PUBLICATIONS

Les publications du mois

VEHICULES ROUTIERS
PROPULSION, GROUPE MOTOPROPULSEUR ET FLUIDES ASSOCIES - BNA-CN-34
ISO 22241-4:2023 (Publiée le 16/10/2023) Moteurs diesel — Agent AUS 32 de réduction des NOx — Partie 4: Interface de remplissage **Scope** This document specifies the refilling interface for the NOx reduction agent AUS 32 in conformance with ISO 22241-1, which is needed to operate converters with a selective catalytic reduction (SCR) exhaust treatment system. This document specifies the minimum functional and geometric requirements of an open refilling system, in order to ensure compatibility between the on-board refilling system and the off-board refilling system. Compatibility conditions for a sealed refilling system are provided in Annex A. This document applies to commercial vehicles and buses as defined in ISO 3833 and having a gross vehicle mass of more than 3,5 t, designed to use stationary off-board refilling systems. This document also applies to the nozzle of stationary off-board refilling systems. NOTE Throughout this document, the term “NOx reduction agent AUS 32” is abbreviated to “AUS 32”.

Pour rappel, les publications depuis janvier 2023

VEHICULES ROUTIERS
COMMUNICATION DE DONNEES - BNA-CN-31
ISO 15031-3:2023 (Publiée le 06/02/2023) Véhicules routiers — Communications entre un véhicule et un équipement externe pour le diagnostic relatif aux émissions — Partie 3: Connecteur de diagnostic et circuits électriques associés: spécifications et utilisation **Scope** This document references the latest publication of SAE J1962. On-board diagnostic (OBD) regulations require road vehicles to be equipped with a standardized connector for purposes of access to OBD information by external test equipment. This document describes the requirements for the physical connection and associated pin usage to allow for standard access to the OBD data. This document is technically equivalent to SAE J1962 with the exception of the specific requirements identified and the specification of additional requirements related to right hand driven (RHD) vehicles.
ISO 11992-2:2023 (Publiée le 10/03/2023) Véhicules routiers — Échange d'informations numériques sur les connexions électriques entre véhicules tracteurs et véhicules tractés — Partie 2: Couche d'application pour les équipements de freinage et les organes de roulement **Scope** This document specifies the SAE J1939-based application layer, the payload of messages, and parameter groups for electronically controlled braking systems, including anti-lock braking systems (ABS), vehicle dynamics control systems (VDC), and running gears equipment, to ensure the interchange of digital information between road vehicles with a maximum authorized total mass greater than 3 500 kg and their towed vehicles, including communication between towed vehicles. Conformance and interoperability test plans are not part of this document.
ISO 11992-4 2023 (Publiée le 14/04/2023) Véhicules routiers — Échange d'informations numériques sur les connexions électriques entre véhicules tracteurs et véhicules tractés — Partie 4: Communication de diagnostic **Scope**

This document specifies diagnostic application requirements and OSI-layer related communication profiles to ensure the interchange of digital information between towing and towed vehicles with a maximum authorized total mass greater than 3 500 kg.

The conformance and interoperability test plans are not part of this document.

ISO 27145-6:2023 (Publiée le 05/05/2023)

Véhicules routiers — Mise en application des exigences de communication pour le diagnostic embarqué harmonisé à l'échelle mondiale (WWH-OBD) — Partie 6: Équipement d'essai externe

Scope

This document defines the requirements for the external test equipment as:

— a means of establishing communications between a WWH-OBD-equipped vehicle and external test equipment;

— a set of diagnostic services, including addressing methods, to be provided by the external test equipment in order to exercise the services defined in ISO 27145-3.

This document describes the minimum capabilities or functions in the external test equipment. Additional functionalities, for example, non WWH-OBD protocols or retrieval of repair and maintenance information, can be integrated into the external test equipment according to the test equipment manufacturer needs. The external test equipment designer ensures that no such capability or function can adversely affect either a WWH-OBD-equipped vehicle connected to the equipment, or the equipment itself.

When the external test equipment implements functionality, which is not covered by ISO 27145-3, this functionality is not linked to the timing requirements defined in this document

ISO 23150:2023 (Publiée le 31/05/2023)

Véhicules routiers — Communication de données entre capteurs et unité de fusion de données pour les fonctions de conduite automatisée — Interface logique

Scope

This document is applicable to road vehicles with automated driving functions. The document specifies the logical interface between in-vehicle environmental perception sensors (for example, radar, lidar, camera, ultrasonic) and the fusion unit which generates a surround model and interprets the scene around the vehicle based on the sensor data. The interface is described in a modular and semantic representation and provides information on object level (for example, potentially moving objects, road objects, static objects) as well as information on feature and detection levels based on sensor technology specific information. Further supportive information is available.

This document does not provide electrical and mechanical interface specifications. Raw data interfaces are also excluded

ISO 13400-2:2019/Amd 1:2023 (Publiée le 24/07/2023)

Véhicules routiers — Communication de diagnostic au travers du protocole internet (DoIP) — Partie 2: Protocole de transport et services de la couche réseau — Amendement 1

COMPOSANTS ELECTRIQUES ET ELECTRONIQUES ET ASPECT SYSTEME GENERAL - BNA-CN-32

ISO 24089:2023 (Publiée le 08/02/2023)

Véhicules routiers — Ingénierie de mise à jour du logiciel

Scope

This document specifies requirements and recommendations for software update engineering for road vehicles on both the organizational and the project level.

This document is applicable to road vehicles whose software can be updated.

The requirements and recommendations in this document apply to vehicles, vehicle systems, ECUs, infrastructure, and the assembly and deployment of software update packages after the initial development.

This document is applicable to organizations involved in software update engineering for road vehicles. Such organizations can include vehicle manufacturers, suppliers, and their subsidiaries or partners.

This document establishes a common understanding for communicating and managing activities and responsibilities among organizations and related parties.

The development of software for vehicle functions, except for software update engineering, is outside the scope of this document.

Finally, this document does not prescribe specific technologies or solutions for software update engineering.

ISO 11451-5:2023 (Publiée le 19/05/2023)

Véhicules routiers — Méthodes d'essai d'un véhicule soumis à des perturbations électriques par rayonnement d'énergie électromagnétique en bande étroite — Partie 5: Chambre réverbérante

Scope

This document specifies methods for testing the immunity of passenger cars and commercial vehicles to electromagnetic disturbances, regardless of the vehicle propulsion system (e.g. spark ignition engine, diesel engine, electric motor) using a reverberation chamber.

