Federal Ministry
for Economic Affairs
and Climate Action

中国国家标准化管理委员会
Standardization Administration of the P.R.C.

4th annual meeting of SGSCC
Sub-Working Group Intelligent and Connected Vehicles

15 October 2024

Start: 9:00 CEST

Federal Ministry
for Economic Affairs
and Climate Action

中国国家标准化管理委员会
Standardization Administration of the P.R.C.

Moderation

Ms. DONG Qianqian, Stacy

VDA

Federal Ministry
for Economic Affairs
and Climate Action

中国国家标准化管理委员会
Standardization Administration of the P.R.C.

Opening Remarks

Mr. Thomas Frisch

BMWK

Federal Ministry
for Economic Affairs
and Climate Action

中国国家标准化管理委员会
Standardization Administration of the P.R.C.

Opening Remarks

Mr. WANG Yu

SAMR

Federal Ministry
for Economic Affairs
and Climate Action

中国国家标准化管理委员会
Standardization Administration of the P.R.C.

Progress of China's ICV standards and review of Sino-German cooperation

Mr. SUN Hang

CATARC

Progress of China's ICV Standards and Review of Sino-German Cooperation

SUN HANG
CASRI, CATARC
2024-10-15

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1. Progress of China's ICV Standards

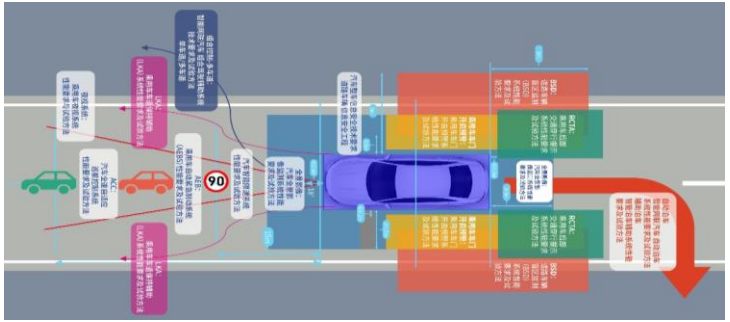
2. Background and Process of Cooperation

3. Cooperation achievements

4. Future cooperation prospects

定义：具备环境感知、智能决策和自动控制，或与外界信息交互，乃至协同控制功能的汽车。

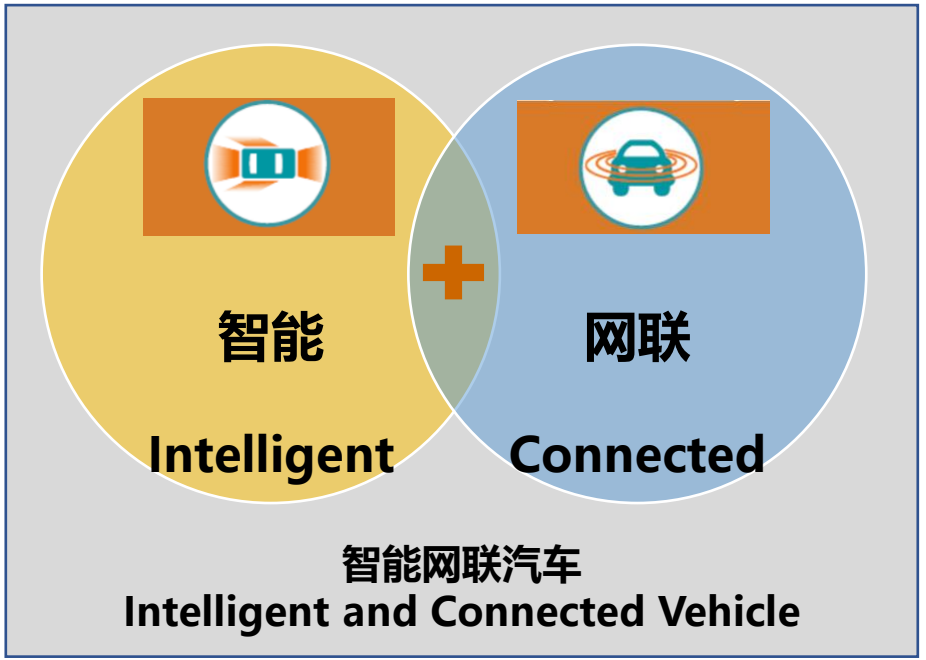
Definition: vehicles that are capable of conducting information interaction with external entities, or designed with advanced features including environmental perception, self-decision-making and automated control, or further to the inclusion of realizing systematic cooperative control.



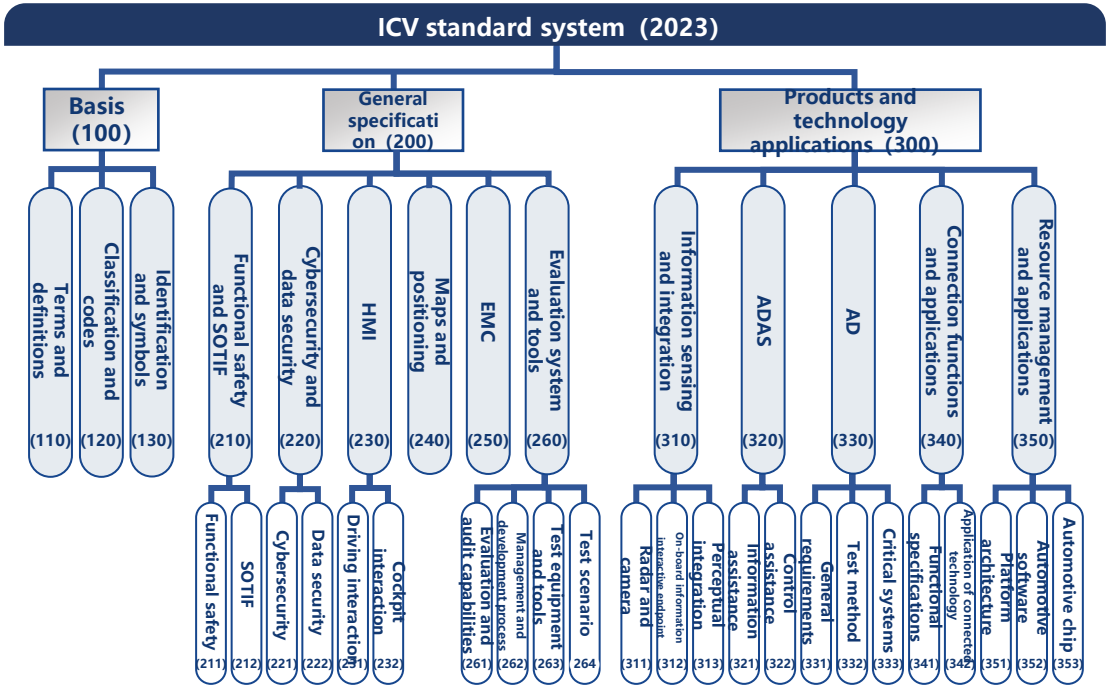
相似概念 Similar Concepts:

- ✓ Automated driving vehicles
- ✓ Automated and connected vehicles
- ✓ Smart cars
- ✓ Future networked cars

相似但不同 Similar, but Different...



1.2 智能网联汽车标准体系建设进展
1.2 Progress in the Construction of ICV Standard System



Outcome

新版标准体系发布得到产业界广泛关注
The release of the new standard system has received widespread attention from the industry

新版标准体系为标准制定提供有效指导
Provide effective guidance for standard.
智能网联汽车标准制定进展：
发布：56项；报批：12项
制定中：32项
The progress：
Published: 56；Approved:12
Developing: 32

标准体系引导了未来技术发展方向
The standard system guides the future direction of technological development

建设目标 Target

2025：系统形成能够支撑组合驾驶辅助和自动驾驶通用功能的智能网联汽车标准体系,制修订100项以上相关标准
2025： A comprehensive standard system for ICV has been systematically established to support the general functions of combined driving assistance and automated driving with over 100 relevant standards being formulated and revised.

2030：全面形成能够支撑实现单车智能和网联赋能协同发展的智能网联汽车标准体系,制修订140项以上相关标准
2030： A comprehensive standard system for ICV has been fully established to support the coordinated development of individual vehicle intelligence and network enablement, with over 140 relevant standards being formulated and revised.

实现了从积极参与者到重要组织者，再到全面贡献者的关键跨越
The key leap from active participants to important organizers, and then to comprehensive contributors has been achieved.

	参与participate in	组织 organization	贡献contribute
宏观层面 Macro level	国际会议 International conference	提案起草 Proposal drafting	担任职务 Position held
	参与下列国际权威汽车标准化机构的有关标准化会议及活动 **Participate in relevant standardization conferences and activities of the following international authoritative automotive standardization organizations** ■ 联合国世界车辆法规协调论坛（UN/WP.29） ■ 国际标准化组织道路车辆委员会（ISO/TC22） ■ 其他有关标准组织如国际电信联盟（ITU）国际电工委员会（IEC）	**组织包括以下在内的有关国际标准、法规或技术报告项目的提案或起草工作** **Organize proposals or drafting work related to international standards, regulations, or technical report projects, including the following** ■ 自动驾驶系统国际法规（UNR ADS），新型测试评价方法》（NATM） ■ 提交车用操作系统（OS）、乘用车门开启预警（DOW）及后方行人穿行提示（RCTA）等	• **支撑工信部担任**联合国自动驾驶与网联车辆工作组副主席、自动驾驶系统非正式工作组联合主席 • **Support the MIIT to serve as the Vice Chairman of the GRVA and the Co Chairman of the IWG ADS** • **直接担任**ISO自动驾驶测试场景、汽车感知传感器、测试设备等工作组召集人及联合国法规适用性审查等任务组主席 • **Directly serve as the convener of ISO ADS testing scenarios, automotive sensing sensors, testing equipment and other working groups, as well as the chairman of TF-FADS**
具体层面 Specific level	技术协调 Technical coordination	交流讨论 Exchange and discuss	承办会议 Hosting conferences
	参与上述权威机构开展的与智能网联汽车相关项目的技术协调工作 **Participate in the technical coordination work of projects related to ICV carried out by the above-mentioned authoritative institutions**	**组织国际国内部分技术专家基于对应提案或技术内容开展交流讨论** **Organize exchanges and discussions among international and domestic technical experts based on corresponding proposals or technical content**	**承办及主持承担领导职责的相关技术组的会议** **Organize and preside over meetings of relevant technical teams responsible for leadership duties**

