



**Saudi Standards, Metrology and Quality Organization**

**SASO**

**Technical Regulations for Electric Vehicles**

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**Note:**

**Only the Arabic version of this Regulation is authentic in law and is applicable where there are differences with this translation**

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## Preamble

In line with the accession of the Kingdom of Saudi Arabia (KSA) to the World Trade Organization (WTO), as per the Decree No. 244 of the Council of Ministers, dated 21/09/1426 A.H., concerning the approval of documentation on the Kingdom's accession to the WTO, and the requirements by which the KSA shall adapt its relevant systems with the principles of WTO agreements, particularly, the Technical Barriers to Trade (TBT), which stipulates that no unnecessary technical requirements shall impede the flow of commodities among the member states, and that technical requirements and methods of conformity assessment shall not discriminate between products on the basis of origin, through the issuance of Technical Regulations that include the essential requirements and standardized business procedures.

In accordance with Article 3 (Clause-1), Statue of Saudi Standards, Metrology and Quality Organization, issued in accordance with the Council of Ministers Decree No. 216, dated 17/06/1431 A.H. (31/05/2010 A.D.), stipulating that: **"SASO shall issue Saudi standards, quality systems and guidelines and conformity assessment, compatible with international standards and guidelines, that meet the requirements of the World Trade Organization (WTO) Agreement, in addition to their compliance with Islamic Sharia and serving the interests of Saudi Arabia";**

In accordance with Article 4 (Clause-2), Statue of Saudi Standards, Metrology and Quality Organization, issued in accordance with the Council of Ministers Decree No. 216, dated 17/06/1431 A.H. (31/05/2010 A.D.), stipulating that: **"SASO shall issue regulations for conformity assessment procedures of goods, products, and services according to approved standards";**

In accordance with Article 4 (Clause-14), Statue of Saudi Standards, Metrology and Quality Organization, issued in accordance with the Council of Ministers Decree No. 216, dated 17/06/1431 A.H. (31/05/2010 A.D.), stipulating that: **"SASO shall review the laws and control regulations related to SASO's work fields, and develop them, and propose amendments thereto in line with quality and safety requirements, and refer them to competent bodies in order to review and issue them, in accordance with applicable procedures";**

In accordance with Article 6 (Clause-1), Statue of Saudi Standards, Metrology and Quality Organization, issued in accordance with the Council of Ministers Decree No. 216, dated 17/06/1431 A.H. (31/05/2010 A.D.), stipulating that: **"Subject to Article 4 of this Statute, SASO shall be the authority in charge of matters related to standards, conformity assessment procedures, granting the quality mark,**

**metrology and calibration. All public and private sectors shall be adhered to the Saudi standards in all purchases”.**

Whereas the standards of the products included in a regulation shall be a basis for the conformity of such products with the essential safety requirements included in the specified regulation.

Therefore, SASO has developed this Technical Regulation.

**Note:** This preamble and all the annexes of this regulation shall form an integral part thereof.

#### **Article (1): Terms and Definitions**

**1/1** When applying the articles of this regulation, terms and expressions hereunder -- shall have the meanings indicated in front thereof, unless the context otherwise requires:

**KSA:** The Kingdom of Saudi Arabia.

**SASO:** Saudi Standards, Metrology and Quality Organization

**The Board:** SASO's Board of Directors.

**Regulatory Authorities:** governmental body/ bodies with regulatory tasks according to their specializations, that are responsible for the implementation and enforcement of technical regulations, whether in customs, markets, or manufactories.

**Technical Regulation:** A document approved by the Board that provides the specifications of products, associated processes and production methods, including the applicable administrative provisions; with which compliance is mandatory. It may include or pay attention to terms, definitions, packaging, and requirements of markings or labelling products, services, processes or production methods.

**Standard:** A document approved by the Board that provides, for regular and recurring use, non-mandatory rules, instructions, and specifications of products or processes and production methods. It may include or pay attention to terms, definitions, packaging, and requirements of markings or labelling products, services, processes or production methods.

**Essential Requirements:** The special requirements of the products; that may affect the safety, health, and the environment; that must be adhered to.

**Market Surveillance Authorities:** government body/bodies responsible for carrying out market surveillance operations.

**Market Surveillance:** Activities and measures carried out by the market surveillance authorities to verify that products meet the requirements stipulated in the relevant technical regulations, and to ensure that they do not pose a risk to health, safety, environment, or any other aspect related to the protection of the public interest.

**Hazard(s):** A potential source of harm.

**Risk (s):** A potential risk causing damage; associated with the severity of damage.

**Supplier:**

- A product manufacturer, in case that he is in the Kingdom, or the person identified as the manufacturer of the product, through linking the product to his name, or to a relevant commercial description, or any person who provides a product replacement
- An agent, if the manufacturer is outside the Kingdom or an importer in the absence of an agent of the manufacturer in KSA.
- Any person in the supply chain, whose activities may affect the product characteristics.

**Conformity Assessment Procedures:** A document approved by the Board of Directors, which describes the procedures used directly, or indirectly for the conformity assessment.

**Notified (Approved) Bodies:** Conformity Assessment Bodies “Third Party”, approved by SASO in accordance with the Regulation of Conformity Assessment Bodies Acceptance.

**Certificate of Conformity:** A certificate issued by SASO or a notified body, which ensures the conformity of a product, or any batch thereof, with the requirements of relevant standards.

**Supplier Declaration of Conformity:** A declaration by the supplier by which it declares that a product conforms with the requirements herein and applicable legislations, without the mandatory intervention of a third party neither in the design stage, nor in the production stage of the manufacturing process. A declaration may depend on testing the product in accordance with the relevant legislation.

**Certificate of Registration:** A certificate issued by SASO in accordance with the approved registration procedures; each electric vehicle shall have one upon obtaining

the conformity certificate, in accordance with the required conformity assessment procedures listed in this Regulation.

**Placing on Market:** Launching a product for the first time in the Saudi market for which the manufacturer/supplier is responsible.

**Making Available on the Market:** Any supply of the product for distribution, consumption or use in KSA, in the course of a commercial activity, in return for payment or free of charge.

**Withdrawal:** Any procedure that aims to prevent placing product in the market or in a supply chain.

**Recall:** Any procedure that aims to recall products made available for the end-user.

**Product:** A vehicle powered by propulsion electric motors instead of the traditional propulsion methods that rely on internal combustion engines.

**Manufacturer:** The company that is technically responsible for the manufacturing of the vehicle and its spare parts.

**Chain of Supply:** All the phases through which the product undergoes after its manufacturing until reaching the consumer, including packing, importing, transporting, storing, delivery, or selling it as wholesale or retail, and any other related operations.

**Rechargeable Energy Storage System (REESS):** The system responsible for supplying the vehicle with the electric power.

**Electric Power Train:** The electric circuit that includes an engine for traction (drag), and may include a Rechargeable Energy Storage System (REESS), an electric energy transformation system, electric transformers, electric braids and associated connectors, and the special connection system of charging the Rechargeable Energy Storage System (REESS).

**Electric Vehicle Charging System:** A system made up of components that provide the vehicle with the direct current (D.C output), for the purpose of recharging the electric vehicles batteries.

**Electric Vehicle Connector:** A tool works on establishing an electric connection with the electric vehicle through plugging it into the electric vehicle-charging inlet, for the purpose of energy transformation and information exchange; this tool is considered a part of the electric vehicle connector group (Coupler).

**Electric Vehicle Coupler:** Joining (connecting) the electric vehicle charging inlet with its connecting cable in the electric vehicle.

**Electric Vehicle Inlet:** A device on the electric vehicle, into which the electric vehicle connector is plugged for energy transformation and information exchange; the electric vehicle inlet is considered a part of the electric vehicle and not a part of the electricity supply equipment.

**Electric Vehicle Storage Battery:** A battery, made up of one or more rechargeable electrochemical cells that have no provision for the release of excessive gas pressure during normal charging and operation, or for the addition of water or electrolyte, or for external measurements of electrolyte specific gravity.

**Electric Vehicle Supply Equipment:** Equipment composed of the conductors, including the ungrounded and grounded conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of power transmission to the electric vehicle.

**Electric Vehicle Supply Equipment System:** Electric power supply components in the form of an alternating current (AC) for the charger inside the vehicle.

**Personnel Protection System:** A system composed of means for protecting individuals from the electric shocks.

**Grounded Connectors:** Vehicle body-mounted connections for discharging electricity.

**1/2** The terms and expressions specified herein shall have the meanings specified in the applicable laws, regulations, and decrees of SASO.

## **Article (2) Scope**

This Regulation shall apply to all the electric vehicles, with maximum Gross Vehicle Weight (GVW) not exceeding 3500 kg, and with speed of more than 25 km/hour; that is placed and displayed in KSA markets, whether manufactured inside KSA or outside it, in accordance with the relevant definitions and terms provided in Article (1).

## **Article (3) Objectives**

This Regulation aims to lay out the essential requirements of electric vehicles included in the scope of this Regulation, and to identify the conformity assessment procedures with

which suppliers shall comply with, to ensure that these products fulfil the essential requirements that aim to preserve the environment, and the health and safety of the consumer, while facilitating the market surveillance procedures.

#### **Article (4) Obligations of Supplier**

The supplier shall adhere to the following requirements:

##### **4/1 Technical Requirements**

To meet the requirements of this Regulation, the supplier shall fulfil the electric vehicles essential characteristics, as follows:

- 4/1/1** The electric vehicles- which he supplies- shall fulfil the specific technical requirements of the standards provided in Annex No. (1) of this Regulation; in case the Saudi or Gulf standards are absent, they shall then fulfil the international standards.
- 4/1/2** The electric vehicles, which he supplies, shall fulfil the conformity assessment procedure provided in this Regulation, and shall be accompanied by a technical file including all the documents and information that prove the product's conformity to this Regulation.
- 4/1/3** The manufacturer shall have an effective Quality Management System (The factory certified to a Management System in accordance with ISO/TS 16949: the special requirements for applying ISO 9001 in the field of cars and relevant spare parts production- or its equivalent- is considered as fulfilling the requirements of this item).
- 4/1/4** The electric vehicles shall have logos to distinguish the electric vehicles from other vehicles (non-electric), in more than one side of the vehicle, to facilitate their identification by the competent authorities for safety purposes.
- 4/1/5** A Material Safety Data Sheet (MSDS) of the battery shall be attached to the electric vehicle.

##### **4/2 Essential Requirements**

To meet the requirements of this Regulation, the supplier shall fulfil the electric vehicles essential requirements provided in Annex No. (2) of this Regulation.

##### **4/3 Metrological Requirements**

International System of Units (SI), its multiples or its parts shall be applied during design, manufacturing, or distribution.

