
INDUSTRY STANDARDS

1 Introduction

Although international ISO hybrid meetings have been approved since July 2022, online participation has remained the primary choice. Nevertheless, the commitment of the various experts enabled discussions on draft standards to progress without significant delay.

2 Standardization Activities

2.1. International Standardization Activities

International standardization activities led to the publication of 69 ISO standards from TC 22 (Road vehicles) and 40 standards from TC 204 (Intelligent transport systems). Japan took the lead or actively participated in 25 of those standards.

Standards related to automated driving issued by TC 22 include ISO 24089 (Software update engineering) and ISO 34502 (Test scenarios for automated driving systems — Scenario based safety evaluation framework). Similarly, the TC 204 (ITS) WG 14 (Vehicle/roadway warning and control systems), for which Japan is the convenor, issued ISO 4272 (Truck platooning systems (TPS) — Functional and operational requirements) and ISO 23375 (Collision evasive lateral manoeuvre systems (CELM) — Requirements and test procedures).

In 2022, Japan also initiated New Work Items Proposals, two involving TC 22, and 4 involving TC 204.

2.2. Standardization Activities in Japan

Standardization activities in Japan led to the publication of 11 JASO standards and four technical papers (JASO TP). In addition, deliberations on two JIS standards have concluded.

(1) Japanese Automotive Standards Organization (JASO)

Mistakenly pressing the accelerator rather than the brake pedal is now a social issue, and over 90% of passenger vehicles sold over the last several years are

equipped with devices to address that issue. A third-party organization has conducted performance evaluations of such devices since 2018. Consequently, system requirements and test methods for the devices widely adopted in Japan have been standardized earlier than in the rest of the world. The ITS Standardization Committee and Automobile Standardization Committee respectively formulated system requirements (JASO C 306) and test methods (JASO C 307), with JASO coordinating with both committees to develop standards that can serve as cornerstones of ISO standardization.

(2) Japanese Industrial Standards (JIS)

The fuel injection systems for direct injection that have been adapted to the expanded direct injection in gasoline engines constitute new systems, and therefore contain unique components. This situation has fostered opportunities to standardize fuel injection devices for direct injection gasoline engines, and the ISO has begun work on formulating standards. Work is being made not only on standardizing product specifications, attachment shapes, and other aspects of component parts, but also on evaluating the cleanliness of injection devices. As in diesel engines, foreign matter residue in components parts causes a drop in operational efficiency in fuel injection devices for direct injection gasoline engines. Japan played an active role in addressing this issue in the formulation of a draft proposal, which was published as ISO 19724 in 2020.

The production of direct injection gasoline engines is also expanding in Japan, and the JIS has completed a draft aimed at fostering broad use of the rules laid out in that ISO standard in Japan.

3 List of Standards

The international and Japanese standards published in 2022 and the new standards proposed by Japan are shown below.

