Appendix:

Guideline for Developing

National Internet of Vehicles Industry Standard System

(Intelligent & Connected Vehicle)

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Contents

Foreword

In order to strengthen the top-level design and comprehensively promote the Internet of Vehicles industry research and development and standards formulation to promote the healthy and sustainable development of the industry, the Ministry of Industry and Information Technology and Standardization Administration of P.R.C jointly organized relevant parties to develop the " Guideline for Developing National Internet of Vehicles Industry Standard System " (hereinafter referred to as " the Construction Guide ").

The Internet of Vehicles industry is an emerging industry that deeply integrates the automotive, electronics, information & communications, road transportation and other industries. It is the highlight and stronghold of the global innovation and future development. By fully playing the top - level design and guiding role of standards in establishing the eco - system of the internet of vehicles industry, "the Construction Guide" is divided into the intelligent and connected vehicle standard system, information & communication standard system, electronic product & service standards system and other parts according to the characteristics of different industries, with a view to providing support for building independent, well - controlled, open and collaborative Internet of Vehicles industry with core technologies.

"A Guide to the Construction of the National Standard System for Internet of Vehicles (Intelligent Connected Vehicles)" is the second part of "the Construction Guide", it's released to define the general specifications, core technologies and key product applications of intelligent & connected vehicles, with a view to guiding the standardization of Internet of Vehicles industry and intelligent and connected vehicles with good purposes, plans and priorities, to efficiently developing intelligent & connected vehicle standard system that integrates functional safety and information safety of vehicle and key systems & components, giving full play to the supporting and leading role of intelligent & connected vehicle standards in the key technology, core products and functional applications of Internet of Vehicles industry, and gradually forming a unified and coordinated architecture of national Internet of Vehicles industry standard system.

(This file is translated by Subcommittee 34 on Intelligent and Connected Vehicle of National Technical Committee 114 on Road Vehicles of Standardization Administration of China (SAC/TC114/SC34). It should be subject to the Chinese Edition, while the English edition is just only offered for the reference.)

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I. Overall requirements

(I) Guiding concept

We will implement the strategic planning of " Made in China 2025 ", give full play to the basic and guiding role of the standards, promote the technological and industrial development of intelligent & connected vehicles, and achieve high integration of industrialization and information, so as to meet the needs of R & D, testing, demonstration and operation, to promote the automotive technology innovation & development and industrial transformation and upgrading, to promote the coordinated development of electronic, information, communications and other related industries, to construct a safe, efficient, healthy and intelligent future automotive society, and to establish cross-industry and cross‑sector ICV standard system that is consistent with China's technological and industrial development.

(II) Basic principles

Conduct overall planning based on national conditions. Based on the status quo and characteristics of China's ICV technological and industrial development, we should give full play to the leading role of government departments in the top design, organization & coordination and policy development and other aspects, develop the standard system development program based on government guidance and market drive, and establish of the ICV standard system that adapts to China's national conditions.

Basic and urgent agenda shall be prioritized. We should identify the priorities for developing ICV standard system, speed up the research and development of basic, common and key technical standards; we should also make reasonable arrangements in developing and revising technical standards based on current industrial development and future application needs, and speed up the process of researching and developing the standards in urgent need.

Enterprises should play the major role to promote coordinated cooperation. We should establish the collaborative working mechanism across different industries, sectors and departments, make coordinated use of advantageous resources in automotive information, communications and other related industries, help the enterprises to play the major role in researching and developing the standards in technological innovation, product development, demonstration and application, and actively participate in the coordination, exchange and cooperation of international standards and regulations.

(III) Development goals

According to the status quo of ICV technology, industrial application needs and future development trend, we strive to establish an ICV standard system that adapts to China's national conditions and international practices:

By 2020, we should roughly establish the ICV standard system that can support the driver assistance and low‑level automatic driving. We should develop more than 30 key ICV standards that cover the technical requirements and test methods related to general technologies such as functional safety, information security and man‑machine interface, etc. as well as core functions such as Information sensing & interaction, decision early warning, auxiliary control, and promote comprehensive application of intelligent products and gradual application of network technology;

By 2025, we should establish a sound ICV standard system that can support high‑level automatic driving. We should develop more than 100 ICV standards that cover the technical requirements and test methods related to the function and performance of intelligent automatic control, network collaborative decision technology and automatic driving under typical scenes, and promote " intelligent + network " - based integrative development and comprehensive application of technologies and products;

