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Road restraint systems - Guidelines for computational mechanics of crash testing against vehicle restraint system - Part 2: Vehicle Modelling and Verification

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English Version

Road restraint systems - Guidelines for computational mechanics of crash testing against vehicle restraint system - Part 2: Vehicle Modelling and Verification

Dispositifs de retenue routiers - Recommandations pour la simulation numérique d'essai de choc sur des dispositifs de retenue des véhicules - Partie 2: Composition et vérification des modèles numériques de véhicules

Rückhaltesysteme an Straßen - Richtlinien für Computersimulationen von Anprallprüfungen an Fahrzeug-Rückhaltesysteme - Teil 2: Fahrzeugmodellierung und Überprüfung

This Technical Report was approved by CEN on 8 November 2011. It has been drawn up by the Technical Committee CEN/TC 226.

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Foreword

This document (CEN/TR 16303-2:2012) has been prepared by Technical Committee CEN/TC 226 “Road equipment”, the secretariat of which is held by AFNOR.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document consists of this document divided in five Parts under the general title: Guidelines for Computational Mechanics of Crash Testing against Vehicle Restraint System:

— *Part 1: Common reference information and reporting*

— *Part 2: Vehicle Modelling and Verification*

— *Part 3: Test Item Modelling and Verification*

— *Part 4:Validation Procedures*

— Part 5: *Analyst Qualification*[1]

[1] In preparation

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Introduction

This part of CEN/TR 16303 is informative. It gives general information for the development of a vehicle model for crash test simulation against vehicle restrain system.

Two different categories of vehicle models can be identified. The first category consists of a detailed model (usually finite element) of a vehicle or of a portion of it, typically used in the automotive industry to assess the structural performance and properties of the vehicle. A second type of vehicle model (finite element or multi-body), instead, is typically used to assess the barrier performance in the simulation of full-scale crash tests. In this case, a less detailed model is required, in order to obtain a computationally cost-effective tool for the analysis of several different crash scenarios. At the same time, it is mandatory to reproduce faithfully the correct inertial properties and outer geometry of the vehicle.

This Part of the guideline is meant to provide the user with all the information necessary to develop a complete and efficient numerical model of a vehicle in order to properly simulate a crash event (second category of vehicle above). It is not convenient to use a very detailed model, because of the unaffordable increase in the computational costs. In this perspective, the vehicle model can be regarded as a tool for the analysis of a crash event.

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