SESEC V Translation

Translation of 10-Year Anniversary Report on Constructing the Intelligent and Connected Vehicle Standard System in China

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Seconded European Standardization Expert in China
(SESEC)

INTRODUCTION:

Over the past decade, China has established a comprehensive intelligent and connected vehicle (ICV) standard system, covering automated driving, advanced driver assistance systems (ADAS), information security, connected communication, and more. By developing or revising 20 national and sector standards in automated driving and 31 in ADAS, China has strengthened industry regulation and technological advancement. Active participation in global standardization—leading ISO initiatives—has reinforced China's role in shaping ICV development worldwide. These outcomes reflect a decade of collaborative progress in the safety, innovation, and international harmonization of the automotive industry.

The Secretariat of the National Technical Committee of Auto Standardization (SAC/TC114) has compiled a comprehensive review report summarizing China's decade of progress in ICV standardization. This article is published on the official WeChat account of the China Automotive Standardization Institute (CAS), the standardization research arm of China Automotive Technology & Research Center (CATARC). SESEC has translated the original article for European stakeholders to ensure that those actively engaged in business with China are also kept informed.

Here is the link to the original article from SAC/TC114:

https://mp.weixin.qq.com/s/MZofe9Ov7GwD59ijgsn_2A

DISCLAIMER:

This English version is an unofficial translation of the original Chinese document, produced by SESEC for reference purposes only. In the event of any discrepancies between the English and Chinese versions, the Chinese version shall prevail. SESEC accepts no responsibility or liability for any errors, inaccuracies, or misunderstandings arising from this translation.

10-Year Anniversary Report on Constructing the Intelligent and Connected Vehicle Standard System in China

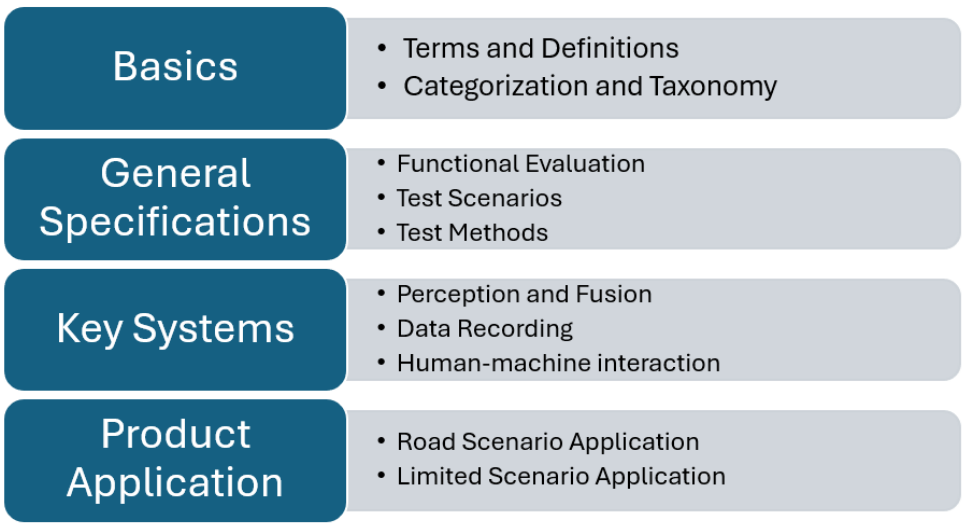
On the occasion of the *10th Intelligent and Connected Vehicle Technology and Standard Regulation Exchange Conference* (ICV2025), the Secretariat of the National Technical Committee of Auto Standardization (SAC/TC114) has summarized the development process and key achievements of China's intelligent and connected vehicle (ICV) standard system, covering seven main technical areas: automated driving, advanced driver assistance systems (ADAS), information security, connected communication, resource management & services, automotive electronics, and functional safety. This work documents a decade of collaborative effort in ICV standardization witnessed by the entire automotive industry.

Automated Driving

Domain Positioning

Conduct research and formulation of national and sector standards related to Automated Driving (levels 3-5 driving automation) and serve the regulation and development of the Automated Driving industry.

