

Prepared by the experts from CLEPA

GRRF AEBS/LDWS Informal Working Group

13th Meeting, 22nd March 2011

Proposed amendments to “mitigation” regulation working document draft as of 23rd March 2011, 18.30 hours.

- 6.5.2. The timing for the collision warning modes referred to in paragraph 5.5.1. shall comply with the following:
- 6.5.2.1. At least one haptic or acoustic warning mode shall be provided no later than ~~1.4 s~~ **the value specified in Table I Column B of Annex 3**, before the start of the emergency braking phase.
- 6.5.2.2. At least two warning modes shall be provided no later than ~~0.8 s~~ **the value specified in Table I Column C of Annex 3**, before the start of the emergency braking phase.
- 6.5.2.3. Any speed reduction during the warning phase shall not exceed [10 km/h / 20 km/h / 50%].
- 6.5.3. The collision warning phase shall be followed by the emergency braking phase.
- 6.5.4. The total speed reduction of the subject vehicle at the time of the impact with the stationary target shall be not less than ~~[10 / 20] km/h~~ **the value specified in Table I Column D of Annex 3**

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- 6.6.2. The timing for the collision warning modes referred to in paragraph 5.5.1. shall comply with the following:
- 6.6.2.1. At least one haptic or acoustic warning mode shall be provided no later than ~~1.4 s~~ **the value specified in Table I Column E of Annex 3**, before the start of the emergency braking phase.
- 6.6.2.2. At least two warning modes shall be provided no later than ~~0.8 s~~ **the value specified in Table I Column F of Annex 3**, before the start of the emergency braking phase.
- 6.6.2.3. Any speed reduction during the warning phase shall not exceed [10 km/h / 20 km/h / 50%].
- 6.6.3. The emergency braking phase shall result in the subject vehicle not impacting the moving target.

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New Annex 3 (renumber existing Annex 3 as Annex 4)

Annex 3

Warning and activation test requirements – pass/fail values

A	B	C	D	E	F	G
	Stationary target			Moving target		
	Timing of warning modes		Speed reduction (ref. paragraph 6.5.4.)	Timing of warning modes		Speed reduction (ref. paragraph 6.6.3.)
	At least 1 haptic or acoustic (ref. paragraph 6.5.2.1.)	At least 2 (ref. paragraph 6.5.2.2.)		At least 1 haptic or acoustic (ref. paragraph 6.6.2.1.)	At least 2 (ref. paragraph 6.6.2.2.)	
All M ₃ and N ₃ vehicles	Not later than 1.4 s. before start of emergency braking phase	Not later than 0.8 s. before start of emergency braking phase	Not less than 20 km/h.	Not later than 1.4 s. before start of emergency braking phase	Not later than 0.8 s. before start of emergency braking phase	No impact
M ₂ and N ₂ vehicles with a pneumatic braking system						

Proposed amendments to “avoidance” regulation working document draft as of 23rd March 2011, 18.30 hours.

- 6.5.2. The timing for the collision warning modes referred to in paragraph 5.5.1. shall comply with the following:
- 6.5.2.1. At least one haptic or acoustic warning mode shall be provided no later than **1.4 s the value specified in Table I Column B of Annex 3**, before the start of the emergency braking phase.
- 6.5.2.2. At least two warning modes shall be provided no later than **0.8 s the value specified in Table I Column C of Annex 3**, before the start of the emergency braking phase.
- 6.5.2.3. Any speed reduction during the warning phase shall not exceed [10 km/h / 20 km/h / 50%].
- 6.5.3. The collision warning phase shall be followed by the emergency braking phase.
- 6.5.4. ~~The emergency braking phase shall not start before a TTC equal to or less than 3.0 seconds.~~
~~Compliance shall be verified by either actual measurement during the test or using documentation provided by the vehicle manufacturer, as agreed between the Technical Service and the vehicle manufacturer.~~
- 6.5.5.** The total speed reduction of the subject vehicle at the time of the impact with the stationary target shall be not less than **[10] km/h. the value specified in Table I Column D of Annex 3**
- 6.5.4.5. The emergency braking phase shall not start before a TTC equal to or less than 3.0 seconds.

Compliance shall be verified by either actual measurement during the test or using documentation provided by the vehicle manufacturer, as agreed between the Technical Service and the vehicle manufacturer.

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- 6.6.2. The timing for the collision warning modes referred to in paragraph 5.5.1. shall comply with the following:
- 6.6.2.1. At least one haptic or acoustic warning mode shall be provided no later than ~~[2.0 /1.4] s~~ **the value specified in Table I Column E of Annex 3**, before the start of the emergency braking phase.
- 6.6.2.2. At least two warning modes shall be provided no later than ~~0.8 s~~ **the value specified in Table I Column F of Annex 3**, before the start of the emergency braking phase.
- 6.6.2.3. Any speed reduction during the warning phase shall not exceed [10 km/h /20 km/h / 50%].
- 6.6.3. The emergency braking phase shall result in the subject vehicle not impacting the moving target.

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New Annex 3 (renumber existing Annex 3 as Annex 4)

Annex 3

Warning and activation test requirements – pass/fail values

A	B	C	D	E	F	G
	Stationary target			Moving target		
	Timing of warning modes		Speed reduction (ref. paragraph 6.5.4.)	Timing of warning modes		Speed reduction (ref. paragraph 6.6.3.)
	At least 1 haptic or acoustic (ref. paragraph 6.5.2.1.)	At least 2 (ref. paragraph 6.5.2.2.)		At least 1 haptic or acoustic (ref. paragraph 6.6.2.1.)	At least 2 (ref. paragraph 6.6.2.2.)	
All M ₃ and N ₃ vehicles	Not later than 2.0 s. before start of emergency braking phase	Not later than 0.8 s. before start of emergency braking phase	Not less than 20 km/h.	Not later than 1.4 s. before start of emergency braking phase	Not later than 0.8 s. before start of emergency braking phase	No impact
M ₂ and N ₂ vehicles with a pneumatic braking system	.	.				

Justification:

Removing the pass/fail values from the regulation text provides flexibility in specifying different values for different vehicles. It also makes it very easy to add different vehicles and amend values in the future.

The renumber of paragraph 6.5.4. in the “avoidance” regulation puts this requirement in the same place for both stationary and moving targets in both regulations.