TECHNICAL REPORT

ISO/TR 12349-1

Second edition
2015-08-01

Road vehicles — Dummies for restraint system testing —

Part 1: Adult dummies

Véhicules routiers — Mannequins pour essais de systèmes de retenue —

Partie 1: Mannequins adultes

Reference number
ISO/TR 12349-1:2015(E)

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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.

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 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 36, *Safety aspects and impact test*.

This second edition cancels and replaces the first edition (ISO/TR 12349-1:1999), of which it constitutes a minor revision.

ISO/TR 12349 consists of the following parts, under the general title *Road vehicles — Dummies for restraint system tests*:

— *Part 1: Adult dummies*

— *Part 2: Child dummies*

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Introduction

Some experts of ISO/TC 22/SC 36 reviewed the widely available adult crash test dummies on the basis of biofidelity, repeatability and reproducibility, durability, instrumentation capabilities, and ease of use. Implementation of a crash test dummy in a regulation or consumers' test is not a basis for recommendation in this Technical Report. Adult dummies whose designs were protected intellectual property at the time of review were not considered. Crash test dummies are continually being evaluated and those that are not currently recommended may be recommended in the next update of this Technical Report. This Technical Report represents the best recommendation of widely available adult crash test dummies at the time of publication.

The dummy instrumentation specified as required or optional in ISO test procedures for crash, sled, and OOP tests were reviewed. Adult dummy instrumentation recommended in this Technical Report consists of all instrumentation that are required by at least one test procedure. Some optional instrumentation and some instrumentation not specified in any ISO test procedure are also recommended in this Technical Report.

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Road vehicles — Dummies for restraint system testing —

Part 1: Adult dummies

1 Scope

This Technical Report specifies the adult crash test dummies that are recommended by ISO for use in evaluating the occupant protection potential of restraint systems in frontal, side, and rear impact test procedures and out-of-position airbag test procedures.

2 Symbols and abbreviated terms

2.1 Symbols

A_x, A_y, A_z	linear acceleration along the positive x, y, and z axes of the dummy
α_x, α_y, α_z	rotational acceleration about the positive x, y, and z axes of the dummy
δ_x, δ_y, δ_z	deflection along the positive x, y, and z axes of the dummy
F_x, F_y, F_z	force along the positive x, y, and z axes of the dummy
M_x, M_y, M_z	moment about the positive x, y, and z axes of the dummy
ϕ_x, ϕ_y, ϕ_z	angle of rotation about the positive x, y, and z axes of the dummy
ω_x, ω_y, ω_z	rotational velocity about the positive x, y, and z axes of the dummy

2.2 Abbreviated terms

ASIS	anterior superior iliac spine
C.G.	centre of gravity
OOP	out-of-position

3 Recommended dummies

3.1 Adult dummies recommended for frontal impact tests

The following adult dummies are recommended for use in frontal impact crash and sled tests:

— Hybrid III small adult female with harmonized jacket (see Reference [10]) and without neck shield, unless a neck shield is specified by the test procedure;

— Hybrid III midsize adult male;

— Hybrid III large adult male.

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