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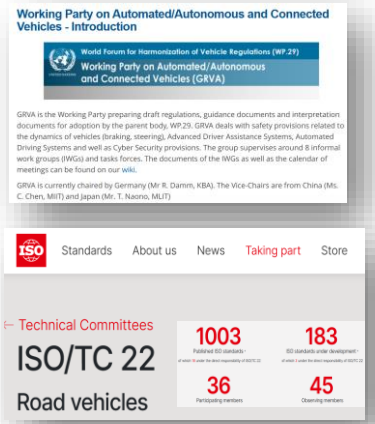
中德智能网联汽车标准化合作是**中德两国产业的共同需要**
The standardization cooperation of ICV between China and Germany is **a common need for the industries of both countries**

两国都将智能网联汽车作为汽车产业未来战略发展方向
Both countries regard ICV as the future strategic development direction of the automotive industry

两国都高度重视智能网联汽车标准体系规划和建设
Both countries attach great importance to the planning and construction of the standard system for ICV

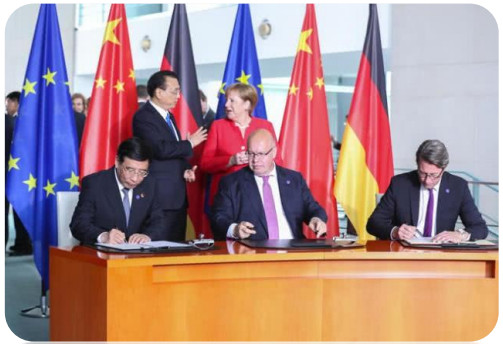
两国都积极参与智能网联汽车国际标准法规协调
Both countries actively participate in the coordination of international standards and regulations for ICV



中德智能网联汽车标准化合作是**中德两国政府的共同期望**
The standardization cooperation of ICV between China and Germany is **a common expectation of the governments of both countries**

中德标准化合作委员会
SGSCC

2017年，国家标准委、工信部与德国相关政府部门共同发出成立**中德智能网联汽车标准工作组**的倡议，推动中德智能网联汽车标准法规交流与合作。
In 2017, the SAC, MIIT, and relevant German government departments jointly proposed the establishment of a Sino German ICV Standard Working Group.



中德政府磋商
China Germany Government Consultation

2018年，工信部与德国联邦经济和能源部、联邦交通和数字基础设施部共同签署了**《关于自动网联驾驶领域合作的联合意向声明》，明确开展ICV标准化合作。**
In 2018, the MIIT, together with the BMWK & BMDV, signed a joint statement of intent on cooperation in the field of autonomous connected driving, clarifying the need for ICV standardization cooperation.

2.2 合作历程
2.2 Cooperation Process

2018年1月，在国标委、工信部和德国经济部的见证下，中汽中心与VDA签署智能网联汽车标准法规合作备忘录

In January 2018, under the witness of the SAC, the MIIT and BMWK, the CATARC and VDA signed a MoU on ICV standards

2018年7月，中德两国总理共同见证汽标委智能网联汽车分委会与德国汽车标准委员会签署合作谅解备忘录

In July 2018, under the witness of the Chinese and German prime ministers, the signing of a MoU between the SAC/TC114/SC34 and the German Automotive Standards Committee

2018年11月，在国标委、工信部、德国大使馆的见证下，中德智能网联汽车标准法规工作组正式成立

In November 2018, under the witness of the SAC, the MIIT, and the German Embassy, the Sino German ICV Standards and Regulations WG was officially established

2018年至今，每年组织两国汽车企业参加中德标准化合作委员会年会，并汇报智能网联汽车标准化工作成果

Since 2018, we have organized automobile companies from both countries to participate in the SGSCC and report on the achievements of standardization work for ICV every year

2018年至今，每年组织两国智能网联汽车企业开展1-2次智能网联汽车产业标准、法规和技术交流

Since 2018, organize one or two annual exchanges of standards, regulations, and technologies for the ICV industry between the two countries ICV enterprises





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3. **Cooperation achievements**

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3.1 合作成果1-国际标准
3.1 Cooperation achievement 1 - International standards

中汽中心 | 全国汽车标准化技术委员会 National Technical Committee of Auto Standardization

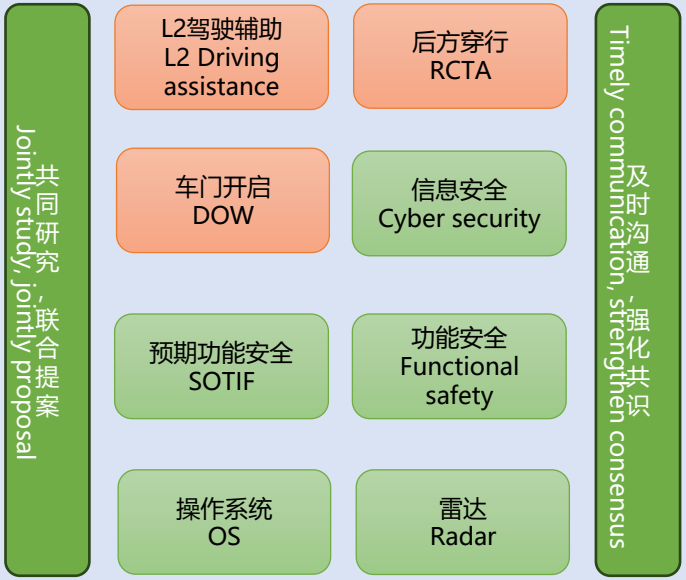
中汽中心和VDA作为两国ISO/TC22对口单位，持续组织两国智能网联汽车产业在国际标准化组织（ISO）框架下加强合作，推动自动驾驶测试场景、功能安全、信息安全、雷达、驾驶辅助等领域国际标准研究与制定。
As ISO/TC22 counterparts of the two countries, CATARC and VDA continue to organize the industry of the two countries to strengthen cooperation under the framework of ISO, and promote the research and formulation of international standards in fields of ADS test scenarios, functional safety, cyber security, radar, and ADAS.

ISO/TC22/SC33/WG9 自动驾驶系统测试场景工作组
Working group on standards for ADS test scenarios

- 中国专家担任工作组召集人，与德国等国家共同推动ISO ADS测试场景标准规划与制定
- Chinese experts serve as the convenor of the WG, and jointly promote plannings and formulations of standards for ADS test scenarios with Germany and other countries
- 德国作为ISO/TC22/SC33秘书处，支持中国组织和推进ADS测试场景国际标准
- As the secretariat of ISO/TC22/SC33, Germany supports China in organizing and promoting international standards for ADS test scenarios

No.	项目名称 Project name	进展情况 Progress
ISO 34501	道路车辆-自动驾驶系统测试场景术语和定义 Road vehicles — Test scenarios for automated driving systems — Vocabulary	中国牵头 正式发布 China lead, release
ISO 34502	道路车辆-基于安全评估的工程框架与场景生成过程 Road vehicles — Test scenarios for automated driving systems — Scenario based safety evaluation framework	日德联合牵头 正式发布 Japan & Germany lead, release
ISO 34503	道路车辆-自动驾驶系统的设计运行域分类 Road Vehicles — Test scenarios for automated driving systems — Specification for operational design domain	英国牵头 正式发布 UK lead, release
ISO 34504	道路车辆-场景特征及场景分类 Road vehicles — Test scenarios for automated driving systems — Scenario categorization	德荷联合牵头 正式发布 Germany & Netherlands lead, release
ISO 34505	道路车辆-自动驾驶系统的测试场景评测 Road vehicles — Test scenarios for automated driving systems — Scenario evaluation and test case generation	中德联合牵头 制定中 **China & Germany** lead, under formulation

国际标准其他合作成果
Other Cooperation achievements of international standards



3.2 合作成果2-中德智能网联汽车标准路线图对比研究
3.2 Cooperation achievement 2 - Comparison of Standardization Roadmap

中汽中心 全国汽车标准化技术委员会 National Technical Committee of Auto Standardization

2019年，中汽中心和VDA共同组织中德双方汽车行业分析对比中国《国家车联网标准体系建设指南（智能网联汽车）》和德国《自动驾驶标准化路线图》，完成中德智能网联汽车标准化路线图对比研究。

2019, CATARC and VDA jointly organized an analysis and comparison of the automotive industry between China and Germany, comparing China's ICV standard system and Germany's Roadmap for Standardization of AD, completing a comparative study of the standardization roadmaps for ICV between China and Germany.

对比结论 Comparative conclusion

- 双方对标准化在推动、支撑智能网联汽车技术、产业发展方面的作用认识、战略定位高度一致。
- Both sides share a high degree of consensus on the role and strategic positioning of standardization in promoting and supporting ICV technology and industrial development.

- 双方在标准化路线图总体原则、建设目标、技术逻辑、体系框架、重点领域等方面基本一致。
- Both sides are largely in agreement on the overall principles, construction goals, technical logic, system framework, key areas and other aspects of the standardization roadmap.

- 双方了解并尊重彼此因技术、产业发展阶段及标准化法律、制度不同而产生的相关差异。
- Both sides understand and respect relevant differences arising from different technologies, stages of industrial development, standardization laws and systems.

- 双方愿意本着“相互理解、相互尊重、平等自愿、互利互惠”原则加强交流、协调与合作。
- Both sides are willing to strengthen exchanges, coordination and cooperation based on the principles of "mutual understanding, mutual respect, equality and voluntariness, mutual benefit and reciprocity".

3.3 合作成果3-中德智能网联汽车数据合规标准化专项研究
3.3 Cooperation achievement 3 – ICV data compliance standardization

2021-2022年，中汽中心和VDA组织中德双方汽车行业完成《智能网联汽车数据合规标准化专项研究》，研究成果在第八届智能网联汽车技术及标准法规交流会期间发布。

2021-2022, CATARC and VDA organized the Chinese and German automotive industries to complete the "*Specialized Research on ICV Data Compliance Standardization*", and the research results were released during the 8th ICV Technology, Standards and Regulations Exchange Conference.