Standard System Framework of Automated Driving



Standards List

Domestic Standards List

Standard No./Project No.	Standard Name	Status
GB/T 40429-2021	Taxonomy of driving automation for vehicles	Published
GB/T 41798-2022	Intelligent and connected vehicles — Track testing methods and requirements for automated driving functions	Published
GB/T 44719-2024	Intelligent and connected vehicle — Methods and requirements of road test for automated driving functions	Published
GB/T 44721-2024	Intelligent and connected vehicle — General technical requirements for automated driving system	Published
GB 44497-2024	Intelligent and connected vehicle — Data storage system for automated driving (Mandatory standard)	Published
GB/T 44373-2024	Intelligent and Connected Vehicles — Terms and Definitions	Published

Standard No./Project No.	Standard Name	Status
GB/T 45312-2025	Intelligent and connected vehicles—Operational design condition for automated driving system	Published
20231463-T-339	Intelligent and connected vehicle — Performance requirement and test methods for automated parking system	Submitted for approval
20231022-T-339	Intelligent and connected vehicle — Simulation testing methods and requirements for automated driving functions	Submitted for approval
20231590-T-339	Road vehicles — Data communication between sensors and data fusion unit for automated driving functions — Logical interface	Submitted for approval
20231766-T-339	Road vehicles - Test scenarios for automated driving systems - Vocabulary	Submitted for approval
20231755-T-339	Road vehicles — Test scenarios for automated driving systems — Scenario based safety evaluation framework	Submitted for approval
20250938-T-339	Technical requirements and test methods for on-board positioning system — Part 3: Fusion positioning	Project approved
2024-0047T-QC	Intelligent and connected vehicle — Technical specification for port automated driving systems	Project approved
——	Intelligent and connected vehicles — Safety requirements for automated driving systems (Revision and is recommended to be a mandatory standard)	Applying for project approval
——	Intelligent and connected vehicle — Technical specification for safety event data interaction and management systems	Applying for project approval
——	Road vehicles — Test scenarios for automated driving systems — Data collection and analysis methods	Under preliminary research
——	Intelligent and connected vehicle — Coordinate system	Under preliminary research
——	Road vehicles - Test scenarios for automated driving systems - Scenario categorization	Under preliminary research
——	User notification and safe operation specification for driving automation functions	Under preliminary research

International Standards List - Led by China

Standard or Regulation No.	Standard or Regulation Name	Progress
ADS GTR	Global technical regulation on automated driving systems	Project approved
ISO 34501:2022	Road vehicles — Test scenarios for automated driving systems — Vocabulary	Published
ISO 34502:2022	Road vehicles — Test scenarios for automated driving systems — Scenario based safety evaluation framework	Published
ISO 34503:2022	Road vehicles — Test scenarios for automated driving systems — Specification for operational design domain	Published
ISO 34505:2022	Road vehicles — Test scenarios for automated driving systems — Scenario evaluation and test scenario generation	Published
ISO 34507	Road vehicles — Test scenarios for automated driving systems — Controlled natural language for describing scenarios for automated driving systems	Project approved

In the field of automated driving, **20 national and sector standards** have been initiated, including 2 mandatory national standards, namely the ***Intelligent and connected vehicle — Data storage system for automated driving***, and the ***Intelligent and connected vehicle — Safety requirements of automated driving systems***, 17 recommended national standards, and 1 automotive sector standard. Among these, 12 standards have been published or submitted for approval.

- Collaborated with international standards and regulations organizations to establish an automated driving testing and evaluation framework based on the "multi-Pillar approach," providing compliance assurance for automotive enterprises and their automated driving products.
- Developed standards such as ***Taxonomy of Driving Automation***, ***General Requirements for Automated Driving***, ***Safety Requirements***, and ***Test Methods***, establishing a foundational and systematic standardization framework for automated driving.
- Led international standards such as ***Test Scenarios for Automated Driving Systems*** and global technical regulations like ***Automated Driving System***, making substantive contributions to the development of global automated driving technology.

2015-2025 Standardization Milestones for Automated Driving

March 2017
Initiated the development of the first recommended national standard in the automated driving field: ***Taxonomy of driving automation for vehicles***.

January 2018
Established the standard working group on automated driving.

July 2019
Standard project approved for recommended national standard ***Taxonomy of driving automation for vehicles***.

August 2021
Published the first recommended national standard in the automated driving field: ***GB/T 40429-2021 Taxonomy of driving automation for vehicles***.

October 2022

The first international standard that is led by China in the field of automated driving, namely the ***ISO 34501:2022 Road vehicles — Test scenarios for automated driving systems — Vocabulary***, was officially published.

October 2022

Published the first recommended national standard for test methods in the automated driving field: ***GB/T 41798-2022 Intelligent and connected vehicles — Track testing methods and requirements for automated driving functions***.

January 2024

Published the first recommended national standard for test methods in the automated driving.

August 2024

First mandatory national standard in the automated driving field, ***GB 44497-2024 Intelligent and connected vehicle — Data storage system for automated driving,*** is published.

