



Advanced Emergency Braking System

False reaction proposal

11th session

Paris 06-07/02/2020



AEBS - 11th

Introduction

➤ Aim of this document :

- Introduce the constraints that false reaction tests may face off
- Concept ideas to test false reaction
- Assessment proposal

➤ Goal of False reaction testing :

- Avoid to annoy the driver or generate fear/panic
- Avoid to create risky situation or accident

➤ How to check a false reaction ?

- Put the system in a situation where it doesn't need to alert or brake
- Check for absence of alert or braking

Introduction

Constraint

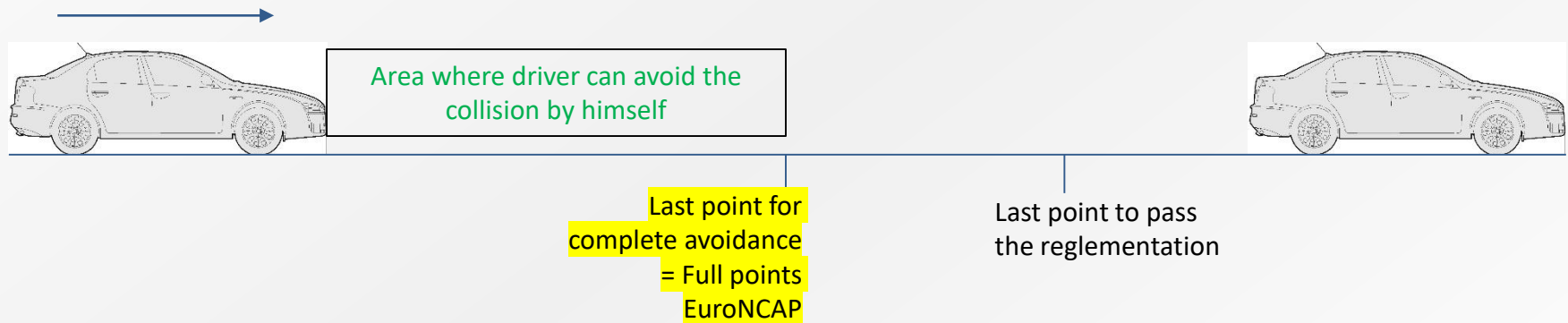
Proposal

Assessment

AEBS - 11th Constraint

➤ Needed performance in existing scenarios :

- EuroNCAP
- Autonomous Driving
- Eg : Stationnary vehicle

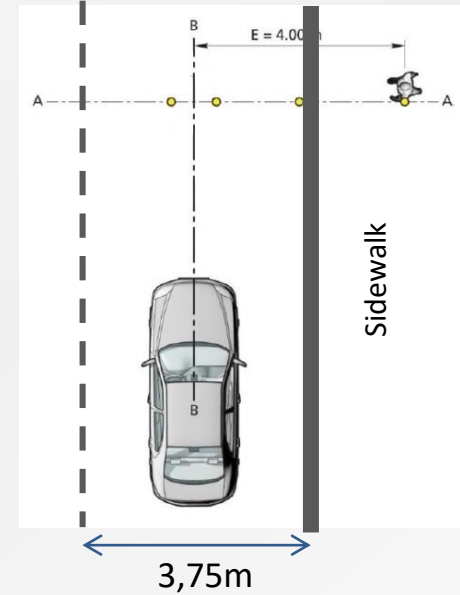


- False reaction tests need to be compliant with EuroNCAP and AD performances

AEBS - 11th Constraint

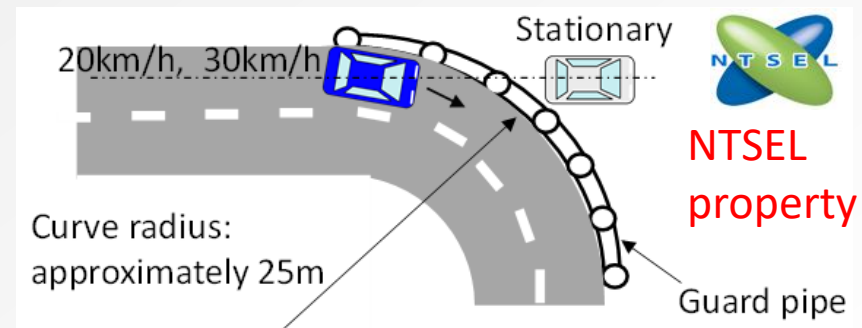
Road design :

- Eg : Crossing pedestrian
- AEB if pedestrian still on sidewalk
= too early for driver and other road users ?
- AEB only if pedestrian on the road
= too late for performance and safety ?



