

Road vehicles — Side impact test procedures for the evaluation of occupant interactions with side airbags by pole impact simulation

ICS 43.020

National foreword

This British Standard reproduces verbatim ISO 15829:2004 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee AUE/15, Safety related to vehicles, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

Cross-references

The British Standards which implement international publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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 does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to v, a blank page, pages 1 to 17 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 13 July 2004

© BSI 13 July 2004

ISBN 0 580 44037 0

INTERNATIONAL STANDARD

ISO
15829

First edition
2004-07-01

Road vehicles — Side impact test procedures for the evaluation of occupant interactions with side airbags by pole impact simulation

*Véhicules routiers — Modes opératoires d'essai de choc latéral
dynamique pour l'évaluation de l'interaction des occupants avec les
sacs gonflables latéraux par simulation d'une collision contre un poteau*



Contents

Page

Foreword.....	iv
Introduction	v
1 Scope.....	1
2 Normative references	1
3 Terms and definitions.....	1
4 Test facility and equipment.....	2
5 Test configurations.....	2
6 Preparation of test vehicle	3
7 Test devices.....	4
8 Instrumentation	4
9 Installation of test dummy.....	4
10 Impact response measurement	6
11 Velocity	6
Annex A (informative) Side impact against pole test procedure 1	8
Annex B (informative) Side impact against pole test procedure 2	10
Annex C (informative) Side impact against pole test procedure 3	14
Bibliography	17

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 15829 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 10, *Impact test procedures*.

Introduction

Side airbags/curtains (SAB) are deployable devices intended to help reduce the risk of injury to the head and/or chest and/or pelvis of vehicle occupants. Side impact accident data indicate that the vehicle side is most likely to be contacted by a passenger car, a truck or a fixed object, such as a pole or a tree. Accident data also indicate that serious to fatal injury in side impact is most likely to occur to the head, chest and abdomen, neck, pelvis and extremities.

During its inflation process, an airbag generates a considerable amount of kinetic energy and, as a result, substantial forces can be developed between the deploying airbag and the nearby occupant. Although there is very little experience with vehicles equipped with SAB, preliminary laboratory tests indicate that these forces can be sufficient to injure the vehicle occupant. Further, a considerable but unknown portion of the occupant population does not drive/ride in exactly the vehicle design position, but lean/rest in various ways against the armrest, door or other side panel of the vehicle, where airbag reaction forces may be even greater. These test procedures were developed to improve the understanding of such interactions during vehicle-to-pole crashes and to help aid in the assessment of future airbag designs.

SAB may deploy from the door or side trim panel, the armrest, the seat back or cushion, the roof support pillars, and the roof rail area. Occupants can range in size from young children to very large adults. In some cases, dynamic sled tests with partial vehicle bodies may suffice; in others, the whole vehicle is dynamically tested. Engineering judgement needs to be used when selecting the tests to be conducted with each individual system. Such tests may be aimed not only at producing interactions with the most severe results, but also at identifying those conditions that produce the least interaction and most satisfactory injury criteria (performance) results.