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By establishing a sound ICV standard system, we should guide and promote technological development and product applications of intelligent network vehicles in China, cultivate the climate for independent innovation of ICV technology, enhance the overall technology level and international competitiveness, and build a safe, efficient, healthy and intelligently running future automotive society.
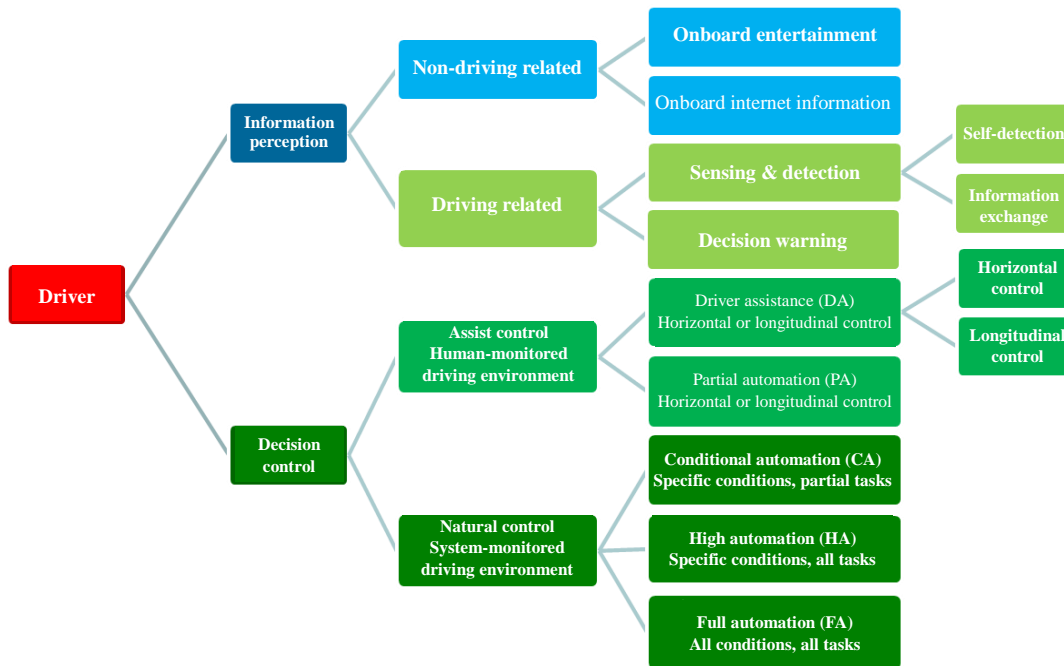
II. Development method

Intelligent network vehicles are new - generation cars that are equipped with advanced vehicle sensors, controllers, actuators and other devices. By integrating modern communications and network technology, they can exchange and share intelligent information between the car and X (people, cars, roads, cloud terminals, etc.). They boast environmental awareness, intelligent decision, collaborative control and other functions, can achieve "safe, efficient, comfortable and energy - saving" driving, and ultimately realize automatic operation in lieu of people.

To build a scientific and rational ICV standard system, we should take full account of the basic situation in different dimensions and sort out the development methods: embrace future technology and avoid causing constraints on technological innovation and industrial development; prioritize intelligence roadmap while also considering the network roadmap; meet China's road & traffic characteristics and industrial needs based on China's basic conditions; conduct scientific classification and define rational hierarchy, positioning and applicable scope; develop the work schedule and speed up the development and revision of standards in urgent need; strengthen systematic coordination to achieve compatibility with other relevant industry standards; keep open-minded to actively participate in the development and coordination of international standards and regulations. By fully considering the above-mentioned ideas, we should focus on the system analysis from the perspective of technical logic structure and physical product structure, analyze the basic characteristics of ICV technology and products, and construct the whole standard system.

(I) Technical logic structure

The two main lines of technical logics of Intelligent Connected Vehicles (ICV) are "information perception" and "decision control". The core of the development for ICV technology is to gradually replace the driver's actual operation with system-based information perception, early warning decision and intelligent control, finally realizing completely autonomous operation of vehicles (as shown in Figure 1). According to the " ICV Technology Roadmap ", ICV can be classified into two categories, i.e., intelligence - oriented and network - oriented; ICV helps achieve "information perception" and "decision control" functions through the two technical paths of intelligence and networking.

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Figure 1 Logic structure of ICV technology

Based on the influence of information on driving behavior and mutual relationship, information can be divided into " driving-related information " and " non - driving related information ". Among them, "driving related information" includes sensing detection information and decision warning information. " Non - driving related information" mainly includes onboard entertainment services and onboard Internet information services. According to the way that information is obtained, the sensing detection information can be further divided into information obtained by relying on the vehicle's own sensor (self-detection) and information that the vehicle itself receives from other external nodes through the vehicle - mounted communication device (information exchange) . The combination of " intelligence-oriented and network – oriented " can make the vehicle perceive the environment more comprehensively through information interaction with the external nodes on the basic of direct detection by its own sensors, so as to better support the vehicle decision and control.