**4/4 Administrative Requirements**

The electric vehicles shall be to the provisions of the Traffic Regulations and its Implementing Regulations applied in KSA.

**Article (5) Conformity Assessment Procedures**

- 5/1 Only the conformity assessment procedures requirements provided hereto in this Technical Regulation shall be adhered to, in case of any other requirements in this regard in any standard, it shall not be taken into account.
- 5/2 The supplier - responsible for placing of the electric vehicles in the market- shall obtain a Certificate of Conformity in accordance with the conformity assessment model (Type Approval), and the relevant test report issued by the manufacturer, to submit it to SASO in order to issue a certificate of conformity.
- 5/3 The product shall be accompanied with a technical file including the following:
  - A) Supplier (manufacturer/importer) Declaration of Conformity in accordance with the model attached in Annex No. (4).
  - B) Risk Assessment Document.
  - C) Designs and charts that prove the product conformity to the requirements of this Regulation.
  - D) Necessary warnings and alerts and the operational manuals on the safe and correct use of the product.

**Article (6) Responsibilities of Regulatory Authorities (Customs Ports and Manufactories)**

Regulatory Authorities, as a part of their competences, shall:

- 6/1 Ensure that the electric vehicles under this Regulation fulfil the listed conformity assessment procedures and the availability of the technical documents attached with the consignment.
- 6/2 Randomly, sample the electric vehicles subject to this Regulation, and refer such samples to the competent laboratories to ascertain the extent of conformity with the requirements set out in this Technical Regulation.
- 6/3 Regulatory Authorities have the right to charge the suppliers (manufacturers/importers) with the costs of tests and associated fees.
- 6/4 In case of a non-conformity of the product, Regulatory Authorities shall withdraw the concerned products from warehouses, and take the necessary legal actions.

- 6/5 Traffic departments shall verify the electric vehicle registration documents and its driving license while traveling public roads, in accordance with the traffic regulations and procedures in force.
- 6/6 Licenses shall be granted by the licensing authorities for the electric vehicles upon ensuring that they comply with the requirements of this Regulation. Licenses shall be renewed upon ensuring their safety during the periodic inspection process, in accordance with the regulations and procedures in force in the KSA.

#### **Article (7) Responsibilities of Market Surveillance Authorities**

Market Surveillance Authorities, as a part of their competences, shall carry out the following:

- 7/1 Enforce the market surveillance procedures to the products in markets and the products stored in warehouses, in order to check the safety of the product and the extent of fulfilment of the requirements stipulated in this Technical Regulation and relevant standards.
- 7/2 Withdraw samples of the product, whether from the market or warehouses of suppliers (manufacturers and importers), in order to conduct the necessary tests and to verify the conformity of such products with the requirements set out in this Technical Regulation.
- 7/3 In case of non-conformity of – displayed or stored – products with the requirements of this Technical Regulation, Market Surveillance Authorities shall take all administrative actions for such products. Procedures and penalties – stipulated in Article (8) shall be applied after taking the necessary actions.

#### **Article (8) Violations and Penalties**

- 8/1 It is prohibited to manufacture, import, launch, or even advertise the products non-conforming with the requirements of the articles stipulated in this Technical Regulation.
- 8/2 Failure to meet the requirements of this Regulation shall be a sufficient reason for Market Surveillance Authorities and Regulatory Authorities to consider the product as non-conforming, which may pose a risk to the health and safety of consumers and to the environment, including, but not limited to:
  - A) Failure to issue or incorrect issuance of the Certificate of Conformity or the Supplier Declaration of Conformity.



- B) Lack, unavailability, or incompleteness of the technical documentation (technical file, declaration of conformity...), or containing incomplete or incorrect data.
  - C) Lack, unavailability, or incompleteness of product data/labels, safety guidelines, or usage instructions (if possible).
- 8/3** In case of a violation of the provisions hereof, Market Surveillance Authorities shall take all necessary actions to eliminate such violations, and their effects from the market. To this end, Market Surveillance Authorities may:
- A) Mandate the violating party – that is responsible for placing and offering of the product – to withdraw the product from the warehouses or markets in order to remedy such violations or export it, if possible, within the period specified by the Market Surveillance Authorities.
  - B) Withdraw, restrain or destroy the products, or take any other necessary action to recall such products from the markets. In addition, as the case may be, Market surveillance Authorities may announce the withdrawal of the product from the markets, and the violating party shall bear all associated expenses.
  - C) Deal with the violating products covered by this Regulation in accordance with laws and regulations applicable in the Regulatory Authorities and Market Surveillance Authorities.
- 8/4** In case of non-conformity of the electric vehicles, SASO shall take the necessary actions concerning products non-conforming with the requirements of this Regulation, including the cancellation of the relevant Certificate of Conformity, and the Registration Certificate, while taking the necessary measures with the Notified (Approved) Body, which issued the certificate, in accordance with the regulation of conformity assessment bodies acceptance.
- 8/5** Without prejudice to any other law, a party that violates any of the provisions hereof shall be subject to the penalties and fines stipulated in the applicable Anti-Commercial Fraud Law or any other superseding law, or to the specific law for consumer protection.

#### **Article (9) General Provisions**

- 9/1** Supplier shall bear full legal responsibility for the implementation of the requirements of this Technical Regulation, and shall be subject to the penalties stipulated in the Anti-Commercial Fraud laws and/or any other related laws, in case any violation of the articles thereof is proven.

- 9/2 This Technical Regulation shall not impede the supplier to comply with all other systems/regulations applicable in KSA of Saudi Arabia; pertaining to trading, transporting, or storing of electric vehicles in addition to the rules/regulations related to the environment, security, and safety.
- 9/3 Suppliers of the electric vehicles subject to the provisions of this Technical Regulation shall provide the inspectors of the Regulatory and Market Surveillance Authorities with all necessary information and facilities, when required, to carry out their assigned tasks.
- 9/4 Where new originated cases that cannot be treated under the provisions of this Technical Regulation, or a dispute arises as a result of the application of those provisions, such matter shall be referred to the competent committee in SASO, in order to issue a proper resolution regarding the case or dispute, while considering the public interest.
- 9/5 The supplier may submit a new request after elimination of the reasons of rejection for the conformity assessment procedures request, and after the necessary corrections have been made. The supplier shall be responsible for any additional expenses determined by SASO.
- 9/6 SASO shall examine the complaints received regarding the products having a Certificate of Conformity, and verify the validity of such complaints, and take the necessary legal actions in case of any violations.
- 9/7 SASO have the right to annul the Certificate of Conformity or the Registration Certificate, if the supplier violates the provisions herein, and shall take the legal actions to ensure the preservation of the rights of SASO.
- 9/8 If any modifications were made to the electric vehicles during the validity period of the Certificate of Conformity or the Registration Certificate (except for figure modifications), the certificate, or the Supplier Declaration of Conformity for this product shall be annulled, and a new request shall be submitted. In addition, the supplier or the authorized representative shall notify SASO as issuer of the certificate when making any modifications to the vehicle.
- 9/9 SASO shall, exclusively, have the right to construe the articles herein. All beneficiaries of the application of this Technical Regulation shall adhere to the interpretations issued by SASO.



#### **Article (10) Transitional Provisions**

- 10/1** The supplier shall take corrective actions in accordance with the provisions of this Technical Regulation within a period of no more than six months as of the date of publication in the official gazette.
- 10/2** Subject to the provisions of item (1) of this Article, products, not complying with the provisions specified in this Technical Regulation may be traded for a maximum period of one year as of the date of publication in the official gazette.
- 10/3** This Regulation, once adopted, shall supersede all the preceding regulations in the field of conformity of electric vehicles to the safety requirements prior to placement in the market and after.

#### Article (11) Publication

This Regulation shall be published in the Official Gazette.

#### Annex No. (1)

##### A) List of Standards for electric vehicles

Electromagnetic compatibility (EMC)			
1	SASO IEC 61000-3- 12:2014	التوافق الكهرومغناطيسي ( - EMC الجزء 3-12: الحدود - حدود التيارات التوافقية الناتجة عن المعدات المتصلة بالأنظمة العامة ذات الجهد المنخفض مع تيار الإدخال $A \geq 16$ و $A \leq 75$ لكل مرحلة	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current $>16$ A and $\leq 75$ A per phase
2	SASO GSO IEC 61000-4-7 :2008	التوافق الكهرومغناطيسي ( - EMC الجزء 4 - 7): تقنيات الاختبار والقياس - الإرشاد العام على التوافقات وقياسات التوافقات المتداخلة وأجهزة القياس لأنظمة مصادر القدرة وعلى المعدات الموصلة لها	Electromagnetic compatibility (EMC) - Part 4-7: Testing and measurement techniques - General guide on harmonics and inter-harmonics measurements and instrumentation, for power supply systems and equipment connected thereto
3	SASO GSO IEC 61000-2-2 :2019	التوافق الكهرومغناطيسي - الجزء 2-2: البيئة - مستويات التوافق للتوصيلات المضطربة منخفضة التردد والإشارات في نظم القدرة الكهربائية منخفضة القدرة للأغراض العامة	Electromagnetic compatibility (EMC) - Environment - Compatibility levels for low-frequency conducted disturbances and signaling in public low-voltage power supply systems

4	SASO GSO IEC 61000-3-2 :2019	التوافق الكهرومغناطيسي ( EMC الجزء 2-3 حدود الانبعاثات الحالية التوافقية (دخل معدات التيار $\geq 16$ أمبير لكل مرحلة)	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current $\leq 16$ A per phase)
5	SASO GSO IEC TR 61000-3-6 :2008	التوافق الكهرومغناطيسي ( EMC الجزء 3): الحدود - القسم (6): تقييم حدود انبعاث الأحمال المشوهة في أنظمة القدرة MV و HV الإصدار الرئيسي للتوافق الكهرومغناطيسي (EMC))	Electromagnetic compatibility (EMC) - Part 3: Limits - Section 6: Assessment of emission limits for distorting loads in MV and HV power systems - Basic EMC publication
6	SASO IEC 61000-4-2 :2014	التوافق الكهرومغناطيسي - الجزء 2-4: تقنيات الاختبار والقياس - اختبار مناعة التفريغ الكهربائي الساكن	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test
7	SASO GSO IEC 61000-4-3 :2019	التوافق الكهرومغناطيسي - الجزء 3-4: تقنيات الاختبار والقياس - اختبار مناعة الإشعاع ومجال التردد الراديوي والكهرومغناطيسي	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test
8	SASO IEC 61000-4-4 :2014	التوافق الكهرومغناطيسي - الجزء 4-4: تقنيات الاختبار والقياس - التيارات العابرة السريعة - اختبار مناعة الانفجار	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test
9	SASO GSO IEC 61000-4-5 :2019	التوافق الكهرومغناطيسي ( EMC الجزء 4 ) - (5): تقنيات الاختبار والقياس - اختبار مناعة التدفق الكهربائي ( التمزج )	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test
10	SASO IEC 61000-4-6 :2014	التوافق الكهرومغناطيسي - الجزء 4-6: تقنيات الاختبار والقياس - المناعة للاضطرابات الموصلة المتسببة بواسطة مجالات ترددات راديوية	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
11	SASO IEC 61000-4-8 :2014	التوافق الكهرومغناطيسي - الجزء 4-8: تقنيات الاختبار والقياس - اختبار المناعة لقدرة المجال المغناطيسي المتردد	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test