第一章 汽车数据安全发展现状
Chapter 1 Automobile Data Security Development Status

第二章 数据安全标准政策分析
Chapter 2 Analysis of Data Security Standard Policy

第三章 数据合规管理类标准需求分析
Chapter 3 Analysis of Data Compliance Management Standards

第四章 数据合规技术类标准需求分析
Chapter 4 Analysis of Data Compliance Technical Standard

第五章 数据合规评估与评价分析
Chapter 5 Data Compliance Evaluation and Evaluation Analysis

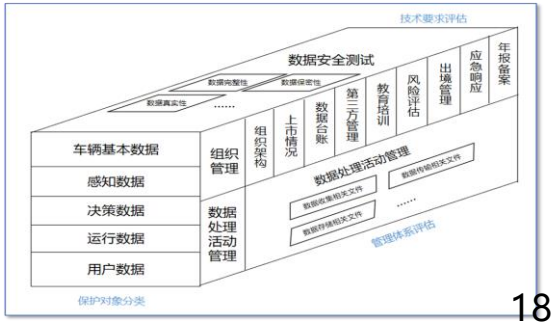
系统分析汽车数据处理链中各环节可能引入的数据安全风险
The system analyzes data security risks that may be introduced in each link of the automotive data processing chain

数据收集 data collection → 数据存储 data storaging → 数据使用 data using → 数据处理 data processing → 数据传输 data transmission → 数据提供 data provision → 数据共享与公开 data sharing and public → 数据销毁 data destruction

以审核和测试相结合，构建综合型数据合规评估与评价分析体系
Construct comprehensive data compliance evaluation and evaluation analysis system by combining audit and testing

管理体系审核 Management system audit → 管理体系标准化 Standardization for management system 管理体系审核标准化 Standardization for management system audit

数据安全测试 Data security testing → 数据全生命周期安全测试方法标准化 Standardization for test method of data life cycle security



2022-2023年，中汽中心和VDA组织中德双方汽车行业完成《智能座舱标准体系研究》，系统梳理智能座舱技术全景图，形成汽车智能座舱标准体系和路线图。

In 2022-2023, CATARC and VDA organized the Chinese and German automotive industries to complete the "*Research on Intelligent Cockpit Standard System*", systematically analyzed the intelligent cockpit technology panorama, and formed the automotive intelligent cockpit standard system and roadmap.

智能座舱技术全景图 Intelligent cockpit technology panorama

应用/功能 Apps/ Function	功能安全 Functional safety	监测识别 Monitoring identification	多模交互 Multimodal interaction	万物互联 Internet of Everything	出行服务 Mobility services	信息安全 Cybersecurity
		环境交互 Environment interaction	显示交互 Display interactions	语音交互 Voice interaction	手势交互 Gesture interaction	
设备/终端 Device/ Terminal		传感器 sensor	控制器 controller	显示终端 Display terminal	通讯终端 Communicatio n terminal	环境终端 Environment terminal
基础技术 Basic technology		座舱芯片 Cockpit chip	车载操作系统 In-vehicle operating system	云服务 Cloud computing service	网络传输 transit network	

智能座舱标准体系 Intelligent cockpit standard system

基础 Basics	通用规范 Generic specifications	产品及技术应用 Products and technology applications	相关标准 Relevant standards
术语和定义 Terms and Definitions	信息安全 Cybersecurity	硬件终端 Hardware terminal	基础技术 Basic technology
	座舱规范 Cockpit specifications	舱内交互 In-cockpit interaction	
分类和分级 Classification		舱外交互 Extra-cockpit interaction	测试设备 Test device
	测试和评价 Testing and evaluation	安全与服务 Security & Service	接口 Interface

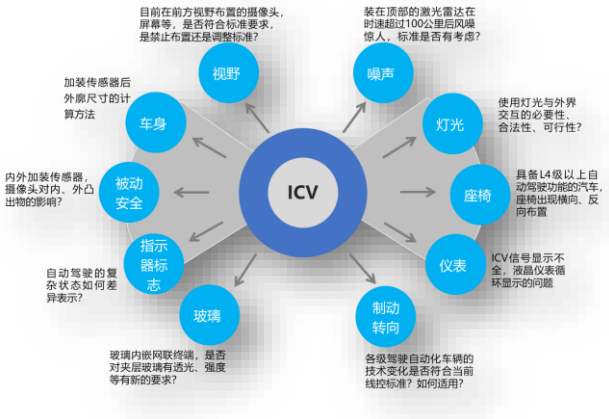
3.5 合作成果5-智能网联汽车标准法规适用性调查分析研究
3.5 Cooperation achievement 5 –Applicability of standards for ICV

2023-2024年，中汽中心和VDA组织中德双方汽车行业开展面向智能化网联化发展的汽车标准法规适用性提升研究，形成面向智能化网联化发展的汽车标准适用性提升研究报告。

2023-2024, CATRC and VDA organized research on improving the applicability of standards and for ICV development in the automotive industry of both China and Germany, and form a research report on improving the applicability of automotive standards for intelligent and networked development.

项目意义 Significance of the project

汽车智能化网联化发展不仅对汽车功能完善和性能提升提出技术创新的需求，也对汽车标准法规适用性提升产生新需求。
ICV' s development not only poses technological innovation demands for improving automotive functions and performance, but also generates new demands for enhancing the applicability of automotive standards and regulations.



成果 Achievements

以是否允许人类驾驶为核心判据切分分析对象，系统分析强制性国家标准及相关推荐性国家标准对分析对象的适用性。
Use whether human driving is allowed as the core criterion to divide analysis objects, and systematically analyze the applicability of mandatory national standards and relevant recommended national standards to the analysis objects.

分析对象 Analysis objects	结论 Conclusion
允许人类驾驶的智能网联汽车 ICV that allow human driving	相关标准仍适用 Relevant standards are still applicable
不允许人类驾驶的智能网联汽车 ICV that do not allow human driving	相关标准需要进行一些适应性修改 Relevant standards require some adaptive modifications

3.6 合作成果6-汽车软件标准体系
3.6 Cooperation achievement 6 – Automotive software standard system

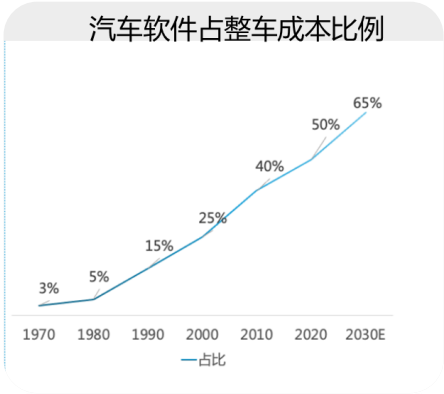
中汽中心 CATARC | 全国汽车标准化技术委员会 NTCAS National Technical Committee of Auto Standardization

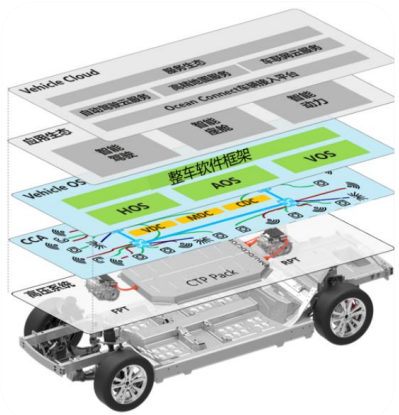
2023-2024年，中汽中心和VDA组织中德双方汽车行业新启动研究《汽车软件标准体系》，系统梳理汽车软件分类，合理规划汽车软件标准体系。

2023-2024, CATARC and VDA organized the Chinese and German automotive industries to research "*Automotive Software Standard System*", systematically analyze the classification of automotive software, and rationally plan the automotive software standard system.

项目意义 Significance of the project

软件定义汽车成为重要发展趋势，汽车软件对汽车安全性影响逐步提升，急需标准进行约束和规范。
Software-defined automobiles have become an important development trend, and the impact of automotive software on automotive safety has gradually increased, so there is an urgent need for standards to constrain and regulate.





成果 Achievements

系统分析汽车软件技术逻辑，将汽车软件归纳为5种分类：操作系统软件、应用软件、数据软件、工具软件和质量与测量软件。
Through systematic analysis of automotive software technological logic, automotive software can be categorized into 5 types: operating system software, application software, data software, tool software, and quality and measurement software.

目录 Contents

1. Progress of China's ICV Standards

2. Background and Process of Cooperation

3. Cooperation achievements

4. **Future cooperation prospects**

未来合作展望
Prospects for future cooperation

中汽中心 CNTRC | NTCAS 全国汽车标准化技术委员会 National Technical Committee of Auto Standardization

1. 双方将在政府部门指导下，持续加强在智能网联汽车标准法规方面的交流与合作，共同推动双方关注的国际标准法规制定与协调
   Both parties will continue to strengthen exchanges and cooperation in the standardization and regulation of intelligent connected vehicles under the guidance of government departments, and jointly promote the formulation and coordination of international standards and regulations that both parties are concerned about

2. 双方将进一步做好联合项目研究，以两国汽车产业的实际共性需求为出发点，科学合理安排项目内容和进度，确保实现长期持续合作成果输出
   Both parties will further conduct joint project research, taking the actual common needs of the two countries' automotive industries as the starting point, scientifically and reasonably arranging project content and progress, and ensuring the output of long-term and sustainable cooperation results

3. 双方将积极探索新型工作模式，开拓创新工作机制并进一步发挥企业主体作用，为双方技术、人才和产业打造跨国合作交流平台
   Both sides will actively explore new working models, explore innovative working mechanisms, and further leverage the role of enterprises as the main body to create a cross-border cooperation and exchange platform for technology, talent, and industry between the two sides

全国汽车标准化技术委员会

National Technical Committee of Auto Standardization

Federal Ministry
for Economic Affairs
and Climate Action

中国国家标准化管理委员会
Standardization Administration of the P.R.C.