According to the role and responsibilities of vehicle and driver in the vehicle control, the control can be divided into "assist control" and "automatic control" that correspond to different levels of intelligent control. Among them, the assist control mainly means that the vehicle uses various types of electronic technology to assist the driver for vehicle control, such as horizontal control and/or longitudinal control. It can be divided into driver assistance (DA) and partial automation (PA). The automatic control means the scenarios and conditions of vehicle autonomous control and alternative driving; it can be further divided into conditional automation (CA), high automation (HA) and full automation (FA).

(II) The physical structure of the product

The physical structure of ICV products is to implement various "information perception " and "decision control " functions involved in the technical logic to the physical carrier. Based on different purposes, the vehicle control systems, vehicle terminals, transport facilities and external equipment, etc. transmit, process and implement the collected or received information through different network channels, software or platforms, in order to achieve different functions or applications (as shown in Figure 2).

Based on the product form, function type and application scenario, the function and application hierarchy can

be divided into onboard information, intelligent driving assist, autopilot and collaborative control, covering the basic functions that ICV and related products should have had.

The software and platform hierarchy mainly covers the basic platform products such as large data platform, cloud computing platform and operating system, as well as application software products such as information, entertainment, navigation and diagnosis. These products jointly provide platform - level, system - level and application - level services for the realization of ICV's related functions.

Based on different application range of communications , the network and transmission hierarchy can be divided into in - car bus communication, in - car local area communication, medium - and - short range communication and wide area communication. It is the " pipeline " for information transmission.

Based on different functions or uses, the equipment terminal hierarchy can be divided into vehicle control systems, vehicle terminals, transport facility terminals and external equipment, etc. All kinds of equipment and terminals are the carriers for the vehicle to exchange information with external side. As human - computer interaction interface, it also becomes the carrier between " people " and " system ".

The basic and general hierarchy covers the electrical/electronic environment and the behavioral coordination rules. The equipment, terminals or systems mounted on ICV need to use the car power and meet the car's unique electrical and electromagnetic environment requirements to achieve the designed functions; the information interaction and behavior coordination between equipment, terminals or systems should also be realized under unified rules.

In addition, the product physical structure also includes two important components, i.e., functional safety and information security. As the basic conditions that various types of ICV products and applications need to meet, both components run throughout the product physical structure and ensure safe, stable and orderly operation of various types of ICV products and applications.
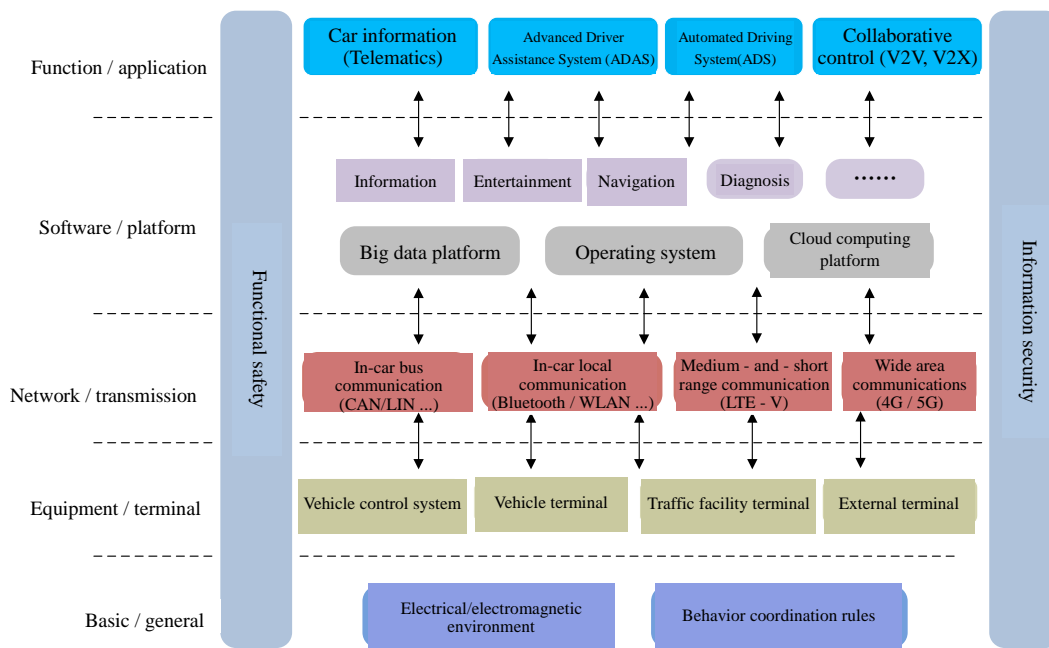

Figure 2 ICV product physical structure

III. Standard system

(I) System framework

According to the method developing ICV's technical logic structure and product physical structure,