12	SASO GSO IEC 61000-4-11 :2019	التوافق الكهرومغناطيسي EMC الجزء 4-11: تقنيات الاختبار والقياس - انخفاضات الجهد والانقطاعات القصيرة والاختلافات في الجهد	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests
<b>Plugs, socket-outlets</b>			
1	SASO GSO IEC 62196-1:2015	القوابس ، منافذ المقابس، موصلات المركبات ومداخل المركبات - موصل الشحن للمركبات الكهربائية - الجزء 1: المتطلبات العامة	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements
2	SASO GSO IEC 62196-2:2019	القابسات، المقابس، وصلات المركبات ومداخل المركبة - الشحن التوصيلي للمركبات الكهربائية - الجزء 2: توافق الأبعاد ومتطلبات قابلية التبادل لبنان (مسمار) التيار المتردد وملحقات صمام التلامس	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories
3	SASO GSO IEC 62196-3:2018	القابسات والمقابس ووصلات المركبة ومداخل المركبة - الشحن التوصيلي للمركبات الكهربائية - الجزء 3: توافق الأبعاد ومتطلبات قابلية التبادل لمسمار التيار المستمر ومستمر/ متردد و صمام التلامس للمقرنات المركبة	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 3: Dimensional compatibility and interchangeability requirements for d.c. and a.c./d.c. pin and contact-tube vehicle couplers
4	SASO GSO IEC 60309-1:2000	القابسات والمقابس (الأيافاش) والقارنات للأغراض الصناعية - الجزء 1: المتطلبات العامة	Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements
5	SASO 2203:2018	القابسات والمقابس (الأيافاش) للاستخدامات المنزلية والعامة المشابهة -- متطلبات السلامة وطرق الاختبار	Plugs and socket-outlets for household and similar purposes – safety requirements and test methods 250 V/13 A
<b>Electric vehicle conductive charging system</b>			
1	SASO IEC 61851-1:2018	نظام الشحن الكهربائي الموصل للمركبة - الجزء رقم (1) : متطلبات عامة	Electric vehicle conductive charging system - Part 1: General requirements
2	SASO GSO IEC 61851-23:2019	نظام شحن موصل السيارة الكهربائية - الجزء 23: محطة شحن السيارة الكهربائية DC	Electric vehicle conductive charging system - Part 23: DC electric vehicle charging station

3	SASO IEC 61851-24 :2014	نظام الشحن الكهربائي الموصل للمركبة- الجزء 24: التوصيل الرقمي بين محطة شحن المركبة الكهربائية بتيار مستمر ونظام التحكم في شحن المركبة الكهربائية بتيار مستمر	Electric vehicle conductive charging system - Part 24: Digital communication between a d.c. EV charging station and an electric vehicle for control of d.c. charging
4	SASO IEC 61851-21-1:2018	نظام الشحن الكهربائي الموصل للمركبة- الجزء 21-1: متطلبات التوافق الكهرومغناطيسي للشاحن المركب على المركبات الكهربائية لاتصال الموصل لمصدر تيار متردد/ مستمر	Electric vehicle conductive charging system - Part 21-1 Electric vehicle on-board charger EMC requirements for conductive connection to AC/DC supply
5	SASO IEC 61851-21-2:2018	نظام الشحن الكهربائي الموصل للمركبة- الجزء 21-2: متطلبات التوافق الكهرومغناطيسي لشاحن المركبات الكهربائية لاتصال الموصل لمصدر تيار متردد/ مستمر- متطلبات التوافق الكهرومغناطيسي لأنظمة شحن المركبات الكهربائية الخارجية	Electric vehicle conductive charging system - Part 21-2: Electric vehicle requirements for conductive connection to an AC/DC supply - EMC requirements for off board electric vehicle charging systems
<b>Semiconductor converters</b>			
1	SASO GSO IEC 60146-1-1:2014	محولات أشباه الموصلات - المتطلبات العامة ومحولات الخط المعدلة - الجزء 1-1: مواصفات المتطلبات الأساسية	Semiconductor converters - General requirements and line commutated converters - Part 1-1: Specification of basic requirements
2	SASO GSO IEC 60146-1-2:2011	محولات أشباه الموصلات - المتطلبات العامة ومحولات تحويل الخط - الجزء 1-2: دليل التطبيق	Semiconductor converters - General requirements and line commutated converters - Part 1-2: Application guide
3	SASO GSO IEC 60146-1-3 :2006	المحولات شبه الموصلة - المتطلبات العامة ومغبرات تبادل الخط - الجزء 1-3: المحولات والمفاعلات	Semiconductor converters - General requirements and line commutated converters - Part 1-3: Transformers and reactors
4	SASO GSO IEC 60146-2 :2006	محولات أشباه الموصلات - الجزء 2: محولات أشباه الموصلات بما في ذلك محولات التيار المستمر	Semiconductor converters - Part 2: Self-commutated semiconductor converters including direct d.c. converters

5	SASO GSO IEC 60146-1-1:2014	محولات أشباه الموصلات - المتطلبات العامة ومحولات الخط المعدلة - الجزء 1-1: مواصفات المتطلبات الأساسية	Semiconductor converters - General requirements and line commutated converters - Part 1-1: Specification of basic requirements
<b>Effects of current on human beings and livestock</b>			
1	SASO GSO IEC 60479-1:2019	تأثيرات التيار على الجنس البشري والحيوانات - الجزء 1: سمات عامة	Effects of current on human beings and livestock - Part 1: General aspects
<b>Protection against electric shock</b>			
1	SASO GSO IEC 61140:2018	الحماية من الصدمة الكهربائية - الجوانب المشتركة للتركيب والمعدات	Protection against electric shock - Common aspects for installation and equipment
<b>Insulation coordination for equipment within low-voltage systems</b>			
1	SASO IEC 60664-1:2014	تناسق العزل للمعدات في نطاق نظم الجهد المنخفض - الجزء 1: الاسس والمتطلبات والاختبارات	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests
<b>Low-voltage electrical installations</b>			
1	SASO GSO IEC 60364-4-43 :2010	التركيبات الكهربائية منخفضة الجهد - الجزء 4- 43: الحماية من أجل السلامة والحماية ضد التيار الزائد	Low-voltage electrical installations - Part 4- 43: Protection for safety - Protection against overcurrent
2	SASO GSO IEC 60364-5- 53:2019	التركيبات الكهربائية للمباني الجزء رقم (53-5) اختيار وتركيب المعدات الكهربائية والعزل والتحويل والتحكم	Electrical installations of buildings - Part 5- 53: Selection and erection of electrical equipment - Isolation, switching and control
3	SASO GSO IEC 60364-5- 54:2016	التركيبات الكهربائية ذات الجهد المنخفض - الجزء 5-54: اختيار وتثبيت المعدات الكهربائية-ترتيبات التأريض، موصلات الحماية، وموصلات الحماية المساعدة	Low-voltage electrical installations - Part 5- 54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors
<b>Environmental testing</b>			
1	SASO GSO IEC 60068-2-1:2008	الاختبار البيئي - الجزء 2-1: الاختبارات - اختبار أ: البرودة	Environmental testing - Part 2-1: Tests - Test A: Cold

2	SASO GSO IEC 60068-2-2:2008	الاختبار البيئي الجزء 2-2: الاختبار ب: الحرارة الجافة	Environmental testing - Part 2-2: Tests - Test B: Dry heat
3	SASO GSO IEC 60068-2-14 :2015	الاختبار البيئي- الجزء 2-14: الاختبار (ن): تغير درجة الحرارة	Environmental testing - Part 2-14: Tests - Test N: Change of temperature
<b>Conductors of insulated cables</b>			
1	SASO GSO IEC 60228:2014	موصلات الكابلات المعزولة	Conductors of insulated cables
<b>Rubber insulated cables</b>			
1	SASO GSO IEC 60245-4 :2014	الكابلات المعزولة بالمطاط - الجهود المقننة حتى 750/450 فولت - الجزء 4: الكروونات والكابلات المرنة	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 4: Cords and flexible cables
<b>Low-voltage fuses</b>			
1	SASO GSO IEC 60269-1 :2018	صمامات الجهد المنخفض الجزء الأول: المتطلبات العامة	Low-voltage fuses - Part 1: General requirements
2	SASO GSO IEC 60269-2:2019	صمامات الجهد المنخفض - الجزء 2: متطلبات إضافية للمصاهر للاستخدام بواسطة أشخاص مصرح لهم (المصاهر المعدة للتطبيقات الصناعية) أمثلة لتوحيد الانظمة للمصاهر من A الى K	Low-voltage fuses - Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) Examples of standardized systems of fuses A to K
<b>Low-voltage surge protective devices</b>			
1	SASO GSO IEC 61643-12 :2014	أجهزة الوقاية من-الاندفاع الكهربائي المتصلة بنظم توزيع القدرة ذات الجهد-المنخفض - الجزء 12: متطلبات الأداء وطرق الاختبار	Low-voltage surge protective devices - Part 12: Surge protective devices connected to low-voltage power distribution systems - Selection and application principles
<b>Low-voltage switchgear and control gear</b>			
1	SASO GSO IEC 60947-1:2019	مجموعة المفاتيح وأجهزة التحكم الكهربائية للجهد المنخفض - الجزء 1: قواعد عامة	Low-voltage switchgear and control gear - Part 1: General rules

