

INDUSTRY STANDARDS

The Society of Automotive Engineers of Japan (JSAE) has been approved by the Japanese Industrial Standards Committee (JISC) as the Japanese domestic deliberative organization for the Automobile Technical Committee (TC 22) ITS Technical Committee (TC 204) of the International Organization for Standardization (ISO). Under those standards organizations, the JSAE has contributed to creating ISO standards through activities such as dispatching committee members to international conferences, taking over as the international chair and the secretariat nation of the sub committees (SCs) and working groups (WGs) under the umbrella of the TC 22 and TC 204.

In addition, the JSAE contributes to technological advances, the securing of safety, and higher production efficiency with respect to vehicles and ITS through activities such as the preparation of drafts of the national Japanese Industrial Standards (JIS standards), the establishment of the organizational Japanese Automotive Standards Organization (JASO standards), and the provision

of information on standards to consumers as well as the automotive industry as a whole.

In fiscal 2020, these standardization activities led to the publication of 64 ISO standards, with Japan taking the lead for 25 of them, which represents forty percent of the total. For example, the ISO 21202 (Partially automated lane change systems (PALS)) standard was issued, and is expected to help commercialize and popularize autonomous vehicles. Japan also proposed a New Work Item Proposal (NP) on automatic emergency notification systems (D-Call Net).

One JIS standard was submitted, and JASO issued three standards and three technical papers. Examples include the JASO standard on electromagnetic compatibility (EMC), and the JASO technical paper providing guidelines on replaceable batteries for electric motorcycles.

It will be necessary to promote further standardization activities in the automotive and ITS fields to make contributions aligned with the various long-term plans not just in Japan, but throughout the world.

[ISO Standards Issued in Fiscal 2020] ***Bold: Standards issued under Japanese leadership or active participation.**

ISO number	Title
TC 22 (Road vehicles (RV)): 64 standards	
ISO TR 4804 : 2020	RV — Safety and cybersecurity for automated driving systems — Design, verification and validation
SC 31 (Data communication field)	
ISO 21111-3 : 2020	RV — In-vehicle Ethernet — Part 3: Optical 1-Gbit/s physical entity requirements and conformance test plan
ISO 21111-5 : 2020	RV — In-vehicle Ethernet — Part 5: Optical 1-Gbit/s physical entity requirements and conformance test plan
ISO 23132 : 2020	RV — Extended Vehicle (ExVe) time critical applications — General requirements, definitions and classification methodology of time-constrained situations related to Road and ExVe Safety (RExVeS)
ISO 21806-1 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 1 : General information and definitions
ISO 21806-2 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 2 : Application layer
ISO 21806-4 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 4 : Transport layer and network layer
ISO 21806-5 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 5: Transport layer and network layer conformance test plan
ISO 21806-6 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 6 : Data link layer
ISO 21806-7 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 7 : Data link layer conformance test plan
ISO 15118-8 : 2020	RV — Vehicle to grid communication interface — Part 8 : Physical layer and data link layer requirements for wireless communication
ISO 20794-6 : 2020	RV — Clock extension peripheral interface (CXPI) — Part 6: Transport and network layer conformance test plan
ISO 21806-3 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 3 : Application layer conformance test plan
ISO 20794-5 : 2020	RV — Clock extension peripheral interface (CXPI) — Part 5 : Application layer conformance test plan
ISO 20794-7 : 2020	RV — Clock extension peripheral interface (CXPI) — Part 7 : Data link and physical layer conformance test plan
ISO 21111-1 : 2020	RV — In-vehicle Ethernet — Part 1 : General information and definitions

