

# 44th GRSP Session Status report of Informal Group on CRS

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Chairman

# Mandate - GRSP and WP29 decisions

- **May 2007 - GRSP Report - ECE/TRANS/WP.29/GRSP/41 §45 & §46.**
  - IC indicates a large number of issues to be solved.
  - France suggested the establishment of a new informal group.
  - Germany suggested considering the conclusions of EEVC working group 18 in the future work agenda.
  - Australia announced the input of a study of the Adelaide University concerning height and mass of children.
  - GRSP agreed to set up a new informal group on child restraint systems.
- **June 2007 - WP29 Report - ECE/TRANS/WP.29/1062 §37.**
  - WP.29 gave its consent to the establishment of the new informal group to devise new performance requirements for Child restraint systems.
- **December 2007 - GRSP Report - ECE/TRANS/WP.29/GRSP/42 §37 & §38.**
  - France tabled a proposals of lists of issues to be regulated in a future new Regulation on child restraints.
  - GRSP added, that the informal group deemed that the new Regulation would be phased in over a period of time to be defined, in parallel to the current Regulation No. 44.

# Terms of Reference - Approved ToR

- The informal group shall consider the development of a new regulation for “Restraining devices for child occupants of power-driven vehicles” for consideration by GRSP.
- The basis of the discussion will be informal documents No. GRSP-42-2 and GRSP-42-27.
- A step by step approach shall be implemented
  - Phase1: Develop definitions, performance criteria and test methods for ISOFIX Integral “Universal” CRS
- In its work, the informal group will take into consideration amongst others the technical expertise of EEVC WG18, EEVC WG12, ISO TC22/SC12, NPACS as well as the results of the discussions held in the informal group and at GRSP.
- If necessary, the informal group shall develop complementary test methods and propose alternative judgement criteria.
- The target completion date for the informal group shall be the forty-sixth session of GRSP (December 2009) for this first phase.

# Meetings

1. 30<sup>th</sup> January 2008 – OICA – PARIS
2. 1<sup>st</sup> April 2008 – CLEPA – BRUSSELS
3. 13<sup>th</sup> May 2008 – SMMT – LONDON
4. 18<sup>th</sup> June 2008 – CCFA – PARIS
5. 2<sup>nd</sup> September 2008 – BMVIT – VIENNA
6. 7<sup>th</sup> October 2008 – ACEA – BRUSSELS
7. 25<sup>th</sup> November – BNA – PARIS
8. 21<sup>st</sup> January – BAST - KOLN

# List of issues & Priorities

- Test bench – **Priority 1**
- Classification of CRS – **Priority 1**
- Dummies – **Priority 1**
- Dynamic tests – **Priority 1**
- Components tests – **Priority 2**
- Labelling – **Priority 2**
- Ease of Use / Misuse – **Priority 2**
- Control Of Production – **Priority 2**
- Interoperability with vehicle – **Priority 1**
- Child comfort and health harmlessness – **Priority 2**
- Other

# Present status

Develop definitions, performance criteria  
and test methods for ISOFIX Integral  
“Universal” CRS

- Test bench
- Classification
- Dummies
- Dynamic tests
- Interoperability with vehicle

# Test bench

- The test bench will be based on NPACS bench with Isofix and belt anchorages having same the centreline
- There is no need for a dashboard
- Seat cushion technical characteristics need to be defined based on NPACS bench

# Test bench – Open questions

- Head Restraint on the bench?
- Isofix anchorages - location of 3rd alternative point? (*Interoperability with vehicles*)
- Relative positions of adult seat belt anchorages versus Isofix anchorages positions. (*Interoperability with vehicles*)



# Classification

- Based on stature and maximum weight
- Not based on availability of dummies
- For Isofix Integral “Universal” CRS limited by *(Interoperability with vehicles)*:
  - Maximum dynamic load sustainable by vehicles anchorages
  - Maximum space offered by Isofix fixtures

