

Final Event  
Car Occupant Safety Workshop

1. Agenda

Chair: Michiel Van Ratingen, EuroNCAP  
Champion: Mervyn Edwards, TRL

Number of participants 50 – 60.

Background – What is the way forward for active / passive safety?

- Consumer: Michiel Van Ratingen, Euro NCAP
- Industry: Christian Mayer, Daimler
- Regulator: Paul Doyle, Enterprise and Industry DG, EC

Session 1 – Active Safety

- Generic Methodology for Advanced Safety Systems: Thomas Wohllebe, VW
- Discussion

Session 2 – Passive Safety

- Full Width Frontal Impact Test for Europe: Mervyn Edwards, TRL
- Advanced Side Impact Test Method: Ton Versmissen, TNO
- Side Impact Compatibility: Alex Thompson, TRL
- Discussion

2. Presentations

The workshop was split into three parts; firstly a section to set the background, then a session on active safety and finally a session on passive safety.

To set the background three presentations were made from the consumer, industry and regulator perspectives addressing the question of the way forward for active and passive safety in the next five years or so. The presentation from the consumer perspective by EuroNCAP outlined the EuroNCAP roadmap for the next five years. The presentation from the industry perspective by Daimler introduced the concept of 'balanced safety'. In the future improvements in primary and active safety are likely to change the accident scene by, for example, helping to reduce the consequences of or even prevent some types of accidents. As a result of this some secondary safety measures that are necessary to protect the occupant in these accidents now, may be effectively substituted by primary or active safety measures in the future. The aim of balanced safety is to deliver the required level of occupant safety protection using an optimum combination of primary, active and secondary safety measures, taking into account other vehicle requirements such as the environmental impact. The presentation from the regulators perspective by the EC described issues such as the need for an evidence base to support proposed changes to regulation and harmonisation.

For the sessions on active and passive safety presentations presenting the main APROSYS results, the 'Generic Methodology for Advanced Safety Systems, the 'Full Width Frontal Impact Test' and 'Advanced Side Impact Test Methods' were made by APROSYS project partners. In addition, for the passive safety session some initial work performed by APROSYS on 'Side Impact Compatibility' was also presented.

3. Discussion

Apart from how to take the main APROSYS results forward, two other main topics were discussed, balanced safety and harmonisation.

#### 4. Conclusions

##### Active Safety

- Generic Methodology
  - The high potential of active safety was recognised and the 'Generic Methodology' developed by APROSYS welcomed.
  - A need was identified for statistically relevant European accident data suitable to define the accident scenarios which form the basis for testing the pre-crash sensing systems. To address this need, what accident data is required for specific active systems should be identified and a methodology developed for how to obtain it.
    - It was noted that in the US data is collected from vehicle Event Data Recorders (EDR). However, the US have found that the data gathered from different EDRs on different vehicles is often not consistent, so can be difficult to analyse.
  - The key stakeholders were identified as:
    - EuroNCAP for Beyond NCAP programme
    - Industry
    - 7<sup>th</sup> framework EC projects ASSESS, eVALUE, interactive in which it is planned to continue the development of the Generic Methodology and specific methodologies for particular systems.
    - EEVC
  - Thomas Wohllebe from VW was identified as the champion to take this work forward.

##### Passive Safety

- Full Width Frontal Test
  - The following issues were identified:
    - Definition of performance criteria and associated limits
      - A cost benefit approach to define these is recommended.
    - Improved dummy
      - Ideally an improved dummy which can detect differences between restraint systems better than the HYBRIDIII is required because one of the main aims of this test is to encourage improved restraint systems.
    - Deformable face
      - A decision of whether or not to include a deformable face in the test needs to be made. One of the advantages of including it is that it helps make the first stages of the impact more representative of a car to car impact. One of the disadvantages of including it is that it does not help harmonisation as other current full width tests, e.g. FMVSS208, do not have a deformable face.
    - Rear seat position
      - A decision of whether or not to test the rear seat position needs to be made. It should be noted that the seat belt usage rate for the rear seat occupant is low.
  - The key stakeholders were identified as:
    - EEVC WG15, GRSP frontal impact working group, EuroNCAP
    - Industry
    - 7<sup>th</sup> framework EC project FIMCAR.
  - Mervyn Edwards from TRL was identified as the champion to take this work forward.
- Side Impact Test Methods (AE-MDB, Pole, Free Motion Headform (FMH) tests)

- The work is being taken forward by EEVC WG13 who are currently performing a cost benefit analysis to help decide which tests should be recommended for introduction into regulation.
  - Injury criteria for the WorldSID are needed to be able to use this dummy in the AE-MDB or pole tests.
  - The key stakeholders were identified as:
    - EEVC WG13, WG12, EuroNCAP.
    - Industry
  - Ton Versmissen of TNO was identified as the champion to take this work forward.
- Side impact compatibility
    - An initial study to investigate side impact compatibility was performed. One of the key results found from MDB to car simulations was that a reduced loading in alignment with the dummy had more influence than increasing sill interaction which goes against conventional wisdom. Further work is recommended to extend and confirm the results of this study to understand side impact compatibility better to ensure that changes to car fronts to improve its frontal impact performance are not detrimental when it strikes another car in side impacts.
    - Key stakeholders were identified as:
      - EEVC
      - Industry
    - Alex Thompson of TRL was identified as the champion to take this work forward.

#### Balanced Safety

- It was noted that it is currently too early to consider substitution of secondary safety requirements with primary or active ones but it could possibly be considered in the longer term.

#### Harmonisation

- Harmonisation was recognised as desirable to help reduce costs for manufacturers by reducing the testing burden. However, it was also recognised that there are substantial differences between vehicle fleets and populations worldwide, so harmonisation is not always appropriate. A cautionary note was made that harmonisation could possibly encourage sub-optimisation of safety systems as it would reduce the number of different test conditions that would need to be fulfilled.
- To take harmonisation forward in a timely manner it was recommended that areas for potential harmonisation should be identified as soon as possible and interim solutions used.