ISO number	Title
ISO 21111-2 : 2020	RV — In-vehicle Ethernet — Part 2 : Common physical entity requirements
ISO 21806-8 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 8 : 150-Mbit/s optical physical layer
ISO 21806-9 : 2020	RV — Media Oriented Systems Transport (MOST) — Part 9 : 150-Mbit/s optical physical layer conformance test plan
ISO 13216-4 : 2020	RV — Anchorages in vehicles and attachments to anchorages for child restraint systems — Part 4 : Lower tether anchorages
SC 32 (Electrical and electronic components fields)	
ISO 11452-4 : 2020	RV — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 4 : Harness excitation methods
ISO/TS 7637-4 : 2020	RV — Electrical disturbance by conduction and coupling — Part 4 : Electrical transient conduction along shielded high voltage supply lines only
ISO 8820-11 : 2020	RV — Fuse-links — Part 11 : Fuse-links with tabs (blade type) Type M (medium-high current)
ISO 12098 : 2020	RV — Connectors for the electrical connection of towing and towed vehicles — 15-pole connector for vehicles with 24 V nominal supply voltage
ISO 19453-6 : 2020	RV — Environmental conditions and testing for electrical and electronic equipment for drive system of electric propulsion vehicles — Part 6 : Traction battery packs and systems
ISO 25981 : 2020	RV — Connectors for the electrical connection of towing and towed vehicles — Connectors for electronically monitored charging systems with 12 V or 24 V nominal supply voltage
ISO 21780 : 2020	RV — In-vehicle Ethernet — Part 48 : General information and definitions
ISO 8820-10 : 2020	RV — Fuse-links — Part 10 : Fuse-links with tabs Type L (high current miniature)
ISO 8092-5 : 2021	RV — Connections for on-board electrical wiring harnesses — Part 5 : Test methods and general performance requirements for wiring harness connector operation
ISO 6969 : 2004 / AMD 1 : 2021	RV — Sound signaling devices — Tests after mounting on vehicle — Amendment 1
SC 33 (Vehicle dynamics and chassis components fields)	
ISO 4925 : 2020	RV — Specification of non-petroleum-based brake fluids for hydraulic systems
ISO 4926 : 2020	RV — Hydraulic braking systems — Non-petroleum-based reference fluid
ISO 19206-4 : 2020	RV — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions — Part 4 : Requirements for bicyclist targets
SC 34 (Powertrain field)	
ISO 18669-2 : 2020	Internal combustion engines — Piston pins — Part 2 : Inspection measuring principles
ISO 2534 : 2020	RV — Engine test code — Gross power
ISO 19724 : 2020	Gasoline engines with direct injection — Cleanliness assessment of fuel injection equipment
ISO 12103-3 : 2020	RV — Test contaminants for filter evaluation — Part 3 : Soot contaminant
ISO 1585 : 2020	RV — Engine test code — Net power
ISO 5011 : 2020	Inlet air cleaning equipment for internal combustion engines and compressors — Performance testing
ISO 22561 : 2020	Gasoline engines with direct fuel injection (GDI engines) — Installation of the injectors to the engine
SC 36 (Collision safety field)	
ISO/TR 27957 : 2020	RV — Temperature measurement in anthropomorphic test devices — Definition of the temperature sensor locations
ISO 21612 : 2021	RV — Crosstalk determination for multi-axis load cell
SC 37 (Electric vehicles field) (Organization in charge: Japan Automobile Research Institute)	
ISO 19363 : 2020	Electrically propelled RV — Magnetic field wireless power transfer — Safety and interoperability requirements
ISO 21498-1 : 2021	Electrically propelled RV — Electrical specifications and tests for voltage class B systems and components — Part 1: Voltage sub-classes and characteristics
ISO 21498-2 : 2021	Electrically propelled RV — Electrical specifications and tests for voltage class B systems and components — Part 2: Electrical tests for components
SC 38 (Motorcycles and mopeds fields)	
ISO 17479 : 2013 / AMD 1 : 2020	Motorcycles — Measurement methods for gaseous exhaust emissions during inspection or maintenance — Amendment 1
ISO 18243 : 2017 / AMD 1 : 2020	Electrically propelled mopeds and motorcycles — Test specifications and safety requirements for lithium-ion battery systems — Amendment 1
ISO 6727 : 2021	RV — Motorcycles and mopeds — Symbols for controls, indicators and tell-tales
SC 39 (Ergonomics field)	
ISO 15007 : 2020	RV — Measurement and analysis of driver visual behaviour with respect to transport information and control systems
ISO 20176 : 2020	RV — H-point machine (HPM-II) — Specifications and procedure for H-point determination