The electromagnetic disturbances considered are limited to narrowband electromagnetic fields.

While this document refers specifically to passenger cars and commercial vehicles, generalized as “vehicle(s)”, it can readily be applied to other types of vehicles.

ISO 11451-1 specifies general test conditions, definitions, practical use, and basic principles of the test procedure.

Function performance status classification guidelines for immunity to electromagnetic radiation from an off-vehicle radiation source are given in Annex A

ISO 19642-11:2023 (Publiée le 26/05/2023)

Véhicules routiers — Câbles automobiles — Partie 11: Dimensions et exigences des câbles RF coaxiaux de bande passante analogique spécifiée jusqu'à 6 GHz (20 GHz)

Scope

This document specifies the dimensions and requirements for coaxial radio frequency (RF) cables with a specified analogue bandwidth up to 6 GHz (for special cases up to 20 GHz) intended for use in road vehicle applications where the nominal system voltage is 30 V a.c. or 60 V d.c.

19642-12:2023 (Publiée le 26/05/2023)

Véhicules routiers — Câbles automobiles — Partie 12: Dimensions et exigences pour les câbles RF en paire torsadée non blindés de bande passante analogique spécifiée jusqu'à 1 GHz

Scope

This document specifies the dimensions and requirements for unscreened single twisted pair RF cables with a specified analogue bandwidth up to 1 GHz intended for use in road vehicle applications where the nominal system voltage is 30 V a.c. or 60 V d.c.

ISO 10605:2023 (Publiée le 02/06/2023)

Véhicules routiers — Méthodes d'essai des perturbations électriques provenant de décharges électrostatiques

Scope

This document specifies the electrostatic discharge (ESD) test methods necessary to evaluate electronic modules intended for vehicle use. It applies to discharges in the following cases:

— ESD in assembly;

— ESD caused by service staff;

— ESD caused by occupants.

This document describes test procedures for evaluating both electronic modules on the bench and complete vehicles. This document applies to all types of road vehicles regardless of the propulsion system (e.g. spark-ignition engine, diesel engine, electric motor).

The test for electronic modules on the bench described in this document applies to any DUT (powered by an unshielded power system, DUT powered by a shielded power system, self-powered DUT, etc.).

This document does not apply to pyrotechnic modules.

ISO/TR 9968:2023 (Publiée le 15/06/2023)

Véhicules routiers — Sécurité fonctionnelle — Application des systèmes génériques rechargeables de stockage d'énergie aux véhicules utilisant les énergies nouvelles

Scope

This document is intended to be applied to the usage of ISO 26262 methodology for rechargeable energy storage systems (RESS), for example, lithium-ion battery systems, that are installed in series-production road vehicles, excluding mopeds.

This document does not address unique E/E systems in special vehicles such as E/E systems designed for drivers with disabilities.

This document provides:

a) a generic informative framework regarding the interaction of E/E systems with elements of other technologies with respect to the ISO 26262 series aspects of item definition, hazard analysis and risk assessment (HARA), functional safety concept (FSC), verification and validation (V&V), and production, operation, service and decommissioning (POSD);

b) various examples elaborating the generic framework;

c) topics which could be considered in future editions of the ISO 26262 series.

RESS includes BMS, cells, harnesses, connectivity, etc. In order to achieve product safety non-E/E functional safety requirements need to be fulfilled by the other technology itself without the support of E/E technology. These requirements are not in scope of this document.

ISO 16750-1:2023 (Publiée le 10/07/2023)

Véhicules routiers — Spécifications d'environnement et essais de l'équipement électrique et électronique — Partie 1: Généralités

Scope

This document applies to electric and electronic systems and components for vehicles including electric propulsion systems and components with maximum working voltages according to voltage class B. It describes the potential environmental stresses and specifies tests and requirements for the specific mounting location on/in the vehicle.

This document contains the terminology for the ISO 16750 series and general requirements.

This document is not intended to apply to environmental requirements or testing for systems and components of motorcycles and mopeds. Electromagnetic compatibility (EMC) is not covered by this document.

Systems and their components released for production, or systems and their components already under development prior to the publication date of this document, can be exempted from fulfilling the changes in this edition compared to the previous one.

ISO 16750-2:2023 (Publiée le 12/07/2023)

Véhicules routiers — Spécifications d'environnement et essais de l'équipement électrique et électronique — Partie 2: Contraintes électriques

Scope

This document applies to electric and electronic systems/components for road vehicles. This document describes the potential environmental stresses and specifies tests and requirements for the specific mounting location on/in the road vehicle.

This document describes electrical loads.

This document is not intended to apply to environmental requirements or testing for systems and components of motorcycles and mopeds. Electromagnetic compatibility (EMC) is not covered by this document.

Electrical loads are independent from the mounting location, but can vary due to the electrical impedance (including both the resistance and the inductance) in the vehicle wiring harness and connection system.

Systems and their components released for production, or systems and their components already under development prior to the publication date of this document, can be exempted from fulfilling the changes in this edition compared to the previous one.

ISO 16750-5:2023 (Publiée le 13/07/2023)

Véhicules routiers — Spécifications d'environnement et essais de l'équipement électrique et électronique — Partie 5: Contraintes chimiques

Scope

This document applies to electric and electronic systems and components for vehicles including electric propulsion systems and components with maximum working voltages according to voltage class B. It describes the potential

environmental stresses and specifies tests and requirements recommended for the specific mounting location on/in the vehicle.

This document describes chemical loads.

This document is not intended to apply to environmental requirements or testing for systems and components of motorcycles and mopeds.

NOTE Conditions and testing for a continuous contact with chemical agents can be determined from other standards or upon agreement between the customer and the supplier.

Systems and their components released for production, or systems and their components already under development prior to the publication date of this document, can be exempted from fulfilling the changes in this edition compared to the previous one.

ISO 16750-3:2023 (Publiée le 26/07/2023)

Véhicules routiers — Spécifications d'environnement et essais de l'équipement électrique et électronique — Partie 3: Contraintes mécaniques

Scope

This document applies to electric and electronic systems and components for vehicles including electric propulsion systems and components with maximum working voltages according to voltage class B. It describes the potential environmental stresses and specifies tests and requirements recommended for the specific mounting location on/in the vehicle.

