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INCREASING THE ROAD SAFETY EFFECTS OF ADAS: KEY ASPECTS FOR DEDICATED DRIVER TRAINING

cieca
The International Commission for Driver Testing

TÜV SÜD

The (near) future?

Autonomously driving car allowed on public roads in Nevada (USA)

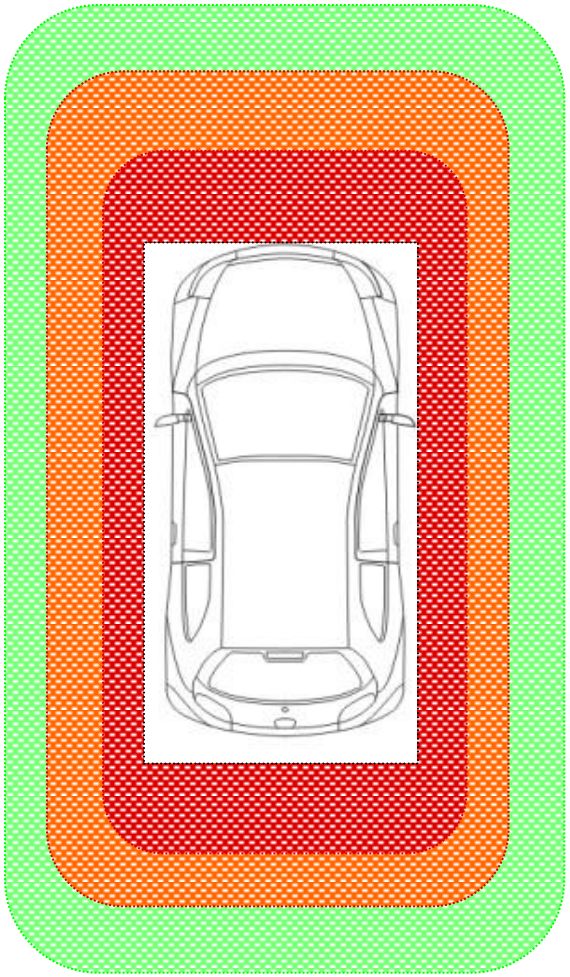
Overview

1. Context: policy & training and testing
2. Systems that can improve safety (green and red zone)
3. How to deal with these in training & testing
4. Recommendations

Developments & context

- Market developments: ADAS in the current vehicle fleet
- Ongoing and irreversible
- Policy context
  - European Commission's ITS Directive & Action Plan
  - European Road Safety Programme 2011-2020
  - (Inter)national road safety visions and policy programmes
    - Sustainable Safety (Netherlands)
    - Vision Zero (Sweden)

