

GAST Weekly Report on Automotive Industry & Technology (No. 568)_Special Issue on Interpretation of the *National Guidelines for Developing Standards for the Internet of Vehicles Industry (ICVs) (2023)* Issued by MIIT and SAC July 31, 2023

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Outline

- Title of the policy: National Guidelines for Developing Standards for the Internet of Vehicles Industry (ICVs) (Version 2023)
- Issued by the Ministry of Industry and Information Technology (MIIT) and the Standardization Administration of China (SAC)
- Released on July 26, 2023
- Main content:
 - Background
 - > Development goals and core architecture
 - Major amendments
 - Potential impacts



Background of Releasing the New Version of National Guidelines (1/2)

■ Since the *National Guidelines* released by the MIIT and SAC in December 2017, a series of achievements have been made in the formulation of standards for ICVs

December 2017 September 2022 June 2023 July 2023 **Process** MIIT announced to MIIT and SAC released the MIIT issued the National MIIT and SAC promulgated unveil a new version of National Guidelines (Version Guidelines (Version 2022) the National Guidelines the National Guidelines 2018) (exposure draft) (Version 2023) as soon as possible

The goals set forth in the *Guidelines (Version 2018)* have been basically achieved until now. With the formulation and amendment of relevant standards, it has reached the international leading level in terms of the degree of improvement and the number of standards

Achievements (Version 2018)

Take the lead in releasing a plan for developing ICV standards

- Have continuously promoted the R&D of technologies and the formulation of standards for the IoV industry
- Have steadily underpinned the sound and sustainable development of the industry

Take active steps to establish the Subcommittee on ICVs

- > 11 meetings for reviewing standards
- 28 standards for reviewal
- 87 times of electronic voting
- More than 400 seminars

Accelerate the formulation of imperative standards

- Submit and release 56 standards
- ➤ Approve and initiate 39 standards
- Study the demand for 31 standards Complete more than 40 times of test and validation

Get deeply involved in the formulation and orchestration of international standards

- It is classified as a reference by the UN, ISO, etc.
- Provide guidance for global automakers to make strategic deployment and product plans
- The *Guidelines (Version 2018)* has guided the initial establishment of a system of standards for ICVs and made active contributions to harmonizing with relevant international regulations, playing a leading role



Background of Releasing the New Version of National Guidelines (2/2)

To adapt to new trends, new features, and new needs of the ICV development in China, the MIIT and SAC jointly released a new version of the National Guidelines to cater to the industry

China's ICV industry is facing new situations, new opportunities, and new challenges → call for the update of standards for better development

New changes in the industry

- ① Marked progress in intelligent and connected technologies
- Advanced perception technologies; domestically developed control algorithms
- Separate driver assistance functions evolve into combined ones
- > AD technology is more suitable in different use cases
- Connectivity technology gets more stable and reliable
- > Auto cybersecurity and data security see a higher status

(2) ICV industry is getting more mature

- Driver assist/AD functions are becoming mature faster
- Connectivity communication technologies are adopted in more use cases
- SW is becoming increasingly valuable for automobiles
- Data and platforms continuously play a greater role
- New safety technologies face more daunting tasks

(3) The industry is short of unified standards

- Determine the responsibility border of AD (urgent need)
- > Define the scope of driver assistance functions
- Establish a comprehensive auto safety system
- Coordinate basic functions and development cost
- Harmonize industrial policies with international regulations

To better adapt to new development trends, the new version caters to the industry in a more scientific and improved way