Charging cables for rated voltages up to and including 0,6/1 kV			
1	SASO IEC 62893-1 :2019	كابلات الشحن للمركبات الكهربائية للجهود المقننة حتى 0,6 / 1 كيلو فولت - الجزء الأول: المتطلبات العامة	Charging cables for electric vehicles for rated voltages up to and including 0,6/1 kV - Part 1: General requirements
2	SASO IEC 62893-2 :2019	كابلات الشحن للمركبات الكهربائية للجهود المقننة حتى 0,6 / 1 كيلو فولت - الجزء 2: طرق الاختبار	Charging cables for electric vehicles for rated voltages up to and including 0,6/1 kV - Part 2: Test methods
3	SASO IEC 62893-3 :2019	كابلات شحن للمركبات الكهربائية لجهود مقننة حتى 0,6 / 1 kV - الجزء 3: كابلات التيار المتردد حسب الأساليب 1 و 2 و 3 من المواصفة IEC 61851-1 للجهود المقننة حتى 450/750 فولت	Charging cables for electric vehicles for rated voltages up to and including 0,6/1 kV - Part 3: Cables for AC charging according to modes 1, 2 and 3 of IEC 61851-1 of rated voltages up to and including 450/750 V
Specification for radio disturbance and immunity			
1	SASO CISPR- 16-1-2 :2019	مواصفات أجهزة قياس الاضطراب الراديوي والمناعة الراديوية وطرق قياسها - الجزء 1-2: أجهزة قياس الاضطراب الراديوي والمناعة - المعدات الملحقة - الاضطرابات الموصلة	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Conducted disturbances
2	SASO CISPR 16-2-3 :2019	مواصفات أجهزة قياس الاضطراب الراديوي والمناعة الراديوية وطرق قياسها الجزء 2-3: طرق قياس الاضطرابات والمناعة - قياسات الاضطراب المشع	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements
Acoustics			
1	SASO ISO 1996-1 :2019	الصوتيات: وصف - قياس وتقييم الضجيج البيئي الجزء 2: تحديد مستويات الضوضاء البيئية	Acoustics - Description, measurement and assessment of environmental noise - Part 1: Basic quantities and assessment procedures
2	SASO ISO 1996-2 :2019	الصوتيات: وصف - قياس وتقييم الضجيج البيئي الجزء 2: تحديد مستويات الضوضاء البيئية	Acoustics - Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels
Road vehicles			

1	ISO 11898-2:2019	مركبات الطرق الوعرة، شبكة منطقة جهاز التحكم الجزء 2: وحدة وصول متوسطة عالية السرعة	Road vehicles - Controller area network (CAN) – Part 2: High-speed medium access unit
<b>Electrically propelled road vehicles</b>			
1	SASO ISO 17409:2018	مركبات الطرق الكهربائية، التوصيل بمصدر طاقة كهربائية خارجي - متطلبات السلامة	Electrically propelled road vehicles -- Connection to an external electric power supply -- Safety requirements
<b>Industrial and scientific equipment</b>			
1	SASO CISPR 11:2019	المعدات الصناعية والعلمية والطبية - خصائص اضطراب التردد لراديو، حدود وطرائق القياس	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
<b>Vehicles, boats and internal combustion engines</b>			
*Apply the standard until the Approved as the Saudi standard.			

	Standard No.	Title in Arabic	Title in English
1	SASO CISPR 25:2019	المركبات والقوارب ومحركات الاحتراق الداخلي: خصائص اضطراب الراديو، حدود وطرق قياس حماية أجهزة الاستقبال على متن السفن	Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers
<b>البطاريات</b> Batteries			
1	SASO IEC 62660-1:	خلايا أيون - الليثيوم الثانوية لدفع مركبات الطرق الكهربائية - الجزء 1: اختبار الأداء	Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 1: Performance testing
2	SASO IEC 62660-2:	خلايا أيون - الليثيوم الثانوية لدفع مركبات الطرق الكهربائية - الجزء 2: اختبار الموثوقية والاستعمال الخاطئ	Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 2: Reliability and abuse testing
3	SASO IEC 62660-3:	خلايا أيون - الليثيوم الثانوية لدفع مركبات الطرق الكهربائية - الجزء 3: متطلبات السلامة	Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 3: Safety requirements
4	SASO IEC 62660-4:	خلايا أيون - الليثيوم الثانوية لدفع مركبات الطرق الكهربائية - الجزء 4: طرق الاختبار البديلة للمرشح لاختبار الدائرة القصيرة IEC الداخلية في المواصفة القياسية الدولية 62660-3	Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 4: Candidate alternative test methods for the internal short circuit test of IEC 62660-3
5	SASO IEC 61982:	البطاريات الثانوية (باستثناء بطاريات الليثيوم) لدفع مركبات الطرق الكهربائية - إختبارات التحمل والأداء	Secondary batteries (except lithium) for the propulsion of electric road vehicles - Performance and endurance tests

	Standard No.	Title in Arabic	Title in English
6	SASO IEC 61982-4:	البطاريات الثانوية (باستثناء بطاريات الليثيوم) لدفع مركبات الطرق الكهربائية - إختبارات التحمل والأداء	Secondary batteries (except lithium) for the propulsion of electric road vehicles - Part 4: Safety requirements of nickel-metal hydride cells and modules
7	SASO IEC 62840-1:	نظام مبادلة بطارية المركبة الكهربائية - الجزء 1: عام وإسترشادي	Electric vehicle battery swap system - Part 1: General and guidance
8	SASO IEC 62840-2:	نظام مبادلة بطارية المركبة الكهربائية - الجزء 2: متطلبات السلامة	Electric vehicle battery swap system - Part 2: Safety requirements
9	SASO GSO IEC 62196-1	القوابس، منافذ المقابس، موصلات المركبات ومداخل المركبات - موصل الشحن للمركبات الكهربائية - الجزء 1: المتطلبات العامة	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements
10	SASO GSO IEC 62196-2	القابسات والمقابس ووصلات المركبة ومداخل المركبة - الشحن التوصيلي للمركبات الكهربائية - الجزء 2: توافق الأبعاد ومتطلبات قابلية التبادل لمسار التيار المتردد وملحقات صمام التلامس	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories
11	SASO IEC 62196-3	القابسات والمقابس ووصلات المركبة ومداخل المركبة - الشحن التوصيلي للمركبات الكهربائية - الجزء 2: توافق الأبعاد ومتطلبات قابلية التبادل لمسار التيار المستمر ومستمر/ متردد و صمام التلامس للمقرنات المركبة	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 3: Dimensional compatibility and interchangeability requirements for d.c. and a.c./d.c. pin and contact-tube vehicle couplers
12	SASO-ISO-8820-1	مركبات الطرق الوعرة - أسلاك المصاهر - الجزء 1: تعاريف ومتطلبات اختبار عامة	Road vehicles -- Fuse-links -- Part 1: Definitions and general test requirements
13	SASO-ISO-8820-6	مركبات الطرق الوعرة - أسلاك المصاهر - الجزء 6: أسلاك مصاهر بمسار مفرد	Road vehicles -- Fuse-links -- Part 6: Single-bolt fuse-links
14	SASO-IEC-60269-1	مصاهر الجهد المنخفض الجزء الأول: المتطلبات العامة	Low-voltage fuses - Part 1: General requirements
15	SASO-IEC-62335	قواطع الدائرة - أدوات الوقاية الأرضية المحمولة القابلة للوصل والفصل والتي تعمل (إل بالتيار المتبقي لتطبيقات المركبات فئة ) والمغذاة ببطارية	Circuit breakers - Switched protective earth portable residual current devices for class I and battery powered vehicle applications
Cables for electric road vehicles			
1	SASO-GSO ISO 6722-1	مركبات الطرق - الكابلات الأحادية القلب ذات جهد 60 فولت و 600 فولت - الجزء 1: الأبعاد وطرق الاختبار والمتطلبات الخاصة بكابلات النحاس الموصلة	Road vehicles -- 60 V and 600 V single-core cables -- Part 1: Dimensions, test methods and requirements for copper conductor cables
2	SASO-GSO ISO 6722-2	مركبات الطرق - الكابلات الأحادية القلب ذات جهد 60 فولت و 600 فولت - الجزء 2: أبعاد كابلات الألومنيوم الموصلة وطرق اختبارها ومتطلباتها	Road vehicles -- 60 V and 600 V single-core cables -- Part 2: Dimensions, test methods and requirements for aluminum conductor cables
3	SASO-IEC-TR-60783	تمديدات ووصلات مركبات الطرق الكهربائية	Wiring and connectors for electric road vehicles

	Standard No.	Title in Arabic	Title in English
4	SASO-ISO-4141-1	مركبات الطرق الوعرة - كابلات التوصيل متعددة القلوب - الجزء 1: طرق اختبار ومتطلبات الأداء الأساسي للكابلات المغلفة	Road vehicles -- Multi-core connecting cables -- Part 1: Test methods and requirements for basic performance sheathed cables
5	SASO-ISO-4141-2	مركبات الطرق الوعرة - كابلات التوصيل متعددة القلوب - الجزء 2: طرق اختبار ومتطلبات الأداء العالي للكابلات المغلفة	Road vehicles -- Multi-core connecting cables -- Part 2: Test methods and requirements for high performance sheathed cables
6	SASO-ISO-4141-3	مركبات الطرق الوعرة - كابلات التوصيل متعددة القلوب - الجزء 3: التركيب والأبعاد ووسم الكابلات للجهد المنخفض المغلفة وغير محجبة	Road vehicles -- Multi-core connecting cables -- Part 3: Construction, dimensions and marking of unscreened sheathed low-voltage cables
7	SASO-ISO-4141-4	مركبات الطرق الوعرة - كابلات التوصيل متعددة القلوب - الجزء 4: طريقة اختبار المفاصل ومتطلبات تجميعات الكابلات ذات ملفات	Road vehicles -- Multi-core connecting cables -- Part 4: Test methods and requirements for coiled cable assemblies
8	SASO-ISO-14572	مركبات الطرق الوعرة - الكابلات المستديرة متعددة الأقطاب المغلفة غير المحجبة لجهود 60 فولت و 600 فولت - طرق اختبار ومتطلبات أداء الكابلات الأساسي والعالي	Road vehicles -- Round, sheathed, 60 V and 600 V screened and unscreened single- or multi-core cables -- Test methods and requirements for basic- and high-performance cables
9	SASO-IEC-TR-62602	موصلات الكابلات المعزولة - بيانات أحجام النظام الأمريكي لمحددات القياس للأسلاك (AWG) ولأحجام ولمقاسات الموصلات بوحدات KCMIL	Conductors of insulated cables - Data for AWG and KCMIL sizes
<b>Safety Requirements</b>			
1	SASO-IEC-TS-60479-1	تأثيرات التيار على الجنس البشري والحيوانات - الجزء الأول: سمات عامة	Effects of current on human beings and livestock - Part 1: General aspects
2	SASO-IEC-60479-2	تأثيرات التيار المار خلال الجسم البشري - الجزء الثاني: سمات خاصة	Effects of current on human beings and livestock - Part 2: Special aspects
3	SASO-IEC-TR-60755	المتطلبات العامة لأجهزة الحماية العاملة بالتيار المتبقي	General requirements for residual current operated protective devices
4	SASO ISO 17409	مركبات الطرق المدفوعة كهربائياً - التوصيل لمصدر قدرة كهربائية خارجي - متطلبات السلامة	Electrically propelled road vehicles -- Connection to an external electric power supply -- Safety requirements
5	SASO GSO ISO 6469-1	مركبات الطرق المدفوعة كهربائياً - مواصفات السلامة - الجزء 1: نظام تخزين الطاقة الداخلي القابل لإعادة الشحن	Electrically propelled road vehicles -- Safety specifications -- Part 1: On-board rechargeable energy storage system (RESS)
6	SASO GSO ISO 6469-2	مركبات الطرق المدفوعة كهربائياً - مواصفات السلامة - الجزء 2: وسائل سلامة تشغيل المركبات والحماية من الأعطال	Electrically propelled road vehicles -- Safety specifications -- Part 2: Vehicle operational safety means and protection against failures
7	SASO GSO ISO 6469-3	مركبات الطرق المدفوعة كهربائياً - مواصفات السلامة - الجزء 3: حماية الأشخاص من الصدمة الكهربائية	Electrically propelled road vehicles -- Safety specifications -- Part 3: Protection of persons against electric shock

