

# 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 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.

These standardization activities led to the publication of 109 ISO standards in fiscal 2019, with Japan taking the lead for 31 of them, which is a little less than a third of

the total. For example, standards such as ISO/TR 21959-1 and -2 (*Human performance and state in the context of automated driving (Part 1: Common underlying concepts, Part 2: Considerations in designing experiments to investigate transition processes)*) were issued in TC 22, and standards such as ISO 20900 (*Partially automated parking systems (PAPS)*) were issued in TC 204. They are expected to help commercialize and popularize autonomous vehicles.

In addition, three JIS standards, fifteen JASO standards, and three JASO technical papers were issued. One example the JASO C 470 (*Passenger cars - Brake dust test procedure*), standard. Now that vehicle emissions have been reduced, this standard focuses on the abrasion dust from brakes and tires, which had a low contribution ratio. It stipulates an abrasion dust measurement test procedure using brake dynamometers for abrasion powder released by normal passenger vehicle brakes. This procedure is expected to provide a basis to assess potential future environmental standards and to be standardized by the ISO.

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 2019 ]

ISO number	Title
TC 22 (Road vehicles (RV)): 73 standards	
SC 31 (Data communication field)	
ISO 15118-1:2019	RV — Vehicle to grid communication interface — Part 1: General information and use-case definition
ISO 13400-2:2019	RV — Diagnostic communication over Internet Protocol (DoIP) — Part 2: Transport protocol and network layer services
ISO 14229-1:2020	RV — Unified diagnostic services (UDS) — Part 1: Application layer
ISO 14229-8:2020	RV — Unified diagnostic services (UDS) — Part 8: UDS on Clock eXtension Peripheral Interface (UDSonCXPI)
ISO 17987-8:2019	RV — Local Interconnect Network (LIN) — Part 8: Electrical physical layer (EPL) specification: LIN over DC power-line (DC-LIN)
ISO 20794-2:2020	RV — Clock extension peripheral interface (CXPI) — Part 2: Application layer
ISO 20794-3:2020	RV — Clock extension peripheral interface (CXPI) — Part 3: Transport and network layer
ISO 20794-4:2020	RV — Clock extension peripheral interface (CXPI) — Part 4: Data link layer and physical layer
ISO 11992-1:2019	RV — Interchange of digital information on electrical connections between towing and towed vehicles — Part 1: Physical and data-link layers
ISO 20078-3:2019	RV — Extended vehicle (ExVe) web services — Part 3: Security