Ideas of formulating standards

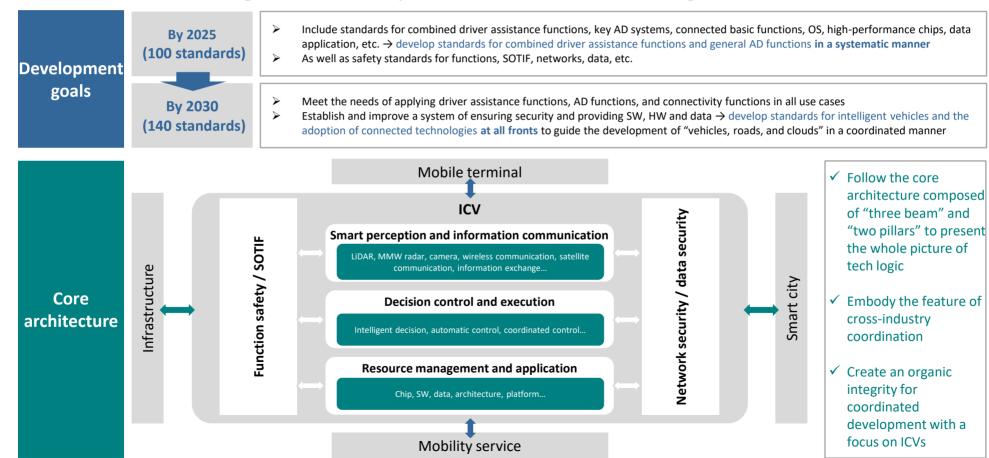
- 1 Adapt to development: accommodate to new trends, new business formats, and new needs at a new development stage
- 2 Coordinate innovation: pursue innovative development in a coordinated manner with a focus on intelligent and connected technologies
- 3 Accommodate needs: satisfy needs of businesses for product R&D and ecosystem building, as well as needs of governments for industry management
- 4 Ensure safety: pursue innovation and ensure basic security in parallel
- (5) Harmonize with international regulations: harmonize national standards with international regulations
- 6 Build a system: develop a scientific, reasonable, open, innovative, coordinated, and compatible system of ICV standards

Basic principles

- Coordinate plans and promotion efforts
- Cater to needs and encourage innovation
- 3 Hold the bottom line and ensure safety
- Go open and compatible with dynamic improvements
- □ Dynamic and flexible, the National Guidelines would be updated dynamically to adapt to new development trends of the industry → keep pace with the times to guide and standardize the industry to develop in an orderly manner

Development Goals and Core Architecture

■ The new version proposes to develop standards that adapt to national conditions and harmonize with international regulations and lays out a core architecture for goals of 2025 and 2030





Major Amendments: Add Some Content in the Second Level (1/2)

■ The Version 2023 has made some changes in the framework compared to the Version 2018, including adjustments of the first and second levels as well as extension of the third level as per the actual needs of the sub-sectors of the ICV industry

Framework of the ICV standard system					
ICV standard system	Basis	Terms and definitions			
		Types and levels			
		Symbols and encodings			
	General specifications	Functional safety and SOTIF	→ Functional safety, SOTIF		
		Cybersecurity and data security	→ Cybersecurity, data security		
		НМІ	→ Driver interaction, cockpit interaction		
		Maps and positioning			
		Electromagnetic compatibility			
		Evaluation system and tools	→ Evaluation/review capabilities, management/development processes, test equipment/tools, test scenarios		
	_	Information perception and fusion	ightarrow Radar cameras, in-vehicle infotainment terminals, sensor fusion		
	Product and technology application	ADAS	→ Information assistance, control assistance		
	roduct and technology application	AD	ightarrow Functional specifications, test methods, key systems		
	Product and technology application	Networking functions and applications	ightarrow Functional specifications, networking technology applications		
		Resource management and application	ightarrow Platform architectures, automotive software, automotive chips		

Major amendments

- Delete "Related Standards" at the first level in the old version and add a third level
- Refine functional safety and information security
- Add "Maps and Positioning" and "Electromagnetic Compatibility" at the second level
- Clearly define ADAS and AD
- Add "Networking Functions and Applications" and "Resource Management and Application" at the second level

GAST's analysis

- ➤ The ICV industry continues to mature → The framework of the relevant standard system is increasingly refined
- The concept of comprehensive automotive safety has been extended to SOTIF and data security, and technological innovation and basic security assurance are advanced simultaneously
- The ICV industry is seeing faster iteration and maturity of key functions and technologies, continuous push towards commercialization, constant expansion of application scenarios, and deeper integration of resources

☐ The Version 2023 carries forward, extends and refines the Version 2018



Major Amendments: Add Some Content in the Second Level (2/2)

Standards for "Maps and Positioning", "Networking Functions and Applications" and "Resource Management and Application" are newly added in the Version 2023

