



# Euro NCAP Roadmap 2025

Aled Williams

**Einladung**  
Expertenforum

08 | November | 2017

ÖAMTC Zentrale in Erdberg  
Baumgasse 129  
1030 Wien

# About Euro NCAP

- Established in 1997
- 12 members and 8 test facilities accross Europe
- Consumer ratings based on test scores
- Excellence & innovation in vehicle safety

## Members



## Test facilities



# 20 Years of Progress



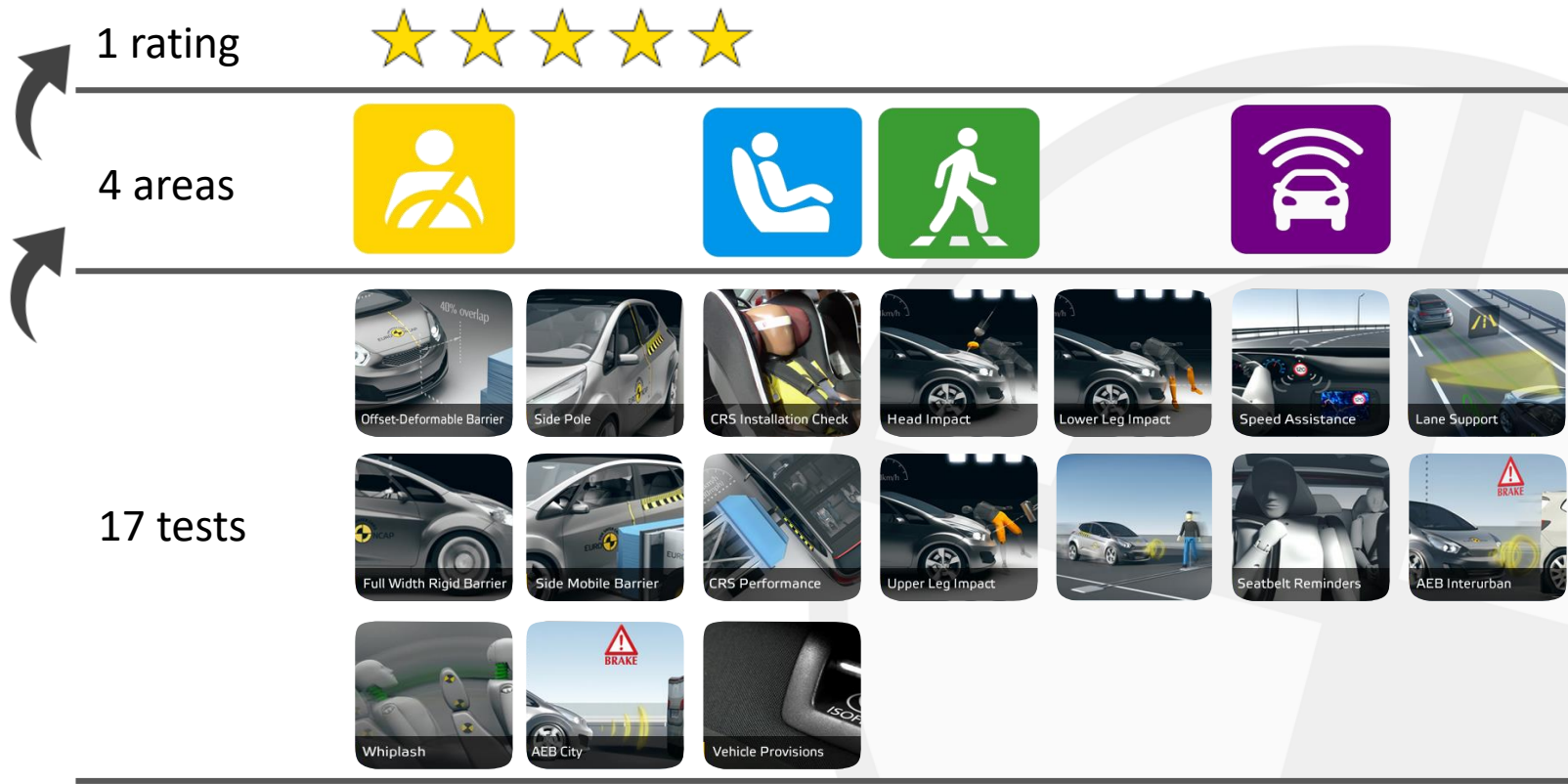
# A Holistic Approach

- Euro NCAP has taken a holistic approach to vehicle safety - combining important areas under one a single rating