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combined with different functional requirements, product & technology types and information flow between subsystems, ICV standard system framework is defined as four parts, i.e., " Basic ", " General specification ", "Product and technology application" and " Related standards ". According to the similarities and differences of specific standards in terms of range and technical level, these four parts are further divided to form 14 completely-described, reasonably-structured and well-defined 14 subclasses (as shown in Figure 3, the numbers in the bracket are system numbers).
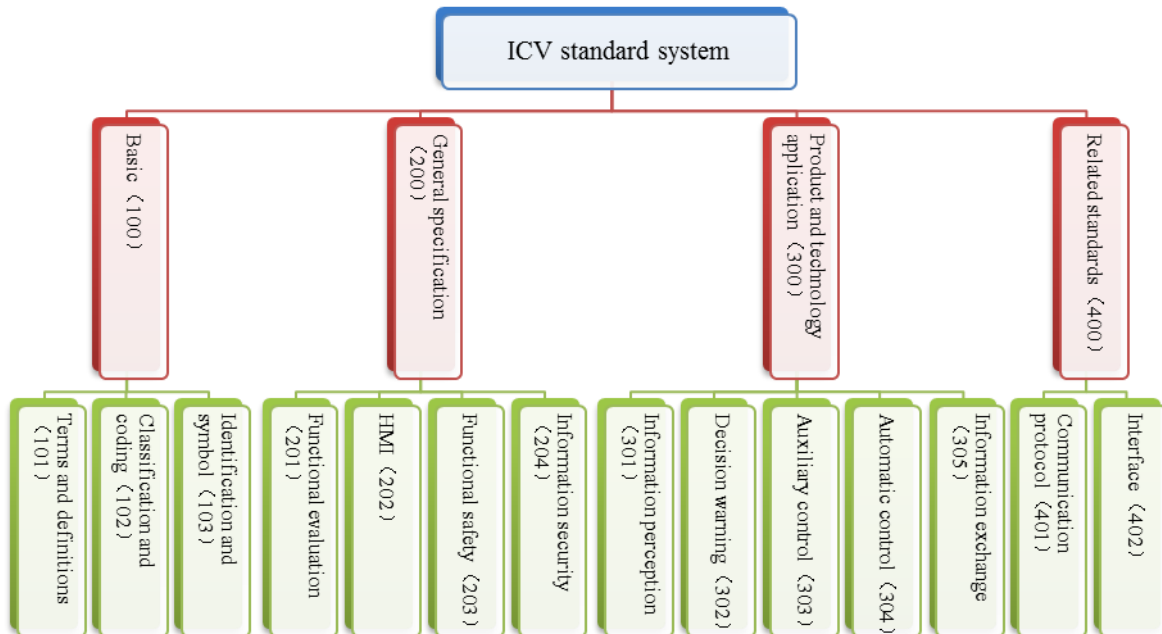

Figure 3 ICV standard system framework

(II) Content of the system

As described in the appendix, ICV standard system covers the following parts and types.

1. Basic (100)

The basic standards include three types of basic standards, such as ICV terms and definitions, classification and coding, identification and symbol.

The terms and definitions standards are used to harmonize the basic concepts associated with ICVs, lay the groundwork for the coordination and compatibility of related industries, and provide support for the development of other standards.

The classification and coding standards are used to help the parties understand the subjects, boundaries and hierarchical and interrelated relationships of different parts of ICVs.

The identification and symbol standards are used to identify and analyze all kinds of products, technologies and functional objects in ICVs, and to lay the foundation for the unity and simplification of the man-machine interface.

2. General specification (200)

The general specification standards are the overall requirements and specifications proposed from vehicle level, including functional evaluation, man-machine interface, functional safety and information security, etc.

The functional evaluation standards are the intelligent and network function evaluation criteria and the corresponding test evaluation application scenarios proposed from vehicle and the system level, and somewhat reflect the judgment of product and technology application prospects.

The man - machine interface standards mainly consider the difference in the ergonomics and functional information transmittance between ICVs and traditional vehicles in terms of product configuration, apart from the focus on driving mode switching and other issues. The soundness of man - machine interface is closely related to driving safety, meanwhile, this also affects the driving experience and product acceptance.

The functional safety standards focus on the main functional milestones of ICVs and security requirements of their subsystems. They are designed to ensure overall operating reliability of ICVs and subsystems as well as maximum driving safety in case of total or partial failure of the system.

The information security standards are in compliance with the general requirements of information security to protect vehicle safety, stability and operating reliability. For the purpose of communications, data, hardware and software security of the vehicle and onboard systems, the standards propose the requirements for risk assessment, security protection and testing evaluation for the vehicle, system, key milestone, external interface and other aspects, so as to protect the vehicle form attack, intrusion, interference, destruction, unauthorized use and accident.

3. Product and technology applications (300)

The product and technology application standards mainly cover the function & performance requirements and test methods for core ICV technologies and applications, such as information sensing, decision warning, auxiliary control, automatic control and information exchange, etc. However, they are not limited to specific technical solutions, so as not to posing constraints or obstacles to future technological innovation development and application.

