Road vehicles — Test methods for electrical disturbances from electrostatic discharge

BS ISO 10605:2008 +A1:2014 Incorporating corrigendum March 2010

 $ICS \ 43.040.10$



NO COPYING WITHOUT BSI DEPMISSION EXCEPT AS DEPMITTED BY CODVDICHT I AW

National foreword

This British Standard is the UK implementation of ISO 10605:2008+A1:2014, incorporating corrigendum March 2010. It supersedes BS ISO 10605:2008, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by $\boxed{\text{A}}$

The UK participation in its preparation was entrusted to Technical Committee AUE/16, Electrical and electronic equipment.

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.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard
was published under the
authority of the Standards
Policy and Strategy
Committee on 31 July 2008

© The British Standards Institution 2014. Published by BSI Standards Limited 2014

Amendments/corrigenda issued since publication

Date	Comments
30 April 2010	Implementation of ISO corrigendum March 2010; 9.3.2 amended
31 October 2014	Implementation of ISO amendment 1:2014

ISBN 978 0 580 78686 0

INTERNATIONAL STANDARD

BS ISO 10605:2008+A1:2014

Second edition

2008-07-15

10605

ISO

Road vehicles — Test methods for electrical disturbances from electrostatic discharge

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



Reference number ISO 10605:2008(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office Case postale 56 • CH-1211 Geneva 20 Tel. + 41 22 749 01 11 Fax + 41 22 749 09 47 E-mail copyright@iso.org Web www.iso.org Published in Switzerland

Contents

Forewo	ord	iv
Introdu	iction	. v
1	Scope	. 1
2	Normative references	
3	Terms and definitions	
4	Test conditions	
5	Test location	
6 6.1 6.2 6.3	Test apparatus and instrumentation ESD generator Discharge tips Discharge current specifications	3 3 4
6.4 6.5 6.6	Coupling and ground reference planes Insulation block Insulation support	. 6 . 6
7 7.1 7.2 7.3	Discharge modes General Contact discharge mode Air discharge mode	. 7 . 7
8 8.1 8.2 8.3 8.4	Component immunity test method (powered-up test) General Test plan Test procedure for direct discharges Test procedure for indirect discharges	7 8 8
9 9.1 9.2 9.3	Component packaging and handling test method (unpowered test) General Test plan Test procedure	12 12
10 10.1 10.2 10.3	Vehicle test method General Test plan Test procedure	15 15
11	Test report	18
Annex	A (normative) Current target specification and verification of ESD generator	19
Annex	B (informative) Standard target drawings and target verification method	23
Annex	C (informative) Function performance status classification (FPSC)	35
Annex	D (informative) Test method guidance — Generator resistor value and air or contact discharge	39
Annex	E (informative) Rationale for air discharge generator verification	42
Annex	F (informative) Optional test set-up and procedure for electronic modules (powered-up test)	44
Bibliog	raphy	50

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 2.

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 document 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 second edition cancels and replaces the first edition (ISO 10605:2001), which has been technically revised.

Introduction

The familiar electrostatic discharge, due to former charge build-ups generated, for example, when moving about inside a vehicle or getting out of it, has assumed greater significance with the increase of vehicle electronic modules. Tests simulating the electrostatic discharge of humans, in common use by various industries, were examined and it was determined that they were not fully applicable to the automotive environment. As a consequence, tests tailored to the automotive environment were developed.

Tests that simulate an electrostatic discharge (ESD) into a vehicle electrical system are based on the human ESD model. Sensitive electrical devices can be adversely affected by energy either coupled or radiated from electrostatic discharges. This International Standard describes ESD tests that are applicable to both automotive electronic modules and vehicles.