# Overall Safety Rating

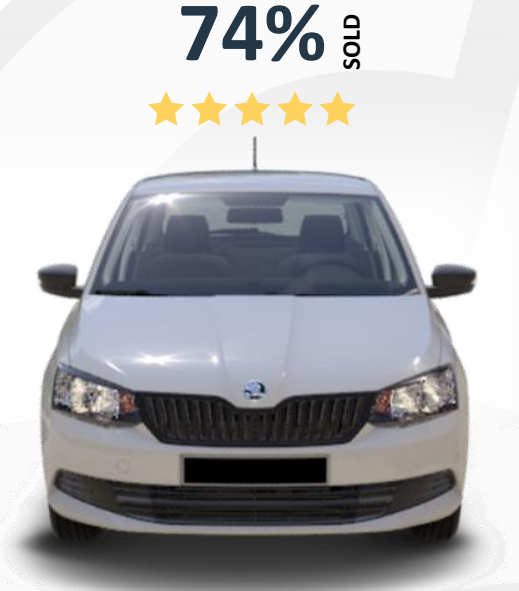
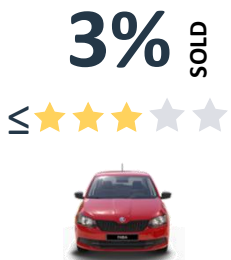
The star rating combines crash protection, crash avoidance and driver assistance



# Most new car models carry a rating

Presence in all popular segments provides a total view of the market and is a good barometer of the fleet's safety level