ISO number	Title
ISO/TR 20078-4:2019	RV — Extended vehicle (ExVe) web services — Part 4:Control
ISO/TR 23791:2019	RV — Extended vehicle (ExVe) web services — Result of the risk assessment on ISO 20078 series
ISO/TR 23786:2019	RV — Solutions for remote access to vehicle — Criteria for risk assessment
SC 32 (Electrical and electronic components fields)	
<b>ISO 21111-4:2020</b>	<b>RV — In-vehicle Ethernet — Part 4: General requirements and test methods of optical gigabit Ethernet components</b>
ISO 19642-1:2019	RV — Automotive cables — Part 1: Vocabulary and design guidelines
ISO 20934:2019	RV — Fuse-links with axial terminals for use in 48 V networks — Types SF36-70 V, SF51-70 V and SF56-70 V
<b>ISO 8820-8:2019</b>	<b>RV — Fuse-links — Part 8: Fuse-links with bolt-in contacts (Type H and J) with rated voltage of 450 V</b>
ISO 8820-12:2020	RV — Fuse-links — Part 12: Fuse-links with tabs (blade type) Type N (sub miniature)
ISO 8820-13:2020	RV — Fuse-links — Part 13: Fuse-links with tabs (blade type) Type P (sub miniature three tabs)
ISO 19072-1:2019	RV — Connection interface for pyrotechnic devices, two-way and three-way connections — Part 1: Pocket interface definition
ISO 19072-4:2019	RV — Connection interface for pyrotechnic devices, two-way and three-way connections — Part 4: Pyrotechnic device and harness connector assembly - type 2
ISO 20076:2019	RV — Test methods and performance requirements for voltage class B connectors
ISO 19072-2:2019	RV — Connection interface for pyrotechnic devices, two-way and three-way connections — Part 2: Test methods and general performance requirements
ISO 20574:2019	RV — Durability test method for starter motor for stop and start system
<b>ISO 22565:2019</b>	<b>RV — Durability test method of starter relay for stop and start system</b>
ISO 4141-1:2019	RV — Multi-core connecting cables — Part 1: Test methods and requirements for basic performance sheathed cables
ISO 4141-2:2019	RV — Multi-core connecting cables — Part 2: Test methods and requirements for high performance sheathed cables
ISO 4141-3:2019	RV — Multi-core connecting cables — Part 3: Construction, dimensions and marking of unscreened sheathed low-voltage cables
SC 33 (Vehicle dynamics and chassis components fields)	
ISO 7975:2019	Passenger cars — Braking in a turn — Open-loop test method
ISO 19380:2019	Heavy commercial vehicles and buses — Centre of gravity measurements — Axle lift, tilt-table and stable pendulum test methods
ISO 19586:2019	Heavy commercial vehicles and buses — Vehicle dynamics simulation and validation — Lateral dynamic stability of vehicle combinations
ISO 19585:2019	Heavy commercial vehicles and buses — Vehicle dynamics simulation and validation — Steady-state circular driving behavior
SC 34 (Powertrain field)	
ISO 17536-4:2019	RV — Aerosol separator performance test for internal combustion engines — Part 4: Laboratory fractional efficiency test method
ISO 22241-4:2019	Diesel engines — NOx reduction agent AUS 32 — Part 4: Refilling interface
ISO 22241-5:2019	Diesel engines — NOx reduction agent AUS 32 — Part 5: Refilling interface for passenger cars
ISO 22241-1:2019 / Amd 1:2019	Diesel engines — NOx reduction agent AUS 32 — Part 1: Quality requirements — Amendment 1
<b>ISO 6621-5:2020</b>	<b>Internal combustion engines — Piston rings — Part 5: Quality requirements</b>
ISO 6621-2:2020	Internal combustion engines — Piston rings — Part 2: Inspection measuring principles
<b>ISO 21441:2019</b>	<b>RV — Engine EGR cooler — Heat dissipation test methods</b>
SC 35 (Lighting and visibility fields)	
ISO 16505:2019	RV — Ergonomic and performance aspects of Camera Monitor Systems — Requirements and test procedures
SC 36 (Collision safety field)	
ISO/TS 13499:2019	RV — Multimedia data exchange format for impact tests
ISO 17840-2:2019	RV — Information for first and second responders — Part 2: Rescue sheet for buses, coaches and heavy commercial vehicles
ISO 17840-3:2019	RV — Information for first and second responders — Part 3: Emergency response guide template
ISO 12353-1:2020	RV — Traffic accident analysis — Part 1: Vocabulary
SC 37 (Electric vehicles field) (Organization in charge: Japan Automobile Research Institute (JARI))	
ISO/TR 8713:2019	Electrically propelled road vehicles — Vocabulary