ISO number	Title
TC 22 (Road vehicles (RV)): 61 standards	
SC 31 (Data communication field)	
ISO 15118-9 : 2022	RV — Part 9 : Physical and data link layer conformance test for wireless communication
ISO 15118-20 : 2022	RV — Part 20 : 2 nd generation network layer and application layer requirements
ISO 15118-20 : 2022	RV — Part 20 : 2 nd generation network layer and application layer requirements
ISO 15031-3 : 2023	RV — Communication between vehicle and external equipment for emissions-related diagnostics — Part 3 : Diagnostic connector and related electrical circuits: Specification and use
ISO 14229-1 : 2020 /Amd 1 : 2022	RV — Unified diagnostic services (UDS) — Part 1 : Application layer — Amendment 1
ISO 14229-5 : 2022	RV — Unified diagnostic services (UDS) — Part 5 : Unified diagnostic services on Internet Protocol implementation (UDSonIP)
ISO 14229-7 : 2022	RV — Unified diagnostic services (UDS) — Part 7 : UDS on local interconnect network (UDSonLIN)
ISO 11992-2 : 2023	RV — Interchange of digital information on electrical connections between towing and towed vehicles — Part 2 : Application layer for brakes and running gear
ISO 16844-3 : 2022	RV — Tachograph systems — Part 3 : Motion sensor communication interface
ISO 16844-6 : 2022	RV — Tachograph systems — Part 6 : Diagnostic communication interfaces
ISO 16844-7 : 2022	RV — Tachograph systems — Part 7 : Parameters
ISO 26021-3 : 2022	RV — End-of-life activation of in-vehicle pyrotechnic devices — Part 3 : Data definitions
ISO 16844-2 : 2022	RV — Tachograph systems — Part 2 : Recording unit communication interface
ISO 22900-2 : 2022	RV — Modular vehicle communication interface (MVCI) — Part 2 : Diagnostic protocol data unit (D-PDU API)
ISO 13209-3 : 2022	RV — Open Test sequence eXchange format (OTX) — Part 3 : Standard extensions and requirements
ISO 20730-2 : 2022	RV — Vehicle interface for electronic Periodic Technical Inspection (ePTI) — Part 2 : Application and communication requirements conformance test plan
ISO 13209-2 : 2022	RV — Open Test sequence eXchange format (OTX) — Part 2 : Core data model specification and requirements
SC 32 (Electrical and electronic components fields)	
ISO 17447-1 : 2022	RV — Glow plugs with conical seating and their cylinder head housing — Part 1 : Basic characteristics and dimensions for metal-sheath-type glow plugs
ISO 21448 : 2022	RV — Safety of the intended functionality
ISO 4091 : 2003 /AMD 1 : 2022	RV — Connectors for the electrical connection of towing and towed vehicles — Definitions, tests and requirements — Amendment 1
ISO 11451-4 : 2022	RV — Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 4 : Harness excitation methods
SC 33 (Vehicle dynamics and chassis components fields)	
ISO 11010-1 : 2022	Passenger cars — Simulation model classification — Part 1 : Vehicle dynamics
ISO/TS 22133 : 2023	RV — Test object monitoring and control for active safety and automated/autonomous vehicle testing — Functional requirements, specifications and communication protocol
ISO 21994 : 2022	Passenger cars — Stopping distance at straight-line braking with ABS — Open-loop test method
ISO 15037-3 : 2022	RV — Vehicle dynamics test methods — Part 3 : General conditions for passenger cars ride comfort tests
ISO 22733-1 : 2022	RV — Test method to evaluate the performance of autonomous emergency braking systems — Part 1 : Car-to-car
ISO 3894 : 2023	RV — Wheels/rims for commercial vehicles — Test methods
ISO 7141 : 2022	RV — Light alloy wheels — Lateral impact test
ISO 22135 : 2023	RV — Heavy commercial vehicles and buses — Calculation method for steady-state rollover threshold
ISO 22138 : 2022	Heavy commercial vehicles — Vehicle stability during tipper body operation — Tilt-table test method
ISO 21234 : 2022	RV — Heavy commercial vehicles and buses — Mass moment of inertia measurement
ISO 22139 : 2022	Heavy commercial vehicles and buses — Test method for steering effort measurement when manoeuvring at low speed or with stationary vehicle
ISO 23365 : 2022	Heavy commercial vehicles and buses — Definitions of properties for the determination of suspension kinematic and compliance characteristics
ISO 34501 : 2022	RV — Test scenarios for automated driving systems — Vocabulary
ISO/PAS 22596 : 2022	RV — Brake lining friction materials — Dynamometer metal pick-up generation procedure for disc brakes
SC 34 (Powertrain field)	
ISO 19438 : 2023	Diesel fuel and petrol filters for internal combustion engines — Filtration efficiency using particle counting and contaminant retention capacity

