Pedestrian Protection

Phase II
Phase I

- all new types from 2005
- all new vehicles from 2012
- Four tests (two for monitoring)
Phase II

- all new types from 2010
- all new vehicles from 2015
- Four tests
- feasibility study
Feasibility Study

Directive, Article 5

“………shall carry out, by 1 July 2004, an independent feasibility assessment concerning the provisions of Annex I, section 3.2, and in particular alternative measures - either passive or a combination of active and passive measures - which are at least equivalent in terms of actual effectiveness.”
Feasibility Study

Commission study: TRL (UK)

- changes required:
  provides 79% effectiveness

- use of brake assist:
  provides 85% effectiveness
Feasibility Study

Industry study I: (Matra & TNO)

- feasibility changes required
Feasibility Study

Industry study II : (TUD)

- use of brake assist
  provide 133% effectiveness
Feasibility Study

Commission Study extn.:

- use of brake assist (revised)
  provide 116% effectiveness
<table>
<thead>
<tr>
<th>Road user type</th>
<th>BAS fitment</th>
<th>Current phase two</th>
<th>TRL proposal</th>
<th>ACEA proposal</th>
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<td>Serious (%)</td>
<td>Fatal (%)</td>
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<td>100</td>
<td>100</td>
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<td></td>
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<tr>
<td>Cyclists</td>
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<td>161</td>
<td>127</td>
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</tbody>
</table>
Proposal:

Four tests (one monitoring only)

and

use of brake assist
Proposal:

**General**

Consideration provided for manufacturers margin to be applied in testing (20%)

Requirement for monitoring only of Upper legform test.

Revision of headform weights.

Revision of headform test speed.
Proposal:

Legform test:

- impact speed 40 km/h
- knee bending angle 19.0°
- knee shearing displacement 6.0 mm
- maximum acceleration 170 g
  (264 mm relaxation zone to 250 g.)

Upper legform to bumper:
- impact speed of 40 km/h.
- impact forces limit 7.5 kN
- bending moment maximum 510 Nm
  (mandatory above 500mm)
Proposal:

**Upper Legform test:**
- impact speed 40 km/h
- impact forces limit 5 kN
- bending moment maximum 300 Nm

(For monitoring purposes only)
Proposal:

**Child/Small Adult Headform test:**
- impact speed **35 km/h**
  (impact angle 50°)
- test impactor weight **3.5 kg**
- HIC of **1000** over • of bonnet test area
- HIC of **1700** over • of bonnet test area

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Pedestrian Protection GRSP gtr ad hoc group 11 – 13 July 2005 Commission Proposal for Consultation
Proposal:

**Adult headform test:**
- impact speed **35 km/h**
  (impact angle 65°)
- test impactor weight **4.5 kg**
- HIC of **1000** over _•_ of bonnet test area: 1000
- HIC of **1700** over _•_ of bonnet test area: 1000

40 km/h
4.8 kg
Proposal:

General Points:

- consideration of humidity conditions for testing
- tightening on tolerances
- numbers of headform tests
- ............