Training & testing context: observation card - safe space

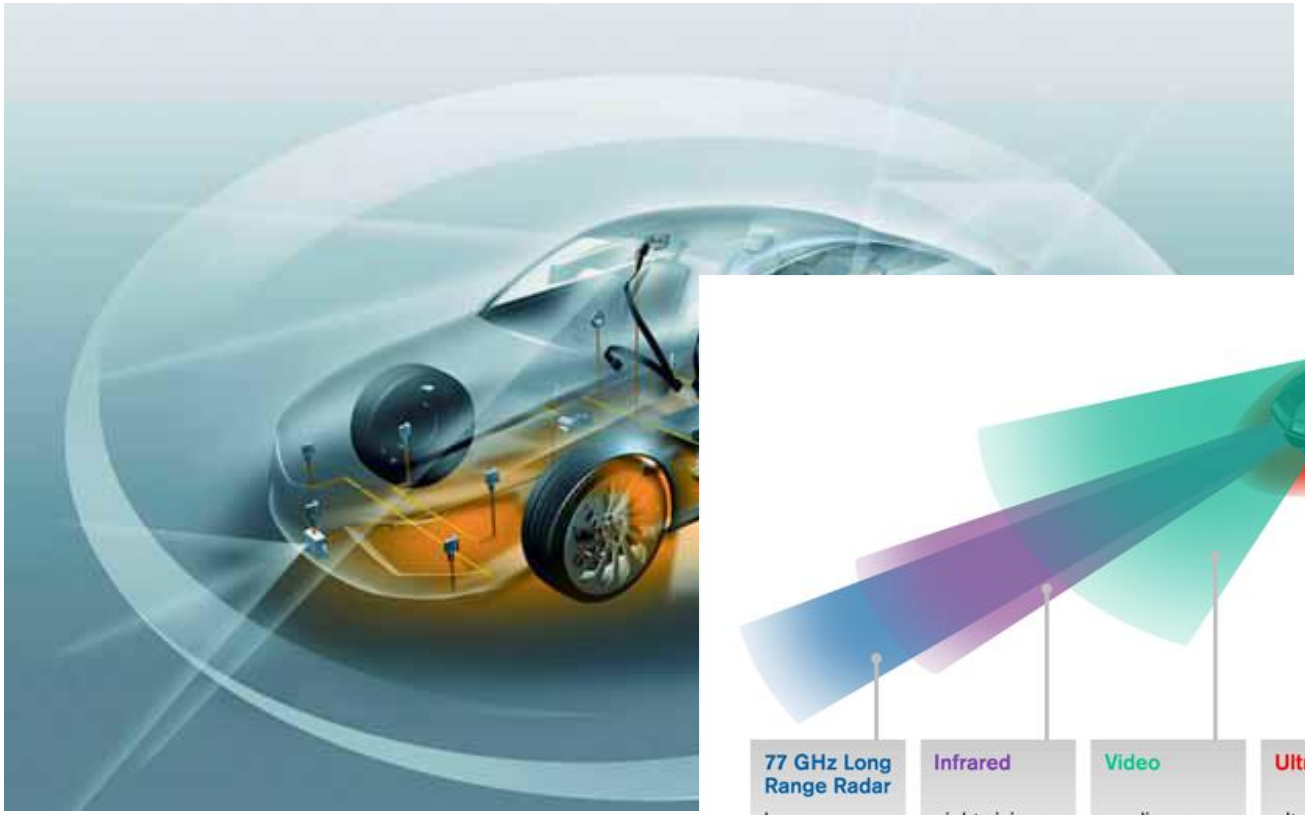


Green: It feels safe

Orange: It did not really feel safe

Red: Oops, this felt unsafe

Technology watching over the safe space

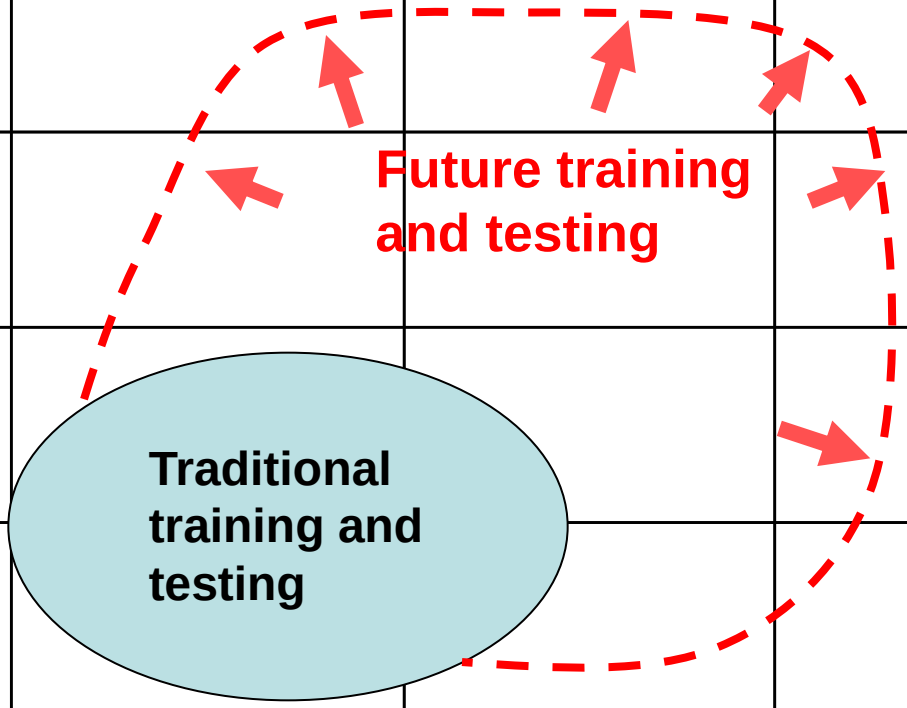


Leading questions (1)

- What do driver assistance systems mean for the driving task? What is changing for the driver?
- What skills and competences should drivers have? How to train and test these?

