

# Minutes of 7<sup>th</sup> meeting of the Informal Group on Child Restraint System

Held at BNA office – Suresnes  
25<sup>th</sup> November 2008

## 1 Welcome and Introductions

Pierre Castaing opened the meeting and welcomed the delegates. Michele Maitre, who hosted the meeting, explained arrangements.

## 2 Roll call

We received Apologies from Sigrun Malm (Folksam), Farid Bendjellal (Britax).

See participant list.

**Attendees and Apologies for Absence:** See Annex 1

## 3 Approval of Agenda

**Doc. INF GR / CRS-7-1 Final**

The draft agenda was adopted with the additions of:

- document from Heiko Johnansen, presented by Britta Schnottale
- Document from CLEPA, presentation by DOREL
- Document from CLEPA, presentation by BRITAX

We received document from Sweden and due to absence of Swedish representative, Pierre Castaing decided to present it.

In AOB item, Pierre Castaing will give an overview of the document he should be presented in Munich conference.

The group should receive Information from ADAC, on Side Impact Test methodology during next meeting in January. Farid Bendjellal could present a document which synthesis on side impact methodologies in the world during the same meeting.

## 4 Approval of the Minutes of last meeting

The Minutes were adopted with following changes:

**Doc. INF GR / CRS-5-6\_Final**

- Pierre Castaing mentioned to the member's comments received from Suzan Meyerson, and gave to the group copy of these comments for agreement, related some items. The minutes should be corrected following these remarks.
- Remark from Franck.Van West on page 2, item on Test Bench. Modify the sentence by: "When buckles are between Isofix anchorages there is ..."
- Remark from Kees Waagmeester on page 6 - §5.4.2 – item IR-TRACC, only for Q3 and Q6 dummies + deleted sentence in brackets.
- Remark from chairman, page 7 - §5.5.4, Pierre Castaing said it is too early to use a complete test method methodology due to the fact that we don't have today an international consensus on a methodology, but possibility to use a simplest approach to assess the CRS.

## 5 Actions from the Minutes of last meeting

Pierre Castaing informed the group that copies of NPACS program are available on CD-ROM.

The action list was reviewed. Presentations and discussions took place for each item.

### 5.1 Test bench

#### 5.1.1 FTSS Specification/definition of the foam for test bench cushions (material T75500)

No more information today. Mister Waagmeester needs information on tests performed by NPACS. Following study mister Waagmeester could provide answer to the group during the next meeting.

The group received first information on the fact that in NPACS protocol, there are differences between foam used in backrest T43250 (equivalent to R44) and foam used for the seats, foam referenced T75500.

**Action FTSS**

### 5.2 CLEPA PRESENTATIONS on Isofix Anchorages

#### Doc. INF GR / CRS-7-2

Mister Grohspietsch, from Romer/Britax, makes presentation on Isofix Anchorages

Objective of these tests, performed on standard ECE.R44 test rig, was the determination of maximum loads sustained in Isofix anchorage with 4 different CRS; anchorages of the bench are equipped with triaxial load cell from Denton (range 40 kN/axis).

They used 3 types of CRS

- Group 1 seat with 2 point Isofix fixing,
- Group 1 seat with 2 point Isofix and top tether
- Group 1 seat with 2 point Isofix and support leg

They performed 8 tests with different dummies (P3/4, P3 and P6) and mass [CRS+dummy] from 17.7 kg to 34.1 kg.

Conclusions for these tests are

- During the tests, no Isofix connector damage was observed;
- Study is shown that for comparable CRS with 2 points Isofix and support leg or with 2 points Isofix and top tether restraint, higher loads are found in the support leg configuration.
- The worst case of this study is for the 6 year occupant, with 2 points Isofix CRS without Top tether (6.7 kN / anchorage).

Mister Waagmeester interrogated Romer representative regarding the fact that only 3 forces are measured with the anchorage sensor and no moment? Answer from CLEPA is that Isofix fixation is rotation free, so not necessary to measure more than the forces.

