PD IEC TR 63583-1:2025

BSI Standards Publication

Multimedia systems and equipment for vehicles — Compact Driving Simulator (CDS)

Part 1: General

Documents
Document Sharing Hub

Full document details: PD IEC TR 63583-1:2025

National foreword

This Published Document is the UK implementation of IEC TR 63583-1:2025.

The UK participation in its preparation was entrusted to Technical Committee EPL/100, Audio-visual equipment.

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

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

This publication is not to be regarded as a British Standard.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 32084 8

ICS 33.160.40

Compliance with a Published Document cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 May 2025.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: PD IEC TR 63583-1:2025

IEC TR 63583-1

Edition 1.0 2025-04

TECHNICAL REPORT

Multimedia systems and equipment for vehicles – Compact Driving Simulator (CDS) –
Part 1: General

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.160.40

ISBN 978-2-8327-0377-9

Warning! Make sure that you obtained this publication from an authorized distributor.

® Registered trademark of the International Electrotechnical Commission

Documents
Document Sharing Hub

Full document details: PD IEC TR 63583-1:2025

CONTENTS

FOREWORD ... 3
INTRODUCTION ... 5
1 Scope ... 6
2 Normative references ... 6
3 Terms, definitions and abbreviated terms ... 6
3.1 Terms and definition ... 6
3.2 Abbreviated terms ... 6
4 System overview ... 7
4.1 General ... 7
4.2 Configuration of a driving simulator ... 7
4.2.1 General ... 7
4.2.2 Driving simulation software (DSS) ... 8
4.2.3 Driving simulation hardware (DSH) ... 9
4.3 Configuration of a driving simulator ... 9
5 Installation environment of CDS ... 11
5.1 General ... 11
5.2 Facility example for installing a CDS ... 12
Annex A (informative) SIMREX (Simulation of Real Experience Compact Driving Simulator), ... 14
A.1 General ... 14
A.2 System configuration of SIMREX ... 14
A.2.1 General ... 14
A.2.2 Cabin of SIMREX ... 15
A.2.3 Monitor ... 17
A.2.4 Simulation software ... 17
A.2.5 DAQ test program ... 18
A.2.6 Power module ... 18
A.3 System specification of SIMREX ... 19
Bibliography ... 23

Figure 1 – Block diagram of a driving simulator ... 8
Figure 2 – Block diagram of CDS ... 10
Figure 3 – Interface between DSS and DSH in CDS ... 10
Figure 4 – An example of a general appearance ... 11
Figure 5 – An example of a reference measurement (unit: mm) ... 12
Figure 6 – Example of a field of view (FOV) ... 12
Figure A.1 – System configuration of SIMREX ... 15
Figure A.2 – Configuration of SIMREX cabin ... 16
Figure A.3 – Structure of SIMREX_CDS simulation software ... 17
Figure A.4 – DAQ test program ... 18
Figure A.5 – Power module ... 19

Table 1 – Operation environment ... 13
Table A.1 – SIMREX system specification ... 20

Documents
Document Sharing Hub
Full document details: PD IEC TR 63583-1:2025

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MULTIMEDIA SYSTEMS AND EQUIPMENT FOR VEHICLES – COMPACT DRIVING SIMULATOR (CDS) –

Part 1: General

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC 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, IEC 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 https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

IEC TR 63583-1 has been prepared by technical area 17: Multimedia systems and equipment for vehicles, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is a Technical Report.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
100/4266/DTR	100/4324/RVDTR

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Report is English.

Documents
Document Sharing Hub

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 63583 series, published under the general title *Multimedia systems and equipment for vehicles – Compact driving simulator (CDS)*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

Documents
Document Sharing Hub

Full document details: PD IEC TR 63583-1:2025

INTRODUCTION

A driving simulator is a simulator for the driving of cars and other ground vehicles.

Driving simulators are used for entertainment as well as in the training of driver's education courses taught in educational institutions and private businesses. They are also used for research purposes in the area of human factors and medical research, to monitor driver behaviour, performance, and attention. In the car industry, they are used to design and evaluate new vehicles or new advanced driver assistance systems.

There are many kinds of simulators, such as ambulance simulators, car simulators, modular-design simulators, multi-station driving simulators, truck simulators, bus simulators, and physical simulators. This document focuses on the car simulator, which is used to train and test novice drivers in all the skills required to pass a driver's license road test as well as hazard perception and crash risk mitigation. A driving simulator is one of the representative areas for the application of systems integration technology. It includes computer-simulated education and training processes and provides for repetitive and empirical learning in immersive virtual environments.

There are several kinds of driving simulators, such as mini-driving simulators (MDS), compact driving simulators (CDS), and VR-based driving simulators (VDS).

The IEC 63583 series consists of two parts:

Part 1: General

Part 2: XR-based CDS[1].

In this document, a general description of CDS is given.

[1] Under development.

Documents
Document Sharing Hub

MULTIMEDIA SYSTEMS AND EQUIPMENT FOR VEHICLES – COMPACT DRIVING SIMULATOR (CDS) –

Part 1: General

1 Scope

This part of IEC TR 63583, which is a technical report, specifies the system overview of the compact driving simulator (CDS), which is a virtual education and training system and a compact version of a driving simulator.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definition

3.1.1
driving simulator
simulator for the driving of cars and other ground vehicles

3.1.2
compact driving simulator
compact version of a driving simulator, which is a small-sized simulator that reproduces only the driver's seat of a vehicle

3.1.3
cabin
driver's compartment constructed with components mirroring those of an actual carand which aims to provide a driver with a real driving environment with a control system and seat

3.2 Abbreviated terms

ASWS	active steering wheel system
CD	car dashboard
CDS	compact driving simulator
CLS	control loading system
DAQ	data acquisition
DSH	driving simulation hardware
DSS	driving simulation software
FOV	field of view
GUI	graphic user interface
LCD	liquid crystal display
MDS	mini-driving simulator
MS	motion system
RPM	revolutions per minute
RTOS	real-time operation software

Documents
Document Sharing Hub

Full document details: PD IEC TR 63583-1:2025