New part	Specific content	Significance to the industry	
Maps and Positioning	Include standards for coordinate systems, vehicular maps, satellite positioning, inertial navigation and fusion positioning ➤ Standards for coordinate systems: the relevant coordinate systems used for navigation, positioning, ranging, and perception, as well as their technical requirements ➤ Standards for vehicular maps: requirements and evaluation methods for applying vehicular maps to vehicles ➤ Standards for satellite positioning, inertial navigation and fusion positioning: provide safe and reliable positioning services for vehicles → support vehicles to realize functions such as navigation, path planning, and decision control	 ✓ Improve the accuracy and completeness of vehicle positioning and map data ✓ Promote the advancement of AD technologies ✓ Enhance the interactive experience of V2X and ensure comprehensive safety 	
Networking Functions and Applications	Include standards for functional specifications and for networking technology applications Standards for functional specifications: technical requirements and test methods for vehicles to achieve specific functions through wireless communication technologies Standards for networking technology applications: formulate technical requirements and standards for corresponding systems as per different types of wireless communication technologies	 ✓ Facilitate technological innovation and differentiated development of ICVs ✓ Enable interconnection and interoperation between different vehicles and systems ✓ Speed up the application and popularization of V2X 	
Resource Management and Application	Include standards for platform architectures, automotive software, and automotive chips ➤ Standards for platform architectures: standards for ICV cloud control platforms, EEA interfaces, in-vehicle wired communication technologies, diagnostic communication, etc. ➤ Standards for automotive software: standards for software upgrade management, automotive operating systems, and application software → underpin software management and software-level application ➤ Standards for automotive chips: requirements and test methods of the performance of key automotive chips such as safety and computing chips	 ✓ Drive the optimization and integration of industry resources ✓ Promote the scale-up and functional expansion of the V2X platform ✓ Accelerate open innovation in automotive software to meet diverse user needs 	

■ The amendment direction is highly consistent with the development trend of the ICV industry



Potential Impacts on the ICV Industry

The new version would boost the improvement of intelligent driving technologies, the formation of an ICV industrial landscape, and the high-quality development of the ICV industry

Secure the development of intelligent driving technologies

- The goals of two development stages (2025 & 2030) focus on the formulation and amendment of ICV-related standards for AD, connectivity, and other functions → effectively secure the innovation and R&D of technologies; underpin the continuous improvement of perception, decision control, execution, etc. for ICVs
- The new version highlights safety standards \rightarrow drive the comprehensive safety of ICVs to improve at a faster pace

Create a new development pattern of the ICV industry

The "three-beam and two-pillar" core architecture adapts to the characteristics of ICV technologies (deep integration and cross-industry coordination), facilitates coordination between relevant industrial committees, pools multi-party strengths, promotes rapid and sound development of new products, new business formats, and new business models, and creates a new development pattern of the industry

Guide the rapid and sound development of new products, new business formats, and new business models

- The new version keeps pace with the high-quality development of the industry and plays a role in guiding the formulation and amendment of ICV standards as a top-level design → Lay a solid foundation for the ICV industry to pursue high-quality development and make contribution to the orchestration and formulation of international standards and regulations with China-specific wisdom and efforts
- As a top-level design, the *Guidelines (Version 2023)* would play a role in guiding the standards for ICVs and leading the ICV industry to pursue high-quality development



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Company Profile

Setting its foothold in China automotive industry, GAST Strategy Consulting, LLC is oriented to the globe to focus on the ecosystem of the whole automotive industry and starts from three dimensions (industry, enterprise and technology) to carry out in-depth study on strategy design, business positioning, management improvement, system building, business process reengineering, product planning, technology choices and business models. It is dedicated to providing governments at all levels with decision-making support and implementation advice and enterprises in the automotive industry chain and relevant industries with all-dimensional high-level professional consulting services in strategies, management and technologies. Since the establishment, GAST is dedicated to becoming a world top auto think tank as the vision and sharing wisdom as the mission. Adhering to creating value for clients and focusing on actual effects, GAST commits itself to forging long-term partnership and providing guidance service. It has fostered strategic partnership with and is providing services for nearly 100 domestic and international enterprises, organizations in the automotive industry and governments at all levels by virtue of comprehensive, systematic, advanced and pragmatic consulting methods.

Range of Service

Provide diversified and open services and flexible ways of cooperation for customers, including but not limited to:

- Executive-oriented strategy, management and technology consulting services
- All-round and customized special project research: covering macro strategy, industrial development, interpretation of policies and regulations, the internet, business models, corporate strategy and management, auto market, product research, product design methodology, research on auto shows, interpretation of forums, energy conservation and emission reduction, new energy vehicles, intelligent vehicles and comprehensive automotive technologies
- Serve as reliable resource that can win customers' long-term dependence and provide open cooperation that can meet customers' specific requirements at any time
- Provide a high-end sharing platform (CAIT) for industrial communication, exchange and in-depth research
- The company provides nearly 1,000 research reports in Chinese, English and Japanese at present

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