ISO 18418-2 : 2022	Gasoline engines — High pressure liquid fuel supply connections — Part 2 : Pipe assemblies
ISO/TS 12103-3 : 2023	RV — Test contaminants for filter evaluation — Part 3 : Soot contaminant
SC 35 (Lighting and visibility)	
ISO/TS 5385 : 2022	RV — Anti-fog coating for exterior lighting devices — Specification
ISO 5685 : 2022	RV — Testing the abrasion resistance of automotive glazing with the windscreen wiper test
ISO 4513 : 2022	RV — Visibility — Method for establishment of eyellipses for driver' s eye location
SC 36 (Collision safety field)	
ISO 13215-3 : 2022	RV — Reduction of misuse risk of child restraint systems — Part 3 : Prediction and assessment of misuse by Mis-use Mode and Effect Analysis(MMEA)
ISO 13215-2 : 2022	RV — Reduction of misuse risk of child restraint systems — Part 2 : Requirements and test procedures for correct installation(panel method)
ISO 15830-3 : 2022	RV — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 3: Mechanical requirements for electronic subsystems
ISO 15830-2 : 2022	RV — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 2: Mechanical subsystems
ISO 15830-4 : 2022	RV — Design and performance specifications for the WorldSID 50th percentile male side impact dummy — Part 4: User's manual
ISO 15830-1 : 2022	RV — Design and performance specifications for the WorldSID 50th percentile male side-impact dummy — Part 1: Vocabulary and rationale
SC 37 (Electric vehicles field) (Organization in charge: Japan Automobile Research Institute (JARI))	
ISO 6469-2 : 2022	Electrically propelled road vehicles — Safety specifications — Part 2 : Vehicle operational safety
ISO 23828 : 2022	Fuel cell road vehicles — Energy consumption measurement — Vehicles fuelled with compressed hydrogen
ISO 6469-1 : 2019 / Amd 1 : 2022	Electrically propelled road vehicles — Safety specifications — Part 1: Rechargeable energy storage system(RESS) — Amendment 1 : Safety management of thermal propagation
ISO 21782-1 : 2023	Electrically propelled road vehicles — Test specification for electric propulsion components — Part 1 : General test conditions and definitions
SC 38 (Motorcycle and moped field)	
ISO 23280 : 2022	Electrically propelled mopeds and motorcycles — Test method for evaluation of energy performance using motor dynamometer
SC 40 (Commercial vehicles, busses and trucks fields)	
ISO 11154 : 2023	RV — Roof load carriers
SC 41 (Gas vehicle field)	
ISO 15500-21 : 2023	RV — Compressed natural gas(CNG) fuel system components — Part 21 : Discharge line closures
ISO 15500-13 : 2023	RV — Compressed natural gas(CNG) fuel system components — Part 13 : Pressure relief device(PRD)
ISO 20766-21 : 2023	RV — Liquefied petroleum gas(LPG) fuel system components — Part 21 : Pressure and/or temperature sensors
ISO 20766-15 : 2023	RV — Liquefied petroleum gas(LPG) fuel system components — Part 15 : Excess flow valve
ISO 20766-8 : 2023	RV — Liquefied petroleum gas(LPG) fuel system components — Part 8 : Fuel pump
ISO 20766-7 : 2023	RV — Liquefied petroleum gas(LPG) fuel system components — Part 7 : Remotely controlled service valve with excess flow valve
ISO 20766-17 : 2022	RV — Liquefied petroleum gas(LPG) fuel system components — Part 17 : Gas dosage unit
ISO 20766-6 : 2019 / Amd 1 : 2022	RV — Liquefied petroleum gas(LPG) fuel systems components — Part 6 : Pressure relief valves(PRV) — Amendment 1
TC 204 (Intelligent transport systems (ITS)): 34 standards	
WG 1 (Architecture)	
ISO 5345 : 2022	ITS — Identifiers
ISO/TS 14812 : 2022	ITS — Vocabulary
ISO/TR 23255 : 2022	ITS — Architecture — Applicability of data distribution technologies within ITS
WG 5 (Automatic fee collection field) Highway Industry Development Organization	
ISO 12855 : 2022	Electronic fee collection — Information exchange between service provision and toll charging
ISO/TR 6026 : 2022	Electronic fee collection — Pre-study on the use of vehicle licence plate information and automatic number plate recognition (ANPR) technologies