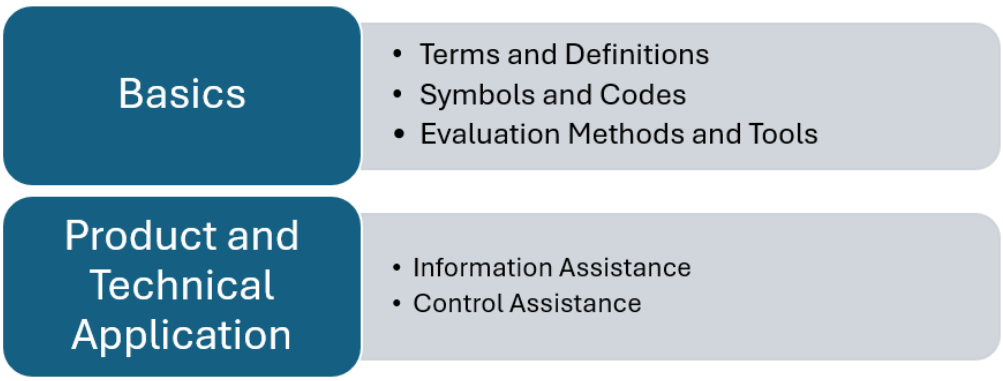
February 2025
Submitted the core standard supporting automated driving market access management, Intelligent and connected vehicle — Safety requirements of automated driving systems (Revision from recommended to mandatory standard).

Advanced Driver Assistance System (ADAS) Section

Domain Positioning

Conduct research and formulation of national and sector standards related to Advanced Driver Assistance Systems (ADAS, Levels 0-2 driving automation), covering technical requirements and test methods for information assistance and control assistance functions.

ADAS Standard System Framework



Standards List

Domestic Standards List

Standard No./Project No.	Standard Name	Progress
GB/T 38186-2019[1]	Road vehicles — Performance requirements and testing methods for blind spot detection (BSD) System	Published
GB/T 39263-2020	Road vehicles—Advanced driver assistance systems—Terms and definitions	Published
GB/ 39323-2020	Performance requirements and testing method for lane keeping assist (LKA) system of passenger cars	Published
GB/T 39901-2021	Performance requirements and test methods for advanced emergency braking system (AEBS) of passenger cars	Published
GB/T 41630-2022	Performance requirements and test methods for intelligent parking assist system	Published
GB/T 41796-2022	Performance Requirements and Test Methods for Lane Keeping Assistance Systems for Commercial Vehicles	Published
GB/T 41797-2022	Performance requirements and test methods for driver attention monitoring system	Published
GB/T 44174-2024	Performance requirements and testing methods for night vision system of passenger cars	Published
GB/T 44156-2024	Performance requirements and testing methods for rear cross traffic alert system of passenger cars	Published

[1] Translator annotation: under this standard name, the correct standard number should be GB/T 39265-2020, and the correct standard name for GB/T 38186-2019 should be ***Performance requirements and test methods for advanced emergency braking system (AEBS) of commercial vehicles***.

Standard No./Project No.	Standard Name	Progress
GB/T 44173-2024	Performance requirements and testing methods for door open warning system of passenger cars	Published
GB/T 44176-2024	Performance requirements and testing methods for around view monitoring system of vehicles	Published
GB/T 44433-2024	Performance requirements and testing methods for intelligent speed limit system of vehicles	Published
GB/T 44298-2024	Intelligent and connected vehicles — Symbols for controls, indicators and tell-tales	Published
GB/T 44461.1-2024	Intelligent and connected vehicle — Technical requirements and testing methods for combined driver assistance system — Part 1: Single-lane maneuver	Published
GB/T 44461.2-2024	Intelligent and connected vehicle — Technical requirements and testing methods for combined driver assistance system — Part 2: Multi-lane maneuver	Published
20242720-T-339	Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions — Part 3: Requirements for passenger vehicle 3D targets	Project approved
20242721-T-339	Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions — Part 4: Requirements for pedalcyclist targets	Project approved
20242721-Q-339	Technical requirements and testing methods for advanced emergency braking system of light-duty vehicles (Mandatory standard, revision)	Project approved
20251261-T-339	Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions — Part 1: Requirements for rear-end targets	Project approved
——	Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions — Part 2: Requirements for pedestrian targets	Applying for project approval
——	Intelligent and connected vehicle — Performance requirements and testing methods for partial driving assistance and longitudinal control system	Applying for project approval
——	Technical specification for vehicle reversing assistance system	Applying for project approval
——	Technical specification for advanced emergency braking systems of heavy-duty vehicles (Mandatory standard, Revision)	Applying for project approval
——	Technical requirements and testing methods for commercial vehicle vulnerable road user movement detection systems	Applying for project approval
——	Intelligent and connected vehicle — Safety requirements of combined driver assistance system (Mandatory standard)	Applying for project approval
——	Intelligent and connected vehicle — Construction method of emergency driving behavior model	Applying for project approval
——	Technical requirements and testing methods for acceleration control for pedal error	Applying for project approval
——	Intelligent and connected vehicle — Guidelines for subjective	Under