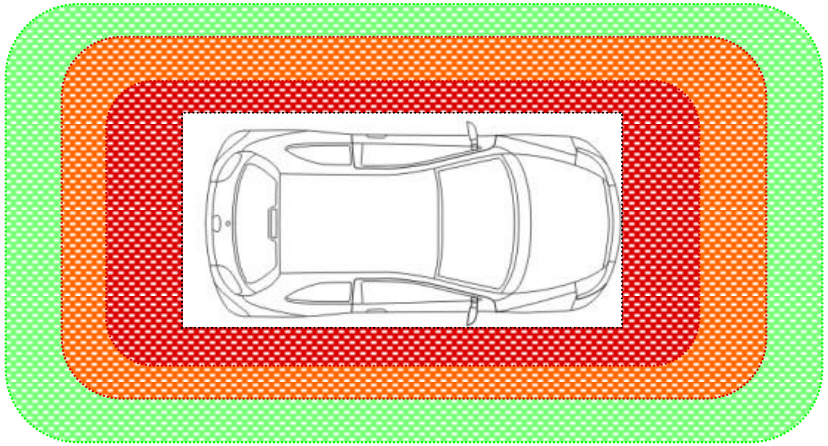
Challenges training & testing

(Upper levels control lower levels)	Knowledge and skills to master	Awareness of risk increasing factors	Self evaluation
4. Goals for life and skills for living			
3. Goals and context of driving			
2. Mastery of traffic situations			
1. Vehicle manoeuvring and control			



Leading questions (2)

- What systems can help the driver to stay in the **green zone**? How to deal with that in training and testing?
- What systems intervene in the **red zone**? How to deal with that in training and testing?



Green zone (1)

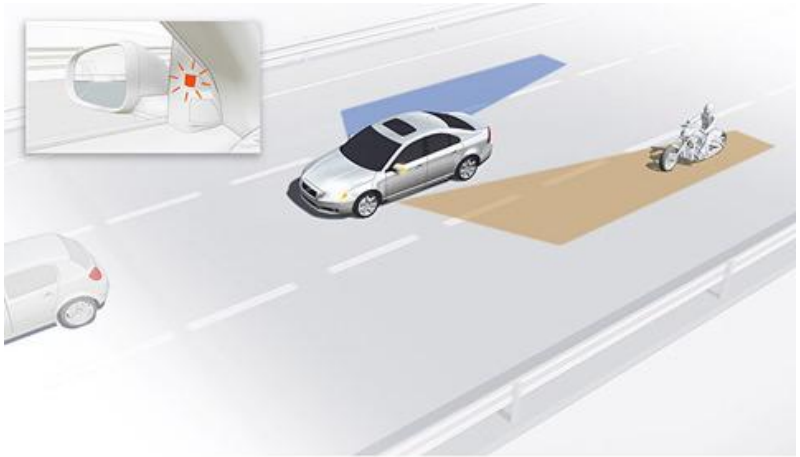
Vehicle control support

- Lane Departure Warning (LDWA)
- Adaptive Cruise Control (ACC)

Green zone (2)

Electronic horizon

- Support for risk perception, situational awareness, anticipation to traffic situations