Information sensing means that the vehicle uses onboard sensors to detect and monitor vehicle occupants, running operation and surrounding environment (including roads, transportation facilities, other vehicles, pedestrians and other traffic participants) and other driving-related information. The standards specify the function and performance requirements and test methods for personnel status monitoring system, vehicle body sensing & detection system, driver vision expansion system, as well as sensors, radars, cameras and other key components.

Decision warning means that the vehicle processes, analyzes and determines the detected and monitored information of vehicle operation and surrounding environment in accordance with certain logic rules, and sends alarm signal alarm in optical, acoustic and other easily recognizable way when confirming that the vehicle is in a dangerous tendency/state or other condition that the driver should be alerted to take care or take measures (for example, when it may endanger other traffic participants). The standards specify the function and performance requirements and test methods for reminder and alarm system and its key components in case of forward driving or reversing, steering and other driving conditions.

Intelligent control mainly refers to the adjusting and controlling effect of horizontal (direction) control and/or longitudinal (speed) control on during the driving process on the running state of the vehicle, and it involves a number of systems such as engine, transmission, brake and chassis, etc. According to the complexity, automation level and different applicable conditions of vehicle intelligent control, it can also be divided into auxiliary control and automatic control. Among them:

(1) The auxiliary control standards cover powertrain system control of the in the stationary state, horizontal (direction) control and the longitudinal (speed) control in running state, as well as the function & performance requirements and test methods at vehicle and system level.

(2) The automatic control standards propose vehicle function requirements and corresponding evaluation methods and indicators based on the different road conditions such as urban roads and highways, etc., as well as different application scenarios such as traffic jam, accident avoidance and reversing, etc.

Information exchange mainly means that the vehicle with ICV function can exchange information with

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external nodes through vehicle communication device apart from detection by the vehicle sensor itself, so to provide more comprehensive environmental information. It can be regarded as a special kind of environment sensor; In the future, it can achieve connected & collaborative decision and control based on information exchange, thus achieving safe, orderly, efficient, energy-saving operation of the vehicle. This type of standards is not limited to the vehicle itself, but also involves the intersection traffic support, violation warning, accident rescue and other functions and services, as well as vehicle communication device, communication protocol and the corresponding interface.

4. Relevant standards (400)

The relevant standards mainly include the basis of vehicle information communication - communication protocol, which mainly covers the protocol specification of medium-and-short distance communication and wide area communication, etc., which can help realize the intelligent information interaction between the vehicle and X (people, car, road and cloud terminal, etc.) Between the physical layers and different application layers, it also includes the hardware and software interface standard & specification.

(III) Near-term plan

According to the basic principles of developing the standard system mentioned above, we should take into account the trend and industrial condition of China's ICV development. It is proposed to give priority to the research and development of the basic and general standards, as well as the standards for the products and mature technology that are widely applicable and consistent with national strategy (as shown in Table 1).

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Table 1 Short-term plan for the development of ICV standards

No.	Project Name	Standard type	Standard nature	Project stage of ISO	Status
1	Terms and definitions for advanced driver assistance system (ADAS)	GB	Recommended	WD	Approved as new project
2	Performance requirements and test methods for automatic emergency braking system (AEB) of passenger car	GB	Recommended	WD	Approved as new project
3	Performance Requirements and test methods for automatic emergency braking system (AEB) of commercial vehicle	GB	Recommended	WD	Approved as new project
4	Automated grading of car driving	GB	Recommended	NP	Applied for new project
5	Automotive event data recording system	GB	Mandatory	WD	Approved as new project
6	Performance requirements and test methods for vehicle blind zone monitoring system	GB	Recommended	WD	Approved as new project
7	Performance requirements and test methods for parking assist control system	GB	Recommended	NP	Applied for approval
8	Performance requirements and test methods for passenger car lane keeping assist system (LKA)	GB	Recommended	WD	Approved as new project
9	General technical requirements for automotive information security	GB	Recommended	NP	Applied for new project
10	Technical requirements for information security of telematics service and management system	GB	Recommended	NP	Applied for new project
11	Technical requirements for information security of electric vehicle charging system	GB	Recommended	NP	Applied for new project
12	Technical requirements for information security of automotive gateway	GB	Recommended	NP	Applied for new project
13	Specification of vehicle alarm signal priority	GB	Recommended	PWI	In preliminary research
14	Performance requirements and test methods for vehicle panorama image monitoring system	GB	Recommended	PWI	In preliminary research
15	Performance requirements and test methods for automotive night vision system	GB	Recommended	PWI	In preliminary research
16	Performance requirements and test methods for vehicle transverse and longitudinal	GB	Recommended	PWI	In preliminary research

	combination control system				
17	Performance requirements and test methods for commercial vehicle lane keeping assist system (LKA)	GB	Recommended	NP	Applied for new project
18	Technical requirements for information security of vehicle information interaction system (TBOX)	GB	Recommended	NP	Applied for new project
19	Performance requirements and test methods for door-opening blind zone monitoring system	GB	Recommended	PWI	In preliminary research
21	Performance requirements and test methods for driver's attention monitoring system	GB	Recommended	PWI	In preliminary research
20	Performance requirements and test methods for intelligent speed limit control system	GB	Recommended	PWI	In preliminary research
22	Performance requirements and test methods for vehicle rear traffic guidance system	GB	Recommended	PWI	In preliminary research
23	Performance requirements and test methods for automotive emergency steering assist system	GB	Recommended	PWI	In preliminary research
24	Performance requirements and test methods for traffic jam assist control system	GB	Recommended	PWI	In preliminary research

