

---

---

**Impact test procedures for road vehicles — Seating and positioning procedures for anthropomorphic test devices — Procedure for the WorldSID 50th percentile male side-impact dummy in front outboard seating positions**

*Procédures d'essai de choc pour véhicules routiers — Procédures d'installation et de positionnement des dispositifs d'essais anthropomorphes — Procédure pour le mannequin WorldSID, 50ème percentile homme, de choc latéral pour positions de conducteur et passager avant droit*

STANDARDSISO.COM : Click to view the full PDF of ISO 17949:2013



**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](mailto:copyright@iso.org)  
Web [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 Symbols and abbreviated terms.....</b>	<b>2</b>
<b>5 Requirements for vehicle seats preparation.....</b>	<b>2</b>
5.1 Seat adjustments.....	2
5.2 Seat markings.....	3
5.3 Procedure for the test seat placement.....	3
<b>6 Procedure for the WS50 dummy placement.....</b>	<b>4</b>

STANDARDSISO.COM : Click to view the full PDF of ISO 17949:2013

## 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](http://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](http://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 10, *Impact test procedures*.

STANDARDSISO.COM : Click to view the full PDF of ISO 17949:2013

## Introduction

WorldSID is a world harmonized anthropomorphic test device for the evaluation of motor vehicle side-impact protection.

The aim of this International Standard is to provide a repeatable seating and positioning procedure that can be applied across the world vehicle fleet.

STANDARDSISO.COM : Click to view the full PDF of ISO 17949:2013

STANDARDSISO.COM : Click to view the full PDF of ISO 17949:2013

# Impact test procedures for road vehicles — Seating and positioning procedures for anthropomorphic test devices — Procedure for the WorldSID 50th percentile male side-impact dummy in front outboard seating positions

## 1 Scope

This International Standard specifies the conditions and requirements for the recommended placement of the WorldSID 50th percentile male side-impact dummy (WS50), as defined in ISO 15830-1, ISO 15830-2, ISO 15830-3, and ISO 15830-4, when used in front outboard seating positions of motor vehicles for side-impact testing.

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

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

ISO 15830-3, *Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 3: Electronic subsystems*

ISO 15830-4, *Road vehicles — Design and performance specifications for the WorldSID 50th percentile male side impact dummy — Part 4: User's manual*

SAE J 826, *Devices for use and defining and measuring vehicle seating accommodation*

## 3 Terms and definitions

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

### 3.1

#### **test seat**

seating position, driver, or front passenger that is to be evaluated

### 3.2

#### **sagittal plane**

vertical plane that divides the human body into left/right sections

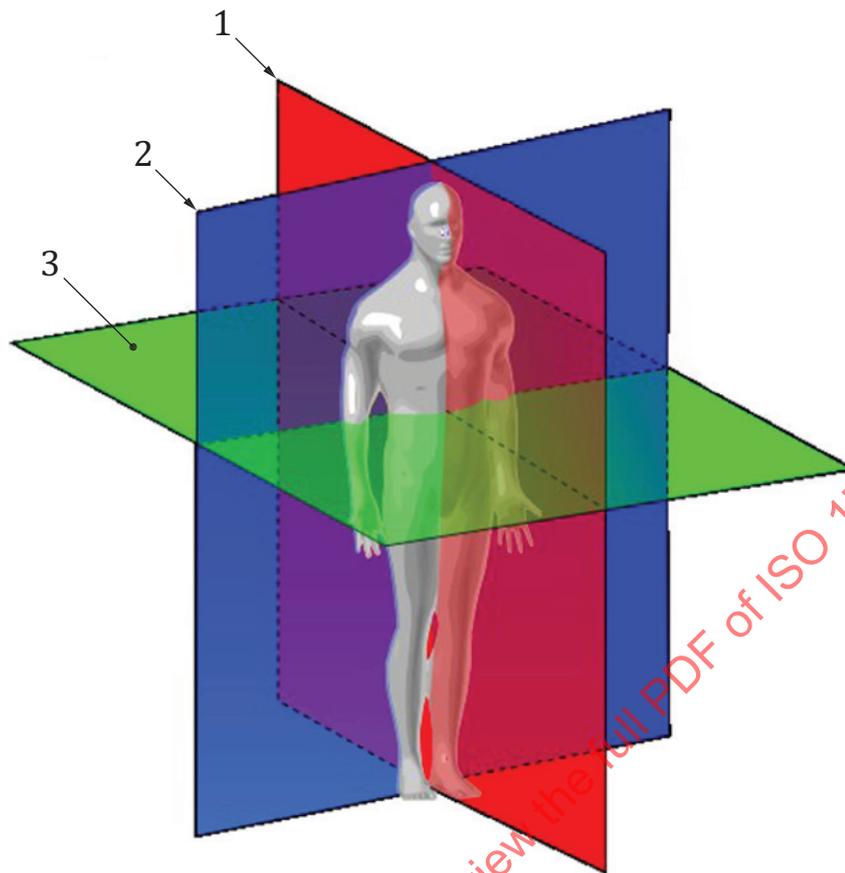
Note 1 to entry: See [Figure 1](#).