This document describes mechanical loads.

This document is not intended to apply to environmental requirements or testing for systems and components of motorcycles and mopeds.

Systems and their components released for production, or systems and their components already under development prior to the publication date of this document, can be exempted from fulfilling the changes in this edition compared to the previous one.

ISO 16750-4:2023 (Publiée le 24/07/2023)

Véhicules routiers — Spécifications d'environnement et essais de l'équipement électrique et électronique — Partie 4: Contraintes climatiques

Scope

This document applies to electric and electronic systems and components for vehicles including electric propulsion systems and components with maximum working voltages according to voltage class B. It describes the potential environmental stresses and specifies tests and requirements recommended for the specific mounting location on/in the vehicle.

This document describes climatic loads.

This document is not intended to apply to environmental requirements or testing for systems and components of motorcycles and mopeds.

Systems and their components released for production, or systems and their components already under development prior to the publication date of this document, can be exempted from fulfilling the changes in this edition compared to the previous one.

ISO/TR 9839:2023 (Publiée le 24/08/2023)

Véhicules routiers — Application de la maintenance prédictive au matériel à l'aide de l'ISO 26262-5

Scope

This document is intended to be applied to the usage of predictive maintenance methods for the detection of degrading faults in safety related E/E hardware elements. It applies to hardware elements developed for compliance with the ISO 26262[1] series in which degrading faults are shown to be relevant due to, for instance, the technology used.

Specific technical implementations of predictive maintenance solutions are not in scope of this document.

ISO 19642-1:2023 (Publiée le 25/08/2023)

Véhicules routiers — Câbles automobiles — Partie 1: Vocabulaire et lignes directrices pour la conception

Scope

This document defines terms in the field of cables applied in road vehicle general purpose applications, for use in the other parts of the ISO 19642 series.

ISO 19642-2:2023 (Publiée le 31/08/2023)

Véhicules routiers — Câbles automobiles — Partie 2: Méthodes d'essai

Scope

This document defines test methods for electrical cables in road vehicles, which are used in other parts of the ISO 19642 series.

ISO 20653:2023 (Publiée le 14/09/2023)

Véhicules routiers — Degrés de protection (codes IP) — Protection des équipements électriques contre les corps étrangers, l'eau et les contacts

Scope

This document applies to degrees of protection (IP code) provided by enclosures of the electrical equipment of road vehicles. It specifies the following:

a) designations and definitions of types and degrees of protection provided by enclosures of electrical equipment (IP codes) for the:

— protection of electrical equipment within the enclosure against ingress of foreign objects, including dust (protection against foreign objects);

— protection of persons against access to hazardous parts inside the enclosure (protection against access);

— protection of electrical equipment inside the enclosure against effects due to ingress of water (protection against water);

b) requirements for each degree of protection;

c) tests carried out in order to confirm that the enclosure complies with requirements of the relevant degree of protection.

ISO 28741:2023 (Publiée le 31/08/2023)

Véhicules routiers — Bougies d'allumage et leur logement dans la culasse — Caractéristiques élémentaires et dimensions

Scope

This document specifies the main properties and dimensions of spark plugs, including the terminals and the dimensions of their cylinder head housings, for use with any spark-ignited engines. The usage of spark plugs is not restricted to road vehicles only.

This document does not cover screened and waterproof spark plugs (see ISO 3412, ISO 3895 and ISO 3896).

ISO 8092-2:2023 (Pubiée le 04/09/2023)

Véhicules routiers — Connexions pour faisceaux de câblage électrique embarqués — Partie 2: Terminologie, méthodes d'essai et exigences de performances générales

Scope

This document provides terminology and specifies test methods for general performance requirements of voltage class A connectors used in electrical wiring harnesses on road vehicles.

This document applies to connectors which, after mounting in the vehicle, are designed to only be disconnected in connection with repair and maintenance.

This document does not apply to internal connections for electronic devices.

This document does not apply to signal communication quality or data integrity.

DYNAMIQUE DES VEHICULES ET COMPOSANTS DE CHASSIS - BNA-CN-33

ISO 3894:2023 (Publiée le 10/01/2023)

Véhicules routiers — Roues/jantes pour véhicules utilitaires — Méthodes d'essai

Scope

This document specifies two laboratory methods for testing certain essential strength characteristics of disc wheels intended for road use on commercial vehicles, buses, trailers, and multipurpose passenger vehicles, as defined in ISO 3833.

The test methods are:

— dynamic cornering fatigue test and

— dynamic radial fatigue test.

ISO 22135:2023 (Publiée le 10/01/2023)

Véhicules routiers — Véhicules utilitaires lourds et bus — Méthode de calcul du seuil de renversement en régime permanent

Scope

This document describes a method for calculating steady-state rollover threshold of heavy commercial vehicles and buses, not considering the effects of active control systems. The calculation method considers the main factors that influence the rollover threshold, namely the height of centre of gravity, the track, the tyre lateral

stiffness, and all factors that affect the vehicle roll stiffness. The considered compliances (e.g. tyre deformation) have a considerable influence on the effective track, and consequently on the steady-state rollover threshold.

NOTE As an alternative to the described calculation method standard, the steady-state rollover threshold can be measured on a test track or with a tilt-table test as described in ISO 16333.

ISO 22133:2023 (Publiée le 30/03/2023)

Véhicules routiers — Surveillance et contrôle des objets de test pour l'évaluation de la sécurité active et des véhicules automatisés/autonomes — Exigences fonctionnelles, caractéristiques et protocole de communication

Scope

This document specifies requirements, procedures and message formats for controlling and monitoring of test targets, used for testing of active safety functions and autonomous vehicles.

The document specifies functionality and messaging for monitoring and controlling of test objects by a control centre facilitating an interoperable test object environment. This document defines a communication protocol which allows for the control centre to safely execute tests using test objects from multiple vendors.

This document does not specify the internal architecture of the test object nor control centre.

This document does not specify how testing of the vehicles shall be performed.

ISO 34503:2023 (Publiée le 08/08/2023)

Véhicules routiers — Scénarios d'essai pour les systèmes de conduite automatisée — Spécification du domaine de conception opérationnelle

Scope

This document specifies the requirements for the hierarchical taxonomy for specifying operating conditions which enable the definition of an operational design domain (ODD) of an automated driving system (ADS). This document also specifies requirements for the definition format of an ODD using the taxonomy. The ODD comprises specific conditions (which include the static and dynamic attributes) within which an ADS is designed to function.