	Standard No.	Title in Arabic	Title in English
8	SASO GSO IEC 60445	تميز أطراف توصيل المعدات ونهايات الموصلات الخاصة، شاملاً الأسس العامة لنظام رقمي حرفي	Basic and safety principles for man- machine interface, marking and identification - Identification of equipment terminals, conductor terminations and conductors
9	SASO-GSO- IEC-60529	درجات الحماية التي توفرها الأغلفة الخارجية (النظام الرمزي IP)	Degrees of protection provided by enclosures (IP Code)
قياسات أداء المركبة الكهربائية Measurements of electrical vehicle performance			
1	SASO-ISO- 8715	مركبات الطرق الكهربائية - خصائص التشغيل على الطريق	Electric road vehicles -- Road operating characteristics
2	SASO-ISO- 8714	مركبات الطرق الكهربائية - استهلاك ومدى الطاقة المسترجعة - إجراءات الاختبار لمسارات الركوب والمركبات التجارية الخفيفة	Electric road vehicles -- Reference energy consumption and range -- Test procedures for passenger cars and light commercial vehicles
سيرة الطرق الكهربائية - المفردات Electric road vehicle - Vocabulary			
1	SASO-ISO- TR-8713	مركبات الطرق المدفوعة كهربائياً - المفردات	Electrically propelled road vehicles -- Vocabulary
2	SASO-IEC- 60050-482	المفردات الدولية الكهنتقنية - الفصل 482: الخلايا الأولية والثانوية والبطاريات (النضائد)	International Electro technical Vocabulary - Part 482: Primary and secondary cells and batteries
مواصفات عامة لمركبات الطرق Road vehicles			
1	SASO GSO ISO 15118-1	مركبات الطرق - واجهة الاتصال الشبكي - الجزء 1: المعلومات العامة وتعريف حالة الاستخدام	Road vehicles - Vehicle to grid communication interface - Part 1: General information and use-case definition
2	SASO ISO 15118-2	مركبات الطرق - واجهة الاتصال الشبكي - الجزء 2: متطلبات بروتوكول التطبيق والشبكة	Road vehicles - Vehicle-to-Grid Communication Interface - Part 2: Network and application protocol requirements
3	SASO ISO 15118-3	مركبات الطرق - واجهة الاتصال الشبكي - الجزء 3: متطلبات طبقة ربط البيانات والربط المادي	Road vehicles - Vehicle to grid communication interface - Part 3: Physical and data link layer requirements
4	SASO- CISPR-12	المركبات والزوارق ومحركات الاحتراق الداخلي - خصائص الاضطراب الراديوي - الحدود وطرق القياس لحماية أجهزة الاستقبال الخارجية	Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers
5	SASO-CISPR- 25	المركبات والزوارق ومحركات الاحتراق الداخلي - خصائص الاضطراب الراديوي - الحدود وطرق القياس لحماية أجهزة الاستقبال الداخلية	Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers
	Standards No.	Title in Arabic	Title in English

1	SASO 263	السيارات - طرق اختبار تحمل الصدمات - الجزء الأول: الصدمة الأمامية	motor vehicles – methods of test for impact strength - Part 1 : frontal impact
2	SASO 264	السيارات - طرق اختبار تحمل الصدمات - الجزء الثاني: الصدمة الخلفية بالصدام المتحرك	Motor vehicles –methods of test for impact strength - Part 2: moving barrier rear impact
3	SASO 265	السيارات - طرق اختبار تحمل الصدمات - الجزء الثالث أ: الصدمة الجانبية	Motor vehicles -methods of test for impact strength - Part 3 a : side impact
4	SASO 266	السيارات - طرق اختبار تحمل الصدمات - الجزء الرابع: متانة السقف	Motor vehicles -methods of test for impact strength - Part 4: roof strength
5	SASO 267	السيارات - تحمل الصدمات	Motor vehicles -impact strength
6	SASO 273	السيارات - أداة الوقاية الخارجية الأمامية والخلفية لسيارات الركوب (الصدمات وغيرها) وطرق اختبارها	Motor Vehicles: front and rear exterior protection devices for passenger's cars (Bumpers etc.) and its methods of test.
7	SASO GSO 42	السيارات - المتطلبات العامة	Motor vehicles - General requirements
8	SASO 400	السيارات - شهادات المطابقة	Motor vehicles conformity certificates
9	SASO 445	الجزء الأول: إطارات سيارات الركوب - المسميات والتمييز والبيانات الإيضاحية والأبعاد والأحمال وضغوط النفخ.	Passenger car tyres - Part 1: Nomenclature, designation, marking, dimensions, load capacities and inflation pressure
10	SASO 447	إطارات سيارات الركوب - الجزء الثاني: المتطلبات العامة	Passenger car tyres - part 2: general requirement
11	SASO 448	الجزء الثالث: إطارات سيارات الركوب - طرق الاختبار	Passenger car tyres - part 3: methods of test
12	SASO 525	السيارات - طرق اختبار أحزمة الأمان	Motor vehicles - Methods of testing safety belts.
13	SASO 526	السيارات - أحزمة الأمان	Motor vehicles - safety belts
14	SASO 449	السيارات - قابلية الأجزاء الداخلية للاشتعال وطرق اختبارها	Motor vehicles-flammability of interior materials and testing methods
15	SASO 442	مركبات الطرق - المنبهات الصوتية - المواصفات الفنية	Road vehicles - Sound signalling devices - Technical specification
16	SASO 469	السيارات - الأبعاد والأوزان	Motor Vehicles – Dimensions and weights


17	SASO GSO 279	طرق اختبار فرش السيارات – قماش تنجيد مقاعد السيارة	Car Upholstery – Testing Methods of Fabric for Car Seats
18	SASO GSO 280	قماش تنجيد مقاعد السيارة فرش السيارات –	Car Upholstery – Fabric for Car Seats
19	SASO 572	مركبات الطرق – لوحات الأرقام ذات الخلفية العاكسة وطرق اختبارها	Road vehicles retro - reflective number plates and its methods of test
20	SASO 573	كتيب إرشادات الأجهزة والمعدات	Instruction Manual for Appliances and Equipment
21	SASO 768	السيارات - طرق اختبار أقفال الأبواب ومفصلاتها	Motor vehicles - methods of test for door locks and door hinges
22	SASO 769	السيارات - أقفال الأبواب ومفصلاتها	Motor vehicles - door locks and door hinges
23	SASO 770	السيارات - طرق اختبار مرايا الرؤية الخلفية	Motor vehicles - Methods of testing of rear view mirrors.
24	SASO 771	السيارات - مرايا الرؤية الخلفية	Motor Vehicles: Rear-view mirrors
25	SASO 1066	اشتراطات تخزين إطارات السيارات	Requirements for storage of motor vehicle tyres
26	SASO 1134	إطارات السيارات متعددة الأغراض والشاحنات والحافلات والمقطورات - الجزء الأول: المسميات والتمييز والبيانات الإيضاحية والأبعاد والأحمال وضغوط النفخ	Multi-Purpose Vehicles, Trucks, Buses and Trailers Tyres - Truck and Bus - Part 1: Nomenclature, Designation Marking, Dimensions, Load Capacities and Inflation Pressures
27	SASO 1135	إطارات السيارات متعددة الأغراض والشاحنات والحافلات والمقطورات - الجزء الثاني: طرق الاختبار	Multi-Purpose Vehicles, Trucks, Buses and Trailers Tyres - Part 2: Methods of Test
28	SASO 1136	إطارات السيارات متعددة الأغراض والشاحنات والحافلات والمقطورات - الجزء الثالث: المتطلبات العامة	Multi-Purpose Vehicles, Trucks, Buses and Trailers Tyres - Part 3: General Requirements
29	SASO 1276	السيارات - المتطلبات العامة لسيارات الإسعاف	Motor vehicles -General requirements for ambulance.

30	SASO 1771	إطارات السيارات - العجلات والإطارات الاحتياطية المؤقتة وطرق اختبارها	Motor vehicles tyres - temporary use spare wheels /tyres and there methods test
31	SASO 1437	السيارات - الحماية من السرقة	Motor Vehicles - Protection against theft
32	SASO 1490	أنوار المصابيح الأمامية للسيارات - متطلبات الأمان	Motor Vehicle - Head Lamps Safety Requirements.
33	SASO 1315	- مساند الرأس وطرق اختبارها. السيارات	Motor Vehicles - Head restraints and method of testing.
34	SASO 1815	السيارات - محدثات السرعة - الجزء الثاني: المتطلبات الفنية	Motor vehicles – Speed limiters – Part 2: Technical requirements.
35	SASO 1816	السيارات - محدثات السرعة - الجزء الثالث : طرق الاختبار	Motor vehicles – speed limiters – Part 3: Methods of test.
36	SASO GSO 1677	السيارات - زجاج الأمان متعدد الطبقات	Motor vehicles – laminated safety glass
37	SASO 2307	- طرق اختبار تحمل الصدمات - السيارات الجزء الثالث: ب : الصدمة الجانبية بالصدم المتحرك	motor vehicles – methods of test for impact strength – Part 3b -moving barrier side impact
38	SASO 2308	- طرق اختبار تحمل الصدمات - السيارات الجزء الثالث: ج : الصدمة الجانبية بالصدم المتحرك	motor vehicles – methods of test for impact strength – part 3c : moving barrier side impact
39	SASO 2209	وسائل تثبيت الطفل - السيارات	Motor vehicles – child restraint system
40	SASO 2210	السيارات - طرق اختبار وسائل الطفل	Motor vehicles methods of testing of child restraint system
41	SASO 1444	السيارات محدثات السرعة - الجزء الأول: المتطلبات العامة ، فحص الجهاز ، شهادات المطابقة، اعتماد الطراز	Motor vehicles – Speed limits – Part 1 : General requirements , Equipment inspection , Certification and type approval
42	SASO 2249	المتطلبات - الرقم المميز للمركبة - السيارات	Motor Vehicle – Identification Number (Vin) Requirements
43	SASO 2250	الرمز العالمي لصانع المركبة - السيارات	Motor Vehicles – World manufacturer identifier code
44	SASO 2251	وضعة - الرقم المميز للمركبة - السيارات وتثبيته	Motor Vehicles – VIN-Location and attachment