ISO number	Title
ISO 6469-3:2018 / Amd 1:2020	Electrically propelled road vehicles — Safety specifications — Part 3: Electrical safety — Amendment 1: Withstand voltage test for electric power sources
ISO 17409:2020	Electrically propelled road vehicles — Conductive power transfer — Safety requirements
<b>ISO 23274-1:2019</b>	<b>Hybrid-electric road vehicles — Exhaust emissions and fuel consumption measurements — Part 1: Non-externally chargeable vehicles</b>
ISO 6469-1:2019	Electrically propelled road vehicles — Safety specifications — Part 1: Rechargeable energy storage system (RESS)
<b>ISO 21782-1:2019</b>	<b>Electrically propelled road vehicles — Test specification for electric propulsion components — Part 1: General test conditions and definitions</b>
<b>ISO 21782-2:2019</b>	<b>Electrically propelled road vehicles — Test specification for electric propulsion components — Part 2: Performance testing of the motor system</b>
<b>ISO 21782-3:2019</b>	<b>Electrically propelled road vehicles — Test specification for electric propulsion components — Part 3: Performance testing of the motor and the inverter</b>
<b>ISO 21782-6:2019</b>	<b>Electrically propelled road vehicles — Test specification for electric propulsion components — Part 6: Operating load testing of motor and inverter</b>
SC 38 (Motorcycles and mopeds fields)	
<b>ISO 21755-1:2019</b>	<b>Motorcycles — Measurement method for evaporative emissions — Part 1: SHED test procedure</b>
<b>ISO 21755-2:2020</b>	<b>Motorcycles — Measurement method for evaporative emissions — Part 2: Permeation test procedure</b>
<b>ISO 9021:2020</b>	<b>Motorcycles and mopeds — Controls — Types, positions and functions</b>
SC 39 (Ergonomics field)	
<b>ISO 21956:2019</b>	<b>RV — Ergonomics aspects of transport information and control systems — Human machine interface specifications for keyless ignition systems</b>
ISO/TS 14198:2019	RV — Ergonomic aspects of transport information and control systems — Calibration tasks for methods which assess driver demand due to the use of in-vehicle systems
<b>ISO/TR 21959-1:2020</b>	<b>RV — Human performance and state in the context of automated driving — Part 1: Common underlying concepts</b>
<b>ISO/TR 21959-2:2020</b>	<b>RV — Human performance and state in the context of automated driving — Part 2: Considerations in designing experiments to investigate transition processes</b>
SC 40 (Commercial vehicles, busses and trucks fields)	
ISO 18868:2013 / Amd 1:2020	Commercial road vehicles — Coupling equipment between vehicles in multiple vehicle combinations — Strength requirements — Amendment 1: Clarification for calculation for V-value for combinations including a centre axel trailer (CAT)
ISO 3584:2020	RV — Clevis couplings — Interchangeability
SC 41 (Gas vehicle field)	
ISO/TS 21104:2019	RV — Liquefied natural gas (LNG) integrated low pressure refuelling and venting connector — 1,8 MPa connector
ISO 20766-6:2019	RV — Liquefied petroleum gas (LPG) fuel systems components — Part 6: Pressure relief valves (PRV)
ISO 20766-9:2019	RV — Liquefied petroleum gas (LPG) fuel systems components — Part 9: Pressure relieve device (PRD)
ISO 20766-18:2019	RV — Liquefied petroleum gas (LPG) fuel systems components — Part 18: Hose
ISO 20766-20:2019	RV — Liquefied petroleum gas (LPG) fuel systems components — Part 20: Filter unit
ISO 20766-10:2019	RV — Liquefied petroleum gas (LPG) fuel systems components — Part 10: Gas-tight housing
ISO 20766-12:2019	RV — Liquefied petroleum gas (LPG) fuel systems components — Part 12: Non-return valve
ISO 20766-11:2020	RV — Liquefied petroleum gas (LPG) fuel systems components — Part 11: Manual shut-off valve
ISO 22760-1:2019	RV — Dimethyl Ether (DME) fuel system components — Part 1: General requirements and definitions
ISO 22760-2:2019	RV — Dimethyl Ether (DME) fuel system components — Part 2: Performance and general test methods
ISO 21058:2019	RV — Dimethyl Ether (DME) refuelling connector
TC 204 (Intelligent transport systems (ITS)): 36 standards	
WG 1 (System function configuration field)	
ISO 14813-5:2020	ITS — Reference model architecture(s) for the ITS sector — Part 5: Requirements for architecture description in ITS standards
WG 3 (ITS database technology field)	
<b>ISO/TR 14823-2:2019</b>	<b>ITS — Graphic data dictionary — Part 2: Examples</b>
ISO 19297-1:2019	ITS — Shareable geospatial databases for ITS applications — Part 1: Framework
<b>ISO 20524-1:2020</b>	<b>ITS — Geographic Data Files (GDF) GDF5 .1 — Part 1: Application independent map data shared between multiple sources</b>

