

Road vehicles — Measurement techniques in impact tests Instrumentation

ICS 43.020

National foreword

This British Standard is the UK implementation of ISO 6487:2002+A1:2008. It supersedes BS AU 228-1b:2002 (ISO 6487:2002) which is withdrawn.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 A1 A1.

The UK participation in its preparation was entrusted to Technical Committee AUE/7, Automobile occupant restraint systems.

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.

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Road vehicles — Measurement techniques in impact tests — Instrumentation

*Véhicules routiers — Techniques de mesurage lors des essais de choc —
Instrumentation*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6487 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 12, *Passive safety crash protection systems*.

This fourth edition cancels and replaces the third edition (ISO 6487:2000), which has been technically revised.

Annex A forms a normative part of this International Standard. Annex B is for information only.

Introduction

This edition of ISO 6487 is the result of a willingness to harmonize the previous edition, ISO 6487:2000, and the American Society of Automotive Engineers' standard, SAE J211:1995.

It presents a series of performance requirements concerning the whole measurement sequence of impact shocks.

These requirements may not be altered by the user and all are obligatory for any agency conducting tests to this International Standard. However, the method of demonstrating compliance with them is flexible and can be adapted to suit the needs of the particular equipment used by a testing agency.

This approach affects the interpretation of requirements. For example, there is a requirement to calibrate within the working range of the channel, i.e. between F_L and $F_H/2,5$. This cannot be interpreted literally, as low-frequency calibration of accelerometers requires large displacement inputs beyond the capacity of virtually any laboratory.

It is not intended that each requirement be taken as necessitating proof by a single test. Rather, it is intended that any agency proposing to conduct tests to this International Standard certify that if a particular test could be and were to be carried out then their equipment would meet the requirements. This certification would be based on reasonable deductions from existing data, such as the results of partial tests. The agency would normally be expected to make the basis of their certification available to users of their test results.

The basis of certification of some subjects can be very direct, in that a single test can demonstrate compliance. For others, a less direct form of certification will be necessary. To continue with the above example, the agency could have obtained similar calibrations with direct current at a medium frequency and, from knowledge of the transducer, might infer that calibrations at intermediate frequencies would have been the same.

Similar considerations apply to the practical need to divide the whole channel into subsystems, for calibration and checking purposes. The requirements are valid only for the whole channel, as this is the sole route by which subsystem performance affects the output quality. If it is difficult to measure the whole channel performance, which is often the case, the test agency may treat the channel as two or more convenient subsystems. The whole channel will be certified on the basis of subsystem results, together with a rationale for combining them.

To summarize, this International Standard enables users of impact test results to call up a set of relevant instrumentation requirements by merely specifying ISO 6487. Their test agency then has the primary responsibility for certifying that the ISO 6487 requirements are met by their instrumentation system. The evidence on which they have based this certification will be available to the user on request. In this way, fixed requirements, guaranteeing the suitability of the instrumentation for impact testing, can be combined with flexible methods of demonstrating compliance with those requirements.