VW representative makes remark on test conditions: results are on test rig and showed that Isofix connectors on the CRS are no damaged, but it could be different with car anchorage. It is important to define number and type of anchorages for the future.

#### Doc. INF GR / CRS-7-3

A second presentation from CLEPA was done by mister Renaudin from DOREL

This presentation is completing previous information.

Tests are performed on standard ECE.R44 test rig, with Isofix anchorage sensor and a support leg modified to introduce a 3 axis sensor.

Tests are performed on two types of CRS with support leg for each case and two categories of dummies (1 ½ and 3 years old).

Two types of pulses are used, standard ECE.R44 and EuroNCAP type pulses, with respectively 22g and 36g deceleration levels. The second pulse is similar to ADAC pulse. These two pulses are generating differences in CRS anchorages due to their shapes, a pick in ECE.R44 pulse and a plate in the second case.

Tests have shown that higher forces are measured in the case where support legs are used.

Next steps in the study are

- Repeatability with other laboratories,
- Tests with a Group 1 CRS in rearward facing position,
- Test with a Group 1 CRS and a P6, to obtain maximum loads,
- Input from car manufacturers: to evaluate anchorages deformations due to the fact that anchorages in cars are deformable and not anchorages on the test bench.

No other input on this topic.

### 5.3 Classification – Load level in Isofix anchorages

#### 5.3.1 CRS classification from Germany

**Doc. INF GR / CRS-7-4**

Britta Schnottale makes presentation regarding German proposal on classification item.

Regarding this proposal of classifications, dummies are not in line with it and will need to review geometrical dimensions and/or weight.

Following this presentations, we note remarks from members as:

- Currently, there are no lower limits for the weight of children in the Directive. It will be preferable to avoid arising confusions in consumer's mind.
- CLEPA requests the group to comment regarding the sitting height limit from which we can decide the car protection is enough to protect young occupants
- Regarding CRS gabarits, is it possible to have a link between the new classification and these CRS gabarits? The target is to take into account the volume available in vehicles. Mister Vroman draws member's attention to the fact that consumers don't know/understand these volumes.

These points must be discussed and we must find answers ASAP.

Swedish Document

**Doc. INF GR / CRS-7-5**

Pierre Castaing presents the Swedish document which made a synthesis on positions of child dummies in a VTI study. First report, test dummies are always the average masses. Same remark is valid for statures. Swedish data seem to be in line with CANDAT data.

Regarding study of rearward facing used in Sweden is shown that 60% of child until 3 and 3,5 years old travelling in RF position, and 8% between 4 and 4,5 years old travelling in RF position. The graphs are display by age and the group needs the same type of graph by weight and/or size.

Last point of the Swedish document concerns comment on NL contribution and main item is that Swedish opinion for new integral "centilong" class must cover a stature of at least 108 centimetres.

Pierre Castaing makes a synthesis regarding classification item and missing data to take a position: we need universal interface between car and support leg, due to the fact, for example, we have no definition of universal support for anti-rotational system in the case of Rearward facing CRS. Pierre Castaing requests partners to obtain data and clear presentation of results in January.

The idea of a third Isofix rigid point is discussed again and arouses strong reaction. Working Group 18 should be work on this item and provide data during a next meeting.

We have now several proposals from Netherlands, Germany, Sweden, and we need a synthesis. Secretary should provided a document for the next meeting. All partners can provide information on this topic or comment/modify the current proposals.

**Action Secretary**

## 5.4 Dummies

### 5.4.1 Q Dummy experience NPACS

Action in progress.

It will be interesting to obtain loading envelops with average minimum/maximum values.

**Action TRL**

Q10 is on going, information from FTSS, following request of chairman.

Mister Waagmeester, from FTSS, makes remark regarding discussion on classification definition. It could have serious consequences on the dummies with definition and evolutions of anthropometric limits.