German position for handling of basic and application related standards

Mr. Thorsten Leonhard

CARIAD

Mr. Richard Krüger

BMW

VDA German Association of the Automotive Industry

German position for handling of basic and application related standards

DCKN / ICV-SWG Meeting in Bonn on 2024-10-15

Standardization Bodies dealing with ICV - selection

Recommendation:
ISO provides many advantages such as:

- ✓ really globally recognized
- ✓ traditionally used by automotive industry
- ✓ involving easily all stakeholders, membership not required
- ✓ almost all governmental hosted NSB are members of ISO
- ✓ standards usually carried over from other NSB – global market access
- ✓ well established and recognized rules providing highest level of trust

ISO Committees and Working Groups for ADAS/AD

VDA Verband der Automobilindustrie

Different aspects in different TCs in ISO: vehicle, transport system, safety management, smart city

ISO TC22 Road vehicles

- **ISO TC22/SC32** Electrical and electronic components and system aspects
- **ISO TC22/SC33** Vehicle dynamics, chassis components and driving automation systems testing
- **ISO TC22/SC31** Data Communication
- **ISO TC22/SC35** Lighting and visibility
- **ISO TC22/SC36** Safety and Impact testing
- **ISO TC22/SC39** Standardization of human machine interface

+ further SCs

ISO TC204 Intelligent transport systems

- **ISO TC204/WG14** Vehicle/roadway warning and control systems

+ further WGs

ISO TC241 Road traffic safety management systems

- **ISO TC241/WG6** Guidance on ethical considerations relating to autonomous vehicles

+ further WGs

ISO TC 268 Sustainable cities and communities

- **ISO TC 268/SC 2** Sustainable mobility and transportation

+ further SCs

+ further TCs

ISO Committees and Working Groups for ADAS/AD

Different aspects in different TCs in ISO: vehicle, transport system, safety management, smart city

ISO TC22 Road vehicles

- **ISO TC22/SC32** Electrical and electronic components and system aspects
- **ISO TC22/SC33** Vehicle dynamics, chassis components and driving automation systems testing

+ further SCs

ISO TC204 Intelligent transport systems

- **ISO TC204/WG14** Vehicle/roadway warning and control systems

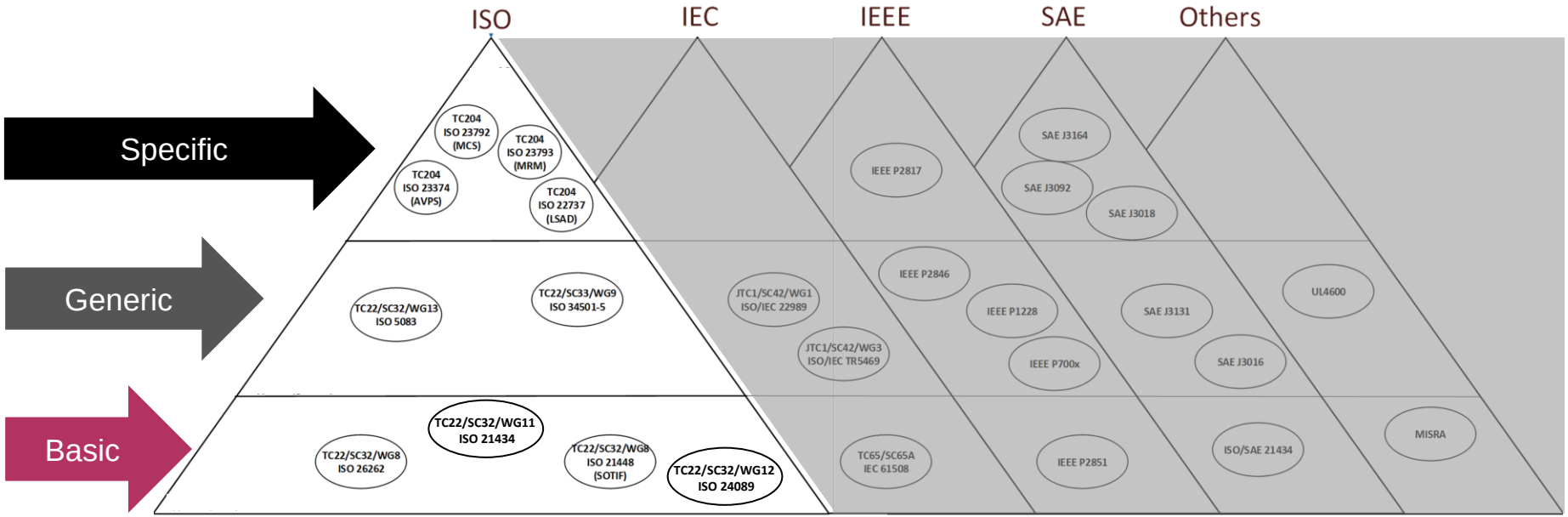
+ further WGs

+ further TCs

Status:

- Historically, many function standards in the vehicle have been developed under the umbrella of TC204 due to expected influence from the overall transport system
- Growing maturity of ADAS/AD during industrialisation shows that increasing number of aspects on vehicle side needs to be taken into account: system safety (FuSa, SOTIF, …), in vehicle security, integration, testing,…
- Thus: Need for alignment between TC22 and TC204 is growing
- Moreover, standardisation must not inhibit innovative realisations of ADAS/AD functions like progressive architectures, SDVs --> Standards need to be independent of the architecture under consideration

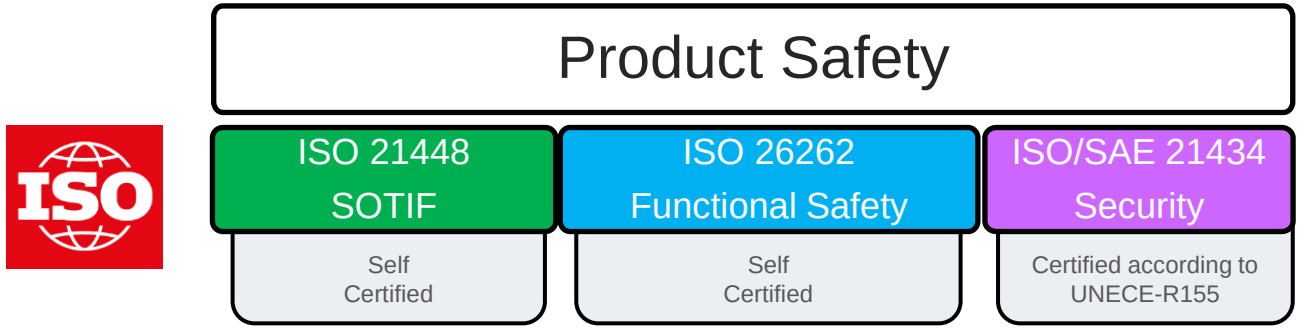
Structure of AD standards



Observe:

- Standards describe basic properties, application of basic standards to ADAS/AD systems and the behaviour of certain functions, but no requirements on the architecture
- Result: Application of standards to a given architecture always needs to be taylored for the given architecture

ISO Standardization of ADAS & AD wide cooperations on project level



The most relevant safety domains for assisted & automated driving according to the relevant ISO Standards meanwhile
required by UNECE Regulation:
UNECE-R155 (cyber sec), UNECE R 171 (DCAS); UNECE R 157 (ALKS), UNECE R xxx for L4-Systems

System-specific homologation uses ISO safety standards, but does not interfere with their process or requirement.
=> Innovations remain possible.
=> Solution neutrality is maintained.

Example for Standardization as Basis for Regulation

VDA | Verband der Automobilindustrie

Research → Standardize → Regulate

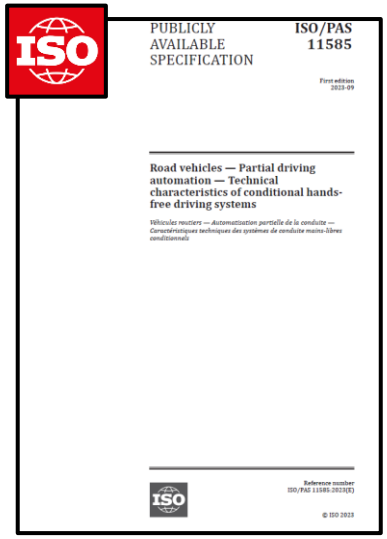

VDA | Verband der Automobilindustrie

FAT | Forschungsvereinigung Automobiltechnik

FAT-Schriftenreihe 369

Level 2 hands-off–Recommendations and guidance

Independent studies confirm systems that have been qualified for a Hands-Free use case.


ISO

PUBLICLY AVAILABLE SPECIFICATION

ISO/PAS 11585

First edition 2023-09

Road vehicles — Partial driving automation — Technical characteristics of conditional hands-free driving systems

Véhicules routiers — Automatisation partielle de la conduite — Caractéristiques techniques des systèmes de conduite mains-libres conditionnels

ISO

Reference number ISO/PAS 11585:2023(E)

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Technical Characteristics are harmonized to describe Systems which enables Hands-Free Use Cases.


Kraftfahrt-Bundesamt

DE-24932 Flensburg

Typgenehmigungsbogen

TYPE-APPROVAL CERTIFICATE

Benachrichtigung über die EU-Typgenehmigung nach der Verordnung (EG) Nr. 2019/2144 zuletzt geändert durch die Verordnung (EU) 2022/1396 für einen Fahrzeugtyp in Bezug auf ein System mit neuen Techniken oder Konzepten, die mit der UNECE-Regelung Nr. 79 unvereinbar sind

Exemption based on EU-Regulation 2018/858 Article 39: „Exemptions for new technologies or new concepts"

KBA confirms with exemption which enables innovative assistant systems.

Economic and Social Council

Upcoming regulation R 171 "Driver Control Assistance Systems (DCAS)" will enable Hands Free use cases.

UNECE creates legal framework for systems with Hands-Free Use Cases and system initiated manoeuvres.