Standard No./Project No.	Standard Name	Progress
	evaluation of driving automation system	preliminary research
——	Performance requirements and testing methods for emergency steering assist system for passenger cars	Under preliminary research
——	Performance requirements and test methods for intelligent parking assist system (Revision)	Under preliminary research

International Standards List - Led by China

Standard or Regulation No.	Standard or Regulation Name	Progress
ISO 25354	Road vehicles — Test method to evaluate the performance of door open warning system	Project approved
ISO 25355	Road vehicles — Testing method for rear cross traffic alert system for passenger cars	Project approved
To be determined	Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions — Part 11: Specification for heavy-duty truck/trailer targets	Under preliminary research
To be determined	Road vehicles — Immunity of advanced driver assistance system	Under preliminary research

The development or revision work of 31 national and sector standards has been started, including 4 mandatory national standards and 27 recommended national standards. Among these, 16 have been published or submitted for approval. Additionally, China leads the development of 4 international standards.

- Developed national standards for emergency assistance, partial driving assistance, and combined driving assistance systems, which comprehensively cover Levels 0-2 driving automation systems. These standards regulate system functional performance, effectively enhancing road traffic safety.
- Formulated the mandatory national standard for Automatic Emergency Braking System (AEBS) to strengthen the safety baseline for emergency assistance functions; formulated the mandatory national standard for combined driving assistance system to regulate enterprise product development and support user safety.
- Proposed the establishment of the Advanced Driver Assistance System Task Force at the United Nations and participated in regulation development; led international standards in different fields such as "door open warning" and "rear cross traffic alert," actively contributing to international standards and regulations coordination.

2015-2025 Standardization Process for Advanced Driver Assistance System

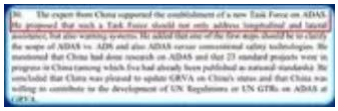
May 2016

Established the standard working group for advanced driver assistance system.

October 2019

Published ***GB/T 38186-2019 Performance requirements and test methods for advanced***

emergency braking system (AEBS) of commercial vehicle.



January 2021

The United Nations World Forum for Harmonization of Vehicle Regulations (WP.29) established the Advanced Driver Assistance System Task Force based on China's proposal.

August 2023

Published ***GB/T 44298-2024 Intelligent and connected vehicles — Symbols for controls, indicators and tell-tales***.

November 2020

Published ***GB/T 39263-2020 Road Vehicles — Terms and definitions for advanced driver assistance system (ADAS)*** .

March 2021

Published ***GB/T 39901-2021 Performance requirements and test methods for advanced emergency braking system (AEBS) of passenger cars***.

January 2024

Started preliminary research for the mandatory

April 2025

The first mandatory national standard in the ADAS field, namely ***Technical requirements and testing methods for advanced emergency braking system of light-duty vehicles***, started its public consultation.

national standard ***Intelligent and connected vehicle — Safety requirements of combined driver assistance system.***

Introduction of SESEC Project

The Seconded European Standardization Expert in China (SESEC) is a visibility project co-financed by the European Commission (EC), the European Free Trade Association (EFTA) secretariat and the three European Standardization organizations (CEN, CENELEC and ETSI). Since 2006, there has been four SESEC projects in China, SESEC I (2006-2009). SESEC II (2009- 2012), SESEC III (2014-2017), SESEC IV (2018- 2022) and SESEC V (2022-2025). Dr. Betty XU is nominated as the SESEC expert and will spend the next 36 months on promoting EU-China standardization information exchange and EU-China standardization cooperation.

The SESEC project supports the strategic objectives of the European Union, EFTA and the European Standardization organizations (ESOs). The purpose of SESEC project is to:

- **Promote European and international standards in China;**
- **Improve contacts with different levels of the Chinese administration, industry and standardization bodies;**
- **Improve the visibility and understanding of the European Standardization System (ESS) in China;**
- **Gather regulatory and standardization intelligence.**

The following areas have been identified as sectoral project priorities by the SESEC project partners: Internet of Things (IoT) & Machine-to-Machine(M2M) communication, communication networks & services, cybersecurity & digital identity, Smart Cities (including transport, power grids & metering), electrical & electronic products, general product safety, medical devices, cosmetics, energy management & environmental protection (including eco-design & labeling, as well as environmental performance of buildings).