For this type of use "standard" geometric dummies could be a solution. Pierre Castaing requests information on this type of dummies? Brita and/or Ronald will invite someone from Stiftung Warentest to inform the group about these dummies.

## 5.5 Dynamic Test

### 5.5.1 NPACS study on rear impact by IDIADA

The group needs a common view to know if it will be interesting or necessary, to introduce rear impact in our proposal of text or not.

Pierre Castaing informs members of the group that NPACS data is on the CDrom, available beside secretary. On this CDrom, annex 21 is concerning Rear Impact. Mister Vroman, who participates to the work, gives information on this topic.

In the document studied, sentence is: "it is recommended that a rear impact test is included in NPACS program". But in minds of NPACS's representatives, it is not necessary if the test exists in regulation. Following round table, opinions of members for this topic are in a first step to maintain the situation as in ECE R44 and perhaps have an evolution in the future.

Regarding Japan situation, there are no experiences on rear impact and due to the fact that Japan has adopted ECE.R44 since short time, there are today no sufficient data on this topic. Pierre Castaing requests Japan representatives to obtain data of evolution of the situation in Japan before and after adoption of R44 and so with introduction of rear impact test method.

Japan representative will be study situation and will come with more information for next meeting.

**Action Japan**

Pierre Castaing wishes to obtain data from Working Group 18 of EEVC regarding rear impact pulses.

**Action WG18 chairman**

Pierre Castaing wishes to obtain data from Working Group 20 of EEVC regarding rear impact pulses.

**Action Secretary**

Conclusion is the current situation is not so catastrophic. The group needs to check validity of the current pulse regarding the road reality and the criteria coherence. Following conclusions of these future studies, the group decision could be to “maintain” the current rear impact test.

### **5.5.2 UTAC presentation on pulses**

UTAC representative presents summary of curves from ECE.R94, PDB and EuroNCAP tests with the objective to compare these curves with current ECE.R44 curve and to discuss the necessity to change current pulse.

Veronique Denier draws the group’s attention to the difference of safety belt and Isofix anchorage between Cars and test rig. So if the pulse changes and if it is applied out its context, it could generated some troubles. It will be interesting to check that biomechanic criteria are based on biomechanic issues, independently of the performance of the safety belt of the cars.

For Hans Ammerlaan, it is necessary to have an evolution in order to reach the best performance in each item.

Presentation from OICA, regarding vehicle pulses is postponed to next meeting due to some difficulties to obtain clearance to show some results.

**Action OICA**

## **6 Definition of a Frame Work for drafting a regulation (Chairman)**

- Following previous discussions around NL document, we received comments and proposal from Germany and Sweden.

First remark from the group is there are possibilities to have confusion regarding two types of fixation in car for CRS (adult belt and Isofix system). Can we authorize this product? CLEPA answers that currently CRS manufacturers have products which work only with Isofix and so it’s not really a problem for them.

Exclusion to homologate with adult safety belt due to the fact it is a new generation of CRS? During interim period a solution could be to homologate product following only one regulation! If a product is validated by this new regulation, there is no possibility to approve it following the old one (ECE.R44).

Do we want to make a real difference between the two products or mixed situation is considered? Problem of groups (classification), size, and more information needed regarding shoulder stature, etc. Both in the same time seem to be difficult. This situation will be generating two products.

Summary of the discussion: new product could not be approved by both regulations.

- Exchange with sub-group of ISO (ISO/TC22/SC12)

We have to give an answer to ISO.

ISO group proposes two alternatives:

Not possible in short time to give a complete impact test method. Answer is

- to provide essential input parameters only
- to provide essential input parameters + a check of existing methods

For chairman, alternative 1 is OK due to the fact that in the group we have data and Farid would provide a complete overview of side impact methodologies in the world.

→ Alternative 1 was adopted by the group.

- EEVC WG18:

WG18 chairman offers to the group presentation of the ToRs. Pierre Castaing requests a synthesis document.