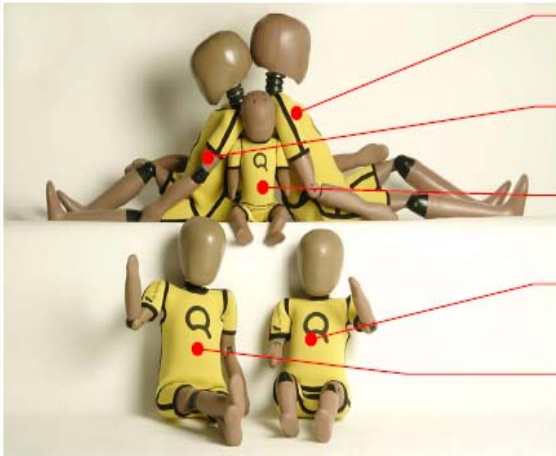
# Draft matrix of classification

<b>Size in Cm</b>	<b>Isofix Integral Universal</b>	<b>Orientation</b>	<b>Maximum Weight Child + CRS</b>	<b>Side protection</b>
<b>40-80</b>	Yes	RF		Yes
<b>75-90</b>	Yes	RF		Yes
<b>85-105(8)</b>	Yes	RF or FF	22 + 10?	Yes
<b>100-130</b>	Tbd	Tbd		Yes
<b>130-150</b>	Tbd	Tbd		Tbd

# Dummies

- Q series not Qs for dynamic tests
- Use of geometric dummies for size classification

Q-dummy family well equipped ...



