

Enterprise and Industry

Directorate General



European Commission

INF / GR / PS / 127

# 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





Road user type	BAS fitment	Current phase two		TRL proposal		ACEA proposal	
		Fatal (%)	Serious (%)	Fatal (%)	Serious (%)	Fatal (%)	Serious (%)
Pedestrians	no BAS	100	100	82	84	48	74
	BAS fitted	161	127	145	113	116	103
Cyclists	no BAS	100	100	82	84	48	73
	BAS fitted	161	127	145	113	116	104



# 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°** 15°
- knee shearing displacement **6.0** mm
- maximum acceleration **170** g 150g  
(**264** mm relaxation zone to **250** g.)

### Upper legform to bumper:

- impact speed of **40** km/h.
- impact forces limit **7.5** kN 5kN
- bending moment maximum **510** Nm 300Nm  
(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 40 km/h  
(impact angle 50°)
- test impactor weight **3.5** kg 2.5 kg
- HIC of **1000** over • of bonnet test area 1000
- HIC of **1700** over • of bonnet test area 1000



# Proposal:

## Adult headform test:

- impact speed **35** km/h 40 km/h  
(impact angle 65°)
- test impactor weight **4.5** kg 4.8 kg
- HIC of **1000** over • of bonnet test area 1000
- HIC of **1700** over • of bonnet test area 1000



# Proposal:

## General Points:

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