This document is mainly applicable to level 3 and level 4 ADS. An ODD for level 5 ADS is unlimited (i.e. operation is possible everywhere).

This document can be used by organizations taking part in developing safety cases for automated vehicles, in particular, for organizations conducting trials, testing and commercial deployment. This document can also be used by manufacturers of level 3/4 ADS to define the ADS' operating capability. It may also be of interest to insurers, regulators, service providers, national, local and regional governments to enable them to understand possible ADS deployments and capabilities.

This document does not cover the basic test procedures for attributes of the ODD. It does not cover the monitoring requirements of the ODD attributes.

ISO 22574:2023 (Publiée le 24/08/2023)

Véhicules routiers — Matériaux de friction des garnitures de freins — Inspection visuelle

Scope

This document defines visual aspects for the identification and assessment of product characteristics for friction materials in terms of quality and for commercial and technical agreements. The sequence of the product characteristics represents no order of priority. Inspection is carried out in unused, "as supplied" condition.

In some characteristic features, there are differences between brake linings with an effective lining pad area less than 120 cm2 and larger than 120 cm2. The acceptance criteria ensure exclusion of any characteristics that could impact the function and performance of brake linings and applies unless other agreements between the customer and the supplier.

ISO/PAS 11585:2023 (Publiée le 25/09/2023)
Véhicules routiers — Automatisation partielle de la conduite — Caractéristiques techniques des systèmes de conduite mains-libres conditionnels

Scope

This document provides technical characteristics of partial driving automation system according to ISO/SAE PAS 22736 and associated control strategies enabling hands-free driving.

These technical characteristics, together with an appropriate operational design domain enable the proper usage of such partial driving automation systems which is supervised by drivers.

This document does not address performance limits, verification and validation of such systems.

PROPULSION, GROUPE MOTOPROPULSEUR ET FLUIDES ASSOCIES - BNA-CN-34

ISO/TS 12103-3:2023 (Publiée le 16/01/2023)

Véhicules routiers — Poussière pour l'essai des filtres — Partie 3: Poussière de suie

Scope

This document defines particle size distribution by number and chemical content limits involving one grade of test aerosol made from combustion soot.

ISO 19438:2023 (Publiée le 08/02/2023)

Filtres à carburant, essence ou diesel, pour moteurs à combustion interne — Efficacité de filtration par comptage des particules et capacité de rétention

Scope

This document specifies a multi-pass filtration test, with continuous contaminant injection and using the on line particle counting method, to evaluate the performance of diesel fuel and petrol filters for internal combustion engines submitted to a constant flow rate of test liquid. The test procedure determines the contaminant capacity of a filter, its particulate removal characteristics and differential pressure. This document is applicable to filter elements having a rated flow between 50 l/h and 800 l/h; however, by agreement between the filter manufacturer and customer, and with some modifications, the procedure is permitted for application to fuel filters with higher flow rates.

ISO/TR 6409:2023 (Publiée 7/04/2023)

Véhicules routiers — Analyse des changements techniques de l'ISO 5011:2020

Scope

This document analyses the impact of changes to ISO 5011:2020 as regards to the following:

— precleaner efficiency.

— elimination of two secondary element tests (collapse and blocking);

— revisions to the recommended ISO dust injector (Table 1);

— validation of the absolute filter weighing method; and

— inclusion of Annex H, "Penetration sensitivity".

These changes refine the precleaner efficiency calculation, eliminate seldom used tests, which were lengthy or costly, further clarify dust injector use, the validation of the absolute material, and the precision of the efficiency measurement.

ISO 23820:2023 (Publiée le 19/05/2023)

Détermination de l'efficacité de filtration des modules de filtres à urée

Scope

This document specifies requirements relating to the testing method for AUS 32/diesel exhaust fluid (DEF) filters for the removal of suspended matter. This applies to urea filters dedicated to passenger vehicles as well as to commercial vehicles. This method applies to filters with flow rates from 3 l/h to 30 l/h depending on the application (by default 5 l/h for passenger vehicles and 25 l/h for commercial vehicles). This method can be used for other flow rates, provided the validation requirement can be met.

ISO 6519:2023 (Publiée le 23/06/2023)

Moteurs diesels — Pompes d'injection de combustible — Cônes pour bouts d'arbre et moyeux

Scope

This document specifies the dimensions of tapered shaft ends and hubs of fuel injection pumps and high-pressure supply pumps for diesel (compression-ignition) engines. The specified shaft ends and hubs can be used with or without keys.

NOTE The specified shaft ends and hubs can also be used for other applications where no specific standards exist.

ECLAIRAGE ET VISIBILITE - BNA-CN-35

ISO :TS 21957:2023 (Publiée le 25/07/2023)

Véhicules routiers — Visibilité — Spécifications et procédures d'essai pour les affichages tête haute (HUD)

Scope

This document provides a common framework of definitions and measurement methods for the design, and ergonomics testing of automotive head-up displays (HUDs) independent of technologies except where noted. Applications in both passenger cars (including sport utility vehicles and light trucks) and commercial vehicles (including heavy trucks and buses) are covered. This document does not include helmet-mounted HUDs or other head carried gear such as glasses.

Areas covered in this document include:

— guidance on how to establish reference points and representative viewing conditions based on vehicle coordinates and ranges of driver's/passenger's eye points;

— descriptions of the HUD image geometry and optical properties measurements;

— definitions of the HUD virtual image and driver vision measurements;

— static and dynamic laboratory tests, and dynamic field operational assessments that include suggested vehicle setup procedures in order to measure HUD image attributes.