IV. Organization and implementation

Establish the " National Automobile Standardization Technical Committee ICV Sub - Technical Committee ", and build the standard coordination mechanism focused on automotive industry in collaboration with related industries, so as to ensure that the ICV standard system development work is carried out with " scientific top design, clear hierarchical structure, well - defiend scope of duties, smooth cooperation and coordination. "

Establish the channel go give green light to the approval, development and release of the standards meet the rapid development of ICV industry. Support the development, testing, validation and implementation of relevant standards through financial funds and R & D projects,.

Play the major role of the enterprises from automobile and related industries in developinig the standards, motivate local authorities, industrial organizations and universities to accelerate the developemnt and revision of the standards.

Analyze the existing standards and regulations that are related to ICV technology, and gradually eliminate the constraints for the development of new technology standards; promote the demonstration and application of autopilot technologies and products, and create a good policy-based environment for ICV development.

Promote international exchange and cooperation, hold international forum on ICV standards and regulations, carry out bihorizontal or multi-horizontal communication, and actively participate in the development and coordination of international standards and regulations by UN World Forum for the Harmonization of Vehicle Regulations(UN/WP29), International Organization for Standardization(ISO), International Telecommunication Union (ITU).

According to the diversity and development needs of future technologies and applications, implement

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dynamic updating and improvement mechanism. By continuously promoting the coordination and collaboration among different departments and industries, update and improve the ICV standard system from time to time.

Appendix:

ICV Standard System

Standard Project and Classification		Standard nature	Standard type	Status	Project stage of ISO	Accepted or corresponding national standard and foreign standard numbers
Basic (100)						
Terms and definitions (101)						
101-1	Terms and definitions for intelligent & connected vehicle	GB	Recommended	In preliminary research	PWI	
101-2	Terms and definitions for advanced driver assistance system (ADAS)	GB	Recommended	Approved as new project 20171038-T-339	WD	
101-3	Terms and definitions for automotive information security	GB	Recommended	In preliminary research	PWI	
Classification and coding (102)						
102-1	Automotive intelligent and networked information classification and code	GB	Recommended	In preliminary research	PWI	
102-2	Automotive intelligent, networked data structure and transmission format	GB	Recommended	In preliminary research	PWI	
102-3	Automated grading of car driving	GB	Recommended	Applied for approval	NP	
102-4	Classification of automotive networked grading	GB	Recommended	In preliminary research	PWI	
102-5	Classification and grading of automotive information security and risk	GB	Recommended	In preliminary research	PWI	
102-6	Definition of automotive information security domain and protection hierarchy	GB	Recommended	In preliminary research	PWI	
Identification and symbol (103)						
103-1	Intelligent & connected vehicle signal graphics and symbols	GB	Recommended	In preliminary research	PWI	
103-2	Intelligent & connected vehicle alarm signals	GB	Recommended	In preliminary research	PWI	
General specification (200)						
Functional evaluation (201)						
201-1	General specification for automotive intelligent function and performance evaluation	GB	Recommended	In preliminary research	PWI	
201-2	General specification for automotive network function and performance evaluation	GB	Recommended	In preliminary research	PWI	
201-3	Operating conditions for automotive intelligent	GB	Recommended	In preliminary research	PWI	