Standardization as basis for regulation

VDA Verband der Automobilindustrie

ISO TECHNICAL COMMITTEES

ISO/TC 22 Road vehicles
ISO/TC 22/SC 31 "Data communication“
ISO/TC 22/SC 31/WG 09 "Sensor data interface for automated driving functions"
:
ISO/TC 22/SC 32 Electrical and electronic components and general system aspects
ISO/TC 22/SC 32/WG 8 Functional safety
ISO/TC 22/SC 32/WG 13 Safety for driving automation systems
ISO/TC 22/SC 32/WG 14 Safety and Artificial Intelligence
:
ISO/TC 22/SC 33 Vehicle dynamics and chassis components
ISO/TC 22/SC 33/WG 3 Driver assistance and active safety functions
:
ISO/TC 204 Intelligent transport systems
ISO/TC 204/WG 14 - Vehicle/roadway warning and control systems
[AVP / MRM / ACC / PADS / …]

UNECE

UNECE World Forum for Harmonization of Vehicle Regulations WP.29

- Functional Requirements for Automated and Autonomous Vehicles (FRAV)
- Validation Method for Automated Driving (VMAD)
- Cyber Security and (OTA) software updates (CS/OTA)
- DSSAD / EDR
- Automatic Emergency Braking and Lane Departure Warning Systems (AEBS/LDWS)
- SIG on UN Regulation No. 157
- ADAS
- Modular Vehicle Combinations (MVC)
- Automatically Commanded Steering Function (ACSF)

The added value of a standardized industry consensus is indisputable when it comes to safety, sufficient and testing requirements => ISO standards
The same topics are covered by WP.29 regulations.
Standardization can only be a basis for regulation if it takes place beforehand.
That is why ISO requires fast processes, and these exist when developing an ISO PAS.

VDA Verband der Automobilindustrie

谢谢!
Danke!

Federal Ministry
for Economic Affairs
and Climate Action

中国国家标准化管理委员会
Standardization Administration of the P.R.C.

Progress of ISO/TC22/SC32/WG16 on automotive perception sensors and cooperation suggestions

Mr. ZHAO Xin

HESAI

4th Meeting of the Sino-German Standardisation Cooperation Commission
Sub-Working Group "Intelligent and Connected Vehicles"

ISO/TC 22/SC 32/WG16
Status report and potential cooperation projects
当前状态报告和潜在合作项目介绍

Xin ZHAO

Oct. 15th , 2024

Brief Introduction

Xin Zhao (赵鑫)

Project leader of ISO 13228
ISO 13228项目负责人

- My name is Zhao Xin, and I am currently a senior director at Hesai Technology (a leading LiDAR technology company listed on NASDAQ). As an expert in the field of automotive safety, I have successfully led the completion of the world's first automotive lidar that meets ASIL-B product certification. I currently have more than 40 technical invention patents and have written China's first automotive functional safety book " Practical Guide to Automotive Functional Safety ". I am a registered expert in SC32 WG14 and WG16.

- 我叫赵鑫，目前在禾赛科技（纳斯达克上市，激光雷达技术公司）担任高级总监。作为汽车安全领域专家，成功领导完成全球首个满足ASIL-B产品认证的车载激光雷达，拥有超过40项发明专利及著有中国首本汽车功能安全书籍《汽车电子功能安全实战应用》。目前是SC32WG14及WG16注册专家。

ISO/TC22/SC32/WG16 Automotive perception sensors

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2. WG16 title and current scope

WG16 title 工作组16的名称

“Automotive perception sensors”
“汽车感知传感器”

Current scope 当前范围

Standardization of requirements, interference mitigation, and test methods for automotive perception sensors.
汽车感知传感器的要求、干扰缓解和测试方法的标准化。

Excluded: Sensor data interface, sensor simulation, in-cabin sensing.
不包括：传感器数据接口、传感器模拟、车舱内传感。

Note: Preliminary conclusions based on the discussion at the 2nd SC32/WG16 plenary meeting
备注：基于SC32/WG16第二次全员会议讨论的初步结论

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3. WG16 expert registration status

At present, 79 experts from 11 countries have registered.
目前共有来自11个国家79位专家注册到WG16

Country 国家	Quantity 数量
Germany 德国	26
China 中国	11
USA 美国	2
France 法国	4
U.K. 英国	2
Japan 日本	5
South Korea 韩国	22
Hungarian 匈牙利	1
Nederland 荷兰	1
Finland 芬兰	1
Italy 意大利	4

The above data is statistically valid until Sep. 26th , 2024

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4. Past meetings and future meetings

Past meetings 已经举办的会议

- **Preliminary phase 预研阶段**

AHG 1 : A total of 8 meetings have been held.
总共召开8次会议

-2022: 4.25
-2023: 7.4, 9.12, 10.24, 12.16, 2.10, 4.3, 5.31

AHG 2 : A total of 15 meetings have been held.
总共召开15次会议

-2022: 4.28, 6.13, 6.30, 7.1, 9.14, 10.21, 11.18, 12.8-9
-2023: 2.28, 3.9, 4.20, 5.17, 5.26, 6.6, 6.12

AHG 3 : A total of 9 meetings have been held.
总共召开9次会议

-2022: 4.26
-2023: 7.14, 9.22, 11.10, 12.7, 1.12, 3.16, 4.27, 5.23

- **Formal working phase 正式起草阶段**

WG16 meetings:

- Kick-off meeting: 17 June, 2024, Virtual
  启动会：2024年6月17日，线上
- 2nd meeting: Oct.9~11th , 2024, China, F2F
  第2次会议：2024年10月9~11号在中国线下举办

4. Past meetings and future meetings

SC32 WG16 2nd Meeting @Tianjin
SC32 WG16第二次会议@天津

4. Past meetings and future meetings

Future meetings 将来举办的会议

- **Formal working phase 正式起草阶段**

WG16 meetings:

- 3rd meeting: Dec 3~5th,2024 Virtual*
  第3次会议：2024年12月3~5号，线上
- 4th meeting: Feb or Mar, 2025, Europe, F2F
  第4次会议：2025年2或3月，欧洲，线下
- 5th meeting: May, 2025, Virtual*
  第5次会议：2025年5月，线上
- 6th meeting: Sep or Oct, 2025, F2F
  第6次会议：2025年9或10月，线下
- 7th meeting: Nov, 2025, Virtual*
  第7次会议：2025年7月，线上

* if necessary

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5. Current projects progress

Current projects 当前项目

ISO/AWI 13228 Road vehicles—Test method for automotive LiDAR
ISO/AWI 13228 道路车辆 车载激光雷达试验方法
PL/Co-PL: Mr. ZHAO Xin/Mr. Ovidiu LUCA-SAVIN/Ms.HU Yue

ISO/AWI 13389 Road vehicles—Test method for detection performance of exterior sensing millimeter-wave radar
ISO/AWI 13389 道路车辆 车外感知毫米波雷达探测性能试验方法
PL/Co-PL: Dr.ZHANG Wogong/Dr.JIANG Guokai

ISO/AWI TR 13377 Road vehicle —Cooperative interference mitigation of automotive millimeter-wave radar
ISO/AWI TR 13377 道路车辆 毫米波雷达协同式干扰抑制方法
PL/Co-PL: Mr. Tommi Jamsa/Dr.ZHANG Hui/Ms.WU Dandan

5. Current projects progress

ISO/AWI 13228 Road vehicles—Test method for automotive LiDAR
ISO/AWI 13228 道路车辆 车载激光雷达试验方法

- **Current stage**: 20.00
- **Stage date**: 2024-04-03
- **Stage version**: 1
- **Registration date**: 2024-04-03
- **Time frame in months**: 36 months
- **Status**:
  - The scope, framework and main contents have been defined in the preliminary phase and the 1st working draft was circulated to WG16 for comments in July. A total of 59 comments were collected from 5 countries and fully discussed at the 2nd meeting, hold in Tianjin Oct 9~11th , 2024.
    范围、框架和主要内容已在初步阶段确定，第 1 份工作草案于 7 月提交给 WG16 征求意见。总共收集到来自5个国家的59条反馈建议，这些建议在24年10月9~11号天津举办的第2次WG16工作组会议上作了充分的讨论。
  - The WD stage is expected to end in March 2025, during which 2-3 rounds of discussions are expected.
    WD阶段预计将于2025年3月结束，期间预计将进行2-3轮讨论。

现阶段：20.00
阶段日期：2024-04-03
阶段版本：1
注册日期：2024-04-03
时间范围：36个月

5. Current projects progress

ISO/AWI 13389 Road vehicles—Test method for detection performance of exterior sensing millimeter-wave radar
ISO/AWI 13389 道路车辆 外部探测用毫米波雷达性能测试方法

- **Current stage**: 20.00
- **Stage date**: 2024-04-03
- **Stage version**: 1
- **Registration date**: 2024-04-03
- **Time frame in months**: 36 months
- **Status:**
  - The scope, framework and main contents have been defined in the preliminary phase and the 1st working draft was circulated to WG16 for comments in July. A total of 87 comments were collected from 4 countries and fully discussed at the 2nd meeting, hold in Tianjin Oct 9~11th , 2024.
    范围、框架和主要内容已在初步阶段确定，第 1 份工作草案于 7 月提交给 WG16 征求意见。总共收集到来自4个国家的87条反馈建议，这些建议在24年10月9~11号天津举办的第2次WG16工作组会议上作了充分的讨论。
  - The WD stage is expected to end in March 2025, during which 2-3 rounds of discussions are expected.
    WD阶段预计将于2025年3月结束，期间预计将进行2-3轮讨论。

现阶段：20.00
阶段日期：2024-04-03
阶段版本：1
注册日期：2024-04-03
时间范围：36个月

5. Current projects progress

ISO/AWI TR 13377 Road vehicle —Cooperative interference mitigation of automotive millimeter-wave radar
ISO/AWI TR 13377 道路车辆 汽车毫米波雷达的协同干扰抑制

- **Current stage**: 20.00
- **Stage date**: --
- **Stage version**: 1
- **Registration date**: --
- **Time frame in months**: 24 months
- **Status**:
  - The draft have been defined in the preliminary stage and the 1st working draft will circulated to WG16 for comments in July. A total of 24 comments were collected from 2 countries and fully discussed at the 2nd meeting, hold in Tianjin Oct 9~11th , 2024.
    草案主要内容已在初步阶段确定，第 1 份工作草案于 7 月提交给 WG16 征求意见。总共收集到来自2个国家的24条反馈建议，这些建议在24年10月9~11号天津举办的第2次WG16工作组会议上作了充分的讨论。
  - The WD stage is expected to end in Dec 2024, during which 1-2 rounds of discussions are expected.
    WD阶段预计将于2024年12月结束，期间预计将进行1-2轮讨论。

现阶段：20.00
阶段日期：--
阶段版本：1
注册日期：--
时间范围：24个月

5. Current NWIP(New Work Item Proposal)

Test method of automotive thermal camera
汽车热成像摄像头测试方法

Propose the definition of key indicators for more objective evaluation of “thermal characteristics” and ”thermal image quality” of automotive thermal cameras and the “standardization of its quantitative evaluation methods”.

