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Road vehicles — Design and performance specifications for advanced Pedestrian Legform Impactor (aPLI)

bsi.

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Foreword

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

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.

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Introduction

This document has been prepared on the basis of the existing design, specifications and performance of advanced pedestrian legform impactor (aPLI) standard build level B (SBL-B). The purpose of this document is to document the design and specifications of this pedestrian legform impactor in a form suitable and intended for worldwide harmonized use.

In 2014, aPLI development started, with the aims of defining a globally accepted next-generation pedestrian legform impactor, with enhanced biofidelity and injury assessment capability by implementing an upper mass to represent the influence of the upper body of a pedestrian, and suitable for harmonized use. Participating in the development were research institutes, dummy and instrumentation manufacturers, governments and car manufacturers from around the world. Details are given in Annex A through Annex G and Annex P.

aPLI drawings in electronic format are available. Details are given in Annex I and Annex H.

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Road vehicles — Design and performance specifications for advanced Pedestrian Legform Impactor (aPLI)

1 Scope

This document provides definitions, symbols, mechanical requirements, certification test procedure, electronic subsystem requirements and user's manual for advanced pedestrian legform impactor (aPLI), a standardized pedestrian legform impactor with an upper mass for pedestrian subsystem testing of road vehicles. It is applicable to impact tests involving:

— vehicles of category M1, except vehicles with the maximum mass above 2 500 kg and which are derived from N1 category vehicles and where the driver's position, R-point, is either forward of the front axle or longitudinally rearwards of the front axle transverse centreline by a maximum of 1 100 mm;

— vehicles of category N1, except where the driver's position, R-point, is either forward of the front axle or longitudinally rearwards of the front axle transverse centreline by a maximum of 1 100 mm;

— impacts to the bumper test area as defined by UN R127[1] and UN GTR No.9[2];

— pedestrian subsystem tests involving use of a legform for the purpose of evaluating compliance with vehicle safety standards.

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*

ISO/TS 13499, *Road vehicles — Multimedia data exchange format for impact tests*

SAE J2570, *Performance Specifications for Anthropomorphic Test Device Transducers*

SAE J211-1, *Instrumentation for Impact Test Part 1 — Electronic Instrumentation*

3 Terms and definitions

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

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

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

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

3.1
abduction
rotation of the *lower limb* (3.34) relative to the *upper mass* (3.49) as the lower limb is rotated toward the *struck side* (3.37)

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