

Minimum Standard for Type Approval Testing of Active Deployable Systems of the Bonnet / Windscreen Area

Note:

Part II, Chapter I, Paragraph 1.1.2 and 2.1.3 of the ANNEX of the Technical Prescription (2004/90/EC) dated on 04. February 2004 to which is referred in Article 3 of the EU Directive for Pedestrian Protection (2003/102/EC) dated on 06. December 2003.

All devices designed to protect vulnerable road users shall be correctly activated before and/or be active during the appropriate test. It shall be the responsibility of the applicant for approval to show that the devices will act as intended in a pedestrian impact.

Scope:

- Only type approval conditions considered according to the draft GTR or the EU Directive (assuming that EU Phase 2 is identical with the GTR), i.e.:
 - Passing the LEGFORM TEST
 - Passing the alternative UPPER LEGFORM TEST to bumper
 - Passing the HEADFORM TESTS
- Based on contact sensor techniques
- Marking up the vehicle in deployed or undeployed position may be made on the choice of the manufacturers.

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Testing:

1	<p>Calculate the head impact time (HIT) for 6yo-child, 5%-female and 50%-male (50% is only needed when tests with the adult headform impactor are to be performed) in deployed position of the system, at a vehicle speed of 40km/h, at the centre of the vehicle, in walking posture, leg facing the vehicle is backwards, using an appropriate simulation tool.</p> <p>HIT = time from first contact on bumper to time of head to bonnet contact.</p> <p>The manufacturer and the Technical Services should agree the appropriate choice of the HIT (6yo or 5% or 50%) for each impact point.</p>
2	<p>The manufacturer provides the sensor time of the system</p> <p>In principle: total response time (TRT) = sensor time (ST) + deployment time (DT)</p>
3.1	<p>Testing of systems that remain in a permanent deployed position:</p> <p>Demonstrate:</p> <p>TRT < HIT (6yo or 5% or 50%)</p> <p>The system reaches and remains in the intended position before head impact.</p> <p>The system can be supported in a representative way (e.g. spring system)</p> <p>Perform LEGFORM TEST or UPPER LEGFORM TEST to bumper to measure TRT at the lifting device.</p> <p>Perform HEADFORM TESTS in deployed position of the bonnet.</p>
3.2	<p>Testing of systems that do not remain in a permanent deployed position:</p> <p>Perform “dynamic” HEADFORM TESTS</p> <p>”dynamic” means:</p> <p>Triggered ignition time of the deployable system and the headform propulsion device is needed. This shall be agreed between the manufacturer and the Technical Service, based on the HIT & ST. The HIT may be calculated as in item 1, but for the undeployed condition.</p>
4	<p>System without contact sensors:</p> <p>For systems without contact sensors the TRT has to be considered separately.</p>