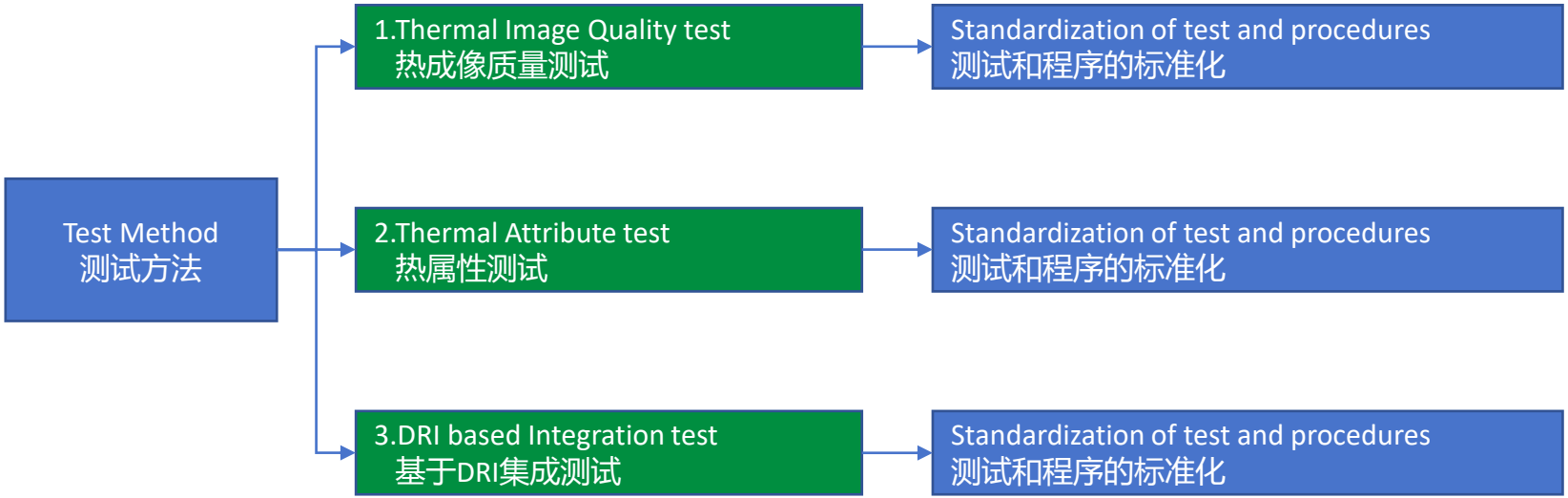
提议对车载热成像摄像头“热特性”和“热成像质量”进行更客观评价的关键指标定义和“其量化评价方法的标准化”。

Propose “the standardization of test methods for evaluating the DRI(Detection/Recognition/Identification) performance” of automotive thermal imaging cameras.

提议“车载热成像摄像头DRI（检测/识别/鉴别）性能评价测试方法的标准化”。

5. Current NWIP(New Work Item Proposal)

Test method of automotive thermal camera
汽车热成像摄像头测试方法



Details reference link: https://sd.iso.org/documents/open/3fda8312-ef9d-4671-a993-836ec054945e

ISO/TC22/SC32/WG16 Automotive perception sensors

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Background 背景

The scope of ISO AWI13228 discussed previously includes test methods for lidar performance in adverse weather conditions. We realize that performance testing under adverse weather conditions is not limited to lidar.
前期讨论的ISO AWI13228的范围包括恶劣天气条件下激光雷达性能的测试方法。我们意识到恶劣天气条件下的性能测试不局限于激光雷达。

The title of newly established WG16 is defined as automotive perception sensors(include lidar, millimeter-wave radar, camera, etc.). And the scope discussed at the kick off meeting includes external influencing factors(e.g. adverse weather conditions).
新成立的WG16名称定义为汽车感知传感器（包括激光雷达、毫米波雷达、摄像头等），启动会上讨论的范围也包括了外界影响因素（例如恶劣天气条件）。

6. Potential cooperation projects

Title 名称

Test method for automotive perception sensors in adverse weather conditions
恶劣环境下汽车感知传感器测试方法

Scope 范围

This standard specifies the performance test methods for automotive lidar, camera and millimeter-wave radar in adverse weather conditions.
本标准规定了车载激光雷达、摄像头及毫米波雷达在恶劣天气条件下的性能测试方法。

This standard specifies the lidar, camera and millimeter-wave radar suitable for installation on road vehicles for vehicle external information perception. Other lidars, cameras and millimeter-wave radars can be used for reference.
本标准规定了适用于道路车辆安装、用于车辆外部信息感知的激光雷达、摄像头及毫米波雷达，其他激光雷达、摄像头及毫米波雷达可参照使用。

6. Potential cooperation projects

Framework 框架

The standard consists of **4 parts**: 标准由**四部分**组成:

Part1: Adverse weather conditions classification and definition
第1部分：恶劣天气条件的分类和定义

(Classification and definition for Rain, snow, frost, fog, haze, dust, smoke, strong light, dirt, etc.)
（雨、雪、霜、雾、霾、尘、烟、强光、污垢等的分类和定义）

Part2: Performance test methods for lidar
第2部分：激光雷达性能测试方法

(Performance test methods for lidar in specific rain, snow, frost, fog, haze, dust, smoke, strong light, dirt, etc.)
（激光雷达在特定雨、雪、霜、雾、霾、尘、烟、强光、污垢等环境下的性能测试方法）

6. Potential cooperation projects

Framework 框架

The standard consists of **4 parts**: 标准由**四部分**组成:

Part3: Performance test methods for millimeter-wave radar
第3部分：毫米波雷达性能测试方法

(Performance test methods for millimeter-wave radar in specific rain, snow, frost, fog, haze, dust, smoke, strong light, dirt, etc.)
（毫米波雷达在特定雨、雪、霜、雾、霾、沙尘、烟雾、强光、污垢等环境下的性能测试方法）

Part4: Performance test methods for camera
第4部分：摄像头性能测试方法

(Performance test methods for lidar in specific rain, snow, frost, fog, haze, dust, smoke, strong light, dirt, etc.)
（摄像头在特定雨、雪、霜、雾、霾、沙尘、烟雾、强光、污垢等环境下的性能测试方法）

Thanks

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Standardization Administration of the P.R.C.

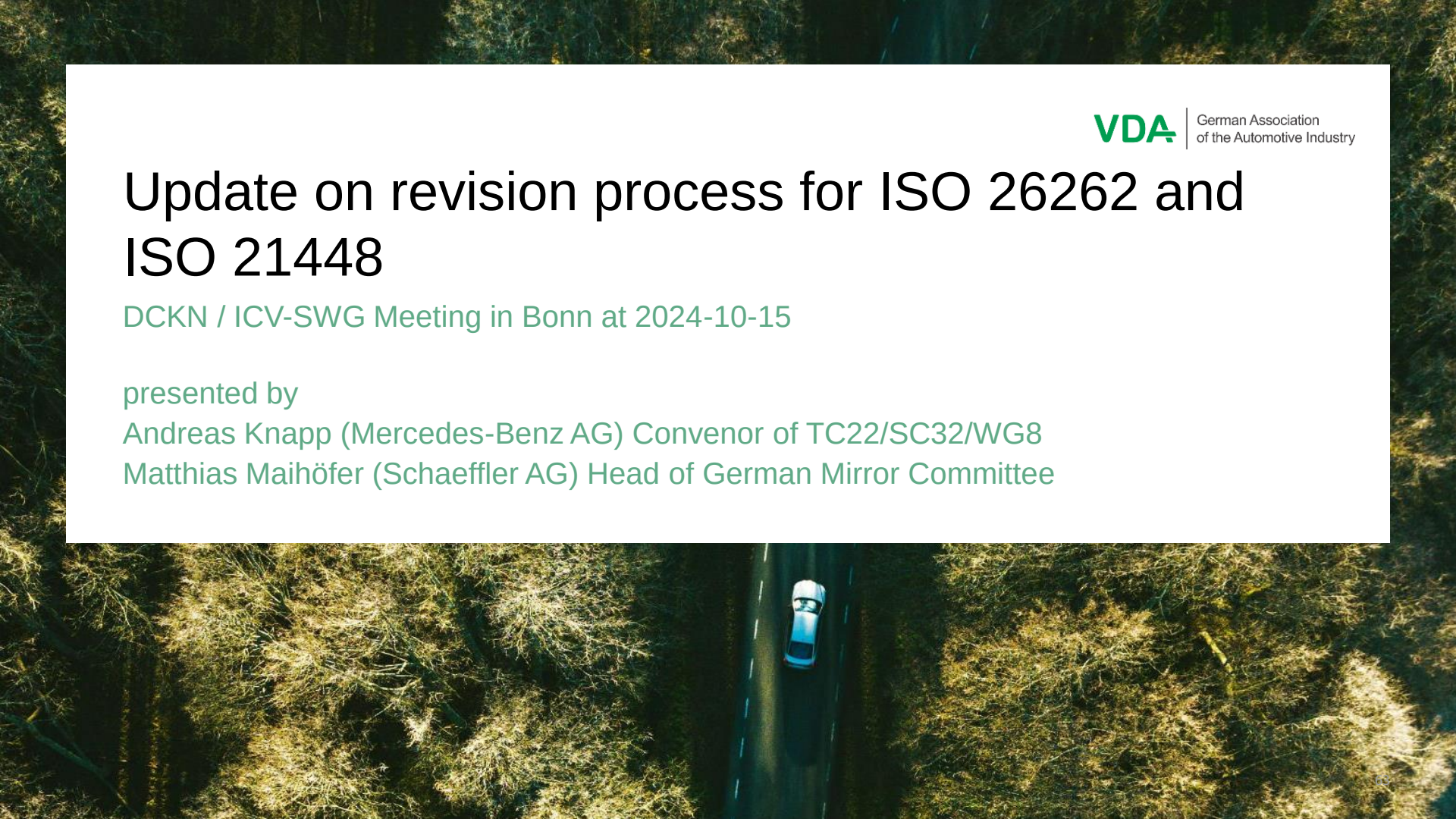
Update on revision process for ISO 26262 and ISO 21448