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	application					
201-4	Operating conditions for automotive network application	GB	Recommended	In preliminary research	PWI	
201-5	Specification for technical condition and function evaluation of automotive software upgrade	GB	Recommended	In preliminary research	PWI	
Man-machine interface (202)						
202-1	Evaluation method for automotive man-machine interaction interface system	GB	Recommended	In preliminary research	PWI	
202-2	Specification for vehicle alarm signal priority	GB	Recommended	In preliminary research	PWI	
202-3	General specification for automotive alarm signals	GB	Mandatory	In preliminary research	PWI	
202-4	Performance requirements and test methods for automotive man-machine controlled conversion system	GB	Mandatory	In preliminary research	PWI	
Functional safety (203)						
203-1	Functional safety for road vehicles (Parts 1-10)	GB	Recommended	PublishedGB/T 34590-2017(Parts 1~10)	ISO	ISO 26262
203-2	Failure protection requirements and evaluation methods for intelligent &connected vehicle man-machine interaction interface system	GB	Recommended	In preliminary research	PWI	
203-3	Functional safety requirements for automotive interaction interface	GB	Recommended	In preliminary research	PWI	
203-4	Functional safety requirements for automotive information sensing system	GB	Recommended	In preliminary research	PWI	
203-5	Functional safety requirements for vehicle decision warning system	GB	Recommended	In preliminary research	PWI	
203-6	Functional safety requirements for vehicle assist control system	GB	Recommended	In preliminary research	PWI	
Information Security (204)						
204-1	General technical requirements for automotive information security	GB	Recommended	Applied for new project	NP	
204-2	Guidance for automotive information security risk assessment	GB	Recommended	In preliminary research	PWI	
204-3	General requirements for automotive data protection safety and privacy protection	GB	Recommended	In preliminary research	PWI	
204-4	Security protection requirements for car operating system and application software	GB	Recommended	In preliminary research	PWI	
204-5	General test and evaluation method for automotive information security	GB	Recommended	In preliminary research	PWI	

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204-6	Technical requirements for security of vehicle information sensing equipment	GB	Recommended	In preliminary research	PWI	
204-7	Technical requirements for security of onboard ECU information	GB	Recommended	In preliminary research	PWI	
204-8	Technical requirements for information security of vehicle bus system	GB	Recommended	In preliminary research	PWI	
204-9	Technical requirements for information security of automotive gateway	GB	Recommended	Applied for new project	NP	
204-10	Technical requirements for information security of vehicle information interaction system (TBOX)	GB	Recommended	Applied for new project	NP	
204-11	Technical requirements for information security of onboard diagnostic interface (OBD)	GB	Recommended	In preliminary research	PWI	
204-12	Technical requirements for driver identification system	GB	Recommended	In preliminary research	PWI	
204-13	Specification for security protection of vehicle software upgrading	GB	Recommended	In preliminary research	PWI	
204-14	Technical requirements for information security of electric vehicle telematics service and management system	GB	Recommended	Applied for new project	NP	
204-15	Technical requirements for information security of electric vehicle charging system	GB	Recommended	Applied for new project	NP	
204-16	Guidance for automotive information security emergency response	GB	Recommended	In preliminary research	PWI	

Product and technology application (300)

Information sensing (301)

301-1	Performance requirements and test methods for vehicle reversing view assist	GB	Recommended	In preliminary research	PWI	
301-2	Performance requirements and test methods for adaptive front lighting system	GB	Recommended	Published GB/T 30036-2013	ISO	
301-3	Performance requirements and test methods for vehicle panorama image monitoring system	GB	Recommended	In preliminary research	PWI	
301-4	Performance requirements and test methods for automotive night vision system	GB	Recommended	In preliminary research	PWI	
301-5	Performance requirements and test methods for vehicle distance monitoring system	GB	Recommended	In preliminary research	PWI	
301-6	Performance requirements and test methods for head up display system (HUD)	GB	Recommended	In preliminary research	PWI	
301-7	Performance Requirements and Test Methods for Signal Receiving Apparatus in Vehicle-mounted Satellite Positioning System	GB	Recommended	In preliminary research	PWI	

Decision warning (302)

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302-1	Alarm system of road vehicle - commercial vehicle more than 3.5 tons	GB	Recommended	PublishedGB/T 26776-2011	ISO	
302-2	Performance requirements and test methods for vehicle blind zone monitoring system	GB	Recommended	Approved as new project 20171039-T-339	WD	
302-3	Performance requirements and test methods for pedestrian monitoring system	GB	Recommended	In preliminary research	PWI	
302-4	Performance requirements and test methods for alcohol locking detection system	GB	Recommended	In preliminary research	PWI	
302-5	Performance requirements and test methods for automotive front collision warning system (FCW)	GB	Recommended	Submitted for approval	FDIS	ISO 15623-2013，ECE R131
302-6	Performance requirements and test methods for lane departure warning system (LDW)	GB	Recommended	Published GB/T 26773-2011	ISO	ISO 17361-2007，ECE R130
302-7	Performance requirements and test methods for door-opening blind zone monitoring system	GB	Recommended	In preliminary research	PWI	
302-8	Performance requirements and test methods for vehicle rear traffic guidance system	GB	Recommended	In preliminary research	PWI	
302-9	Performance requirements and test methods for intelligent speed limit control system	GB	Recommended	In preliminary research	PWI	
302-10	Performance requirements and test methods for pre-crash safety system	GB	Recommended	In preliminary research	PWI	
302-11	Performance requirements and test methods for vehicle parking range warning device	GB	Recommended	Published GB/T 21436-2008	ISO	
302-12	Performance requirements and test methods for low speed driving control assist	GB	Recommended	In preliminary research	PWI	ISO 17386
302-13	Performance requirements and test methods for extended range reversing assist system	GB	Recommended	In preliminary research	PWI	ISO 22840-2010
302-14	Performance requirements and test methods for curve speed warning system	GB	Recommended	In preliminary research	PWI	ISO 11067
302-15	Performance requirements and test methods for driver's attention monitoring system	GB	Recommended	In preliminary research	PWI	