SECURITE ET ESSAIS DE COLLISION – BNA-CN-36

ISO/TS 20459:2023 (Publiée le 28/04/2023)

Véhicules routiers — Critères lésionnels et courbes de risques pour l'impacteur en forme de jambe de piéton (aPLI)

Scope

This document provides definitions, symbols and injury probability functions (IPFs) for the thigh, leg and knee intended to be used with the advanced pedestrian legform impactor (aPLI), a standardized pedestrian legform impactor with an upper mass for pedestrian subsystem testing of road vehicles. They are applicable to impact tests using the aPLI at 11,1 m/s involving:

—vehicles of category M1, except vehicles with a maximum mass above 2 500 kg and which are derived from N1 category vehicles and where the driver's position, the R-point, is either forward of the front axle or longitudinally rearwards of the front axle transverse centreline by a maximum of 1 100 mm;

—vehicles of category N1, except where the driver's position, the R-point, is either forward of the front axle or longitudinally rearwards of the front axle transverse centreline by maximum of 1 100 mm;

—impacts to the bumper test area defined by References [1] and [2];

—pedestrian subsystem tests involving use of a legform for the purpose of evaluating compliance with vehicle safety standards

ISO/TS 20458:2023 (Publiée le 26/07/2023)

Véhicules routiers — Spécifications de conception et de performance pour l'impacteur en forme de jambe de piéton (aPLI)

Scope

This document provides definitions, symbols, mechanical requirements, certification test procedure, electronic subsystem requirements and user's manual for advanced pedestrian legform impactor (aPLI), a standardized pedestrian legform impactor with an upper mass for pedestrian subsystem testing of road vehicles. It is applicable to impact tests involving:

— vehicles of category M1, except vehicles with the maximum mass above 2 500 kg and which are derived from N1 category vehicles and where the driver's position, R-point, is either forward of the front axle or longitudinally rearwards of the front axle transverse centreline by a maximum of 1 100 mm;

— vehicles of category N1, except where the driver's position, R-point, is either forward of the front axle or longitudinally rearwards of the front axle transverse centreline by a maximum of 1 100 mm;

— impacts to the bumper test area as defined by UN R127[1] and UN GTR No.9[2];

— pedestrian subsystem tests involving use of a legform for the purpose of evaluating compliance with vehicle safety standards.

VEHICULES A PROPULSION ELECTRIQUE- BNA-CN-37

ISO 21782-1:2023 (Publiée le 10/02/2023)

Véhicules routiers à propulsion électrique — Spécification d'essai pour les composants de propulsion électrique — Partie 1: Conditions générales et définitions

Scope

This document specifies the test procedures for performance and operating load for voltage class B electric propulsion components (motor, inverter, DC/DC converter) and their combinations (motor system) of electrically propelled road vehicles.

This document specifies the terms and definitions used in the ISO 21782 series and general test conditions.

ISO 8714:2023 (Publiée le 26/07/2023)

Véhicules routiers électriques — Consommation d'énergie de référence et autonomie de référence — Modes opératoires d'essai pour voitures particulières et véhicules utilitaires légers

Scope

This document specifies test procedures for measuring the reference energy consumption and reference range of purely electrically propelled passenger cars and commercial vehicles of a maximum authorized total mass (in accordance with ISO 1176) of 3 500 kg and a maximum speed of 70 km/h or more.

MOTOCYCLES ET CYCLOMOTEURS - BNA-CN-38

ISO 18246:2023 (Publiée le 10/01/2023)

Cyclomoteurs et motocycles à propulsion électrique — Exigences de sécurité relatives au couplage conductif à une borne d'alimentation électrique externe

Scope

Le présent document spécifie les exigences de sécurité relatives au couplage conductif des cyclomoteurs et motocycles à propulsion électrique (dénommés VEs) aux circuits électriques externes.

NOTE 1 Les circuits électriques externes comprennent les bornes d'alimentation électrique externes et les charges électriques externes.

Il ne fournit pas d'informations de sécurité complètes pour le personnel de fabrication, de maintenance et de réparation.

Il s'applique uniquement aux systèmes de charge embarqués entre la prise ou l'entrée du véhicule et les circuits RESS.

NOTE 2 Si non connexion à des circuits électriques externes, les exigences sont spécifiées dans la série ISO 13063.

Les exigences relatives au transfert bidirectionnel d'énergie de courant continu en courant alternatif sont à l'étude et ne sont pas couverts par le présent document.

NOTE 3 Les exigences de sécurité pour les équipements d'alimentation des VE en courant continu où la protection repose sur la séparation électrique, sont spécifiées dans l'IEC 61851-25.

NOTE 4 Les exigences de sécurité pour les équipements d'alimentation des VE en courant continu où la protection repose sur une isolation double ou renforcée sont spécifiées dans l'IEC/TS 61851-3-1 et l'IEC/TS 61851-3-2.

ISO 13232-7:2005/Amd 2:2023 (Publiée le 25 /05/2023)

Motorcycles — Test and analysis procedures for research evaluation of rider crash protective devices fitted to motorcycles — Part 7: Standardized procedures for performing computer simulations of motorcycle impact tests — Amendment 2: Correlation factors

ISO/TR 5340:2023 (Publiée le 30/05/2023)

Motocycles — Considération des cas d'usages de l'ISO 26262-12 Classification MSIL

Scope

This document is intended to be applied to safety-related systems that include one or more electrical and/or electronic (E/E) systems and that are installed in series production motorcycles. This document does not address unique E/E systems in special vehicles such as E/E systems designed for drivers with disabilities.

NOTE The series production motorcycle is the vehicle that is intended to be used for public roads and is not a prototype.

This document covers HARA for one or more E/E systems installed in motorcycles. The approach of HARA defined in ISO 26262-12:2018, Clause 8 is applied to them in a motorcycle environment.

The intended user of this document is a functional-safety analyst complying with requirements in ISO 26262-12:2018. Therefore, this document does not intend to provide further necessary knowledge or guidelines in related fields including, but not limited to, item-specific knowledge, user and road profiling, medicine, statistics, accident research and human factors. Instead, it is intended to be related to the field of functional safety with the focus on the HARA examples only. It is the responsibility of the functional-safety analyst to achieve detailed knowledge about the item under investigation and the target application environment.

In this document, the values shown are for reference only. Any new HARA can use the latest relevant data and analyses. The values shown in this document were derived based on some, but not all segments of information expected within an item description, and thus are not considered as an item definition. The ISO 26262 series requires that a HARA be based on a specific item definition. This document is not to be constructed to suggest that conducting a HARA without a specific item definition is acceptable. The scope of the ISO 26262 series is limited to functional safety which is one aspect of the overall system safety assessment in safety risk management.

