INTERNATIONAL STANDARD

ISO 15830-3

Second edition
2013-05-15

Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy —

Part 3: Electronic subsystems

Véhicules routiers — Conception et spécifications de performance pour le mannequin mondial (WorldSID), 50e percentile homme, de choc latéral —

Partie 3: Sous-systèmes électroniques

This document is a preview generated by EVS

Reference number
ISO 15830-3:2013(E)

© ISO 2013

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2013

All rights reserved. Unless otherwise specified, 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
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

 © ISO 2013 – All rights reserved

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Electrical subsystems requirements **1**
4.1 Permissible sensors 1
4.2 Permissible internal data acquisition system (DAS) 7
5 Methods **8**
5.1 Calculation of IR-TRACC distances from the IR-TRACC voltage outputs 8
Annex A (normative) **Load cell characteristics** **9**
Annex B (informative) **Conventions for exemplar permissible load cells and angular displacement sensors** **14**
Annex C (informative) **Conventions for permissible accelerometers** **21**
Annex D (normative) **Information regarding sensor output polarities** **23**
Bibliography **41**

This document is a preview generated by EVS

© ISO 2013 – All rights reserved

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. 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. 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.

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 12, *Passive safety crash protection systems*.

This second edition cancels and replaces the first edition (ISO 15830-3:2005) which has been technically revised. Technical amendments have been incorporated throughout all four parts, resulting from extensive experience with the International Standard and design changes.

ISO 15830 consists of the following parts, under the general title *Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy*:

— *Part 1: Terminology and rationale*

— *Part 2: Mechanical subsystems*

— *Part 3: Electronic subsystems*

— *Part 4: User's manual*

This document is a preview generated by EVS

 © ISO 2013 – All rights reserved

Introduction

This second edition of ISO 15830 has been prepared on the basis of the existing design, specifications, and performance of the WorldSID 50th percentile adult male side-impact dummy. The purpose of the ISO 15830 series is to document the design and specifications of this side-impact dummy in a form suitable and intended for worldwide regulatory use.

In 1997, ISO/TC22/SC12 initiated the WorldSID 50th percentile adult male dummy development, with the aims of defining a global-consensus side-impact dummy, having a wider range of humanlike anthropometry, biofidelity, and injury-monitoring capabilities, suitable for regulatory use. Participating in the development were research institutes, dummy and instrumentation manufacturers, governments, and vehicle manufacturers from around the world.

With regards to potential regulatory, consumer information, or research and development use of ISO 15830, users will need to identify which of the permissive (i.e. optional) sensors and other elements defined in this part of ISO 15830 will be required for their tests.

WorldSID drawings in electronic format are being made available. Details are given in ISO 15830-2:2013, Annex B.

In order to apply ISO 15830 properly, it is important that all four parts be used together.

This document is a preview generated by EVS

© ISO 2013 – All rights reserved

This document is a preview generated by EVS

Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy —

Part 3: Electronic subsystems

This document is a preview generated by EVS

1 Scope

This part of ISO 15830 specifies requirements for electronic components of the WorldSID 50th percentile side-impact dummy, a standardized anthropomorphic dummy for side-impact testing of road vehicles. It is applicable to impact tests involving

— passenger vehicles of category M_1 and goods vehicles of category N_1,

— impacts to the side of the vehicle structure,

— impact tests involving the use of an anthropometric dummy as a human surrogate for the purpose of evaluating compliance with vehicle safety standards.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6487, *Road vehicles — Measurement techniques in impact tests — Instrumentation*

ISO 15830-1, *Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 1: Terminology and rationale*

ISO 15830-2:2013, *Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 2: Mechanical subsystems*

SAE J2570:2001, *Performance specifications for anthropomorphic test device transducers*

SAE J1733, *Sign convention for vehicle crash testing*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15830-1 apply.

4 Electrical subsystems requirements

4.1 Permissible sensors

4.1.1 General

NOTE All sensors are specified as “permissible” (i.e. optional) because the decision to use or not to use a given sensor is to be left to the individual relevant regulatory authorities, consumer information organisations, and research or test laboratories. In this way, a given regulation (or laboratory protocol) can indicate which of the permissible sensors described in this part of ISO 15830 must be used in a given test. It should also be noted that different connector configurations may be found in different WorldSID assemblies.

© ISO 2013 – All rights reserved