**Action WG18 chairman**

## 7 Date and Venue of Next Meetings

Dates of next meetings were planned:

- January, 21<sup>st</sup> – BAST (Köln)
- March, 11<sup>th</sup> – DFT (London)

## 8 AOB

Pierre Castaing indicates to the group that he will present work of the group during next conference on Child Safety in Munich, December the 4 and 5.

## 9 Actions

To conclude the 7<sup>th</sup> meeting, Pierre Castaing mentions that priority will be given during next meeting to:

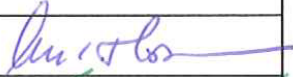

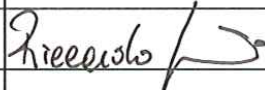

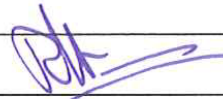
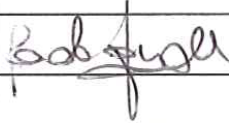


- Dynamic pulses with information from OICA, CLEPA, UTAC
- Dummy experiences from NPACS, UTAC

See Action list in Annex 2.

## 10 Attachments and Working Documents

Annex No.	Presented by / on behalf of	Title
1	PC	Attendance list
2	PC	Actions list
3	PC	Documents list

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Secretary  
December, the 15 2008

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Action Number	Action	Target Date	Action By	Comp Date
1.1	Terms of reference	01/04/08	Chairman	01/04/08
1.2	Test Bench definition – Information/Presentation following NPACS protocol	13/05/08	OICA / CI	13/05/08
1.3	R point / Cr point correlation	Postponed 13/05/08	MPA	13/05/08
1.4	Floor positioning versus R (H) point	Postponed 13/05/08	OICA	13/05/08
1.5	Classification – Anthropometry data	01/04/08	CLEPA	01/04/08
1.6	Classification – Load level in Isofix anchorages	Postponed 13/05/08	OICA / CLEPA	13/05/08
1.7	Dummies – FTSS presentation	13/05/08	RDW / EEVC WG12	13/05/08
1.8	Dummies – Results from test labs	13/05/08	All	
1.9	Dummies – NPACS experience	13/05/08	CI	13/05/08
1.10	Dummies – DFT Validation	13/05/08	DFT	13/05/08
1.11	Side Test protocols in the world	13/05/08	CLEPA	13/05/08
1.12	Validation of door velocity in side impact procedure	Postponed	OICA	
1.13	APROSYS study on vehicle's interior arrangement	Postponed	UPM	02/09/08
1.14	Misuses – Marking of Isofix anchorages	ASAP	TUV Rheinland	
1.15	Information to GRSP concerning CRS regulation for Buses and Coaches	05/08	IDIADA	05/08
1.16	Pulses – Presentations/Analysis	Postponed	UTAC	18/06/08
1.17	ISO data on accidentology and accident scenario	Postponed 13/05/08	ISO	13/05/08
1.18	EEVC WG18 final report	01/04/08	EEVC WG18	01/04/08
1.19	Invitation of EEVC WG12, WG18 and TUB	01/04/08	Secretary	01/04/08
2.01	EEVC WG18 final report (version of February 07)	18/06/08	Netherlands	