**93%**  
of new cars sold\* in  
EU28 hold a valid  
Euro NCAP safety  
rating



2017. Left-Lane.com



\*Passenger Car & SUV Sales; Year 2016; 15,044,650 units

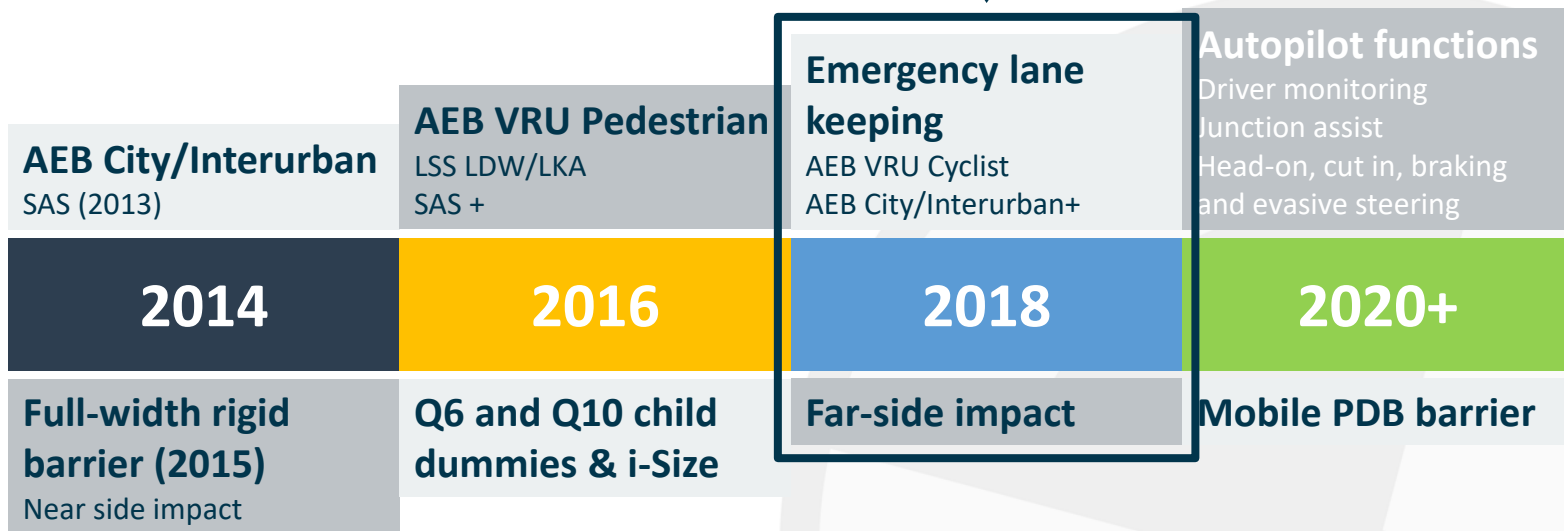


# Recent Rating Updates



# Next Revision: 2018

Supporting higher levels of automation in cars – robust crash protection and reliable operation of ADAS



*“Technologies that deliver 5 stars”*



# 2018: AEB VRU - Cyclist

AEB VRU test scenarios are extended to pedestrian at night time and cyclist crashes, using a dedicated *cyclist* target

	CBAN	CBAL	
VUT speed	20-60 km/h	25-60 km/h	50-80 km/h
Cyclist speed	15 km/h	15 km/h	20 km/h
Obstruction	No	No	No
Impact point	50%	50%	25%
AEB/FCW	AEB	AEB	FCW





# Speed Assist Systems

■ Euro NCAP has rated Speed Assistance Systems since 2009

- Add functionality, increase reliability

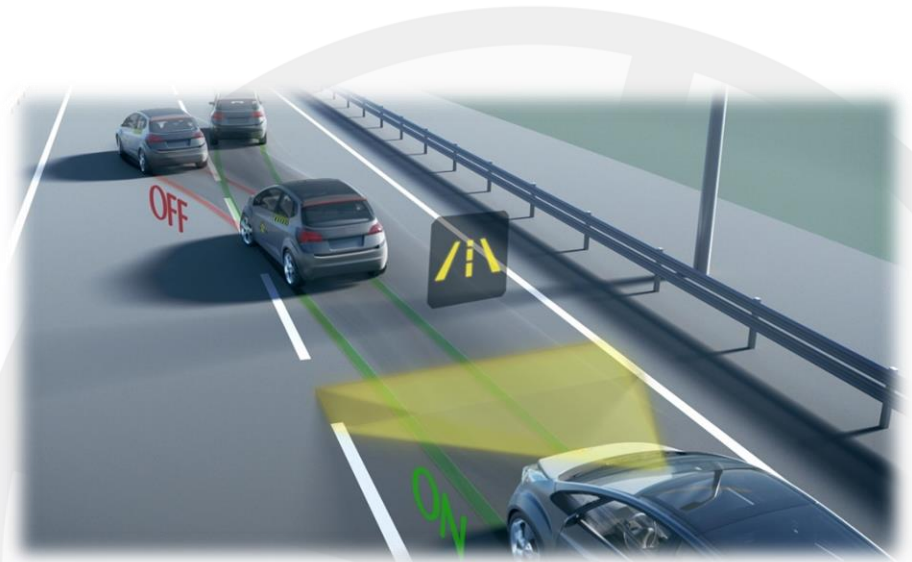


Introduction in rating	Adding SLIF (speed limit info)	Updating SLIF requirements	
<b>2009</b>	<b>2013</b>	<b>2016</b>	<b>2018</b>
<ul style="list-style-type: none"> <li>• UN-ECE R89</li> </ul>	<ul style="list-style-type: none"> <li>• Speed Limit Information</li> <li>• Manual Speed Assist</li> <li>• Intelligent Speed Assist</li> </ul>	<ul style="list-style-type: none"> <li>• Inclusion of sub-signs</li> <li>• Speedometer accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• SLIF scoring update</li> <li>• Speed Control Functions</li> </ul>

	<b>Speed Limit Information</b> <ul style="list-style-type: none"> <li>• Speed Limit Indication</li> <li>• Speed Limit Warning</li> </ul>
	<b>Speed Control Function</b> <ul style="list-style-type: none"> <li>• Speed Limitation Function</li> <li>• Intelligent Speed Assist</li> <li>• Intelligent ACC</li> </ul>