Auxiliary control (303)

303-1	Performance requirements and test methods for low-speed follow-up system	GB	Recommended	In preliminary research	PWI	ISO 22178-2009
303-2	Performance requirements and test methods for adaptive cruise control system (ACC)	GB	Recommended	Published GB/T 20608-2006	ISO	ISO 15622-2010
303-3	Performance requirements and test methods for full-speed range adaptive cruise control	GB	Recommended	In preliminary research	PWI	ISO 22179-2009
303-4	Performance requirements and test methods automatic emergency braking system (AEB) of passenger cars	GB	Recommended	Approved as new project 20151489-T-339	WD	
303-5	Performance requirements and test methods for automatic	GB	Recommended	Approved as new	WD	ECE R131

	emergency braking systems (AEB) of commercial vehicles			project 20170405-T-339		
303-6	Performance requirements and test methods for lane keeping assist system (LKA) of passenger cars	GB	Recommended	Approved as new project 20171040-T-339	WD	
303-7	Performance requirements and test methods for lane keeping assist system (LKA) of commercial vehicles	GB	Recommended	Applied for new project	NP	
303-8	Performance requirements and test methods for frontal collision mitigation system	GB	Recommended	In preliminary research	PWI	ISO 22839
303-9	Performance requirements and test methods for vehicle emergency steering assist systems	GB	Recommended	In preliminary research	PWI	
303-10	Performance requirements and test methods for vehicle transverse and longitudinal combination control system	GB	Recommended	In preliminary research	PWI	
303-11	Performance requirements and test methods for parking assist control system	GB	Recommended	Applied for new project	NP	
303-12	Remote control assist system for vehicle driving	GB	Recommended	In preliminary research	PWI	
303-13	Technical requirements and test methods for intersection collision avoidance assist system	GB	Recommended	In preliminary research	PWI	
Automatic control (304)						
304-1	Function and performance requirements and evaluation methods for automatic parking system	GB	Recommended	In preliminary research	PWI	
304-2	Function and performance requirements and evaluation methods for automatic driving system under urban operating conditions	GB	Recommended	In preliminary research	PWI	
304-3	Function and performance requirements and evaluation methods for highway autopilot system	GB	Recommended	In preliminary research	PWI	
304-4	Function and performance requirements and evaluation methods for vehicle follow-up autopilot system	GB	Recommended	In preliminary research	PWI	
304-5	Function and performance requirements and evaluation methods for conditional automation system (CA)	GB	Recommended	In preliminary research	PWI	
304-6	Function and performance requirements and evaluation methods for high automation system (HA)	GB	Recommended	In preliminary research	PWI	
304-7	Function and performance requirements and evaluation methods for full automation(FA)	GB	Recommended	In preliminary research	PWI	
Information interaction (305)						

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305-1	Automotive event data recording system	GB	Mandatory	Approved as new project 20171835-Q-339	WD	
305-2	Requirements and evaluation methods for Autopilot recording device	GB	Mandatory	In preliminary research	PWI	
305-3	Technical requirements for vehicle information interaction system (TBOX)	GB	Recommended	In preliminary research	PWI	
305-4	Performance requirements and evaluation methods for Intersection signal information and violation warning system	GB	Recommended	In preliminary research	PWI	ISO 26684:2015
305-5	Performance requirements and evaluation methods for collision accident automatic alarm system	GB	Recommended	In preliminary research	PWI	ISO 24978-2009
305-6	Performance requirements and evaluation methods for hazard notification system	GB	Recommended	In preliminary research	PWI	
305-7	Performance requirements and evaluation methods for special driving environment warning system	GB	Recommended	In preliminary research	PWI	
Related standards (400)						
Communication protocol (401)						
401-1	Short-and-medium range communication protocol based on LTE-V	GB	Recommended	In preliminary research	PWI	
401-2	Wide area communication protocol based on 5G	GB	Recommended	In preliminary research	PWI	
Interface (402)						
402-1	Short-and-medium range communication interface based on LTE-V	GB	Recommended	In preliminary research	PWI	
402-2	Wide area communication interface based on 5G	GB	Recommended	In preliminary research	PWI	
402-3	Special short-range communication interface for automotive safety communication	GB	Recommended	In preliminary research	PWI	
402-4	Technical requirements for vehicle positioning and navigation system interface	GB	Recommended	In preliminary research	PWI	
402-5	Technical requirements for physical interface between vehicle and external terminal	GB	Recommended	In preliminary research	PWI	
402-6	Technical requirements for physical interface between vehicle and external terminal software	GB	Recommended	In preliminary research	PWI	