ISO/TS 21719-2 : 2022	Electronic fee collection — Personalization of on-board equipment(OBE) — Part 2 : Using dedicated short-range communication
ISO 14906 : 2022	Electronic fee collection — Application interface definition for dedicated short-range communication
WG 7 (Commercial cargo vehicle operation management field) (Highway Industry Development Organization)	
ISO 24533-2 : 2022	ITS — Electronic information exchange to facilitate the movement of freight and its intermodal transfer — Part 2: Common reporting system
WG 8 (Public transport/emergency) (Japan Institute of Country-ology and Engineering)	
ISO/TS 4398 : 2022	ITS — Guided transportation service planning data exchange
ISO 21734-1 : 2022	ITS — Performance testing for connectivity and safety functions of automated driving buses in public transport — Part 1 : General framework
WG 9 (Integrated transport information, management and control) (Universal Traffic Management Society of Japan (UTMS))	
ISO/TS 20684-3	ITS — Roadside modules SNMP data interface — Part 3 : Triggers
ISO/TS 20684-4	ITS — Roadside modules SNMP data interface — Part 4 : Notifications
ISO/TS 20684-5	ITS — Roadside modules SNMP data interface — Part 5 : Logs
ISO/TS 20684-6	ITS — Roadside modules SNMP data interface — Part 6 : Commands
ISO/TS 20684-7	ITS — Roadside modules SNMP data interface — Part 7 : Support features
ISO/TS 20684-6 : 2022	ITS — Roadside modules SNMP data interface — Part 6 : Commands
ISO/TS 14827-4 : 2022	ITS — Data interfaces between centres for transport information and control systems — Part 4 : Data interfaces between centres for Intelligent transport systems(ITS) using XML(Profile B)
ISO/TS 20684-3 : 2022	ITS — Roadside modules SNMP data interface — Part 3 : Triggers
ISO/TS 20684-4 : 2022	ITS — Roadside modules SNMP data interface — Part 4 : Notifications
ISO/TS 20684-5 : 2022	ITS — Roadside modules SNMP data interface — Part 5 : Logs
ISO/TS 20684-7 : 2022	ITS — Roadside modules SNMP data interface — Part 7 : Support features
WG 10 (Traveller information systems) (UTMS)	
ISO 21219-1 : 2023	ITS — Traffic and travel information(TTI) via transport protocol experts group, generation 2 (TPEG2) — Part 1 : Introduction, numbering and versions(TPEG2-INV)
WG 14 (Vehicle travel control field)	
ISO 20900 : 2023	ITS — Partially-automated parking systems(PAPS) — Performance requirements and test procedures
WG 17 (Nomadic device field) (Japan Electronics and Information Technology Industries Association)	
ISO 23795-1 : 2022	ITS — Extracting trip data using nomadic and mobile devices for estimating CO2 emissions — Part 1 : Fuel consumption determination for fleet management
ISO 13111-2 : 2022	ITS — The use of personal ITS stations to support ITS service provision for travellers — Part 2: General requirements for data exchange between ITS stations
WG 19 (Mobility integration) (Highway Industry Development Organization)	
ISO/TR 4447 : 2022	ITS — Mobility integration — Comparison of two mainstream integrated mobility concepts
ISO/TR 7878 : 2023	ITS — Mobility integration — Enterprise view

ISO standards proposed by Japan

ISO number	Title
TC 22 (Road vehicles (RV)): 8 standards	
SC 32 (Electrical and electronic components fields)	
ISO 21111-8 : 2022	RV — In-vehicle Ethernet — Part 8 : Electrical 100-Mbit/s Ethernet transmission media, components and tests
ISO 24089 : 2023	RV — Software update engineering
SC 33 (Vehicle dynamics and chassis components fields)	
ISO 34502 : 2022	RV — Test scenarios for automated driving systems — Scenario based safety evaluation framework
SC 38 (Motorcycle and moped field)	
ISO 6460-3 : 2007 / Amd 2 : 2022	Motorcycles — Measurement method for gaseous exhaust emissions and fuel consumption — Part 3 : Fuel consumption measurement at a constant speed — Amendment 2