- Eg : Stationary vehicle after a curve

Might be similar to stationary in line test



Introduction

Constraint

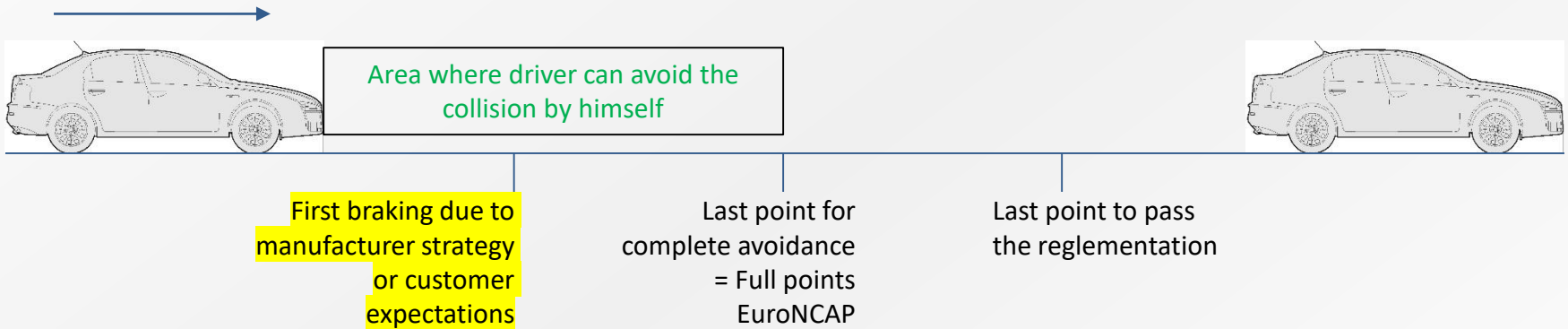
Proposal

Assessment

AEBS - 11th Constraint

➤ Manufacturer strategy and customer expectations

➤ Eg : Stationnary vehicle



➤ False reaction tests may take in consideration manufacturer strategy and customer expectations

Introduction

Constraint

Proposal

Assessment



AEBS - 11th

Proposal

Concept

- ⇒ In absence of database related to false reaction of AEB system, we can't justify the relevance of a scenario rather than an other

- ⇒ Proposition : Check false reaction only where the situation is not a potential hazard
 - When the driver still can avoid the collision
 - When the vehicle cross over a manhole
 - ...

Introduction

Constraint

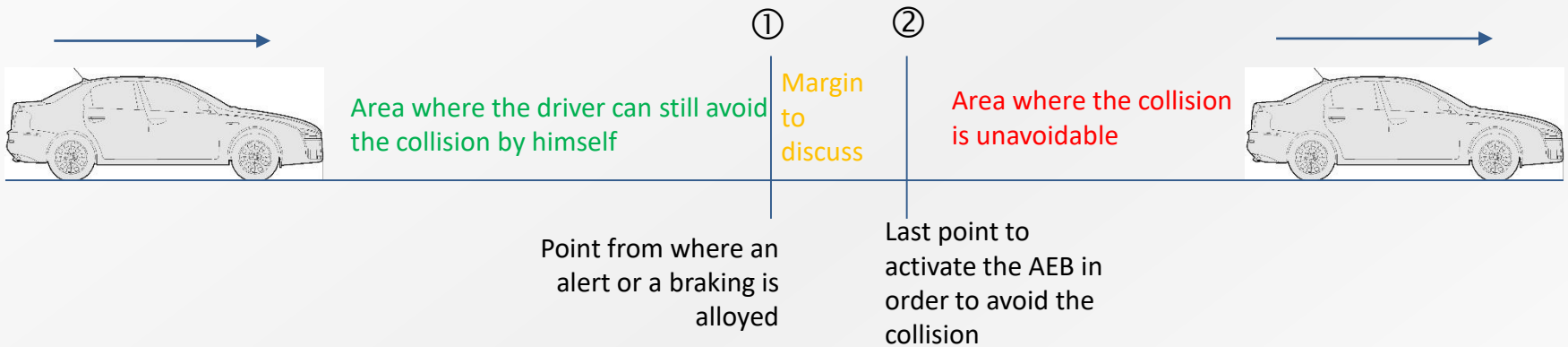
Proposal

Assessment

AEBS - 11th Proposal

Longitudinal test

Eg : Moving vehicle



- False reaction test : check for presence/absence of reaction before the point ①
- Bonus of these tests : One test can serve the performance and the false reaction evaluation at the same time

Introduction

Constraint

Proposal

Assessment

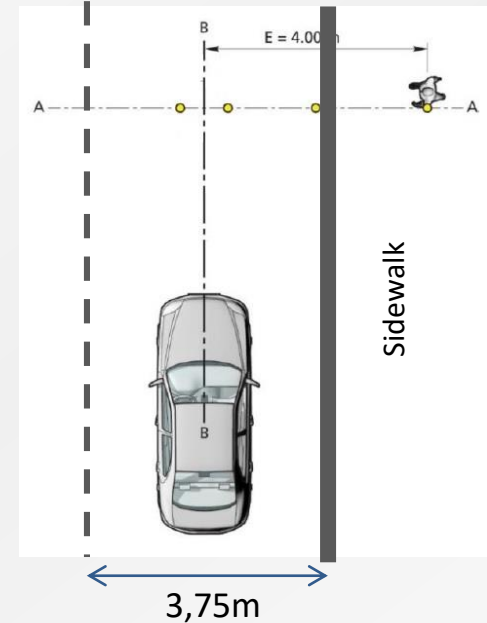
AEBS - 11th Proposal

Crossing Pedestrian test

Hypothesis :

- Vehicle width : 1,8m
- Road width : 3,75m
- Pedestrian speed : 5 kph

Reaction time after the pedestrian left the sidewalk :







	Impact point [%]				
	100	75	50	25	0
Distance [m]	2,77	2,32	1,87	1,42	0,97
Time [s]	2,00	1,67	1,35	1,03	0,70

False reaction test : Need to be discuss



AEBS - 11th Proposal

Infrastructure test

-  Crossing over a manhole
-  Pass through artificial fog (need to be defined)
-  Crossing over train/trolley rails
-  Other : to be discuss

Introduction

Constraint

Proposal

Assessment



AEBS - 11th Assessment

⇒ Pass/Fail or statistical approach ?

- ⇒ Depends on the criticality of the situation :

- ⇒ If the situation do not reflect a hazard :
 - Pass/Fail for braking because we want safety
 - Statistical approach for alert because of flexibility and driver attention

- ⇒ If the situation reflect a hazard :
 - To be discuss (not in the scope of this proposal)

UTAC CERAM



Thanks for your attention.