# Lane Departure Crashes

- Typical crashes in Europe occur on straight roads with different types of markings
  - High severity
  - 9 out of 10 single vehicle crashes
  - Shallow departure angle
- LSS test scenarios, from 2014
  - Lane Departure Warning (LDW)
  - Lane Keep Assist (LKA)



# 2018: Emergency Lane Keeping

Including more advanced lane support systems that will intervene based on threat level assessment (ELK)

## Emergency Lane Keeping

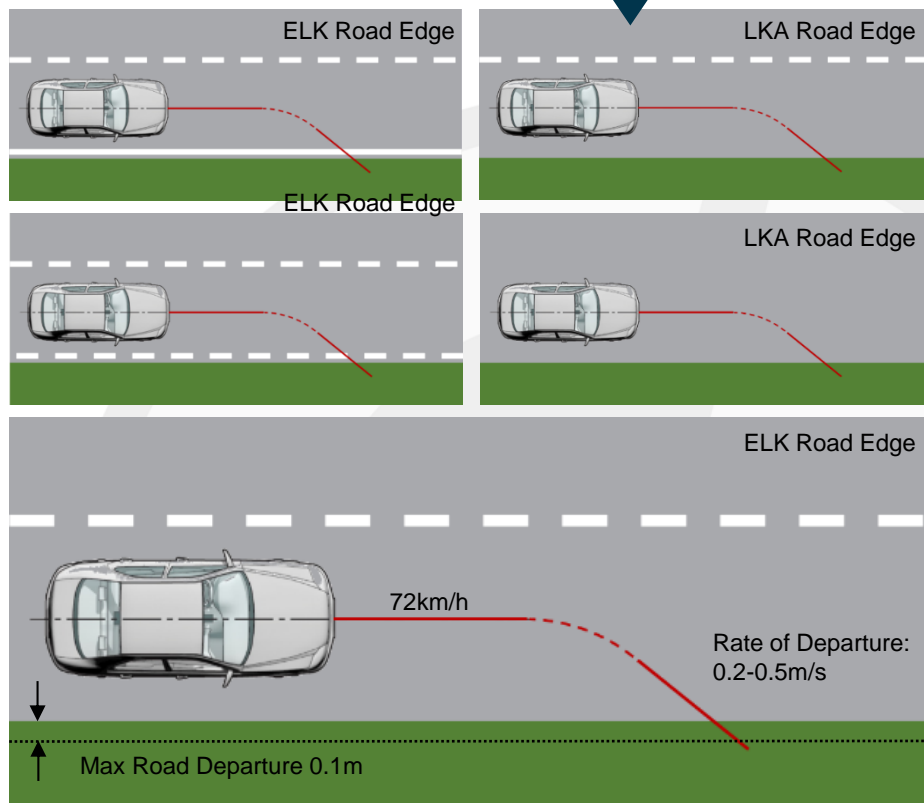
- Road Edge Detection
- Dashed Line Oncoming
- Dashed Line Overtaking

## Lane Keep Assist

- Road Edge Detection
- Dashed Line
- Solid Line

## Human Machine Interface

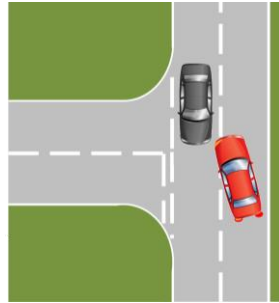
- Lane Departure Warning
- Blind Spot Monitoring



# 2020: Junction and Turn Across Path

## ■ Turn Across Path

- Cars
- Pedestrians
- Cyclists



## ■ Junction

- Cars
- Motorcycles



# Roadmap 2025: In pursuit of “Vision Zero”

## Grading of Automated Driving Functions

*such as parking, assisted city and high-way driving, based on testing and HMI assessment*

