhicules routiers — Méthodes d'essai des perturbations électriques
provenant de décharges électrostatiques*



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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10605 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

This first edition of ISO 10605 cancels and replaces ISO/TR 10605:1994, which has been technically revised.

Annexes A and B form a normative part of this International Standard.

Introduction

The familiar static charge generated and discharged when moving about inside a vehicle or getting out of it has assumed greater significance with the increase in the number of vehicle electronic modules. Tests in common use by various industries simulating the electrostatic discharge of humans were examined and determined to be inapplicable to an automotive environment. Consequently, tests tailored to this environment have been developed.

Tests that simulate an electrostatic discharge (ESD) into a vehicle electrical system are based on the human ESD model, which consists essentially of a capacitor formed by a person to his or her surroundings and discharged through a path that includes the person's resistance. Sensitive electrical devices can be adversely affected by energy either coupled or radiated from electrostatic discharges.

This International Standard describes ESD tests applicable to both automotive electronic modules and vehicles.

Road vehicles — Test methods for electrical disturbances from electrostatic discharge

1 Scope

This International Standard specifies electrostatic discharge (ESD) test methods for evaluating electronic modules intended for use in road vehicles, including procedures for evaluating electronic modules both on the bench and in completed vehicles. Additionally, it specifies a test procedure for classifying the ESD sensitivity of modules for packaging and handling, and a procedure for calibrating the simulator used to generate the electrostatic discharges, as well as functional status classifications for immunity to ESD.

This International Standard is applicable to all types of road vehicles, regardless of the vehicle propulsion system (e.g. spark-ignition engine, diesel engine, electric motor).

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

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

IEC 61000-4-2:1995, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 2: Electrostatic discharge immunity test*

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

3.1

electrostatic discharge

ESD

transfer of electrostatic charge between bodies at different potentials occurring prior to contact or induced by an electrostatic field

1) To be published. (Revision of ISO 7637-0:1990)

2) To be published. (Revision of ISO 7637-1:1990 and ISO 7637-2:1990)