

ICS 43.040
CCS T 35



中华人民共和国国家标准
NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 43253.2-2023

**Road Vehicles—Functional Safety Audit and
Assessment Method—Part 2: Concept Phase and
System Level**

道路车辆 功能安全审核及评估方法
第 2 部分：概念阶段和系统层面

(English Translation)

Issued on 2023-11-27

Implemented on 2023-11-27

Jointly Issued by
State Administration for Market Regulation of the People's Republic of China &
Standardization Administration of the People's Republic of China

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FOREWORD

This document is drafted in accordance with the rules given in GB/T 1.1-2020 “*Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents*”.

This document is Part 2 of GB/T 43253 “Road vehicles - Functional safety audit and assessment method”. The following parts of GB/T 43253 have been issued:

- Part 1: General requirements;
- Part 2: Concept phase and system level;
- Part 3: Software level;
- Part 4: Hardware level.

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This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This document was prepared by SAC/TC 114 (National Technical Committee on Road Vehicles of Standardization Administration of China).

This document was drafted by China Automotive Technology Research Center Co., Ltd., China FAW Group Co., Ltd., Shenzhen DJI Zhuojian Technology Co., Ltd., Guangzhou Automobile Group Co., Ltd., Shanghai Motor Vehicle Testing and Certification Technology Research Center Co., Ltd., Neusoft Ruichi Automotive Technology (Shanghai) Co., Ltd., China Changan Automobile Group Co., Ltd., and Zhixing Automotive Technology (Suzhou) Co., Ltd. Beijing Horizon Robotics Technology R&D Co., Ltd., NIO Automotive Technology (Anhui) Co., Ltd., Schaeffler (China) Co., Ltd., Aisin (Suzhou) Automotive Technology Center Co., Ltd. Hangzhou Branch, Chongqing Changan Automotive Software Technology Co., Ltd., and Beijing National New Energy Vehicle Technology Innovation Center Co., Ltd.

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INTRODUCTION

GB/T 43253 “Road vehicles - Functional safety audit and assessment method” is applicable to the audit and assessment activities for the safety-related electrical and/or electronic (E/E) systems within road vehicles during the safety lifecycle, based on GB/T 34590 “Road Vehicles - Functional Safety”.

Safety is one of the key issues in the development of road vehicles, and the increasing number of electrical, electronic and software related functions contained in vehicles strengthens the need for functional safety and the need to provide evidence that functional safety objectives are satisfied.

In order to confirm the compliance of E/E systems with the functional safety process and functional safety requirements, GB/T 43253:

- a) Provides the general processes, implementation methods and requirements for conducting functional safety audit and assessment at the organization level;
- b) Provides the processes, methods and requirements for the functional safety audit and assessment of safety-related E/E systems at the concept phase, system level, software level and hardware level;
- c) Provides the checklists and reference examples for functional safety audit and assessment.

GB/T 43253 consists of the following four parts:

- Part 1: General requirements, which aims to specify the general requirements for functional safety audit and assessment activities in different phases.
- Part 2: Concept phase and system level, which aims to specify the requirements for functional safety audit and assessment activities during the concept phase and at the system level.
- Part 3: Software level, which aims to specify the requirements for functional safety audit and assessment activities at the software level.
- Part 4: Hardware level, which aims to specify the requirements for functional safety audit and assessment activities at the hardware level.

The functional safety audit and assessment activities accompany the iterative functional safety development process. Figure 1 shows the overall structure of GB/T 43253, and is based upon a V-model as a reference process model of audit and assessment for the different phases, objects and scopes of product development.

