**BSI Standards Publication**

# Road vehicles — Safety and cybersecurity for automated driving systems — Design, verification and validation

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# National foreword

This Published Document is the UK implementation of ISO/TR 4804:2020.

The UK participation in its preparation was entrusted to Technical Committee AUE/32, Electrical and electronic components and general system aspects (Road vehicles).

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

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Published by BSI Standards Limited 2021

ISBN 978 0 539 12636 5

ICS 43.020

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 28 February 2021.

**Amendments/corrigenda issued since publication**

| Date | Text affected |
|------|---------------|

TECHNICAL

ISO/TR

First edition
2020-12

# Road vehicles — Safety and cybersecurity for automated driving systems — Design, verification and validation

*Véhicules routiers — Sécurité et cybersécurité pour les systèmes de conduite automatisée — Conception, vérification et validation*

Reference number
ISO/TR 4804:2020(E)

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# Foreword

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This document was prepared by Technical Committee ISO/TC 22, *Road Vehicles*.

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.

# Introduction

Automated driving is one of the key modern technologies. In addition to offering broader access to mobility, it may also help to reduce the number of road traffic related accidents and crashes. When doing so, the safe operation of automated driving vehicles is one of the most important factors. Designed to supplement existing standards and publications on various aspects of safety, this document presents a more technical overview of the recommendations, guidance and methods to achieve a positive risk balance and to avoid unreasonable risk and cybersecurity related threats, emphasizing the importance of safety by design. This document closes the loop to provide a discussion with recommendations and methods on the verification and validation of automated driving systems.

Set forth are a proposed framework and guidelines focused on the safety and cybersecurity during the development, verification, validation, production and operation of automated driving systems for all stakeholders in the automotive and mobility world – from technology start-ups through to established OEMs and the tiered suppliers of key technologies.

# Road vehicles — Safety and cybersecurity for automated driving systems — Design, verification and validation

## 1   Scope

This document describes steps for developing and validating automated driving systems based on basic safety principles derived from worldwide applicable publications. It considers safety- and cybersecurity-by-design, as well as verification and validation methods for automated driving systems focused on vehicles with level 3 and level 4 features according to SAE J3016:2018. In addition, it outlines cybersecurity considerations intersecting with objectives for safety of automated driving systems.

## 2   Normative references

There are no normative references in this document

## 3   Terms and definitions

For the purposes of this document, the following terms and definitions 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/

**3.1**
**automated driving system**
**ADS**
set of *elements* (3.14) that offer a specific conditional or higher automated driving *use case* (3.63) in or for a specific *ODD* (3.37)

**3.2**
**automated vehicle**
**AV**
vehicle equipped with at least one conditional (SAE level 3) or higher (SAE level 4/level 5) *automated driving system* (3.1)

**3.3**
**availability**
*capability* (3.4) of a product to provide a stated function if demanded, under given conditions over its defined lifetime

Note 1 to entry: In the context of this document the product is the *automated driving system* (3.1).

Note 2 to entry: In the context of this document "availability" is defined solely referring to the automated driving system aspects and does not include human factor aspects.

[SOURCE: ISO 26262-1:2018, 3.7]

**3.4**
**capability**
ability of a product to deliver a function, feature or service

Note 1 to entry: In the context of this document the product is the *automated driving system* (3.1).