As for any risk assessment method, the methods mentioned in this document have inherent limitations. The HARA describes a simplified model of the real world, which is neither complete nor fully accurate. Although each assessment is based on available or applicable data as well as on expert judgment, the interpretation of such data can vary among analyses. For these reasons, the user of this document can bear in mind these limitations and judge the applicability of this document in any particular case.

ISO/TR 5262:2023 (Publiée le 15/06/2023)

Motocycles — Lignes directrices pour la vérification de la force totale de résistance à l'avancement durant les essais sur un banc dynamométrique en mode roulage

Scope

This document shows the results of investigating the guideline for determining the threshold of the evaluation result on an electric inertial chassis dynamometer that electrically controls the amount of inertia using fuel consumption.

This document is applicable when the running resistance force of a chassis dynamometer is set in accordance with ISO 18580.

ASPECTS SPECIFIQUES DES VEHICULES COMMERCIAUX, AUTOBUS ET REMORQUES - BNA-CN-40

ISO 11154:2023 (Publiée le 02/03/2023)

Véhicules routiers — Porte-charges de toit

Scope

This document applies for roof racks of passenger cars and light commercial vehicles up to a permissible total weight of 3,5 t according to ISO 1176 and specifies requirements and test methods for these. It is also valid for roof racks mounted on trailers.

So-called magnetic or suction foot racks, i.e. roof racks whose attachment on the vehicle is only via magnetic forces or vacuum, are excluded from this document.

This document provides safety-related requirements under consideration of the weight, centre of gravity, air resistance and other safety-relevant properties for structures of roof racks for which no other technical or statutory regulations otherwise apply and which are not listed in 4.2. In individual cases, test requirements can extend beyond these requirements.

ISO 1726-3:2023 (Publiée le 27/07/2023)

Véhicules routiers — Liaisons mécaniques entre tracteurs et semi-remorques — Partie 3: Exigences pour plateaux à friction de semi-remorques

Scope

This document specifies the test conditions of a static test performed on the semi-trailer contact area to the fifth wheel. It ensures the suitability of the semi-trailer to couple the greatest possible variety of tractor vehicles equipped with a fifth wheel coupling in accordance with ISO 3842.

It also specifies requirements to avoid damages or malfunctions of the fifth wheel coupling caused by the semi-trailer chassis, the semi-trailer plate or any other of its components.

ASPECTS SPECIFIQUES DES COMBUSTIBLES GAZEUX – BNA-CN-41

ISO 15500-13:2023 (Publiée le 03/02/2023)

Véhicules routiers — Composants des systèmes de combustible gaz naturel comprimé (GNC) — Partie 13: Dispositifs de limitation de pression

Scope

This document specifies tests and requirements for the pressure relief device (PRD), a compressed natural gas (CNG) fuel system component intended for use on the types of motor vehicles defined in ISO 3833.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using natural gas in accordance with ISO 15403-1.

It is not applicable to the following:

a) liquefied natural gas (LNG) fuel system components located upstream of, and including, the vaporizer;

b) fuel containers;

c) stationary gas engines;

d) container-mounting hardware;

e) electronic fuel management;

f) refuelling receptacles.

ISO 15500-21:2023 (Publiée le 03/02/2023)

Véhicules routiers — Composants des systèmes de combustible gaz naturel comprimé (GNC) — Partie 21: Fermeture des lignes de décharge

Scope

This document specifies tests and requirements for discharge lines closures, a compressed natural gas (CNG) fuel system component intended for use on the types of motor vehicles defined in ISO 3833.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using natural gas in accordance with the ISO 15403-1. It is not applicable to the following:

a) liquefied natural gas (LNG) fuel system components located upstream of, and including, the vaporizer;

b) fuel containers;

c) stationary gas engines;

d) container-mounting hardware;

e) electronic fuel management;

f) refuelling receptacles.

ISO 20766-7:2023 (Publiée le 06/02/2023)

Véhicules routiers —Équipements pour véhicules utilisant le gaz de pétrole liquéfié (GPL) comme combustible — Partie 7: Vanne de service télécommandée avec limiteur de débit

Scope

This document specifies general requirements and definitions of the liquefied petroleum gas fuel component: remotely controlled service valve with excess flow valve. This component is intended for use on the types of motor vehicles as defined in ISO 3833. It also provides general design principles and specifies requirements for instructions and marking.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using gaseous fuels in accordance with ISO 9162. It is not applicable to the following:

a) fuel containers;

b) stationary gas engines;

c) container mounting hardware;

d) electronic fuel management;

e) refuelling receptacles.

It is recognized that miscellaneous components not specifically addressed herein can be examined for compliance with the criteria of any applicable part of the ISO 20766 series, including testing to the appropriate functional tests.

All references to pressure in this document are considered gauge pressures unless otherwise specified.

This document applies to device which have a service pressure in the range of 110 kPa (butane rich at 20 °C) and 840 kPa (propane rich at 20 °C), hereinafter referred to in this document. Other service pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio).

ISO 20766-8:2023 (Publiée le 06/02/2023)

Véhicules routiers — Équipements pour véhicules utilisant le gaz de pétrole liquéfié (GPL) comme combustible — Partie 8: Pompe à carburant

Scope

This document specifies general requirements for the fuel pump component of liquefied petroleum gas fuel, intended for use on the types of motor vehicles as defined in ISO 3833. It also provides general design principles and specifies requirements for instructions and marking.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using gaseous fuels in accordance with ISO 9162. It is not applicable to the following:

a) fuel containers;

b) stationary gas engines;

c) container mounting hardware;

d) electronic fuel management;

e) refuelling receptacles.

It is recognized that miscellaneous components not specifically addressed herein can be examined for compliance with the criteria of any applicable part of the ISO 20766 series, including testing to the appropriate functional tests.

All references to pressure in this document are considered gauge pressures unless otherwise specified.

This document applies to device which have a service pressure in the range of 110 kPa (butane rich at 20 °C) and 840 kPa (propane rich at 20 °C), hereinafter referred to in this document. Other service pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio).

ISO 20766-15:2023 (Publiée le 06/02/2023)

Véhicules routiers — Équipements pour véhicules utilisant le gaz de pétrole liquéfié (GPL) comme combustible — Partie 15: Soupape de débit excédentaire

Scope

This document specifies general requirements of the liquefied petroleum gas fuel component, excess flow valve, intended for use on the types of motor vehicles as defined in ISO 3833.