45	SASO 2252	إطارات سيارات الركوب درجة مقاومة تآكل الموطئ والمحب والحرارة	Motor Vehicles Tyres – Treadwear, Traction and Temperature Resistance Grading
46	SASO 2253	طرق اختبار –إطارات سيارات الركوب درجة مقاومة الإطار للحرارة	Motor Vehicles Tyres – Method of Testing of Tire Temperature Resistance Grading.
47	SASO ISO 3537	السيارات - مواد زجاج الأمان - طرق الاختبارات الميكانيكية	Road vehicles - Safety glazing materials - Mechanical tests Road vehicles -
48	SASO ISO 3538	السيارات - زجاج الأمان - طرق اختبار الخصائص البصرية	Road Vehicles - Safety Glasses - Test Methods for Optical Properties
49	SASO GSO ISO 6311	السيارات – طرق اختبار بطانات المكابح – الجزء الأول: إجهاد القص الداخلي لمادة البطانة	Motor vehicles – methods of testing for broke lining – part 1: internal shear strength of lining material.
50	SASO GSO ECE 13H	السيارات - نظام مكابح سيارات الركوب والسيارات متعددة الأغراض	Motor Vehicles - Braking system of Passenger Car and Multi-Purpose Vehicles
51	SASO GSO ECE 13H-1	السيارات- طرق الاختبار لنظام المكابح - الجزء الأول: أداء المكابح	Motor Vehicles: Methods of Test for Braking System - Part 1: Braking Performance
52	SASO GSO ECE 13H-2	السيارات- طرق الاختبار لنظام المكابح - الطاقة الجزء الثاني: تعيين سعة أجهزة تخزين	Motor Vehicles: Methods of Test for Braking System - Part 2: Determination of Capacity of Energy Storage Devices
53	SASO GSO ECE 13H-3	السيارات- طرق الاختبار لنظام المكابح - بين الجزء الثالث: تعيين توزيع المكابح محاور المركبات	Motor Vehicles: Methods of Test for Braking System - Part 3: Determination of Distribution of Braking among the Axles of Vehicles
54	SASO GSO ECE 13H-4	السيارات- طرق الاختبار لنظام المكابح - القفل الجزء الرابع: تعيين وظيفة الأنظمة ضد	Motor Vehicles: Methods of Test for Braking System - Part 4: Determination of Function of Anti-Lock Systems
55	SASO GSO ECE 13H-5	السيارات: طرق الاختبار لنظام المكابح الكبح الجزء الخامس: تعيين أداء بطانة باستخدام دينامومتر القصور الذاتي	Motor Vehicles: Methods of Test for Braking System - Part 5: Determination of Performance of Brake Lining Using Inertia Dynamometer

56	SASO GSO ECE 13H-6	-السيارات: طرق الاختبار لمكابح النظام الالتصاق الجزء السادس: تعيين معامل	Motor Vehicles: Methods of Test for Braking System - Part 6: Determination of Coefficient of Adhesion
57	SASO ISO 3917	مركبات الطرق - مواد زجاج الأمان - طرق اختبار مقاومة الإشعاع وارتفاع درجة الحرارة والرطوبة والحريق ومحاكاة العوامل الجوية	Road vehicles - Safety glazing materials -- Test methods for resistance to radiation, high temperature, humidity, fire and simulated weathering
58	SASO ISO 6310	السيارات - بطانات المكابح (الفرامل) - طريقة اختبار انفعال الانضغاط	road vehicle - brake linings - compressive strain test method
59	SASO ISO 6312	مركبات الطرق - بطانات المكابح (الفرامل) - إجراء اختبار القص للمكابح القرصية و الأسطوانية	Road vehicles - Brake linings - Shear test procedure for disc brake pad and drum brake shoe assemblies
60	SASO ISO 6313	السيارات - بطانات المكابح (الفرامل) - تأثير الحرارة على أبعاد وشكل لقم المكابح القرصية - طريقة الاختبار	Road vehicles - brake linings - effects of heat on dimensions and form of disc brake pads - test procedure
61	SASO GSO ISO 4000-2	إطارات وجنوط سيارات الركوب - الجزء الجنوط الثاني	Passenger car tyres and rims - Part 2: rims
62	SASO GSO ISO 4209-2	إطارات وأطواق الشاحنات والحافلات (التسلسل المتري) - الجزء الثاني: الأطواق	Truck and bus tyres and rims (metric series) - Part 2: Rims
63	SASO ISO 7141	السيارات - العجلات المصنوعة من السبائك الخفيفة - اختبار الصدم	Road vehicles - Light alloy wheels - Impact test
64	SASO ISO 3894	السيارات - عجلات وأطواق المركبات التجارية - طرق الاختبار	Road vehicles - Wheels/rims for commercial vehicles - Test methods
65	SASO GSO ISO 3006	السيارات - عجلات سيارات الركوب المستخدمة على الطرق - طرق الاختبار	Road vehicles - Passenger car wheels for road use - Test methods
66	UNECE Regulation 100*		the approval of vehicles with regard to specific requirements for the electric power train
67	UNECE Regulation 12*		the approval of vehicles with regard to the protection of the driver against the steering mechanism in the event of impact


68	UNECE Regulation 121*		the approval of vehicles with regard to the location and identification of hand controls, tell-tales and indicators
69	UNECE Regulation 94*		the approval of vehicles with regard to the protection of the occupants in the event of a frontal collision
70	UNECE Regulation 95*		the approval of vehicles with regard to the protection of the occupants in the event of a lateral collision
71	UNECE Regulation 32*		The Approval Of Vehicles With Regard To The Behaviour Of The Structure Of The Impacted Vehicle In A Rear-End Collision
72	FMVSS 305*		Electric-Powered Vehicles: Electrolyte Spillage and Electrical Shock Protection
*Apply the standard until the Approved as the Saudi standard.			

 **Note:** The list of standards mentioned in this Annex is subject to review, and suppliers are responsible for ensuring that they use the latest standards.

**B) List of HS codes for related product categories**

No.	Product Categories	HS Code
1	- Rear-view mirrors for vehicles	7009
2	- Locks	8301
3	- Locks of a kind used for motor vehicles	8301
4	- Other mountings, fittings and similar articles suitable for motor vehicles	8302
5	-- Of an output exceeding 750 W but not exceeding 75 kW	8501
6	-- Of an output exceeding 75 kW but not exceeding 375 kW	8501
7	CHARGER FOR DRY BATTERIES	8504
8	Other static electric transformers	8504
9	- Other lead-acid accumulators	8507
10	Others	8507
11	Power cutters (Cutouts)	8511
12	Other equipment and devices	8511
13	Light bulbs inside cars	8512
14	Automotive lighting devices	8512
15	Video signal devices	8512
16	Bright Triangles for Cars	8512
17	Other lighting devices or visual signal	8512
18	Burglar alarm systems for cars	8512
19	Car horns	8512
20	Siren (Safety)	8512
21	Electrical devices that transmit audio signals when approaching a vehicle or a barrier (internal sensors)	8512
22	Other audio signal devices	8512
23	Glass cleaning devices	8512
24	Frost defrosting devices	8512
25	Steam condensate evaporators devices	8512
26	--- Global Positioning Systems (GPS)	8526
27	-- Combined with sound recording or reproducing apparatus	8527
28	-- Other	8527
29	- Fuses	8536
30	- Automatic circuit breakers	8536
31	- Other apparatus for protecting electrical circuits	8536
32	Plugs	8536
33	Sockets	8536
34	---- Other	8536
35	And other wire sets for transportation	8544
36	- With both compression-ignition internal combustion piston engine (diesel or semi-diesel) and electric motor as motors for propulsion	8702

37	- With both spark-ignition internal combustion reciprocating piston engine and electric motor as motors for propulsion	8702
38	- With only electric motor for propulsion	8702
39	Special electric cars for transporting people in stadiums	8703
40	Special electric cars for transporting people in airports	8703
41	Other similar cars	8703
42	Cars designed to transport 10 or more people, including the driver, and their parts	8702
43	A vehicle powered by an electric propulsion engine instead of traditional propulsion methods that rely on internal combustion engines	8703



**Note:** The products and customs coding (HS Codes) found in Saber electronic platform are the updated and certified version.

**Annex No. (2)****Electric Vehicles Essential Requirements****1 Safety Requirements**

The electric vehicles safety requirements shall reduce accidents and deaths and electric shocks which may result from the electricity leakage from batteries, the components of the battery into the passenger compartment, and from electric shocks.

**1/1 Protection against Electric Shocks**

- Live parts such as solid insulator, barrier, enclosure, etc. shall not be able to be opened, disassembled or removed without the use of tools which can be done only by a competent person.
- Connectors shall be located under the floor and are provided with a locking mechanism or provided with a locking mechanism and other components shall be removed with the use of tools in order to separate the connector.
- - The electrical voltage of the conductive parts shall be equal to or less than 60 V/AC or less than 30 V/DC within a second after the connector is separated.

**1/2 Protection against Indirect Contact**

- The exposed conductive parts shall be galvanic ally connected securely and correctly to the chassis, so that no potential danger is produced.
- The resistance between all exposed conductive parts and the electric vehicle chassis shall be less than 0.1 ohm, when there is current flow of at least 0.2 A.

**1/3 Isolation Resistance**

Mechanically robust protections that have sufficient durability over vehicle service life shall be provided.

**1/4 Rechargeable Energy Storage System (REESS)**

- The system shall be equipped with protective devices such as fuses and circuit breakers.
- Battery that may produce hydrogen gas shall be provided with a ventilation fan for a ventilation duct to prevent the accumulation of hydrogen gas.
- The REESS shall not overheat.



.No.	Types of Outlets	Current Type	
1	Socket, Plug	AC	SASO 2203
2	Socket, Plug	AC	SASO GSO IEC 60309
3	Type 2 (plug, inlet, connector)	AC	SASO GSO IEC 62196
4	Combined charging system (Type 2)	DC,AC	SASO GSO IEC 62196
5	CHAdemo	DC	SASO GSO IEC 62196

**Note:** It is prohibited to import other types of chargers in the standard specifications other than those mentioned in the above table.