ISO 18246 : 2023	Electrically propelled mopeds and motorcycles — Safety requirements for conductive connection to an external electric power supply
ISO 13063-3 : 2022	Electrically propelled mopeds and motorcycles — Safety specifications — Part 3 : Electrical safety
ISO 13063-2 : 2022	Electrically propelled mopeds and motorcycles — Safety specifications — Part 2 : Vehicle operational safety
ISO 13063-1 : 2022	Electrically propelled mopeds and motorcycles — Safety specifications — Part 1 : On-board rechargeable energy storage system(RESS)

TC 204 (Intelligent transport systems (ITS)): 6 standards	
WG 3 (ITS database technology field) (Japan Digital Road Map Association)	
ISO 17572-1 : 2022	ITS — Location referencing for geographic databases — Part 1 : General requirements and conceptual model
WG 9 (Integrated transport information, management and control) (Universal Traffic Management Society of Japan (UTMS))	
ISO 14827-2 : 2022	ITS — Data interfaces between centres for transport information and control systems — Part 2 : AP-DATEX
WG 14 (Vehicle travel control field)	
ISO 4272 : 2022	ITS — Truck platooning systems(TPS) — Functional and operational requirements
ISO 23375 : 2023	ITS — Collision evasive lateral manoeuvre systems(CELM) — Requirements and test procedures
WG 19 (Mobility integration) (Highway Industry Development Organization)	
ISO/TR 7872 : 2022	ITS — Mobility integration — Digital infrastructure service role and functional model for urban ITS service applications
ISO/TR 5255-2 : 2023	ITS — Low-speed automated driving system(LSADS) service — Part 2 : Gap analysis

[\[Issued JASO Standards and JASO Technical Papers, and JIS Proposals for Which Deliberations Have Concluded\]](#)

Type	Standard No. and name
JASO (11 standards)	<p>Established: 2 standards</p> <p>C-306 Pedal misapplication acceleration suppression system</p> <p>C-307 Test methods for pedal misapplication acceleration suppression system</p> <p>Revised: 4 standards</p> <p>D-612-4 Automotive parts - Fuses - Part 4: Fuse-links with female contacts (type A) and bolt-in contacts (type B)</p> <p>F-101 Automotive parts – Hexagon Bolts</p> <p>M-315 Road vehicles – Automatic transmission fluids</p> <p>T-903 Motorcycles – Four-stroke cycle gasoline engine oils</p> <p>Minor revision: 5 standards</p> <p>D-625-5 Automotive parts – Automotive Cables -Part 5 : High voltage copper cables [in Japanese]</p> <p>D-625-6 Automotive parts – Automotive Cables -Part 6 : High Aluminum cables [in Japanese]</p> <p>M-365 Automobile Gasoline Engine Oils - Motored Fuel Economy Test Procedures</p> <p>M-903 Road vehicles interior parts – Measurement methods of diffused volatile organic compounds (VOCs)</p> <p>Z-003 Form for automobile performance diagram</p>
JASO Technical Papers (4 Papers)	<p>Established: 4 papers</p> <p>TP23001 Guidelines for Customer Notifications of Product / Process Changes (PCN) of Electronic Passive Components for Automotive (sic., in Japanese)</p> <p>TP23002 Guidances for EMC test methods of automotive electrical and electronic equipment (in Japanese)</p> <p>TP23003 Results of survey of brake specifications for LED stop lamps (in Japanese)</p> <p>TP23004 Safety assessment process of the power supply system for accessories of vehicle (in Japanese)</p>
JIS (2 standards)	<p>Established: 1 standard</p> <p>D-XXXX Direct injection gasoline engines – Cleanliness assessment of fuel injection equipment (in Japanese)</p> <p>Revised: 1 paper</p> <p>D-3639 Diesel engines – Cleanliness assessment of fuel injection equipment (in Japanese)</p>