It also provides general design principles and specifies requirements for instructions and marking.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using gaseous fuels in accordance with ISO 9162. It is not applicable to the following:

a) fuel containers;

b) stationary gas engines;

c)container mounting hardware;

d) refuelling receptacles.

It is recognized that miscellaneous components not specifically addressed herein can be examined for compliance with the criteria of any applicable part of the ISO 20766 series, including testing to the appropriate functional tests.

All references to pressure in this document are considered gauge pressures unless otherwise specified.

This document applies to devices which have a service pressure in the range of 110 kPa (butane rich at 20 °C) and 840 kPa (propane rich at 20 °C), hereinafter referred to in this document. Other service pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio).

ISO 20766-21:2023 (Publiée le 06/02/2023)

Véhicules routiers — Équipements pour véhicules utilisant le gaz de pétrole liquéfié (GPL) comme combustible — Partie 21: Capteurs de pression et/ou de température

Scope

This document specifies general requirements for the pressure and/or temperature sensors liquefied petroleum gas fuel, intended for use on the types of motor vehicles as defined in ISO 3833. It also provides general design principles and specifies requirements for instructions and marking.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using gaseous fuels in accordance with ISO 9162. It is not applicable to the following:

a) fuel containers;

b) stationary gas engines;

c) container mounting hardware;

d) electronic fuel management;

e) refuelling receptacles.

It is recognized that miscellaneous components not specifically addressed herein can be examined for compliance with the criteria of any applicable part of the ISO 20766 series, including testing to the appropriate functional tests.

All references to pressure in this document are considered gauge pressures unless otherwise specified.

This document applies to device which have a service pressure in the range of 110 kPa (butane rich at 20 °C) and 840 kPa (propane rich at 20 °C), hereinafter referred to in this document. Other service pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio).

ISO 23684 2023 (Publiée le 13/04/2023)

Véhicules routiers — Personnel technique s'occupant des véhicules au gaz naturel (GNV) — Programmes de formation et de qualification

Scope

This document specifies the requirements for the provisions of personnel dealing with the operation on natural gases (NG) fuelled vehicles in order to demonstrate their competence.

This document specifies the minimum requirements for training and qualification of personnel according to the level of safety required by the activity.

ISO 12614-20:2023 (Publiée le 28/08/2023)

Véhicules routiers — Équipements pour véhicules utilisant le gaz naturel liquéfié (GNL) comme combustible — Partie 20: Conduites de carburant ou d'aération flexibles

Scope

This document specifies tests and requirements for the flexible fuel lines, a liquefied natural gas fuel system component intended for use on the types of motor vehicles defined in ISO 3833. This document is not applicable to the following:

a) fuel containers;

b) stationary gas engines;

c) container mounting hardware;

d) electronic fuel management;

e) refuelling receptacles.

NOTE 1 It is recognized that miscellaneous components not specifically covered herein can be examined to meet the criteria of this document and tested according to the appropriate functional tests.

NOTE 2 All references to pressure in this document are considered gauge pressures unless otherwise specified.

NOTE 3 This document is based upon a working pressure for natural gas as a fuel of 1,6 MPa (16 bar). (1 bar = 0,1 MPa = 105 Pa; 1 MPa = 1 N/mm2.) Other working pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio). For example, a 2 MPa (20 bar) working pressure system will require pressures to be multiplied by 1,25.

ISO 15500-23:2023 (Publiée le 31/08/2023)

Véhicules routiers — Composants des systèmes de remplissage en gaz naturel comprimé — Partie 23: Capteurs de température du gaz

Scope

This document specifies tests and requirements for gas-temperature sensors, a compressed natural gas (CNG) fuel system component intended for use on the types of motor vehicles defined in ISO 3833.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using natural gas in accordance with ISO 15403-1. It is not applicable to the following:

a) liquefied natural gas (LNG) fuel system components located upstream of, and including, the vaporizer;

b) fuel containers;

c) stationary gas engines;

d) container-mounting hardware;

e) electronic fuel management;

f) refuelling receptacles.

ISO 20766-5:2023 (Publiée le 28/08/2023)

Véhicules routiers — Équipements pour véhicules utilisant le gaz de pétrole liquéfié (GPL) comme combustible — Partie 5: Système de sélection du combustible et installations électriques

Scope

This document specifies general requirements and definitions of liquefied petroleum gas fuel components (fuel selection system and electrical installations, intended for use on the types of motor vehicles as defined in ISO 3833).

It also provides general design principles, and specifies requirements for instructions and marking.

This document is applicable to vehicles (mono-fuel, bi-fuel or dual-fuel applications) using gaseous fuels in accordance with ISO 9162. It is not applicable to the following:

a) fuel containers;

b) stationary gas engines;

c) container mounting hardware;

d) refuelling receptacles.

It is recognized that miscellaneous components not specifically addressed herein can be examined for compliance with the criteria of any applicable part of the ISO 20766 series, including testing to the appropriate functional tests.

All references to pressure in this document are considered gauge pressures unless otherwise specified.

This document applies to devices which have a service pressure in the range of 110 kPa (butane rich at 20 °C) and 840 kPa (propane rich at 20 °C), hereinafter referred to in this document. Other service pressures can be accommodated by adjusting the pressure by the appropriate factor (ratio).

SYSTEMES D'AIDE A LA CONDUITE ROUTIERE – BNA-CN-ADAS (ISO/TC 204/WG 14)

ISO 20900:2023 (Publiée le 14/02/2023)

Systèmes de transport intelligents — Systèmes de stationnement partiellement automatisés (PAPS) — Exigences de performance et procédures d'essai

Scope

This document addresses light vehicles,[1] for example passenger cars, pick-up trucks, light vans and sport utility vehicles (motorcycles excluded), equipped with partially automated parking systems (PAPS).

This document establishes minimum functionality requirements that the driver can expect and that are to be taken into account by the manufacturer.

There are two possible types of PAPS configuration.

— Type 1: the system is supervised by the conventional driver located in the driver's seat.

— Type 2: the system is supervised by the remote driver (present within or outside the vehicle), who is not necessarily located in the driver's seat. The vehicle remains in the line of sight of the remote driver.

This document addresses minimum requirements and conditions for safety, system performance and function, including human-machine interface (HMI) information content and a description of system operating states, for both types of system.

The requirements include the driver, who supervises the safety throughout the system manoeuvres.