ISO number	Title
WG 5 (Automatic fee collection field)	
ISO 17573-1:2019	Electronic fee collection — System architecture for vehicle-related tolling — Part 1: Reference model
ISO 14906:2018 / Amd 1:2020	Electronic fee collection — Application interface definition for dedicated short-range communication — Amendment 1
<b>ISO 14907-1:2020</b>	<b>Electronic fee collection — Test procedures for user and fixed equipment — Part 1: Description of test procedures</b>
<b>ISO/TS 16785:2020</b>	<b>Electronic Fee Collection (EFC) — Application interface definition between DSRC-OBE and external in-vehicle devices</b>
ISO 14906:2018 /FD Amd 1	Electronic fee collection — Application interface definition for dedicated short-range communication — Amendment 1
<b>ISO 12813:2019</b>	<b>Electronic fee collection — Compliance check communication for autonomous systems</b>
<b>ISO/TS 21192:2019</b>	<b>Electronic fee collection — Support for traffic management</b>
<b>ISO/TS 21193:2019</b>	<b>Electronic fee collection — Requirements for EFC application interfaces on common media</b>
WG 7 (Commercial cargo vehicle operation management field)	
<b>ISO 15638-22:2019</b>	<b>ITS — Framework for collaborative telematics applications for regulated commercial freight vehicles (TARV) — Part 22: Freight vehicle stability monitoring</b>
<b>ISO 26683-3:2019</b>	<b>ITS — Freight land conveyance content identification and communication — Part 3: Monitoring cargo condition information during transport</b>
<b>ISO/TS 15638-4:2020</b>	<b>ITS — Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV) — Part 4: System security requirements</b>
ISO/TS 17187:2019	ITS — Electronic information exchange to facilitate the movement of freight and its intermodal transfer — Governance rules to sustain electronic information exchange methods
WG 9 (Traffic management field)	
<b>ISO 15784-2:2015/ Amd 1:2020</b>	<b>ITS (ITS) — Data exchange involving roadside modules communication — Part 2: Centre to field device communications using SNMP — Amendment 1: Support for SHA2 encryption</b>
<b>ISO/TS 19082:2020</b>	<b>ITS — Definition of data elements and data frames between roadside modules and signal controllers for cooperative signal control</b>
ISO/TS 19468:2019	ITS — Data interfaces between centres for transport information and control systems — Platform independent model specifications for data exchange protocols for transport information and control systems
WG 10 (Traveler information field)	
ISO 21219-2:2019	ITS — Traffic and travel information (TTI) via transport protocol experts group, generation 2 (TPEG2) — Part 2: UML modelling rules (TPEG2-UMR)
ISO 21219-3:2019	ITS — Traffic and travel information (TTI) via transport protocol experts group, generation 2 (TPEG2) — Part 3: UML to binary conversion rules (TPEG2-UBCR)
ISO 21219-4:2019	ITS — Traffic and travel information (TTI) via transport protocol experts group, generation 2 (TPEG2) — Part 4: UML to XML conversion rules
ISO 21219-5:2019	ITS — Traffic and travel information (TTI) via transport protocol experts group, generation 2 (TPEG2) — Part 5: Service framework (TPEG2-SFW)
ISO 21219-6:2019	ITS — Traffic and travel information(TTI) via transport protocol experts group, generation 2 (TPEG2) — Part 6: Message management container (TPEG2-MMC)
ISO 21219-18:2019	ITS — Traffic and travel information (TTI) via transport protocol experts group, generation 2 (TPEG2) — Part 18: Traffic flow and prediction application (TPEG2-TFP)
WG 14 (Vehicle travel control field)	
<b>ISO 20900:2019</b>	<b>ITS — Partially automated parking systems (PAPS) — Performance requirements and test procedures</b>
<b>ISO 22078:2020</b>	<b>ITS — Bicyclist detection and collision mitigation systems (BDCMS) — Performance requirements and test procedures</b>
WG 16 (Communication field)	
ISO 17515-3:2019	ITS — Evolved-universal terrestrial radio access network — Part 3: LTE-V2 X
<b>ISO 19414:2020</b>	<b>ITS — Service architecture of probe vehicle systems</b>
WG 17 (Nomadic device field)	
ISO 17438-4:2019	ITS — Indoor navigation for personal and vehicle ITS station — Part 4: Requirements and specifications for interface between personal/vehicle and central ITS stations
ISO/TR 21735:2019	ITS — Framework architecture for plug and play (PnP) functionality in vehicles utilizing nomadic devices
ISO/TR 22085-1:2019	ITS — Nomadic device service platform for micro-mobility — Part 1: General information and use case definitions
WG 18 (Cooperative systems field)	
ISO/TS 19091:2019	ITS — Cooperative ITS — Using V2 I and I2 V communications for applications related to signalized intersections