## 1/ 5 Mechanical Impact Strength

### 1/5/1 Frontal Impact Test

This requirement specifies the limit of the rearward displacement of the steering after the frontal impact, to reduce the likelihood of chest, neck or head injuries. The body injuries are measured by using dummies with electrical impulse connections and other measuring instruments. Additionally, the electrolyte spillage and electrical protection are also measured.

#### 1/5/1/1 Mechanical Protection

After the frontal impact, the following shall be checked:

- The part of the steering control surface directed towards the driver shall not present any rough edges likely to increase the danger or severity of injuries to the driver. The steering displacement shall be less than 127 mm.
- No rigid component in the passenger compartment shall constitute a risk of serious injury to the passengers.
- The side doors of the vehicle shall not open during the impact test.
- The easy opening of the doors after the impact without the use of any tools.

- The dummy performance criteria shall indicate that the occupants will not receive any serious injuries.

### **1/5/1/2 Electric Protection**

#### **1/5/1/2/1 Protection against Electric Shock**

The two conditions indicted below shall be fulfilled so as to avoid any electric shock:

- The voltages shall be low as possible. The voltages ( $V_1$ ,  $V_2$ ,  $V_b$ ) shall be equal or less than 30 (V/AC), or 60 (V/DC).
- The total energy (TE) on the high voltage shall be low as possible and less than 2.0 Joules (W.H).

#### **1/5/1/2/2 Physical Protection**

- The resistance between all exposed conductive parts and the electrical vehicle chassis shall be lower than 0.1 ohm when there is a current flow of at least 0.2 A.
- All conductive parts shall be provided with a protection against direct contact- with the high voltage parts- not less than IPXXB.

#### **1/5/1/2/3 Isolation Resistance**

The isolation resistance between the high voltage buses and the electrical chassis shall have a minimum value of 100  $\Omega$ /volt of the working voltage for DC buses, and a minimum value of 500  $\Omega$ /volt of the working voltage for AC buses.

#### **1/5/1/3 Electrolyte Spillage**

As a result of impact, there shall be no electrolyte leakage or should be a minimum amount specified less than 7%, to avoid fire or electric shock and to reduce deaths and injuries, Allah forbids.

There shall also be no electrolyte spillage into the passenger compartment, and no more than 7% of electrolyte shall spill from the REESS during the impact and 30 minutes later, except open type traction batteries.

#### **1/5/1/4 Rechargeable Energy Storage System (REESS) Retention**

As a result of the impact, no part of the Rechargeable Energy Storage System (REESS) shall enter the passenger compartment during or after the impact.

### **1/5/2 Rear Impact**

This requirement specifies the limit of the outward displacement of the steering to reduce the likelihood of death and injuries. Its purpose is to protect passengers from the risk of fire or toxic or any electrical shock as a result of electrolyte spillage inside the passenger compartment during and after motor vehicle crashes.

#### **1/5/2/1 Mechanical Effect**

After the mechanical impact, the vehicle shall fulfil the requirements indicated below:

- The longitudinal displacement shall not cause any injury to the passengers, and the rear displacement shall not be less than 75 mm.
- The side doors of the vehicle shall not open during the impact test.
- After the impact, the doors shall easily open without the use of any tools.


### **1/5/3 Side Impact**

These requirements aim to protect the occupants in side impact crashes, and to reduce the risk of light and serious injuries. It also covers the necessary requirements to avoid electrical shock.

#### **1/3/5/1 Static Side Impact**

- The side doors shall be reinforced to reduce the impact forces from the side, and to reduce the injuries or deaths due to side impact.
- The strength of the body structure and doors shall meet the related technical regulations and standards requirements, to indicate the structure is strong enough to absorb the forces applied on them, as follows:
  - a) The initial crush resistance be more than (1020) kg.
  - b) The intermediate crush resistance be more than (1590) kg.
  - c) The crush resistance shall be twice more than the curb weight of the vehicle or more than (3175) kg, whichever is less.

#### **1/5/3/2 Dynamic Side Impact**

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- The side doors should be strong enough that the passengers will not receive any serious injuries in a side impact with other vehicles or rollover accidents. The body

injuries are measured by using dummies with electrical impulse connections and with any other measuring instruments.

- At the end of specified impact test, there shall be no rigid components in the passenger compartment that may constitute a risk of serious injury to the passengers.
- The side doors of the vehicle which are not impacted shall not open under the effect of the impact, so as to prevent the passengers thrown out during the impact.
- After the side impact test, the conditions indicated in item (1/5/1/2) shall be complied to avoid the occurrence of potential electric shocks.

### **1/5/3/3 Roof Strength**

This requirement establishes the strength requirements for the passenger compartment roof, to reduce the risks of deaths and injuries in the rollover crashes of any vehicle weighing less than (2722) kg. The maximum displacement of the roof, after the impact, shall not exceed (127 mm) when tested according to the related standards shown in Annex (1).

## **2 Electric Vehicles Performance Requirements**

### **2/1 Electric Performance Requirements**

- The electric energy consumption is measured according to the methods and test cycles shown in Annex (1) of this Regulation.
- The electric range measured according to the requirements of this Regulation is the only one which may be included in sales promotional material. This value must also be used for the calculations.
- The result of the electric energy consumption must be expressed in Watt hours per kilometre (Wh/km), and the range in km, both rounded to the nearest whole number.
- If the measured value of the **electric energy exceeds the manufacturer's declared electric energy value** by more than 4 %, then another test is run on the same vehicle. When the average of the two test results does not exceed the manufacturer's declared value by more than 4 %, then the value declared by the manufacturer is taken as the type approval value.
- The average value of the three test results is taken- as the type approval value- if the average still exceeds the declared value by more than 4 %, provided that the final tests shall be run on the same vehicle.

- If the declared electric range value exceeds the value measured, then another test is run on the same vehicle. When the manufacturer declared value does not exceed the average of the two test results, then the value declared by the manufacturer is taken as the type approval value.
- If the declared value still exceeds the average measured value, a final test is run on the same vehicle. The average of the three results is taken as the type approval value.

## **2/2 Test Conditions**

### **2/2/1 Condition of the Vehicle**

- The vehicle tyres shall be inflated to the pressure specified by the vehicle manufacturer, when the tyres are at the Ambient Temperature.
- The lighting and light-signalling and auxiliary devices shall be off, except those required for testing and usual daytime operation of the vehicle.
- All energy storage systems available for other than traction purposes (electric, hydraulic, pneumatic, etc.) shall be charged up to their maximum level specified by the manufacturer.
- The vehicle operator shall follow the procedures recommended by the vehicle manufacturer in order to keep the temperature of the battery in the normal operating range, if the batteries are operated above the ambient temperature.
- The supplier shall be in a position to attest that the thermal management system of the battery is neither disabled nor reduced.
- The vehicle must have undergone at least (300) km during the seven days, before being tested, with those batteries that are installed.

## **2/3 Test Methods**

The electrical range should be tested according to SASO ISO 8714, and in accordance with the test sequence listed in the standards shown in Annex (1).

### **2/4 Electric Energy Consumption**

Electric vehicles must meet the requirements of SASO 2847 for "Fuel Economy Labelling Requirements For New Light Duty Vehicles"

### **2/5 Total Range**



The maximum distance that may be covered by the electric vehicles using a fully charged battery from the very beginning of the test to its end shall not be less than (200) km.

### **3 Manufacturer Responsibilities**

3/1 Each manufacturer shall prepare an adequate manual, including all the risks and warnings for safe use of the electric vehicles.

3/2 Manufacturers shall write warnings to avoid the vehicle potential accidents in the following way: Do not touch the (orange, 400 V) cables or any other components, for they may cause burns or electric shocks.

3/3 If the traction battery is damaged, there may be a delayed risk of fire. In this case, it is necessary to place the vehicle or the damaged battery under surveillance in a dedicated and secure storage area so as to prevent the start of a fire.

3/4 The manufacturers and suppliers shall provide proper training to the Civil Defense Departments on how to deal with accidents, and shall provide them with the following:

- a) Procedures for a vehicle involved in an impact whilst charging.
- b) Procedures for a vehicle on fire and should include:
  - Protective equipment to be used against hazards.
  - Kind of fire extinguishers to be used in fighting the fire.
- c) Instructions for avoiding high voltage area.
- d) Instructions for freeing vehicle occupants, and shall include the following:
  - Prohibited/recommended cutting areas.

-Procedures in the event of an electrolyte spillage from the traction battery.

3/5 The manufacturers or his dealer should have one workshop with all qualified and trainer persons for regular maintenance and repairing the electric vehicles.

3/6 All vehicles should be equipped with the electrical car performance label. It must be placed at an area that can be easily seen, and must be non-removable.

### **4 Electric Vehicle Charging and Supply Equipment Systems**

#### **4/1 Equipment Construction**

##### **4/1/1 Electric Vehicle Coupler**



The electric vehicle coupler shall fulfil the following requirements:

- a) The electric vehicle coupler shall have a configuration that is non-interchangeable with the wiring devices in any other electrical systems. Non-grounding-type electric vehicle couplers shall not be interchangeable with grounding-type electric vehicle couplers.
- b) The electric vehicle coupler shall be constructed and installed so as to be guarded against inadvertent contact with any conductive parts from the electric vehicle supply equipment or the electric vehicle battery.
- c) The electric vehicle coupler shall be equipped with suitable means to prevent unintentional disconnection.
- d) Following the Fire Safety Standards whilst charging.

#### **4/1/2 Rated Power**

Electric vehicle supply equipment shall have sufficient rating to supply the loads required, and in compliance with the maximum load permitted by the automatic load management system, when available.

#### **4/1/3 Markings**

- a) All electric vehicle supply equipment shall be marked by the manufacturer as follows: **"FOR USE WITH ELECTRIC VEHICLES"**.
- b) The electric vehicle supply equipment shall be clearly marked, if ventilation is not required, by the manufacturer as follows: **"VENTILATION NOT REQUIRED"**.
- c) The electric vehicle supply equipment shall be clearly marked, if ventilation is required, by the manufacturer as follows: **"VENTILATION REQUIRED"**.
- d) The markings shall be suitably located so as to be clearly visible after installation

#### **4/1/4 Cords and Cables**

A) Cables and cords- used for connecting the systematically related devices- shall meet the following requirements:

- The overall useable length shall not exceed 7.5 m, unless equipped with a cable management system that is part of the electric vehicle charging system.
- Where the electric vehicle supply equipment or the charging system is not fixed in a defined place, the cord exposed useable length shall be measured from the attachment plug to the electric vehicle connector.