ISO number	Title
SC 40 (Commercial vehicles, busses and trucks fields)	
ISO 21308-2 : 2020	RV — Product data exchange between chassis and bodywork manufacturers (BEP) — Part 2 : Dimensional bodywork exchange parameter
ISO 21308-3 : 2020	RV — Product data exchange between chassis and bodywork manufacturers (BEP) — Part 3 : General, mass and administrative exchange parameters
ISO 13044-2 : 2021	RV — Fully automatic coupling systems 24 V (FACS) for heavy commercial vehicle combinations — Part 2 : Electrical and pneumatic interface for 50 mm fifth wheel couplings
SC 41 (Gas vehicle field)	
ISO 15500-3 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 3 : Check valve
ISO 15500-6 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 6 : Automatic valve
ISO 15500-9 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 9 : Pressure regulator
ISO 15500-16 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 16 : Rigid fuel line in stainless steel
ISO 15500-18 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 18 : Filter
ISO 15500-19 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 19 : Fittings
ISO 15500-14 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 14 : Excess flow valve
ISO 15500-4 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 4 : Manual valve system
ISO 15500-5 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 5 : Manual valve system
ISO 15500-5 : 2020	RV — Compressed natural gas (CNG) fuel system components — Part 5 : Manual valve system
ISO 15501-1 : 2016 / AMD 1 : 2021	RV — Compressed natural gas (CNG) fuel systems — Part 1 : Safety requirements — Amendment 1
ISO 19723-1 : 2018 / AMD 1 : 2021	RV — Liquefied natural gas (LNG) fuel systems — Part 1 : Safety requirements — Amendment 1
TC 204 (Intelligent transport systems (ITS)): 28 standards	
WG 3 (ITS database technology field) (Japan Digital Road Map Association)	
ISO 17572-4 : 2020	ITS — Location referencing for geographic databases — Part 4: Precise relative location references (precise relative profile)
ISO 20524-2 : 2020	ITS — Geographic Data Files (GDF) GDF5 .1 — Part 2 : Map data used in automated driving systems, Cooperative ITS, and multi-modal transport
WG 5 (Automatic fee collection field) Highway Industry Development Organization	
ISO/TS 17573-2 : 2020	Electronic fee collection — System architecture for vehicle related tolling — Part 2 : Vocabulary
ISO 19299 : 2020	Electronic fee collection — Security framework
ISO 13143-1 : 2020	Electronic fee collection — Evaluation of on-board and roadside equipment for conformity to ISO 12813 — Part 1 : Test suite structure and test purposes
ISO 14907-2 : 2021	Electronic fee collection — Test procedures for user and fixed equipment — Part 2 : Conformance test for the on-board unit application interface
WG 7 (Commercial cargo vehicle operation management field) (Highway Industry Development Organization)	
ISO 15638-20 : 2020	ITS — Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV) — Part 20 : Weigh-in-motion monitoring
ISO 15638-9 : 2020	ITS — Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV) — Part 9: Remote digital tachograph monitoring
WG 8 (Public transport/emergency) (Japan Institute of Country-ology and Engineering)	
ISO/TR 21724-1 : 2020	ITS — Common Transport Service Account Systems — Part 1 : Framework and use cases
ISO 24014-1 : 2021	Public transport — Interoperable fare management system — Part 1 : Architecture
WG 10 (Traveler information field) (Universal Traffic Management Society of Japan)	
ISO 14819-3 : 2021	ITS — Traffic and travel information messages via traffic message coding — Part 3 : Location referencing for Radio Data System-Traffic Message Channel (RDS-TMC) using ALERT-C
ISO 14819-2 : 2021	ITS — Traffic and travel information messages via traffic message coding — Part 2 : Event and information codes for Radio Data System-Traffic Message Channel (RDS-TMC) using ALERT-C
ISO 14819-1 : 2021	ITS — Traffic and travel information messages via traffic message coding — Part 1 : Coding protocol for Radio Data System-Traffic Message Channel (RDS-TMC) using ALERT-C
WG 14 (Vehicle travel control field)	
ISO 20901 : 2020	ITS — Emergency electronic brake light systems (EEBL) — Performance requirements and test procedures
ISO 21202 : 2020	ITS — Partially automated lane change systems (PALS) — Functional / operational requirements and test procedures

