

This document is an attempt to consolidate the positions of the parties after the 9th meeting of the GRRF informal group held in Tokyo in October 2010. *

**AEBS-M proposed test scenario
(Collision mitigation)**

Common agreements:

- Initial distance between subject and target : > 120 m
- Vehicle centreline offset: < 0.5 m
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- Subject vehicle initial speed: 80 km/h
- HMI: text limited to the 2 latest warnings and principle of a warning cascade is adopted

	Moving target / Stationary target	Moving target speed	Criteria	Pass/fail criterion: speed reduction (warning phase inclusive)																				Comment					
				HMI								[Soonest time for 1 st warning] (s)	Latest time for 1 st warning (s)				Latest time for 2 nd warning (s)				Means of 1 st regulated warning				Means of 2 nd regulated warning				
				M3 (km/h)	N3 (km/h)	M2 (km/h)	N2 (km/h)	M3	N3	M2	N2		M3	N3	M2	N2	M3	N3	M2	N2	M3	N3	M2		N2	M3	N3	M2	N2
J	Moving target	30 ⁺⁴ / ₀ km/h	Subject vehicle speed reduction, measured at the time of collision. No emergency braking before 3.0 s TTC	[50]	[50]	[Y ₁]	[Y ₂]	2.5				1.4				0.8				0.8				1 st warning not optical	No position	2 nd means different to the 1st	No position	Necessary to consider Overreliance, Interruption of driver operation, False brake, False alarm, etc. Maximum braking demand ≥ 4m/s ² for N category. For M2/N2, nuisances could be reduced if the 1 st warning is brought back to 0.8s, hence the need for a cascade collapses Can accept 1 Regulation only. Was keen to follow the GRRF recommendation for 2 Regulations, but can support 1 Regulation only	
	Stationary target			[20]	[20]	[X ₁]	[X ₂]	2.5				0.8				0.8				0.8				1 st warning not optical	No position	2 nd means different to the 1st	No position		
CLEPA	Moving target	15 ± 1 km/h	No collision	> 65	> 65	No position		2.5 / 2.0		2.5 / 2.0		No position	No position	1.4		No position		1 st warning not optical		No position		2 nd means different to the 1st		No position		Warning time window: If the window is wide, perhaps need to limit the maximum deceleration provoked by the warning braking. Warning cascade: not against, but finds it non necessary			
	Stationary target		Subject vehicle speed reduction, measured at the time of collision	> 65	> 65	No position		2.5 / 2.0		2.5 / 2.0		No position	No position	1.4		No position		1 st warning not optical		No position		2 nd means different to the 1st		No position					
OICA	Moving target	30 ⁺⁴ / ₀ km/h	No collision	No position				Principle not supported				No position	No position	No position	No position	Any means		Any means		2 nd means different to the 1st		2 nd means different to the 1st		<ul style="list-style-type: none"> • No advantage of having 2 Regulations for one system • No vehicle of category M2/N2 is equipped with AEBS technology at this point in time, no experience. • Warning time window is restrictive against early warning, hence against safety The “no position” mainly reflect that we are keen to have 1 Regulation only. But table is OK					
	Stationary target		Subject vehicle speed reduction, measured at the time of collision.	No position				Principle not supported				No position	No position	No position	No position	Any means		Any means		2 nd means different to the 1st		2 nd means different to the 1st							
D	Moving target	30 ⁺⁴ / ₀ km/h	No collision	[50]	[50]	Later step		Principle supported	Later step	compromise possible		Later step	compromise possible		Later step	1 st warning not optical		No position		2 nd means different to the 1st		No position		Warning time window: need for time to investigate the proper values. Mitigation is not important, do not support mitigation					
	Stationary target		Position to be clarified	Position to be clarified		Later step		Principle supported	Later step	2.0		Later step	No position		Later step	1 st warning not optical		No position		2 nd means different to the 1st		No position							