ISO number	Title
ISO/TS 21177:2019	ITS — ITS station security services for secure session establishment and authentication between trusted devices
ISO/TS 21189:2019	ITS — Cooperative ITS — Test requirements and protocol implementation conformance statement (PICS) pro forma for ISO/TS 17426
ISO/TS 21185:2019	ITS — Communication profiles for secure connections between trusted devices

\*Bold: Issued Japan-led standards.

[JASO Standards, JASO Technical Papers, and JIS Standards Issued in Fiscal 2019 ]

Type	Standard No. and name
Issued by JASO (15 standards)	<p>[Established] Eight standards</p> <p>C469 Passenger cars - Brake friction material metal pickup (MPU) test procedure</p> <p>C470 Passenger cars - Brake dust test procedure</p> <p>D017 Automotive parts - Test methods for high voltage relays</p> <p>D625-1 Automotive parts – Electric wire for automobile – Part 1: Glossary of terms</p> <p>D625-2 Automotive parts – Electric wire for automobile – Part 2: Test procedure</p> <p>D625-3 Automotive parts – Electric wire for automobile – Part 3: Low voltage copper electric wire</p> <p>E017 Automobiles – Rolling resistance measurement methods using chassis dynamometers for four-wheel-drive vehicles</p> <p>T305 Motorcycles – Fuse box and fuse relay box</p> <p>[Revised] Three standards</p> <p>D014-1 Automotive parts – Environmental conditions and electrical testing for electrical and electronic equipment – Part 1: General contents</p> <p>F123 Automotive parts – Pan head tapping screws with collar</p> <p>M349 Road vehicles – Test method for anti-shudder performance of automatic transmission fluids</p> <p>[Slightly revised] Four standards</p> <p>C604 Test procedure of strength for automobile suspension springs</p> <p>C605 Automotive parts – Coil springs for automobile suspension</p> <p>C713 Automotive parts – Steering wheel for automobiles</p> <p>T803 Steerability and stability terms of motorcycles</p>
Technical papers issued by JASO (3 papers)	<p>[Established] One paper</p> <p>TP20001 Guidelines Concerning the Limit Values and the Measurement Methods for the Interfering Wave of the Automobile V2 H Mode</p> <p>[Revised] Two papers</p> <p>TP14002 Guidelines Concerning the Repeated Operational Durability Test Methods for the Starter used in Idling Stop Systems</p> <p>TP14003 Guidelines Concerning the Operational Durability Test Methods for the Starter Relays used in Idling Stop Systems</p>
Issued by JIS (3 standards)	<p>[Revised] Three standards</p> <p>JIS D 1606:2020 Automobile parts – Spark plugs – Suitability test procedures</p> <p>JIS D 5901:2020 Road vehicles – Test methods of hot water heaters performance</p> <p>JIS D 8301:2020 Acoustics – Specification of test tracks for measuring noise emitted by road vehicles and their tyres</p>