## Cyber Security

Applied to AD and ADAS

## Other Road Users

*Supporting truck safety label & PTW safety*

## Overall Safety Rating

## Crash Avoidance Systems

*Junction & Crossing assist, Evasive steering, Reverse AEB, Driver monitoring*

## Crashworthiness

*Enhanced subsystem testing for pedestrian and cyclists.*

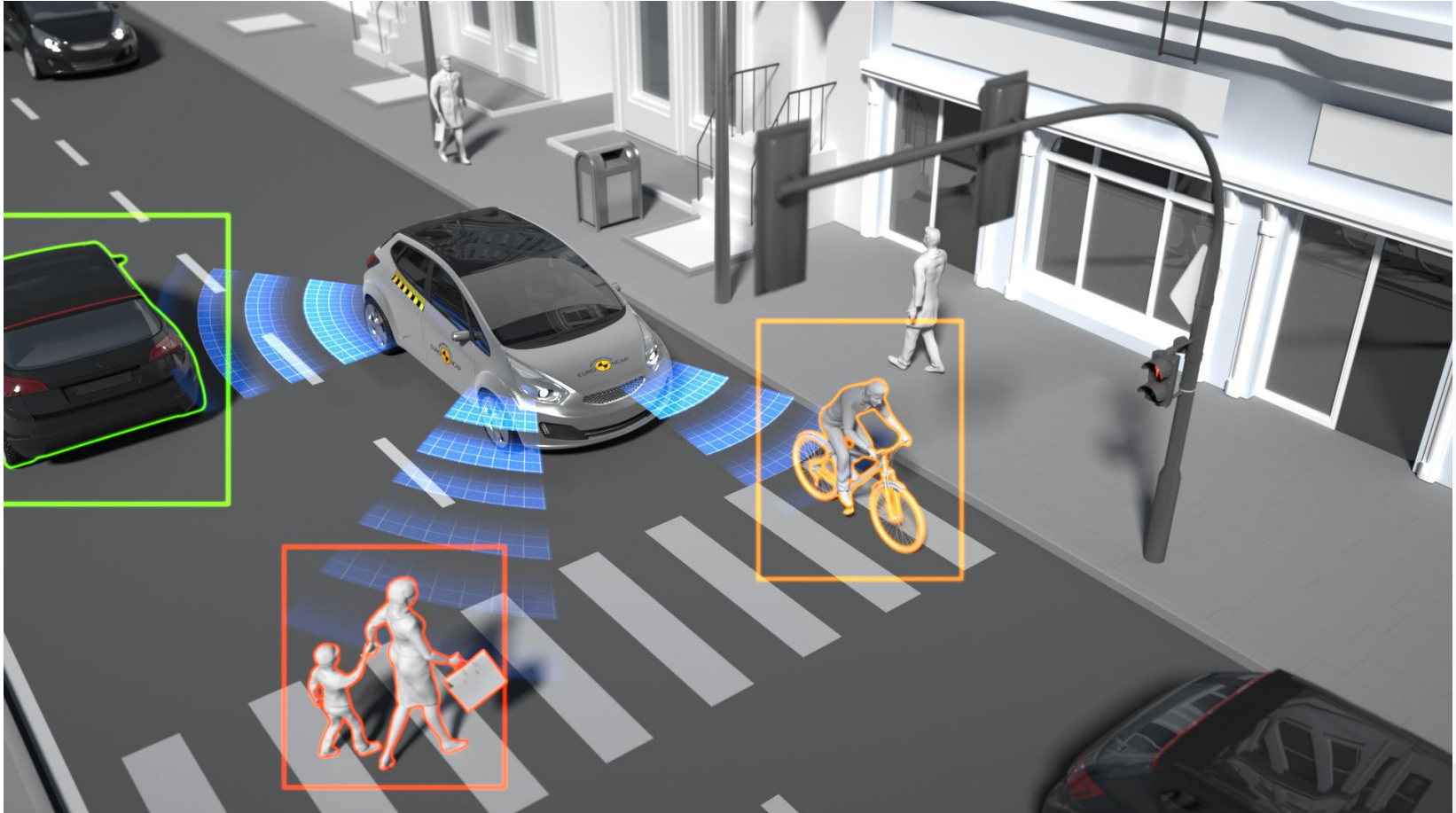
## Post-crash safety

*Rescue, extrication and safety of alternative fuel vehicles, unattended children/heatstroke*