Action Number	Action	Target Date	Action By	Comp Date
2.02	NPACS study on rear impact	18/06/08	IDIADA	Postponed
2.03	US situation on rear impact	18/06/08	Chairman	Postponed
2.04	Side impact data upgraded	18/06/08	LAB	Postponed
2.05	Dummy family comparisons by NPACS	13/05/08	TRL	13/05/08
3.01	Comparison between ECE.R44 and NPCAS test bench	18/06/08	TRL	02/09/08
3.02	Information on acceptable limits of vehicle floor	18/06/08	All	
4.01	Classification – Load level in Isofix anchorages	02/09/08	OICA	In progress
4.02	Dummies – Repeatability and reproducibility in Q-family	02/09/08	All	In progress
4.03	<del>EEVC WG18 Chairman to discuss for future collaborations</del>	<del>02/09/08</del>	Chairman	02/09/08
4.04	Information on safety level for A P10 dummy with CRS in case of accidents (tests)	02/09/08	Daimler	Postponed
4.05	Background on Directive 2003/20/EC	02/09/08	Chairman	
4.06	Synthesis document on Q-series family upgrades	02/09/08	FTSS	07/10/08
4.07	Tests to assess differences between ECE.R44 and R94 pulses	02/09/08	UTAC	postponed
5.01	Draft proposal on a new test bench	07/10/08	TRL	
5.02	Table with anthropomorphic data	07/10/08	NL	
5.03	A workshop may be organized after the next meeting, if needed.	25/11/08	FTSS	
5.04	Working Document Matrix: Issue / Subject	07/10/08	NL	
6.01	FTSS specification of foam for test bench cushions	25/11/08	FTSS	
6.02	Max size used at present in RF'4 years in Sweden	25/11/08	Sweden	
6.03	Load level in Isofix AnchorageS	25/11/08	CLEPA	
6.04	Comments on NL documents	25/11/08	All	
6.05	Q3s/C3s comparisons (repeatability, reproducibility)	ASAP	NHTSA	
6.06	NPACS experience on Q dummy durability	21/01/09	NPACS	
6.07	Tests to assess differences between ECE.R44 and R94 pulses	21/01/09	UTAC/OICA	

<b>Action Number</b>	<b>Action</b>	<b>Target Date</b>	<b>Action By</b>	<b>Comp Date</b>
<b>6.08</b>	Working document on Side Impact	21/01/09	F.Bendjellal	
<b>7.01</b>	Classification Synthesis	21/01/09	Secretary	
<b>7.02</b>	State of the art regarding rear impact in Japan	ASAP	Japan representatives	
<b>7.03</b>	State of the art regarding rear impact in Europe	ASAP	WG18/WG20	

Document Number	Title	Origin
INF GR / CRS-7-9	Minutes of 7th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-7-8	Answer from ISO_TC22_SC12	ISO
INF GR / CRS-7-7	Vehicle Pulses	UTAC
INF GR / CRS-7-6	NPACS_C17_Rear_impact_Task_Final_Report	NPACS
INF GR / CRS-7-5	Swedish viewpoints on the centilong classification_19aug08	Folksam
INF GR / CRS-7-4	TUB _German Viewpoint CRS Classification -20081125	TUB
INF GR / CRS-7-3	CLEPA _Isofix loads	CLEPA
INF GR / CRS-7-2	CLEPA _Load level in ISOFIX anchorages	CLEPA
INF GR / CRS-7-1	Provisional Agenda for 6th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-6-9	Minutes of 6 <sup>th</sup> meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-6-8	Sled test presentation from VRTC/NHTSA	VRTC
INF GR / CRS-6-7	FTSS Memorandum on Q-dummies configuration - FINAL	FTSS
INF GR / CRS-6-6	FTSS Q-dummies configuration synthesis	FTSS
INF GR / CRS-6-5	VRTC Side Impact Child Dummy development Q3s 3CS	VRTC
INF GR / CRS-6-4	NL contribution CRS categorization	NL
INF GR / CRS-6-3	OICA presentation on load level in ISOFIX anchorages	OICA
INF GR / CRS-6-2	ECE R44 and NPACS benches comparison	TRL
INF GR / CRS-6-1	Provisional Agenda for 6 <sup>th</sup> meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-5-6	Minutes of 5 <sup>th</sup> meeting of the Informal Group on Child Restraint System	Secretary