Mr. Andreas Knapp

Mercedes Benz

Mr. Matthias Maihöfer

Schaeffler



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Update on revision process for ISO 26262 and ISO 21448

DCKN / ICV-SWG Meeting in Bonn at 2024-10-15

presented by
Andreas Knapp (Mercedes-Benz AG) Convenor of TC22/SC32/WG8
Matthias Maihöfer (Schaeffler AG) Head of German Mirror Committee

Update on revision process for ISO 26262 and ISO 21448

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Projects of ISO/TC22/SC32/WG08 “Functional Safety”

WG08 Projects	Status	
ISO 26262: Road vehicles – Functional safety: Parts 1 to 12	• Project lead • Published • Periodic Review Ballot ends	one per part 2018 2024-03-03
ISO 21448: Road vehicles -- Safety of the intended functionality	• Project lead • Published • Next systematic review	Nicolas Becker, FR 2022 2027
ISO TR 9968: Road vehicles — Functional safety The application to generic RESS for NEV	• Project lead • Published	Dr. Li Bo, CN 2023
ISO TR 9839: Road vehicles — Application of predictive maintenance to hardware with ISO 26262-5	• Project lead • Published	Karl Greb, US 2023
ISO PAS 8926: Road vehicles — Functional safety Use of pre-existing software architectural elements	• Project lead • Published • Next systematic review	Roberto Paccapeli, IT 2023 2026

Update on revision process for ISO 26262 and ISO 21448

VDA Verband der Automobilindustrie

Projects of ISO/TC22/SC32/WG08 “Functional Safety”

WG08 Projects	Status		
ISO 26262: Road vehicles – Fu… Parts 1 to 12	**Work on 3rd ED started in 2024**	…ends	one per part 2018 2024-03-03
ISO 21448: Road vehicles -- Safety of the intended functionality	**Start of 2nd ED planned in 2025**	• Project lead • Next systematic review	Nicolas Becker, FR 2022 2027
ISO TR 9968: Road vehicles — Functional safety The application to generic RESS for NEV		• Project lead • Published	Dr. Li Bo, CN 2023
ISO TR 9839: Road vehicles — Application of predictive maintenance to har… 26262-5	**Integration into 3rd ED ISO 26262 in progress**	• Project lead • Published	Karl Greb, US 2023
ISO PAS 8926: Road vehicles — Functional safety Use of pre-existing software architectural elements		• Project lead • Published • Next systematic review	Roberto Paccapeli, IT 2023 2026

Update on revision process for ISO 26262 and ISO 21448

Delegations participating in WG08

Experts from the following 20 countries attend the WG08 meetings and directly contribute to the development of ISO 26262:

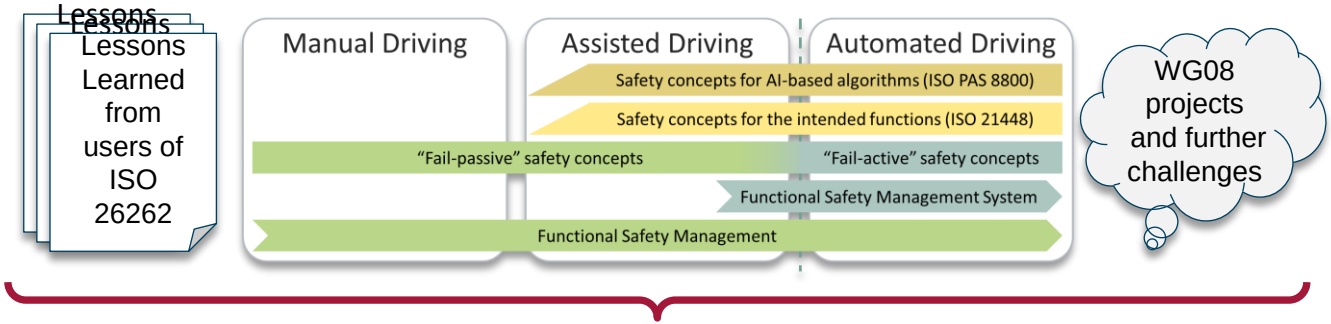
- Austria
- Armenia
- Belgium
- Canada
- China
- Czech Republic
- Finland
- France
- Germany
- India
- Ireland
- Italy
- Israel
- Japan
- Luxembourg
- Romania
- South Korea
- Sweden
- United Kingdom
- United States

Experts registered but no participation in meetings: Hungary, Lithuania, Netherlands, Switzerland

Average meeting participation: approx. 80 experts

Update on revision process for ISO 26262 and ISO 21448

Challenges and inputs for 3rd Edition of ISO 26262



Revision of ISO 26262:2018 - Functional safety
Revision of ISO 21448:2022 - Safety of the intended function (SOTIF)

WG 8 decisions:

- Start 21448 earlier to ensure a consistent update
- Keep standards separate

Update on revision process for ISO 26262 and ISO 21448

Further input

Topics identified by WG 8

WG 8 defined „topic groups“ in preparation of rework for ISO 26262:

- Focus on topics that affect more than one part
- Conceptual rework
- Published PAS and TRs

Topic Groups	Title/Scope	Country of TG Leader
TG01	TR 9968 NEV Integration	DE
TG02	TR 9839 Predictive Maintenance Integration	US
TG03	Link to ADAS	US
TG04	End 2 End Safety / COVETES /Data Handling	FR
TG05	Link to SOTIF	FR
TG06	SW / CI&CD / ISO PAS 8926 Integration	IT
TG07	Process Safety	JP/BE
TG08	Safety Concept	DE
TG09	Safe AI	IT

For details see Backup slide

Update on revision process for ISO 26262 and ISO 21448

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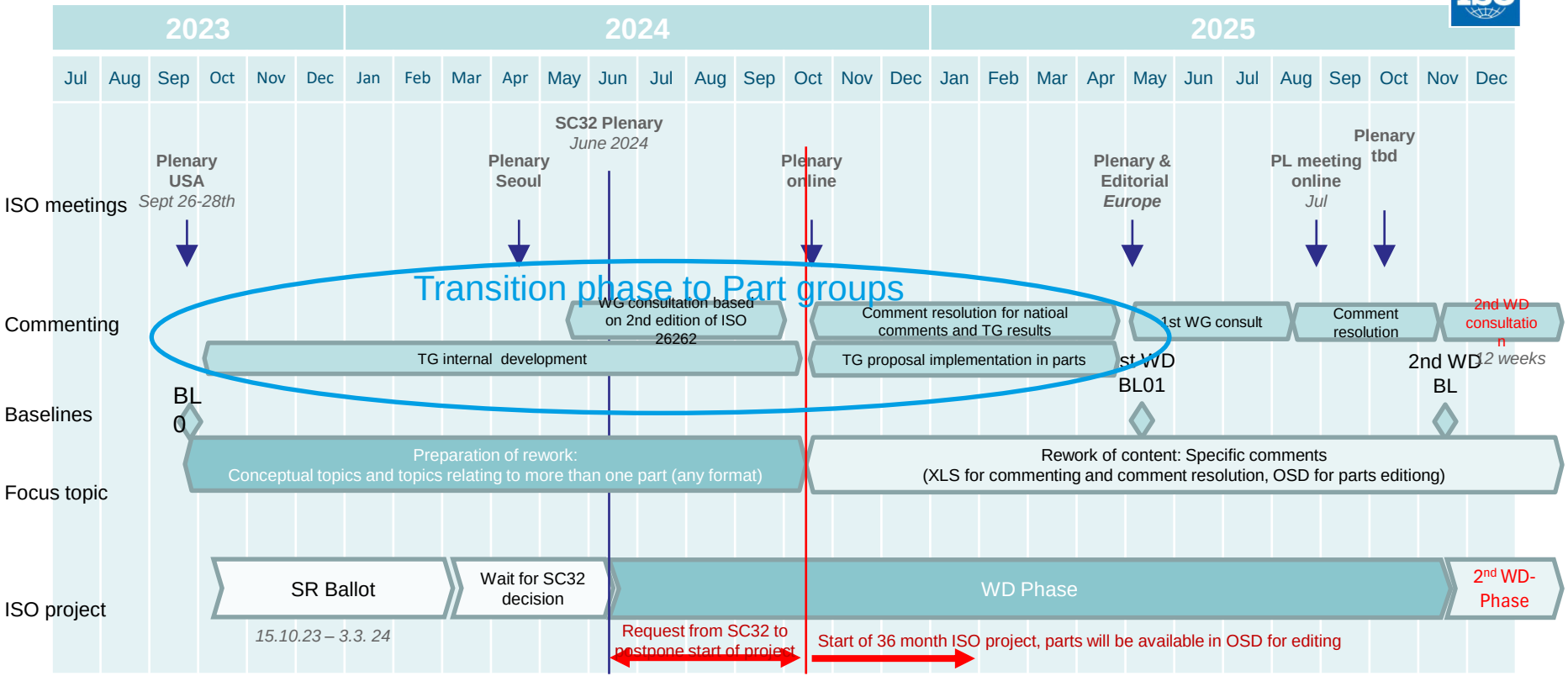
Planning for revision of ISO 26262