	Moving target / Stationary target	Moving target speed	Criteria	Pass/fail criterion: speed reduction (warning phase inclusive)																				Comment
				[Soonest time for 1 st warning] (s)				Latest time for 1 st warning (s)				Latest time for 2 nd warning (s)				Means of 1 st regulated warning				Means of 2 nd regulated warning				
				M3 (km/h)	N3 (km/h)	M2 (km/h)	N2 (km/h)	M3	N3	M2	N2	M3	N3	M2	N2	M3	N3	M2	N2	M3	N3	M2	N2	
UK	Moving target	30 ⁺⁴ / ₀ km/h	Avoid collision, assuming that system performance in real world conditions: – Avoids false brake application – Does not prevent the driver from taking action to avoid collision	[50]	[50]	no opinion on whether discrimination 2vs3 or MvsN		Principle supported	Principle supported	1.4	No position		0.8	No position		1 st warning not optical	No position	2 nd means different to the 1st	No position		Warning time window: • avoids system intervention while normal driving. • [2.5 – 2.0] s for the ease of the Technical Service • could extend the window to be less design restrictive Can accept one Regulation only, if possible. Was keen to follow the GRRF recommendation for 2 Regulations, but can support 1 Regulation only			
	Stationary target			Position to be clarified	no opinion on whether discrimination 2vs3 or MvsN		Principle to be removed	Principle to be removed	1.4	No position		0.8	No position		1 st warning not optical	No position	2 nd means different to the 1st	No position						
NL	Moving target	30 ⁺⁴ / ₀ km/h	No collision	[50]	[50]	[50]	[50]	Principle not supported				1.4	1.4	0.8	0.8	1 st warning not optical	No position	2 nd means different to the 1st	No position		• OK with [1,4s] as a compromise between 0,8 and 2 s • no need to make a difference in speed reduction between the categories. For category 2, need for at least the same performance as for Cat3. • Need to discriminate among the cat 2. • Warning strategy: Cascade, same value for all scenarios Keen to have one Regulation only to keep the spirit of the 58 Agreement. Supports staggered approach as proposed by OICA and UK.			
	Stationary target		Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Principle not supported				1.4	1.4	0.8	0.8	1 st warning not optical	No position	2 nd means different to the 1st	No position						
S	Moving target	30 ⁺⁴ / ₀ km/h	No collision	[50]	[50]	No position		Principle not supported				1.4	No position		0.8	No position		not optical	not optical	2 nd means different to the 1st	2 nd means different to the 1st	Aim is to avoid nuisance alarm. AEBS cannot prevent suicide. Sleeping driver is no driver anymore. AEBS can be an incentive to improve driver's attention		
	Stationary target		Speed reduction	10	10	No position		Principle not supported				1.4	No position		0.8	No position								
DK**		No position	No collision (at least in the moving target scenario)	No collision (technology is available)				No position				Not later than 2 s	No position		No position				<u>No position</u>				• wish for AEBS - CC/ACC connection (the inf gr however decided not to follow this suggestion) • wish for the strongest demands on AEBS from the beginning or already introducing both 1. and 2. stage (2. stage being what is state of the art for the good systems already today, but maybe not possible to reach for everybody already in 2013).	
F	Moving target	30	No collision	50		50		Principle not supported				1.4	1.4	0.8	0.8	No position								<u>Latest warning time:</u> Minimum reaction time provided by the surveys (J, ITS), increased by the time necessary to take into account the drowsiness
	Stationary target		Position to be clarified	No collision		No position		Principle not supported				Not later than 2s	No position		No position	No position								
PL**	-	No position	No collision	No collision		No position		No position				Not later than 2s	No position		No position	No position		No position				<u>Latest warning time:</u> Not earlier than 2.5 sec		

	Moving target / Stationary target	Moving target speed	Criteria	Pass/fail criterion: speed reduction (warning phase inclusive)																				Comment
				HMI																				
				[Soonest time for 1 st warning] (s)				Latest time for 1 st warning (s)				Latest time for 2 nd warning (s)				Means of 1 st regulated warning				Means of 2 nd regulated warning				
M3 (km/h)	N3 (km/h)	M2 (km/h)	N2 (km/h)	M3	N3	M2	N2	M3	N3	M2	N2	M3	N3	M2	N2	M3	N3	M2	N2	M3	N3	M2	N2	
ROK*	Moving target Stationary target	30 ⁺⁴ / ₋₀ km/h	No position	No position	Later step (or, No position)	No position					1.4	No position								1 st warning not optical	No position	2 nd means different to the 1st	No position	<ul style="list-style-type: none"> 1,4s for 1st warning as a compromise between 0,8 and 2 s In Principle, support the idea of "False warning test or false braking test"

* ROK communicated a position by an email sent to the informal group Secretariat on 4 December 2010.

** DK and PL did not take part to the meetings subsequent to the 68th session of GRRF (September 2010). As a consequence the positions of those Contracting Parties do not reflect the new situation of one Regulation addressing collision mitigation and one Regulation addressing collision avoidance.