INF GR / CRS-5-5	Proposal Regarding Amendment of the CRS Regulation at the Informal Group on child Restraints	JASIC
INF GR / CRS-5-4	ISOFIX load measurements	CLEPA
INF GR / CRS-5-3	NPACS test bench	TRL
INF GR / CRS-5-2	(APROSYS) Evaluation of the side impact test procedure proposed by IHRA/SIWG	INSIA
INF GR / CRS-5-1	Provisional Agenda for 5 <sup>th</sup> meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-4-9	Minutes of 4 <sup>th</sup> meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-4-8	Japanese accidentology presentation	JASIC
INF GR / CRS-4-7	Study of the performance of restraints used by children aged three years and under, with recommendations for the development of the new Regulation	Consumer International
INF GR / CRS-4-6	Full-scale Tests with and without ISOFIX	TUB
INF GR / CRS-4-5	Short report on Forward Component in ISO Side Impact Test Procedure for CRS	TUB
INF GR / CRS-4-4	Short report on Side Impact Testing with Big Rear-Facing Scandinavian Child Restraints	TUB
INF GR / CRS-4-3	ECE.R94 / EuroNCAP / PDB pulses comparison	UTAC
INF GR / CRS-4-2	Q-dummies Update (2004-2006) Presentation	FTSS
INF GR / CRS-4-1	Provisional Agenda for 4 <sup>th</sup> meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-3-18	Minutes of 3 <sup>rd</sup> meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-3-17	Load level in Isofix Anchorages	CLEPA
INF GR / CRS-3-16	Side Impact Test Methods for Evaluating Child Restraint Systems. A Summary for GRSP Informal Group on Child Restraints Systems	CLEPA
INF GR / CRS-3-15	Dummies NPACS comparison	TRL
INF GR / CRS-3-14	Q-dummies ready to enter regulations	FTSS
INF GR / CRS-3-13	Child Occupant Protection Research & Considerations for Future Regulations	Canada
INF GR / CRS-3-12	JPMA/Vehicle Manufacturer LATCH WG	US

INF GR / CRS-3-11	Classification - Anthropometry	CLEPA
INF GR / CRS-3-10	Data from child anthropometry data base CANDAT	Netherlands
INF GR / CRS-3-9	Selection of Size of Child Restraints	Australia
INF GR / CRS-3-8	Indicative Anthropometric Data	Australia
INF GR / CRS-3-7	Data on floor position	OICA
INF GR / CRS-3-6	Location of ISOFIX Top-tether anchorages Location of Cr-Point	OICA
INF GR / CRS-3-5	NPACS presentation	TRL
INF GR / CRS-3-4	ISO information on CRS International Standards	ISO
INF GR / CRS-3-3	SMMT directions	SMMT
INF GR / CRS-3-2	ISO/TR 14646 - Road vehicles - Side impact testing of child restraints systems	ISO
INF GR / CRS-3-1	Provisional Agenda for 3rd meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-2-8	Minutes of 2nd meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-2-7	NPACS Final Report_Project Report Version2.pdf	TRL
INF GR / CRS-2-6	WHO_Growth.ppt – Anthropometric data	UPM
INF GR / CRS-2-5	05-0157-O.pdf – ESV presentation	EEVC WG18
INF GR / CRS-2-4	CANDAT_data.pdf – Anthropometric data	Netherlands
INF GR / CRS-2-3	EEVC WG18 report	Netherlands
INF GR / CRS-2-2	Proposal for Terms of Reference and Rules of Procedure	Chairman
INF GR / CRS-2-1	Provisional Agenda for 2 <sup>nd</sup> meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-1-8	Minutes of 1st meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-1-7	Informal document No.GRSP-42-27	GRSP

INF GR / CRS-1-6	Informal document No.GRSP-42-02	GRSP
INF GR / CRS-1-5	Proposed Schedule for a Review of ECE Regulation 44.03	EEVC WG18
INF GR / CRS-1-4	Effect of Q-dummies and Criteria on the EEVC Test Database Results	EEVC WG12&18
INF GR / CRS-1-3	Injury Criteria for Q Dummies	EEVC WG12&18
INF GR / CRS-1-2	DRAFT OF Q-DUMMIES INJURY CRITERIA	EEVC WG12
INF GR / CRS-1-1	Provisional Agenda for 1st meeting of the Informal Group on Child Restraint System	Chairman