# Consumer information: Automated Driving



# Rating Assisted and Automated Driving

## Understanding current vehicle performance



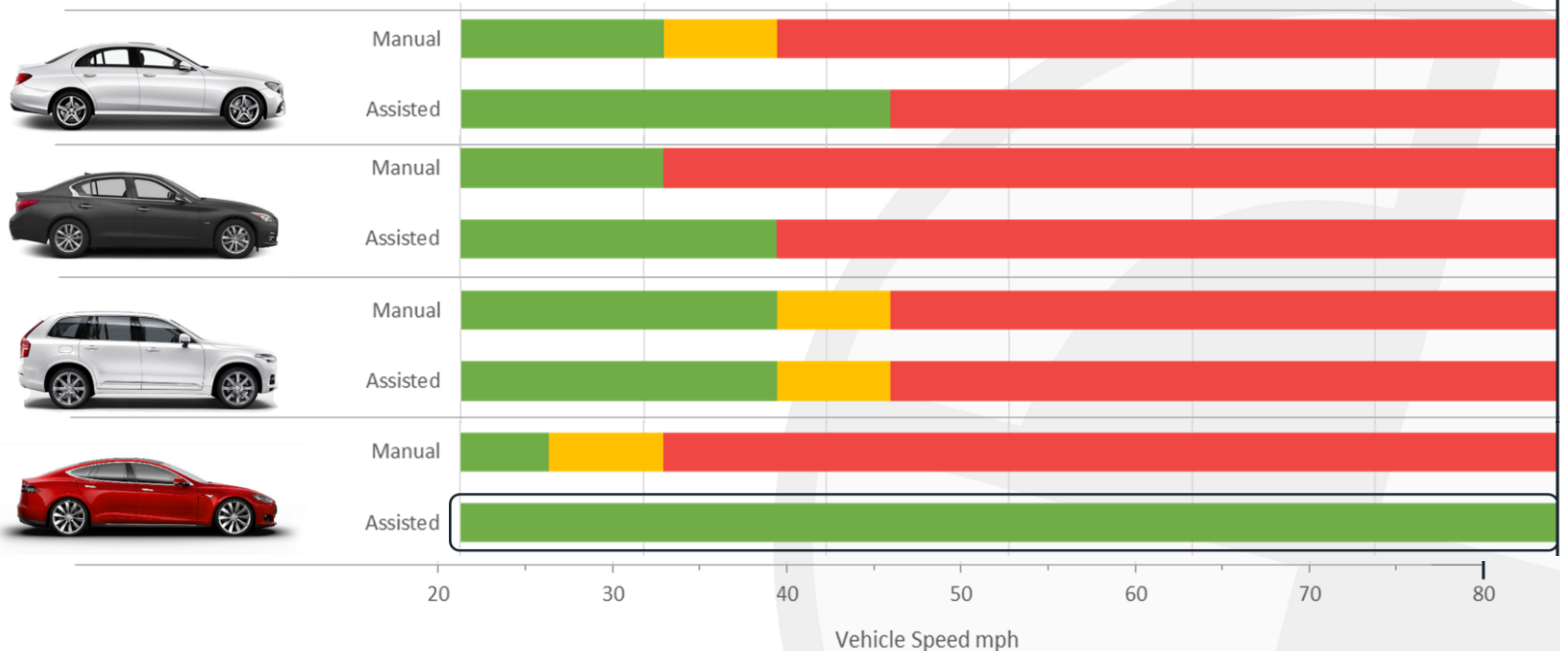
*Benchmark vehicles with state-of-the-art Assisted Driving Systems*

# Rating Assisted and Automated Driving

## Understanding current vehicle performance

Regulation 79 proposed maximum speed

■ Avoid ■ Cosmetic ■ Severe

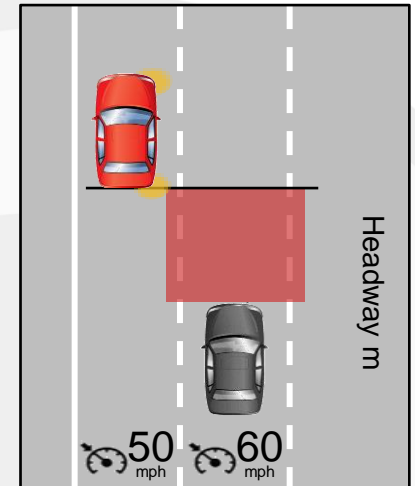


*Vehicles tested with ACC and LKA active into a static vehicle at highway speeds*