ISO number	Title
WG 16 (Communications) (Japan Electronics and Information Technology Industries Association)	
ISO 22418 : 2020	ITS — Fast service announcement protocol (FSAP) for general purposes in ITS
ISO 22738 : 2020	ITS — Localized communications — Optical camera communication
ISO 17515-2 : 2020	ITS—Evolved universal terrestrial radio access network (E-UTRAN)—Part 2: Device to device communications (D2D)
ISO 21217 : 2020	ITS — Station and communication architecture
WG 17 (Nomadic device field) (Japan Electronics and Information Technology Industries Association)	
ISO 13185-4 : 2020	ITS—Vehicle interface for provisioning and support of ITS Services—Part 4: Unified vehicle interface protocol (UVIP) conformance test specification
ISO 18561-1 : 2020	ITS — Urban mobility applications via nomadic device for green transport management — Part 1 : General requirements for data exchange between ITS stations
ISO 20530-1 : 2020	ITS — Information for emergency service support via personal ITS station — Part 1 : General requirements and technical definition
WG 18 (Cooperative systems field) (Highway Industry Development Organization)	
ISO/TS 21176 : 2020	Cooperative ITSs (C-ITS) — Position, velocity and time functionality in the ITS station
ISO/TS 19321 : 2020	ITS — Cooperative ITS — Dictionary of in-vehicle information (IVI) data structures
ISO/TR 21186-1: 2021	Cooperative ITS (C-ITS) — Guidelines on the usage of standards — Part 1 : Standardization landscape and releases
ISO/TR 21186-2: 2021	Cooperative ITS (C-ITS) — Guidelines on the usage of standards — Part 2 : Standardization landscape and releases
ISO/TR 21186-3: 2021	Cooperative ITS (C-ITS) — Guidelines on the usage of standards — Part 3 : Security
ISO/TS 21184 :2021	Cooperative ITS (C-ITS) — Global transport data management (GTDM) framework

[JASO Standards, JASO Technical Papers, and JIS Standards Issued in Fiscal 2020]

Type	Standard No. or Title
Issued by JASO (14 standards)	<p>[Established] Three standards</p> <p>D018 : Low-frequency magnetic field measurement method for human exposure of automobile electrical and electronic components (1 Hz-400 kHz)</p> <p>D019 : Performance test method for semiconductor EMC performance etc. for automatic vehicles</p> <p>D625-4 : Automotive parts – Automotive cables – Part 4 : Low pressure aluminum cables</p> <p>[Revised] Eight standards</p> <p>C407 : Truck and bus – Braking device – Dynamometer test procedures</p> <p>D015-1 : Automobiles –Clock extension peripheral interface (CXPI) – Part 1 : General information and use cases definition</p> <p>D616 : Automotive parts – Test methods and general performance requirements for wiring harness connectors</p> <p>D622-3 : Auto Parts – High Voltage Fuse Part 3 : Screw Tightening Type (H Type and J Type) and Plug Type (Q Type) High Voltage Fuse</p> <p>F120 : Automotive parts - Tapping screw and plain washer assemblies</p> <p>M355 : Automotive Diesel Engine Oils</p> <p>T905 : Motorcycles – Fuel Tanks Made of Plastic Material – Testing Methods and Performance Requirements</p> <p>T906 : Motorcycles – Fuel tanks – Test methods on air-tightness and sealing</p> <p>[Slightly revised] Three standards</p> <p>E014 : Automobiles – Requirements and evaluation methods of chassis dynamometers – Supplement to fuel consumption tests</p> <p>E015 : Automobiles – Road load determination method for variation model vehicles using chassis dynamometer</p> <p>F208 : Automotive Parts - Plastic Clips for Interior and Exterior</p>
Technical papers issued by JASO (3 papers)	<p>[Established] Three standards</p> <p>TP21001 : Automobiles – Classification of power failure modes for auxiliary equipment</p> <p>TP21002: Macro analysis of accidents caused by fallen objects on expressways and classification of fallen objects for the development of advanced driver support systems</p> <p>TP21003 : Guidelines for replaceable batteries for electric motorcycles</p>
JIS submission (one)	<p>[Established] One standard</p> <p>—: Direct injection gasoline engines – Assembly method for high pressure fuel pumps</p>