

# Type Approval Requirements for Electric Vehicles

## I. Regulations and Standards

- 1.1 All electric vehicles applying for type approval shall comply with the Road Traffic Ordinance (Cap. 374) and its subsidiary regulations, including the RT(C&M) Regs. related to vehicle construction, and the RT(SE) Regs. related to safety equipment.
- 1.2 Electric vehicles will be classified according to Schedule 1 of the Road Traffic Ordinance, Cap. 374.
- 1.3 In addition, the applicant shall provide evidence (which can be either a certificate, test report prepared by a certification body, or manufacturer's declaration), to demonstrate the functional safety and protection against electric shock of the electric vehicle complies with any one of the following standards :
  - (a) **ECE R100** : Approval of Battery Electric Vehicles with regard to specific requirements for the construction, functional safety and hydrogen emission; or
  - (b) **Japan TRIAS 67-2-2008** : Test Procedure for protection of occupants against high voltage in electric vehicles and hybrid electric vehicles; and **Japan TRIAS 67-3-2008** : Test Procedure for protection of occupants against high voltage in electric vehicles and hybrid electric vehicles after collision; or
  - (c) **ISO/DIS 6469 :2009** : Electrically propelled road vehicles – safety specifications  
Part 1 : Onboard rechargeable energy storage system (RESS)  
Part 2 : Vehicle operational safety means and protection against failures  
Part 3 : Protection of persons against electric shock; or
  - (d) **GB/T 18384** : Electric vehicles – Safety specification  
Part 1 : On-board energy storage  
Part 2 : Functional safety means and protection against failures  
Part 3 : Protection of persons against electric hazards
- 1.4 TD may accept equivalent standards with the contents and requirements equivalent or superior to the above-listed standards.
- 1.5 *Special remark for electric motorcycles :*

The standards listed in paragraph 1.3 may not be directly applicable to electric motorcycles or category L vehicles (according to UN/ECE RE.3). The applicant is advised to submit certification or manufacturer's test report to demonstrate the electrical safety of the concerned motorcycle, with reference to similar requirements as outlined in the above-listed standards.

## II. Documents required for submission

- 2.1 If the following safety requirements concerning “connection of the vehicle to main network” have not been covered in the submissions mentioned in paragraph 1.3, the applicant shall provide evidence or manufacturer’s test report and declaration for the following :
- (a) In no case the vehicle shall be capable to move by its own means when it is galvanically connected to an energy supply network or to an off-board charger;
  - (b) The components used when charging the battery from an external source (and intended to be disconnected under load) shall allow the charging current to be cut in case of disconnection without physical damage;
  - (c) The coupling system parts likely to be live shall be protected against any direct contact in all operating conditions. This requirement is deemed to be complied with if the coupling has protective grade IPXXB and the actual voltage of live electric parts would be reduced below 60V(DC) or 30V (AC) within manufacturer’s specified period ;
  - (d) All exposed conductive parts shall be electrically linked through a conducting wire plugged to earth when charging. In the case of motor vehicle with traction battery charged by connecting to the external power supply through conductive connection, a device for connecting the electrical chassis to the earth galvanically must be provided.
- 2.2 The applicant shall provide technical details or certificate issued by the manufacturer of the traction battery showing the construction, safety and reliability of the battery is suitable for automotive use and traceable to a relevant industrial standard.
- 2.3 The applicant shall provide the following information of the electric vehicle :
- (a) Description of electrical safety features and protection measures incorporated into the vehicle and charging system.
  - (b) Operating characteristics of the electric motor (torque and power curves)
  - (c) Information and specification of the batteries and charging system. Indication of charging status and the state of charge of the batteries at the driving enabled mode. (battery status indicator is mandatory)
  - (d) Diagram and general description of the essential electrical/control parts and explanation of their functions.
  - (e) Indication of maximum speed, gradeability, fuel consumption, efficiency, range per full charge (including their methods of measurement, which should be traceable to an industrial standard or an international/national automotive regulation).
  - (f) Details of any modifications made to the original (base) vehicle
  - (g) Maintenance requirements – Maintenance manual covering the electrical system, including circuit diagrams.

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