System test requirements are also addressed, including test criteria, method and conditions.

ISO 23375:2023 (Publiée le 23/02/2023)

Systèmes de transport intelligents — Systèmes de manœuvre latérale d'évitement de collision (CELM) — Exigences et procédures d'essai

Scope

This document specifies basic control strategies, minimum functional requirements, basic driver interface elements, and test procedures for verifying the system requirements for collision evasive lateral manoeuvre systems (CELM).

A CELM is a safety system aimed at supporting the driver's vehicle operation by avoiding collisions with objects in the forward path of the vehicle. When a collision is predicted, the CELM controls lateral movement of the vehicle by generating yaw moment.The lateral control manoeuvres can be performed automatically by CELM or can be initiated by the driver and supported by CELM.

Specific methods for object detection and other environmental perception technologies are not described in this document.This document applies to light vehicles and heavy trucks. Vehicles equipped with trailers are not within the scope of this document.

ISO 17386:2023 (Publiée le 26/05/2023)

Systèmes de transport intelligents — Aides à la conduite pour manœuvre à vitesse réduite (MALSO) — Exigences de performance et procédures d'essai

Scope

This document addresses light-duty vehicles, such as passenger cars, pick-up trucks, light vans and sport utility vehicles (motorcycles excluded) equipped with Manoeuvring Aids for Low Speed Operation (MALSO) systems. It specifies the minimum functionality requirements which the driver can generally expect of the device, i.e. detection of and information on the presence of relevant obstacles within a defined (short) detection range. It defines minimum requirements for failure indication as well as performance test procedures; it includes rules for the general information strategy but does not restrict the kind of information or display system.

MALSO systems use object-detection devices (sensors) for ranging in order to provide the driver with information based on the distance to obstacles. Although sensing technology is not addressed in this document, technology does affect the performance-test procedures set up in Clause 7. The current test objects are defined based on systems using ultrasonic sensors, which reflect the most commonly used technology at the time of publication. For other sensing technologies which will potentially emerge in the future, these test objects shall be checked and changed if required.

Visibility-enhancement systems like video-camera aids without distance ranging and warning are not covered by this document.

Reversing aids and obstacle-detection devices on heavy commercial vehicles are not addressed by this document.

ISO 23374-1:2023 (Publiée le 13/07/2023)

Systèmes de transport intelligents — Systèmes de parking avec voiturier automatisé (AVPS) — Partie 1: Cadre du système, exigences relatives à la conduite automatisée et à l'interface de communication

Scope

Automated valet parking systems (AVPSs) perform level 4 automated driving of individual or multiple unoccupied vehicles within a prescribed area of a parking facility. This document specifies performance requirements for the operation functions, the environmental conditions within parking facilities where automated vehicle operation is performed, and the test procedures to verify the performance requirements.

An AVPS is comprised of physically separated sub-systems distributed among vehicles, facility equipment and user domains. The functionalities of AVPSs are realized by cooperation of these sub-systems, which are, in many cases, provided by different organizations. This document defines the system architecture and the communication interfaces between the sub-systems at the logical level.

An AVPS manages its system participants (i.e. AVPS-compliant vehicles and parking facilities) and provides interfaces to other facility users and involved persons (e.g. system operators, facility managers). This document contains requirements for the management functions such as checking compatibility between vehicles and parking facilities, performing remote assistance and recovery when automated driving cannot be performed, and executing operation stop commands in response to the actions of other facility users.

AVPSs are intended for use by a service provider upon receiving authority over vehicles from individual service recipients. This document does not include parking automation technologies that are solely based on usage by an individual user. If the vehicle is put into driverless operation directly by the user, this is not considered to be part of the AVPS.

CYCLES – BNA-CN-333 (ISO/TC 149 et SC 1, CEN/TC 333)

ISO 4210-1:2023 Version Française (Publiée le 11/01/2023)

Cycles — Exigences de sécurité pour les bicyclettes — Partie 1: Vocabulaire

Scope

Le présent document spécifie les termes et définitions relatifs aux exigences de sécurité et de performance à observer lors de la conception, de l'assemblage et des essais de bicyclettes et des sous-ensembles, ayant une hauteur de selle maximale de 635 mm ou plus.

Le présent document ne s'applique pas aux types spécialisés de bicyclettes comme les bicyclettes de livraison, bicyclettes couchées, tandems, bicyclettes BMX et bicyclettes conçues et équipées pour une utilisation dans des usages sévères telles que des compétitions réglementées, cascades, ou des figures acrobatiques.

NOTE Pour les bicyclettes dont la hauteur maximale de selle est inférieure ou égale à 435 mm, se reporter aux réglementations nationales sur les jouets à enfourcher, et pour une hauteur maximale de selle supérieure à 435 mm et inférieure à 635 mm, se reporter à l'ISO 8098[1].

ISO 4210-3:2023 Version Française (Publiée le 11/01/2023)

Cycles — Exigences de sécurité pour les bicyclettes — Partie 3: Méthodes d'essai communes

Scope

Le présent document spécifie les méthodes d'essai communes pour l'ISO 4210-2.

ISO 4210-4:2023 Version Française (Publiée le 11/01/2023)

Cycles — Exigences de sécurité pour les bicyclettes — Partie 4: Méthodes d'essai de freinage

Scope

Le présent document spécifie les méthodes d'essai de freinage pour l'ISO 4210-2
ISO 4210-7:2023 Version Française (Publiée le 11/01/2023) Cycles — Exigences de sécurité pour les bicyclettes — Partie 7: Méthodes d'essai des roues et des jantes **Scope** Le présent document spécifie les méthodes d'essai des roues et des jantes pour l'ISO 4210-2.
ISO 4210-8:2023 Version Française (Publiée le 11/01/2023) Cycles — Exigences de sécurité pour les bicyclettes — Partie 8: Méthodes d'essai des pédales et du système de transmission **Scope** Le présent document spécifie les méthodes d'essai des pédales et du système de transmission pour l'ISO 4210-2.
ISO 4210-9:2023 Version Française (Publiée le 11/01/2023) Cycles — Exigences de sécurité pour les bicyclettes — Partie 9: Méthodes d'essai des selles et des tiges de selles **Scope** Le présent document spécifie les méthodes d'essai de la selle et de la tige de selle pour l'ISO 4210-2.