PD ISO/TR 27957:2020



BSI Standards Publication

Road vehicles — Temperature measurement in anthropomorphic test devices — Definition of the temperature sensor locations

bsi.

National foreword

This Published Document is the UK implementation of ISO/TR 27957:2020. It supersedes PD ISO/TR 27957:2008, which is withdrawn.

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.

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 580 51104 2

ICS 43.180

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 April 2020.

Amendments/corrigenda issued since publication

Date	Text affected

PD ISO/TR 27957:2020

TECHNICAL REPORT

ISO/TR 27957

Second edition
2020-04-23

Road vehicles — Temperature measurement in anthropomorphic test devices — Definition of the temperature sensor locations

Véhicules routiers — Mesure de la température dans les dispositifs d'essai anthropomorphes — Définitions des positions des capteurs de température



Reference number
ISO/TR 27957:2020(E)

© ISO 2020



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020, Published in Switzerland

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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Equipment for temperature measurement and data logging **1**
5 Arrangement of temperature sensors in anthropomorphic test devices **1**
Annex A (informative) **Hybrid-III** **2**
Annex B (informative) **SID-IIs** **12**
Annex C (informative) **ES-2 and ES-2re** **14**
Annex D (informative) **WorldSID 5th + 50th** **16**
Annex E (informative) **THOR-M 50th + 5th** **18**
Annex F (informative) **Q-Children** **20**
Annex G (informative) **BioRID** **28**
Bibliography **30**

© ISO 2020 – 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 (see 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 (see 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.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 36, *Safety and impact testing*.

This second edition cancels and replaces the first edition (ISO/TR 27957:2008), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the addition of Annexes D to G to include temperature positions for multiple devices.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2020 – All rights reserved

Introduction

This document proposes the number and the arrangement of the temperature measuring points in anthropomorphic test devices (ATDs). The proposal is based on several studies and is intended to ensure that the temperature of the ATD is in accordance with the temperature corridor prescribed by the applied test procedure.

The temperature sensitivity of ATD components has long been recognized. All ATDs used for testing in accordance with current test procedures have prescribed temperature ranges for certification and testing. However, the procedure for verifying ATD temperature can vary from one testing facility to another. To improve the comparability of test data between laboratories, it is considered necessary to define a single practice for the measurement of ATD temperature.

© ISO 2020 – All rights reserved

TECHNICAL REPORT **ISO/TR 27957:2020**

Road vehicles — Temperature measurement in anthropomorphic test devices — Definition of the temperature sensor locations

1 Scope

This document defines the number and the arrangement of temperature measuring points for anthropomorphic test devices in order to ensure that the temperature of the ATD is in accordance with the temperature corridor prescribed by the applied test procedure.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6487 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Equipment for temperature measurement and data logging

The temperature measurement sensor is mounted with no modifications of dummy structure and performance. The temperature measurement sensor is thermally coupled to the surface according to the figures

5 Arrangement of temperature sensors in anthropomorphic test devices

The locations represent the temperature sensitive parts of the dummies whose readings are consulted for the assessment of the risk of injury. The choice of the sensor locations is feasible and crash-proof.

The sensor locations are chosen in accordance with anthropomorphic test device manufacturer recommendations that are derived from tests conducted during the design process. When such recommendations are not available, the sensor locations are chosen in accordance with other available temperature studies.

The number and the exact locations of the temperature sensors for the different types of anthropomorphic test devices are indicated in Annexes A to G, each annex corresponding to a particular type of anthropomorphic test device or anthropomorphic test device family.

© ISO 2020 – All rights reserved