



AI AND FUNCTIONAL SAFETY

BARNABY SIMKIN, HEAD OF REGULATORY AFFAIRS | 13/03/23

AI AND FUNCTIONAL SAFETY

The Standardization Context

- General
 - ISO 22989 - Information technology – Artificial intelligence – Artificial intelligence concepts and terminology
 - ISO/IEC JTC1 TR 5469 on “Artificial intelligence – Functional safety and AI systems”
- Automotive
 - ISO 21448 - Annex D.2 - “Implications for Machine Learning”
 - ISO/TS 5083 - Annex B - “Safety and cybersecurity for AI - application to automated driving systems”
 - ISO PAS 8800 - “Road Vehicles - Safety and Artificial Intelligence”

ISO/IEC DTR 5469

Artificial intelligence — functional safety and AI systems

Scope:

- It describes the properties, related risk factors, available methods and processes relating to:
 - Use of AI inside a safety related function to realize the functionality
 - Use of non-AI safety related functions to ensure safety for an AI controlled equipment
 - Use of AI systems to design and develop safety related functions

Current in final TR publication stage.

Expected to be available in Spring 2023.

To continue as TS.

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ISO/IEC TR 5469:202x(E)
ISO/IEC JTC 1/SC 42/WG 3

Secretariat: ANSI

Artificial intelligence — Functional safety and AI systems

Draft Technical Report stage

Warning for WDs and CDs

This document is not an ISO International Standard. It is distributed for review and comment. It is subject to change without notice and may not be referred to as an International Standard.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

ISO 21448

Road Vehicles — Safety of the intended functionality

Scope:

- provides a general argumentation framework and guidance on measures to ensure the safety of the intended functionality (SOTIF), which is the absence of unreasonable risk due to a hazard caused by functional insufficiencies, i.e.:
 - The insufficiencies of specification of the intended functionality at the vehicle level, or
 - The insufficiencies of specification or performance insufficiencies in the implementation of electric and/or electronic (E/E) elements in the system.

Published.

INTERNATIONAL
STANDARD

ISO
21448

First edition
2022-06

**Road vehicles — Safety of the intended
functionality**

Véhicules routiers — Sécurité de la fonction attendue



Reference number
ISO 21448:2022(E)

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ISO/PAS 8800

Road Vehicles — Safety and artificial intelligence

Scope:

- addresses the risk of undesired behavior caused by safety-related errors at the AI element level (i.e. trained AI model or AI system) and vehicle level due to functional insufficiencies, classic systematic faults and random hardware faults within a road vehicle context.
- It defines safety properties of the AI in order to argue the absence of unreasonable risk.

Current in internal draft stage.

Expected to be published by March of 2024.

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ISO/TC 22/SC 32
ISO/AWI PAS 8800(en)
Secretariat: JISC

4 **Road Vehicles — Safety and artificial intelligence**

5 *Véhicules routiers — Sécurité et intelligence artificielle*

ISO/TS 5083

Road Vehicles — Safety for automated driving systems — Design, verification and validation

Scope:

- provides an overview and guidance of the steps for developing and validating a vehicle equipped with a safe automated driving system.
- The approach is based on top level safety goals and basic principles derived from worldwide applicable publications. It considers safety by design, verification and validation methods for automated driving focused on SAE level 3 and level 4 vehicles according to ISO/SAE PAS 22736.
- In addition, it outlines cybersecurity considerations throughout all described steps.

Current in draft stage.

Expected to be published by end of 2023.

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ISO/TC 22/SC 32
ISO/AWI TS 5083(en)
Secretariat: JISC

4 **Road vehicles — Safety for automated driving systems — Design,**
5 **verification and validation**

6 *Véhicules routiers — Sécurité des systèmes de conduite automatisée — Conception, vérification et*
7 *validation*