**Q6** 23.0 kg

**Q3** 14.5 kg

**Q0** 3.4 kg

**Q1** 9.6 kg

**Q1.5** 11.0 kg

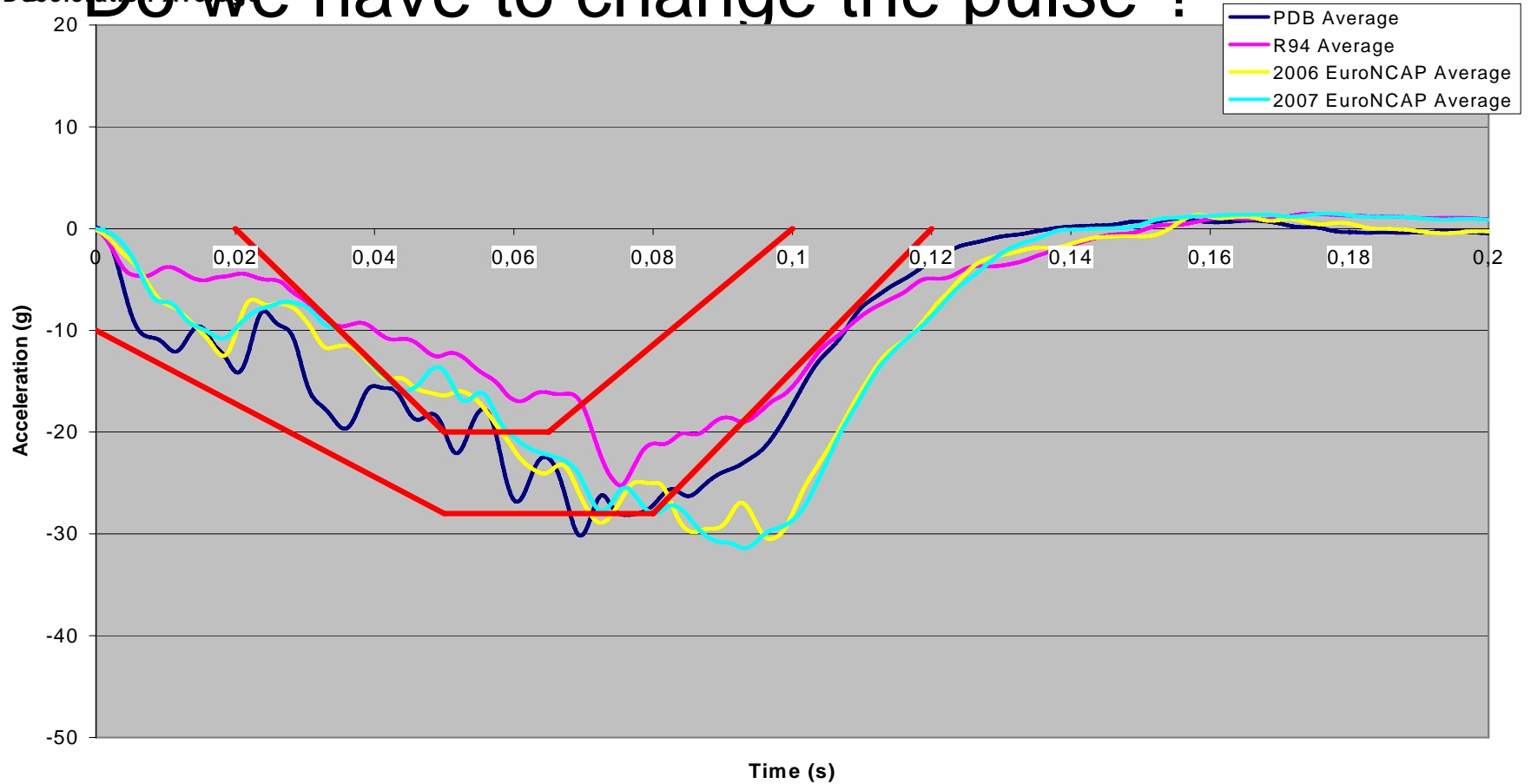
... to contribute to child safety

# Dynamic tests

- Frontal impact
  - Do we have to change the pulse ?
- Lateral impact
  - Simple approach in a first step.
- Rear impact
  - Keep as it is ?

# Frontal impact

● Do we have to change the pulse ?



# Lateral impact

- Informal Group to review all existing methods to determine the one to be retained

Australian Standard AS/NZ 1754 & 3629.1 - 2004



Fixed Door; P3 Dummy

$\Delta V$  32 km/h ; Pulse 14 – 20 G

ISO - 2008



Moving Door; Q3 Dummy

$\Delta V$  24-26 km/h ; , Door angular velocity corridors  
for RF and FF seats

## NHTSA Research

### Takata linear side impact test device



Moving sled into fixed impactor; Hybrid III 3y & Qs3  
 $\Delta V$  32 km/h ; Door Velocity 25 km/h.

### ADAC Procedure within EU Consumer tests



Opel Astra Body 80°; Fixed Door; Q0 – Q6 and P10  
 $\Delta V$  28 km/h ; Pulse 18 G

### BRITAX – ADAC



Fixed Door 80° ; Q3 Dummy  
 $\Delta V$  29 km/h ; Pulse 15 G

# Lateral impact

- Informal Group to consider first methods delivering required energy level and:
  - Promoting energy absorption in the seat
  - Including measurable performance criteria
- Supported by ISO/TC22/SC12 (Alternative1)
  - To provide essential input parameters only of a CRS side impact test method.
  - Delivery date from ISO: June 2009



# Interoperability with vehicle

- Load level in Isofix anchorages
  - Definition of a maximum permissible load level on current ECE R14 Isofix anchorages
    - Maximum weight / g level
- A proposal to reach more flexibility in the application of ISOFIX child restraint could be (*Classification*):
  - A definition of a total weight for the couple [Child + CRS]
  - A permissible weight of the child is then depending on child restraint system weight.

# Interoperability with vehicle

- Risk of deploying side airbags
  - Not takes into account in the work
  - Based on APROSYS analysis
    - no interaction CRS/children with airbags.
    - OOP is no problem / no issue (in EU)
- Interfacing vehicle floor & support leg
  - Open question for “universal” Isofix Rearward Facing seats
  - ISO/TC22/SC12 works on this issue

# Conclusion

- Some decisions
  - Isofix “universal” integral CRS
  - NPACS test bench with common centreline
  - Q series dummies + special dummies for sizing
  - Classification based on standing height and maximum permissible weight (Child + CRS)
- Some open questions
  - How to qualify “universal” CRS with support leg
  - How to encourage use of RF CRS for older children