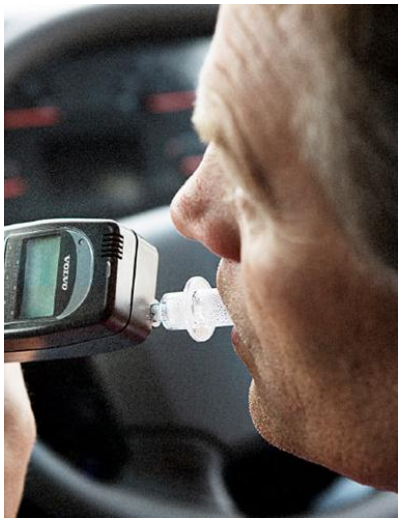


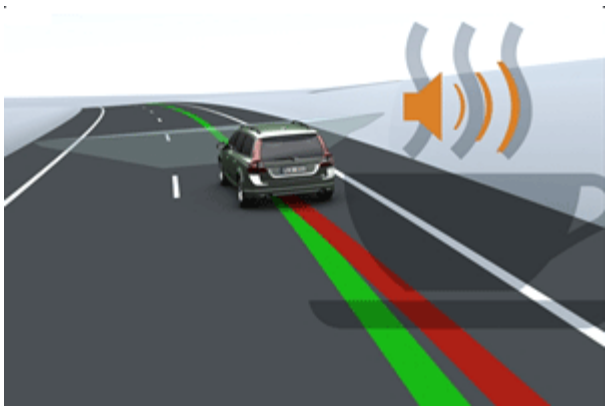
BLIS Blindspot Information System

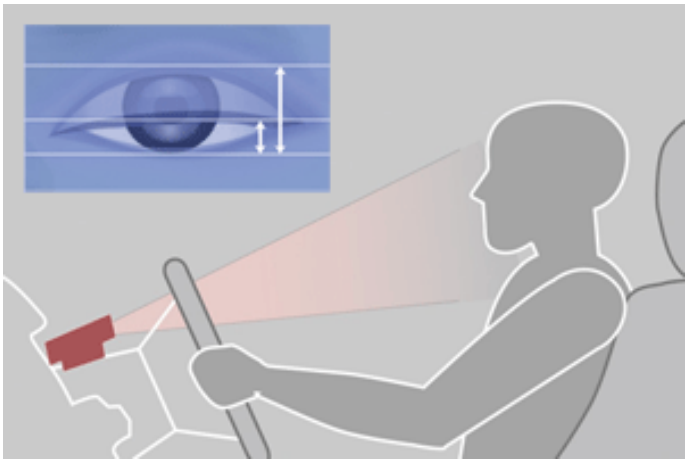
Green zone (3)

Preventing risky road use

- Behavioural locks
- Increase of state awareness (drowsy driving, lacking attention)



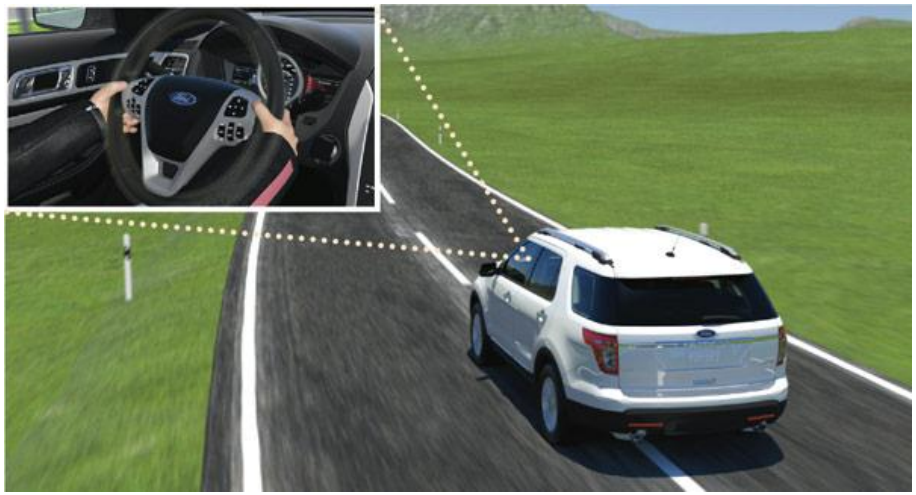




Red zone

Intervention in driving task

- Electronic Stability Control
- Active Lane Keeping System
- Collision Avoidance System



Conditions to be managed

- Behavioral adaptation
- Distraction
- Risk compensation
- Task difficulty
- Workload

DRIVER

Human centered design

Adequate Training & testing

Challenges for adequate training & testing

- To what extent should the student driver be assisted?
- How to train and test specific support functions offered by the different systems?
- How to deal with interventions by the ‘red systems’?
  - Why did the system intervene? Proactive or critical, due to serious failure by the student?
  - Did the student react adequately on the system’s information or intervention?

Recommendations

1. Make students familiar with in-car safety systems
2. Make sure students do not overdepend on the systems
3. Gradually move from ‘conventional driving’ to ‘assisted driving’ in a student’s course
4. Define a protocol for testing ‘assisted driving’ based on the ‘safe space approach’
5. Define a project group to define best practices leading to adequate training and testing protocol
6. Make steps towards an EC Directive?

Questions & Contact

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