- Where the electric vehicle supply equipment or the charging system is fixed in a defined place, the useable length of the output cable shall be measured from the cable exit of the electric vehicle supply equipment to the electric vehicle connector. Other cable types and assemblies listed as being suitable for the purpose, including communications, signal, and composite optical fibre cables, shall be permitted.

#### **4/4/5 Interlocks**

Electric vehicle supply equipment shall be provided with an interlock that de-energizes the electric vehicle connector and its cable whenever the electrical connector is uncoupled from the electric vehicle.

4/1/6 The electric vehicle supply equipment and the cable-connector combination of the equipment shall be provided with an automatic means to cut the supply to the cable conductors and electric vehicle connector upon exposure to strain that could result in either cable rupture or separation of the cable from the electric connector.

#### **4/1/7 Personal Protection System**

The electric vehicle supply equipment shall be equipped with a system of protection to protect personnel from electric shocks.

### **5 Electric Installations**

#### **5/1 Branch Circuit Markings**

When a branch circuit is installed, a label shall be permanently affixed adjacent to the outlet box and shall contain the following information: "For use with electric vehicle supply equipment (or) electric vehicle charging system", and the voltage and amperage it is permitted to serve shall also be shown.

#### **5/2 Overcurrent Protection**

- a) Overcurrent protection for feeders (sources of supply) and branch circuits supplying electric vehicle supply equipment shall be sized for continuous duty and shall have a rating of not less than 125 % of the maximum load for the electric vehicle supply equipment.



- b) Where non-continuous loads are supplied from the same feeder or branch circuit, the overcurrent protection device shall have a rating of not less than 125 % of the continuous loads.

## **6 Electric Vehicle Supply Equipment Connections**

6/1 Electric vehicle supply equipment shall be permitted to be cord and plug connected to the premises wiring system, in accordance with one of the following:

6/1/1 Electric vehicle supply equipment shall be rated (250) volts maximum, and comply with all of the following conditions:

- a) It is intended for connection to receptacle outlets rated no more than (50) A.
- b) It is installed to facilitate any of the following:
  - Facilitate maintenance and repair.
  - Repositioning of portable, movable, or Electric Vehicle Supply Equipment (EVSE) fastened in place.
- c) Power supply cord length for electric vehicle supply equipment fastened in place shall be limited to 1.8 m.
- d) Sockets are located in defined places, to avoid any physical damage to the flexible cords.
- e) All electric vehicle supply equipment shall be permanently connected to the premises wiring system.

## **6/2 Safety Equipment for Electric Vehicles Workstation**

- a) Clear instructions to use the interlock system before working on the High Voltage Systems and moving the Accident Damaged Vehicles shall be provided.
- b) Employer is responsible for providing and maintaining the Personnel Protective Equipment (PPE) for all staff.
- c) It is compulsory for the staff to wear individual protection equipment during any operation in the orange zone (Battery removal, locks).
- d) The workstation should have a collective protection equipment (CPE ) for all of the following:
  - Battery Repair Protected Area
  - Electric Vehicle Protected Area
  - Insulated Areas

- e) The workstation should have a workspace for high voltage system repairs at it, should also have a warning Panel including the following information: “**Dangerous Area, High Voltage Working Area**”.

### **6/3 Handling a Vehicle Involved in an Accident**

- a) If the vehicle, after the accident, has no damage in the chassis, or battery or any high voltage wiring, the responsible person needs then to place it in a safe area before starting the repairs.
- b) If the vehicle, after the accident, has damages in the chassis, or battery or any high voltage wiring, the responsible person shall then place it in a safe area, and a qualified person shall perform a safety assessment for:
- Exposed live parts.
  - Liquids leakage.
  - Damaged batteries and wirings.
  - The electric vehicle locked out;
- c) In case of any of the above-mentioned points, it should be put in an isolated area.

### **6/4 Electric Vehicle Storage Location Requirement**

Electric vehicles shall be provided according to the following requirements:

- a) One dedicated, uncovered parking space.
- b) 5 meter clear space around the vehicle.
- c) At least 12 meters away from the nearest building.



**Annex No. (3)****Conformity Assessment Form (Type 1a) according to ISO/IEC 17067****Type Approval****1 Type Approval**

Type approval is defined as one of the conformity assessment procedures, where the notified body shall review the technical design of the product and check its validation, and then acknowledge that the technical design of the product meets the requirements of the related Saudi technical regulations.

Type approval can be made via one of the following two ways:

- a) Inspecting a typical sample of the full product, to be representing the expected production, (production model).
- b) Evaluating the technical design conformity of the product by reviewing the technical documentation and guides (design model), in addition to inspecting a representative sample of the proposed production (prototype), for one or more of the parts that are more hazardous of the product (combining production model and design model).

**2 Type Approval Procedures****2/1 Submitting an Application for Type Approval to a Notified Body**

The manufacturer shall apply for type approval to a notified body of his choice; provided that the application includes the following:

- a) **Manufacturer's name and address.**
- b) A written declaration that he did not apply to any other notified body.
- c) **Technical documents that enable evaluating the product's conformity with the requirements of Saudi technical regulations.** These documents shall include proper analysis and evaluation of risks.
- d) Technical documentation shall define the requirements applicable to the product; to include - as required by the evaluation - the design, manufacturing and operation (usage) requirements of the product.
- e) The technical documents shall include the following items, as a minimum:
  - 1) General description of the product



- 2) Design, manufacturing drawings and horizontal projections (diagrams) for the product elements, units, divisions and subdivisions, etc.
- 3) Any descriptions and explanations needed to understand the drawings, diagrams, and operation (usage) of the product in question.
- 4) List of fully or partially applicable Saudi standards or any other relevant technical specifications approved by SASO, in addition to a description of the solutions adopted to meet the essential requirements according to the Saudi technical regulations, in case of not applying the standards listed. In case of partial use of Saudi standards, technical documentation shall clarify the applied items.
- 5) Design calculations reports, operations monitoring and testing reports, etc.
- 6) Test reports.
- 7) Representative samples of the proposed production. The notified body may request additional samples if needed.
- 8) Evidence supporting the appropriateness of the technical solutions adopted in the design shall refer to all the documents followed, especially in case of the non-application of Saudi standards and/or the appropriate mentioned technical criteria. Supporting evidence shall include, when necessary, the results of tests performed in the laboratory at the manufacturer's discretion, or in another laboratory under his responsibility.

## **2/2 Tasks of the Notified Body**

### **2/2/1 With respect to the product**

Study of the technical documentation and supporting evidences (proofs) for the purpose of assessment of the technical design of the product.

### **2/2/2 With respect to the samples**

- 1) Ensuring that the manufacturing of samples is in conformity with the technical documentation, in addition to identifying the designed elements in accordance with the Saudi standards, and those designed according to other specifications.
- 2) Performing the appropriate examinations and tests, either personally to through an agent to assure that the technical solutions adopted by the manufacturer meet the key requirements specified in standards, in case of non-application of relevant specifications.

- 3) Performing appropriate tests, either personally or through an agent, to make sure, in the case of non-application of the Saudi standards and/or other appropriate specifications, that the technical solutions adopted by the manufacturer meet the basic requirements of the Saudi technical regulations.
- 4) Defining the testing body in agreement with the manufacturer.

#### **2/2/3 With respect to the Decisions of the Notified Body**

- 1) The notified body shall issue an evaluation report of all actions carried out and its outputs. The notified body shall not publish the report in whole or in part without the manufacturer's approval.
- 2) If the type is conforming with the requirements of the Saudi technical regulations applied to the product in question, the notified body shall issue a type approval certificate for the manufacturer. It shall include the manufacturer's name and address, results of tests, terms of validity- if any-, the information necessary to determine the accredited type, and the certificate may also include related attachments.
- 3) The certificate, and its attachments, shall include all appropriate information needed to assess the conformity of the products manufactured in accordance with the tested type and to make the surveillance during operation.
- 4) If the type was found not conforming with the Saudi technical regulations requirements applied to the product in question, the notified body shall not issue a type approval certificate, and it shall inform the applicant of its decision, accompanied with a detailed justification concerning the non-issuance of type approval certificate.
- 5) The notified body shall keep pace with all known technical developments, whenever these developments refer to non-conformity of the accredited type with the requirements of the Saudi technical regulations, then the notified body shall determine the need to perform additional testing, and shall inform the manufacturer in this case.
- 6) The manufacturer shall inform the notified body- that retains the technical documentation for the issued type approval certificate- with all the changes that may affect the product conformity of the attested type; according to the requirements of the Saudi technical regulations. The manufacturer shall also inform the notified body with any changes to the terms of type approval certificate



applicability, for such changes require further attesting on initial type approval certificate.

- 7) Each notified body shall inform SASO with type approval certificates and with any additions issued or certificates withdrawn. The notified body shall, on regular basis, or when required, provide a list of type approval certificates and with any additions refused or with certificates suspended or restricted in any way.
- 8) Each notified body shall inform other notified bodies of type approval certificates and any refused additions, and with additions suspended or restricted in any way. In addition, it shall be informed, when required, with type approval certificates or any issued additions.
- 9) When required, SASO and other notified bodies can obtain copies of type approval certificates and/or additions thereto. SASO can, when required, obtain copies of the technical documentation and test results carried out by the notified body. The notified body shall keep a copy of the type approval certificate, its attachments, and inserted additions in addition to the technical documents, including documents attached from the manufacturer until the certificate's expiry date.
- 10) Manufacturer shall keep a copy of type approval certificate, its attachments, and inserted additions thereto, in addition to the technical documents. Also, the manufacturer shall make all of these available to Regulatory Bodies and market survey authorities for 10 years after the product's placement in the market.
- 11) The supplier can submit the application mentioned in clause (2/1/1) above, and carry out pre-mentioned on behalf of the manufacturer, provided that the manufacturer gives his consent.



**Annex No. (4)****Supplier Conformity Declaration Form**

*This form shall be filled in on the company's letterhead papers*

**1) Supplier Details:**

Name:-----

Address: -----

-----

Contact Person:

Email:-----

Tel. No. :-----

Fax No. :-----

**2) Product Details**

- Manufacturer's Name:-----

- Country of Manufacture: -----

- Month and Year of Manufacture:-----

- Kind/ Type of the Car: -----

- Car Model:-----

- Details of the Saudi/Gulf Standards or other specifications:-----

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We, hereby, acknowledge that the above-mentioned product is conforming with the Saudi technical regulation/..... ( ), and the Saudi standards/----- included therein.

Person in Charge:-----

Company Name: -----

Signature: ----- Official Seal

Date: --/--/----