# Rating Assisted and Automated Driving

## Understanding current vehicle performance



*Vehicles tested with auto lane-change (ACSF Cat C)*

# Grading of Automated Driving Functions

Automated Driving assessment based on functionalities

*Horizon technologies to assess:*

Use cases / domains	Speed range	Type of road	Level of automation	Examples of required emergency functions
Parking	[0-10]	Parallel parking Perpendicular parking	Assisted Automated	AEB City AEB Pedestrian
City driving	[5-25] [5-50]	City roads - Crossings - Traffic lights Any type of lane marking	Assisted Automated	AEB City AEB Pedestrian AEB Cyclists SAS LSS
Inter-Urban driving	[0-80]	Fully marked lane Single lane marking No lane marking	Assisted Automated	AEB City AEB Pedestrian AEB Cyclists SAS
Traffic jam (Inter-Urban & Highway)	[0-60]	Fully marked lane [Single lane marking] [No lane marking]	Assisted Automated	AEB City (AEB Pedestrian) (AEB Cyclists) LSS
Highway driving	[50-130]	Fully marked lane	Assisted Automated	AEB Inter-Urban LSS SAS

# Grading of Automated Driving Functions

Automated Driving assessment based on functionalities

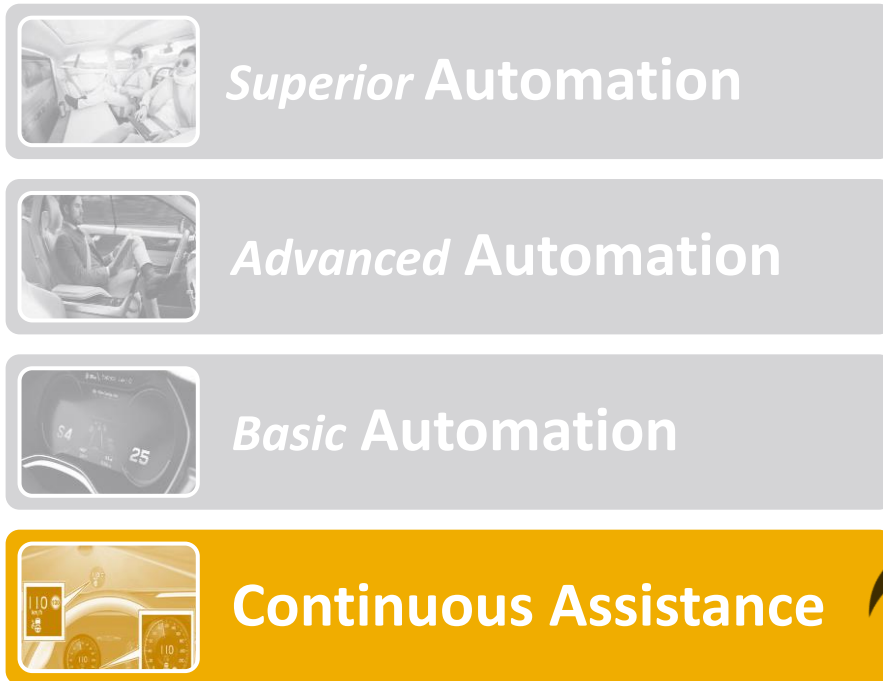


*Possible assessment items for each technology:*

Human factors assessment	System performance
Take-over Request	Minimum risk manoeuvre
Lead-time	System boundaries
Driver Monitoring	Limitations due to weather conditions
Other HMI features	....
Etc.	....



# Grading of Automated Driving Functions



First communication will focus on 'Continuous Assistance' systems only



Or "Not available" / "Not recommended"

# Conclusions

- The Roadmap sets out a clear strategy to 2025
- Working groups will further develop Roadmap items
- Protocols will ensure robust driver assistance systems
- Euro NCAP will provide consumer information on automated driving

# FOR SAFER CARS

# EURO NCAP

