

45 The protection of the occupants in the event of a lateral collision

Refer to: R95 02-S1

45.1 Effective Date and Scope:

45.1.1 As for the lateral collision behaviour of the structure of the passenger compartment of M1 and N1 category symbols of vehicles where the R point of the lowest seat is not more than 700 mm from ground level, the new vehicle types from 2008/1/1 and all vehicle types from 2010/1/1, shall comply with this regulation.

45.1.2 The applicants applying for low volume safety approval or vehicle-by-vehicle may be exempt from regulation of “the protection of the occupants in the event of a lateral collision” except child-only vehicle.

45.2 The protection of the occupants in the event of a lateral collision shall according to suitable types and range of principle are as below :

45.2.1 The same vehicle category symbol.

45.2.2 The same axle set type.

45.2.3 The same brand and vehicle type series.

45.2.4 The chassis vehicle have had same axle set type.

45.2.5 The same chassis brand.

45.2.6 Chassis manufacturers announced that the same chassis vehicle type series.

45.3 Test conditions, state of the vehicle and preparation of the vehicle:

45.3.1 The vehicle to be tested shall be stationary.

45.3.2 The unladen mass of the vehicle is increased by a mass of 100 kg (that is the mass of the side impact dummy and its instrumentation). The fuel tank shall be filled with water to a mass equal to 90 % of the mass of a full load of fuel.

45.3.3 The mass of the measuring apparatus shall not change each axle reference load by more than 5 %, each variation not exceeding 20 kg.

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- 45.3.4 The doors shall be closed, but not locked. The transmission shall be placed in neutral and the parking brake disengaged.
- 45.3.5 The longitudinal adjustment device shall be placed with the locking device engaged in the position that is nearest to midway. The head restraint shall be adjusted such that its top surface is level with the centre of gravity of the dummy's head; if this is not possible, the head restraint shall be in the uppermost position. Unless otherwise specified by the manufacturer, the seat-back shall be set such that the torso reference line of the three-dimensional H point machine is set at an angle of 25 +/- 1 degree towards the rear. All other seat adjustments shall be at the mid-point of available travel; however, height adjustment shall be at the position corresponding to the fixed seat, if the vehicle type is available with adjustable and fixed seats. If the steering wheel is adjustable, all adjustments are positioned to their mid-travel locations.
- 45.3.6 The side impact dummy EuroSID shall be installed in the front seat on the impact side. The safety-belts or other restraint systems, which are specified for the vehicle, shall be used. Belts should be of an approved type, conforming to the Regulation of the "Standards" and mounted on anchorages conforming to the Regulation of this "Standards".

45.4 Test method: The longitudinal vertical median plane of the mobile deformable barrier shall be coincident within +/- 25 mm with a transverse vertical plane passing through the R point of the front seat adjacent to the struck side of the tested vehicle. The mobile deformable barrier speed at the moment of impact shall be 50 +/- 1 km/h. The trajectory of the mobile deformable barrier longitudinal median vertical plane shall be perpendicular to the longitudinal median vertical plane of the impacted vehicle.

45.5 Specifications:

- 45.5.1 The performance criteria, as determined for the collision test shall meet the following conditions:
- 45.5.1.1 The head performance criterion (HPC) shall be less than or equal to 1,000; when there is no head contact, then the HPC shall not be measured or calculated but recorded as "No Head Contact."
- 45.5.1.2 The thorax performance criteria shall be:
- 45.5.1.2.1 Rib Deflection Criterion (RDC) less than or equal to 42 mm.

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- 45.5.1.2.2 Soft Tissue Criterion (VC) less or equal to 1.0 m/sec.
- 45.5.1.3 The abdomen performance criterion shall be: Abdominal Peak Force (APF) less than or equal to 2.5 kN internal force.
- 45.5.1.4 The pelvis performance criterion shall be: Pubic Symphysis Peak Force (PSPF) less than or equal to 6 kN.
- 45.5.2 No door shall open during the test.
- 45.5.3 After the impact, it shall be possible:
 - 45.5.3.1 Without the use of tools to:
 - 45.5.3.1.1 open a sufficient number of doors provided for normal entry and exit of passengers, and if necessary tilt the seat-backs or seats to allow evacuation of all occupants;
 - 45.5.3.1.2 release the dummy from the protective system.
 - 45.5.3.1.3 remove the dummy from the vehicle
 - 45.5.3.2 No interior device or component shall become detached in such a way as noticeably to increase the risk of injury from sharp projections or jagged edges.
 - 45.5.3.3 If there is continuous leakage of liquid from the fuel-feed installation after the collision, the rate of leakage shall not exceed 30 g/min; if the liquid from the fuel-feed system mixes with liquids from the other systems and the various liquids cannot easily be separated and identified, all the liquids collected shall be taken into account in evaluating the continuous leakage.