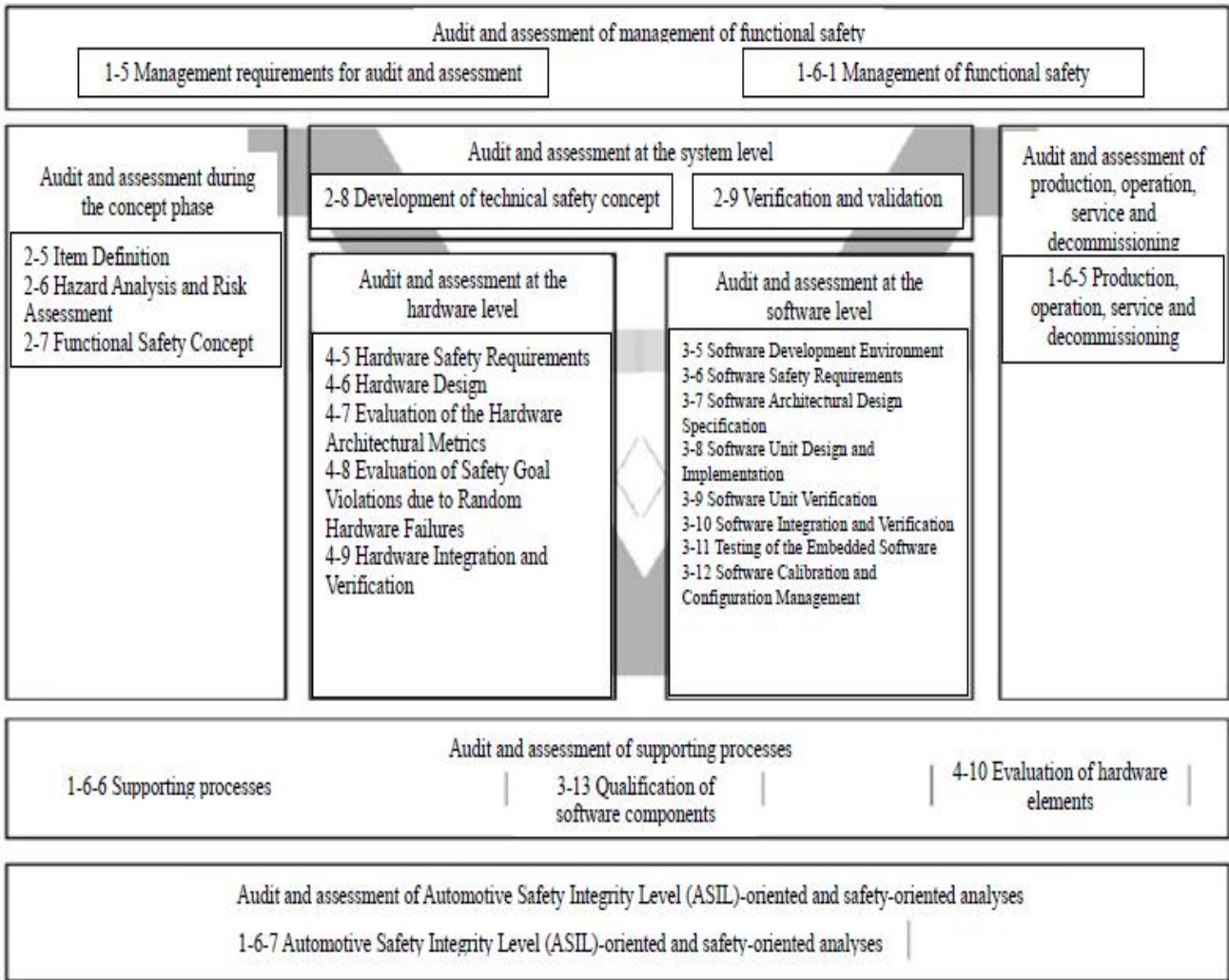


Figure 1 Overview of functional safety audit and assessment

Road Vehicles—Functional Safety Audit and Assessment Method

—Part 2: Concept Phase and System Level

1 SCOPE

This document specifies the functional safety related activities and work products for the safety-related electrical and/or electronic (E/E) systems during the concept phase and at the system level, and the requirements for and methods of making functional safety audit and assessment, so as to check and verify the compliance of the development process and work products with the functional safety.

This document is applicable to the safety-related systems that include one or more E/E systems and that are installed in series production road vehicles, excluding mopeds.

This document is not applicable to the specific E/E systems in special purpose vehicles such as E/E system designed for drivers with disabilities.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB/T 34590.1~ GB/T 34590.12-2022 Road vehicles - Functional safety

GB/T 43253.1-2023 Road vehicles—Functional safety audit and assessment method—Part 1: General requirements

GB/T 43253.3-2023 Road vehicles—Functional safety audit and assessment method—Part 3: Software level

GB/T 43253.4-2023 Road vehicles—Functional safety audit and assessment method—Part 4: Hardware level

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions given in GB/T 34590.1-2022 apply.

4 GENERAL REQUIREMENTS

For the purpose of this document, the audit and assessment requirements specified in GB/T 43253.1-2023 apply.

The functional safety audit and assessment during the concept phase and at the system level mainly involve the following information:

- Definition of item to be assessed;
- Hazard analysis and risk assessment (HARA);
- Development of functional safety concept;
- Development of technical safety concept;
- Verification and Validation.

Through audit and assessment, check the functional safety concept and the functional safety development at the system level based on evidences to confirm that:

- The functional safety objectives, functional safety concept and technical safety concept are appropriate and complete;
- The item design achieves the functional safety objectives, functional safety concept and technical safety concept;
- The functional safety development process, methods and tools used are appropriate.

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