AEBS-A proposed test scenario
(Collision avoidance)

Common agreements:

- Initial distance between subject and target : > 120 m
- Vehicle centreline offset: < 0.5 m
- Subject vehicle initial speed: 80 km/h
- HMI: text limited to the 2 latest warnings and principle of a warning cascade is adopted

	target speed (km/h)	Criteria	Pass/fail criterion: speed reduction (warning phase inclusive)				HMI																False warning test/ False braking test	Comment				
							[Soonest time for 1 st warning] (s)				Latest time for 1 st warning (s)				Latest time for 2 nd warning (s)				Means of 1 st regulated warning						Means of 2 nd regulated warning			
							M3 (km/h)	N3 (km/h)	M2 (km/h)	N2 (km/h)	M3	N3	M2	N2	M3	N3	M2	N2	M3	N3	M2	N2			M3	N3	M2	N2
J	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	No support / support	Necessary to consider Overreliance, Interruption of driver operation, False brake, False alarm, etc. Maximum braking demand $\geq 4m/s^2$ for N category. For M2/N2, nuisances could be reduced if the 1 st warning is brought back to 0.8s, hence the need for a cascade collapses All requirements should be aligned on AEBS-M performance requirements.				
CLEPA	15 ± 1	<ul style="list-style-type: none"> • mean fully developed deceleration of at least 5 m/s² • No impact 	> 65	> 65	No position	Position to be clarified	Position to be clarified	2.0	No position	1.4	No position	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Support / Support	<p><u>Warning time window</u>: If the window is wide, perhaps need to limit the maximum deceleration provoked by the warning braking.</p> <p><u>Warning cascade</u>: not against, but finds it non necessary</p> <ul style="list-style-type: none"> • No need to align collision mitigation and collision avoidance Regulations. • Collision avoidance needs earlier warning compared to collision mitigation <p>Changes of position as in AEBS/LDWS-10-02 Then suggests to C/P to the AEBS-M Regulation.</p>					
OICA	No position	No collision	No position				Principle not supported		No position	No position	No position	No position	Any means	Any means	2 nd means different to the 1st	2 nd means different to the 1st	No support / no support	<ul style="list-style-type: none"> • No advantage of having 2 Regulations for one system • No vehicle of category M2/N2 is equipped with AEBS technology at this point in time, no experience. • Warning time window is restrictive against early warning, hence against safety • No false braking nor false warning test because no safety benefits 										
D	No position	No collision	Position to be	Position to be	Later step	Principle supported	Later step	Position to be clarified	Later step	Position to be clarified	Later step	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	No support / no support	<p><u>Warning time window</u>: need for time to investigate the proper values. 1 test and no more in the Type</p>					

	target speed (km/h)	Criteria	Pass/fail criterion: speed reduction (warning phase inclusive)				HMI																False warning test/ False braking test	Comment				
							[Soonest time for 1 st warning] (s)				Latest time for 1 st warning (s)				Latest time for 2 nd warning (s)				Means of 1 st regulated warning						Means of 2 nd regulated warning			
							M3 (km/h)	N3 (km/h)	M2 (km/h)	N2 (km/h)	M3	N3	M2	N2	M3	N3	M2	N2	M3	N3	M2	N2			M3	N3	M2	N2
			clarified	clarified																							Approval , i.e. collision avoidance test	
UK	Position to be defined	No collision	Position to be clarified	Position to be clarified	no opinion on whether discrimination 2vs3 or MvsN		Principle supported	Principle supported	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Warning time window: <ul style="list-style-type: none"> • avoids system intervention while normal driving. • [2.5 – 2.0] s for the ease of the Technical Service • could extend the window to be less design restrictive keen to harmonize the requirements, i.e. addition of a stationary target test in Avoidance Regulation.	
NL	Position to be defined	No collision	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Principle not supported		Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	Position to be clarified	No support / support	<ul style="list-style-type: none"> • OK with [1,4s] as a compromise between 0,8 and 2 s • no need to make a difference in speed reduction between the categories. For category 2, need for at least the same performance as for Cat3. • Need to discriminate among the cat 2. • Warning strategy: Cascade, same value for all scenarios • Supports a false warning test according the J proposal. Warning braking would then be forbidden in the test. 	
S	10	No collision	Not less than 70 km/h		Not less than 50 km/h		Principle not supported		2.0	1.4	0.8	0.8	not optical	not optical	2 nd means different to the 1st	2 nd means different to the 1st	No support / support	1 test and no more in the Type Approval , i.e. collision test										
F									2s	2s	1.4	1.4																
ROK	[30 ⁺⁴ / ₋₀ km/h]	No collision	No position		Later step		No position		1.4	No position	0.8	No position	1 st warning not optical	No position	2 nd means different to the 1st	No position	support / support	<ul style="list-style-type: none"> • Same target speed with AEBS-M scenario in principle • 1,4s for 1st warning as a compromise between 0,8 and 2 s • In Principle, support the idea of “False warning test or false braking test” 										