Update on revision process for ISO 26262 and ISO 21448

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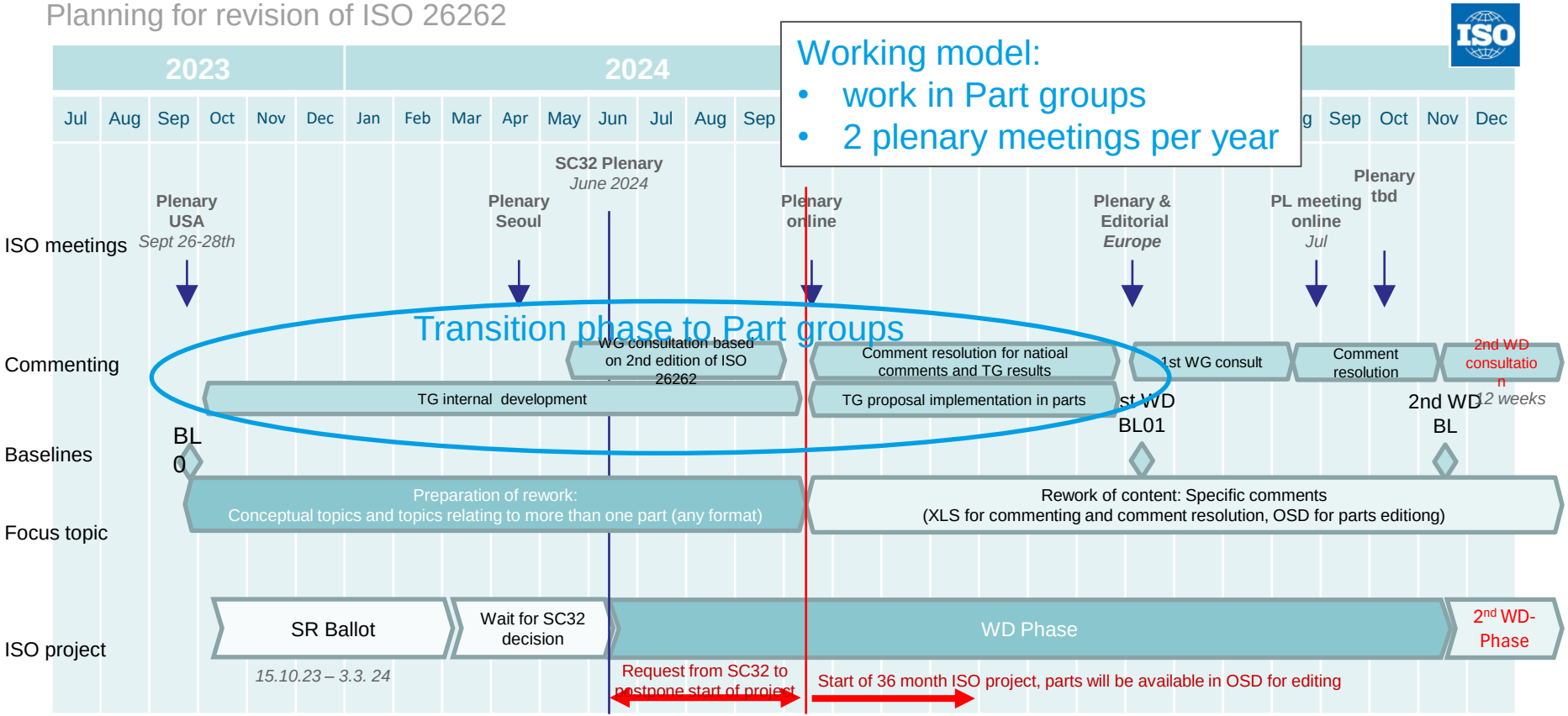
Planning for revision of ISO 26262



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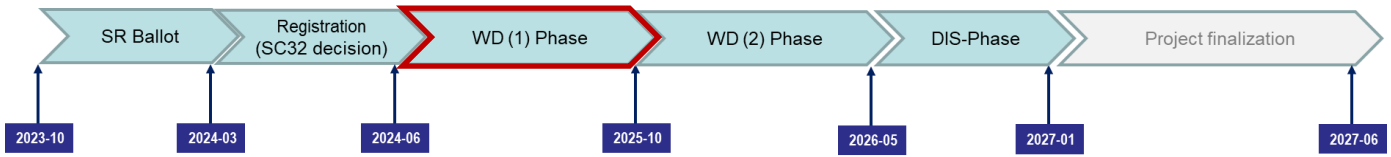
Current activities



- National comments collected (based on 2nd edition): October 1st 2024
- ISO 26262 project start on ISO portal: October 15th 2024
- Rework will be done in ISO Online Development Platform
- WG 8 plenary meeting: October 21nd to 24th 2024
- Comment resolution (including topic group input) starts after plenary

Update on revision process for ISO 26262 and ISO 21448

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Summary

- Functional safety and SOTIF for road vehicles are developed by ISO TC22/SC32/WG 8.
- Rework of ISO 26262:2018 starts in 10/2024 with a planned publication date of 06/2027.
- ISO 26262 defines a generic framework for functional safety applicable to all Electric and Electronic systems in road vehicles. ISO 26262 and ISO 21448 will be reworked in parallel to ensure consistency.
- Globally accepted ISO Standards are the basis for safe products in all markets – deviating national or regional standards will result in additional efforts for the industry with limited benefits.
- Broad international participation in SC32/WG 8 is an excellent basis to achieve strong international acceptance.
- To ensure that the 3rd edition of ISO 26262 is suitable, all nations are invited to contribute, provide their comments and strive for international consensus.

谢谢！
Danke!

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BREAK

Please be back in 20 Minutes.

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China research on automotive software standard system and cooperation suggestions

Mr. LIU Bin

FAW [Video in PPT]

中国一汽 创领未来

Research Report on Automotive Software Standard System

FAW
Bin Liu
Oct. 2024

Federal Ministry
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and Climate Action

中国国家标准化管理委员会
Standardization Administration of the P.R.C.

Review and future of SWG ICV from German view

Mr. Egbert Fritzsche

VDA

VDA German Association of the Automotive Industry

Review and future of SWG ICV

October 15th in 2024

DCKN-Meeting Session – SWG ICV Meeting

History

Initiative 2018 to establish a new SWG under DCKN

2018 Heidelberg

Intelligent connected vehicle (ICV) was discussed as a potential new topic for Sino-German cooperation.

2019 Xiamen

Initiating Workshop was organised in conjunction with the DCKN 2019 meeting to underline the importance of bilateral cooperation.

2019-2021

CATARC and VDA worked together in several bilateral workshops to enhance cooperation for ICV standardization

2021 WEB Meeting

DCKN created formally a SWG for ICV; SWG started work, mainly through workshops for specific topics

Background and Aims

Common approach for standardization

Background and situation when starting:

- New and wide filed of standardization based on a fast-developing technology towards automated driving.
- Automotive industry is approaching a worldwide market. Worldwide harmonized standards are necessary to support that. ISO is the most suitable platform to achieve this.
- German / European industry was often faced with national standards in China that differ from ISO standards or have been unknown before. China was following ISO-Standardization in former time, but not actively influencing it.

Aims:

- Identifying challenges and different views of the automotive industry for ICV standardization.
- Aligning the standardization approach / roadmaps between China and Germany.
- Exchange and cooperate in the development of ISO international standards.
- Strengthen the common understanding of technical requirements between experts in China and Germany when creating new standards.
- Work together for a better relationship between regulation (UNECE) and standardization (ISO).
- China and Germany aligning positions and input for international standardization and regulation to avoid national solutions/standards.

Formats of Cooperation

Context for Intelligent Connected Vehicle

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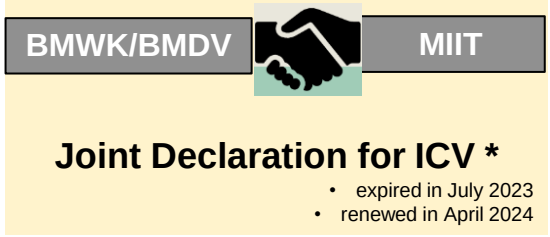
MoU for Cooperation

DCKN with SWG ICV



Joint Declaration for ICV *

- expired in July 2023
- renewed in April 2024

The automotive industry was using the cooperation platforms and formats as above:

- Industry-driven standardization (focus on DCKN)
- Coordination of positions on regulatory projects (focus on JD ICV)
- Exchange on the processes for regulation and standardization in both countries and at international level (focus on both platforms)

The political support of these cooperation formats by the Governments is important for the industry, especially with regard to fulfillment of social framework conditions.

What has been achieved until today?

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General and global achievements (selection):

- Establishment of *ISO/TC 22/SC 33/WG 09* for “Test Scenarios for automated driving” hosted by CATARC and supported by Germany.
- Comparison and aliment about the national *standardization roadmaps* for ICV in China and Germany.
- Creation of regular exchange between China and Germany about new projects for ISO-Standards.
- Cooperation through common project leaderships in ISO-Standardization at ISO TC22.

Specific achievements (selection):

- Finalization of ISO-Series of Standards for “Test scenarios” (ISO 34501-34505).
- Supporting CATARC for publication of an ISO 26262 equivalent as GB/T 34590 in China.
- Shared project leads for several projects, such as:
    - ISO TR 9968: Road vehicles — Functional safety — The application to generic RESS for NEV
    - ISO 11585-2: Road vehicles – Partial driving automation — Part 2: Test method to evaluate the performance of partial driving automation conditional hands-free driving systems
    - ISO 25355 (RTCW) Rear traffic objects warning system
    - ISO 24354 (DOW) Door open warning system

Establish a regular exchange between experts for standardization and regulation for automated and assisted driving as a kind of “new normality”.

How should we continue ?

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Status Quo:

- Cooperation between China and Germany established and is continuously improved by:
  - bilateral discussion in case of problems or new ideas that have been identified using adhoc meetings and
  - regular exchange at least once a year about project progress and to align the standardization roadmaps.
- Standardization and regulation about ICV is now “daily business” without a need for an additional process. The framework of a SWG with scheduled work program is not necessary anymore.

Proposal for future

- China and Germany continue to cooperate and coordinate their initiatives in standardization and regulations in a natural way.
- Both sides are prepared to report through CATARC and/or VDA towards DCKN-Plenary-Meetings. The report will also cover the cooperation under the new Joint Declaration between China and Germany.
- Based on this VDA recommends to close the SWG ICV as an active unit under DCKN in 2025.

谢谢!
Danke!

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Chinese response and common proposal

Mr. SUN Hang

CATARC

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Open discussion

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Conclusion and Closing Remarks

Mr. SUN Hang

CATARC

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Standardization Administration of the P.R.C.

Conclusion and Closing Remarks

Mr. Egbert Fritzsche

VDA

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Thank you!
Danke!
谢谢！

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Happening Now: Group photo of SWG attendees

5.30 p.m.: 5-10 min walk to cruise ship (we meet next to SGSCC reception desk)