### 3.3

#### **coronal plane**

vertical plane that is perpendicular to the sagittal plane and that divides the human body into anterior/posterior sections

Note 1 to entry: See [Figure 1](#).



**Key**

- 1 sagittal plane
- 2 coronal plane
- 3 transverse plane

**Figure 1 — Anatomical planes**

## 4 Symbols and abbreviated terms

- X forward direction of the vehicle
- Y lateral direction of the vehicle
- Z downward direction of the vehicle

## 5 Requirements for vehicle seats preparation

### 5.1 Seat adjustments

- a) Position any adjustable parts that provide additional support so that they are in the lowest or fully retracted position, e.g.:
  - Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted, or deflated adjustment positions.

- Position an adjustable seat cushion length to the retracted position.
  - Position an adjustable leg support system in the rearmost position.
- b) Place adjustable pedals in the full forward position (towards the front of the vehicle).
  - c) The steering wheel is not intended to have an influence on the loading of the dummy. Therefore, set the steering wheel at the geometric highest driving position considering the full range of telescopic and tilt adjustment possibilities, in order to provide clearance for the legs and thorax.
  - d) Set the head restraint position to the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant, or in the fully up position if no design position is available.
  - e) Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant, or in the fully up position if no design position is available.

## 5.2 Seat markings

- a) Define the seat reference points (markings).
  - Identify and mark one seat reference point at the rear of the seat cushion.
  - In case the seat cushion pitch is adjustable, identify and mark a second reference point that is at least 300 mm forward of the rear reference point and draw a line through the two reference points.
- b) Define the seat centreline reference.
  - *In case of bucket seats:*  
 Locate and mark for future reference the longitudinal centreline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the seating reference point (SRP) and the seat cushion upper surface determines the longitudinal centreline of a bucket seat cushion.
  - *For bench seats:*  
 Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centreline of the steering wheel and the seat cushion upper surface.

## 5.3 Procedure for the test seat placement

### 5.3.1 Positioning of the test seat

- 1) Use the seat control that primarily moves the seat vertically to adjust the rearmost seat reference point defined in 5.2 (a) to the uppermost vertical location.
- 2) Use the seat control that primarily moves the seat fore-aft to adjust the rearmost seat reference point defined in 5.2 (a) to the rearmost location.
- 3) Determine and record the range of angles of the seat cushion pitch referring to the line defined in 5.2 (a) and using only the control(s) that primarily adjust(s) the cushion pitch, set cushion pitch as close as possible to the mid-angle.
- 4) Use the seat control that primarily moves the seat vertically to adjust the rearmost seat reference point defined in 5.2 (a) to the lowest vertical location. Verify that you are still at the rearmost seat track location. Record the X position.
- 5) Use the seat control that primarily moves the seat fore-aft to adjust the rearmost seat reference point defined in 5.2 (a) to the forward most location. Record the X position.