

Minutes of 12th meeting of the Informal Group on Child Restraint System

Held at BNA Offices - Suresnes
2nd September 2009

1 Welcome and Introductions

Pierre Castaing opened the meeting, welcomed the delegates and presented the meeting arrangements for the 12th meeting. He reminds to the members that confirmation of participation is wished in due time on account to the number of participants to this group and the necessary logistic organisation.

2 Roll call

See participant list.

Attendees and Apologies for Absence: See Annex 1

3 Approval of Agenda

Doc. INF GR / CRS-12-1

Hans Ammerlaan sent documents which could be introduce in the frame work regarding dummies and frontal test configuration. The document referenced as "Description of manikins" could be used as annex in the draft but needs to be completed.

Doc. INF GR / CRS-12-2

Chairman requests to mister Ammerlaan to expose the work on frontal test configuration. Heiko Johannsen requested the chairman to clarify his proposal of classification and wishes to add item about Criteria of the dummy.

Agenda is amended and accepted with no more remark.

4 Approval of the Minutes of last meeting

The Minutes of 11th meeting were adopted with following changes:

Doc. INF GR / CRS-11-7

- Page 2 – Replacement of "PDB barrier" by "**ODB barrier**",
- Page 2 – modification of sentence in paragraph DISCUSSION as "... is not **ONLY** a CRS issue but **ALSO** a car issue ...",
- Page 3 – Replacement of "recommended" by "**mandatory**",
- Page 3 – modification "... size of the pelvis **is mature** ...",
- Page 3 – deletion of "**in Germany**"
- Page 3 – addition of the sentence: Therefore it is better to use a Q10 or Q11 than a Q12.
- Page 4 – Replacement of CEVE report by EEVC report,
- Paragraph 7.3 – checked [800] mm - OK

The Minutes of 10th meeting were adopted with following changes from TUB

Doc. INF GR / CRS-10-8

5 Actions from the Minutes of last meeting

No actions are defined during the last meeting.

6 Definition of a Frame Work for drafting a regulation

Hans Ammerlaan presented to the group document he wrote, which could be integrated in replacement of current "General Specifications" in chapter "Dynamic tests". Different items are discussed during the meeting and summarize below:

6.1 Classification issue

Heiko Johannsen requests Pierre Castaing to have clarification regarding his proposal of classification or suppression of classifications.

Limitations, defined by CRS manufacturers on their products, should be noted on the CRS by use of pictograms for example.

Mister Ammerlaan asks in what the age of children is limiting. Chairman answers that the maturity of the children body segments is conditioned by the age and so the biomechanical limits. Information from US shows that recommendation to the consumers is to keep children in forward facing position until 1 year old, minimum. Chairman reminds that

- the new classification aims to open the system and should permit to the manufacturers to design reward facing CRS for older children;
- after the definition of a new system of classification, the group will work to define correctly the test configurations

Following remarks of manufacturers, a consumer survey could permit to have information regarding possible reaction of the public with this new logical classification.

To resume discussions, the group needs to define:

- Labelling types, geometric dummies for statures, definitions of CRS, etc.
- Tests procedures for professionals with range of dummies available to validate CRS.

So, in addition to the information included in document CRS-8-4, CI representative will supply, for next meeting, data on children statures to finalize dimensional item.

The group receives a remark from NL representative regarding the classification and the children statures due to the fact that discussions are about full length of dummies but in our case important dimensions are the sitting height of dummies.

6.2 ISO fixtures

The synthesis of discussions about this topic is that template R3 covers 80% of the CRS in terms of overall dimensions. But in the same time, it seems that few vehicles are able to accept this template. Chairman will appreciate to have a presentation or data about the ratio between templates and children statures.

Action ALL

6.3 Third ISOFIX point

A first remark concerns the positions of ISOFIX anchorages which are not positioned function of seat belt anchorages. This positioning could generate interference between boosters (with ISOFIX) and seat belt anchorages during the second step of the work of the group.

Regarding support leg, the proposal is to define an adjustable support leg with definition of a range (min/MAX length of the support leg). The problem is to define clearly the minimum and

maximum values of the support leg to cover all the positions of floors that we could be found in the fleet. Pierre Castaing requests again OICA members to obtain data on this item. In a second time he will ask Peter GLEASON from ISO to have in a near future an overview on this item with interactions between support leg and vehicle floor.

Action OICA and Chairman

Following this problem of floors positions solved, the support leg defined could be tested with its maximum length to cover the worst case. This solution could be amended as universal.

Another point presented is concerning the top tether and a misuse test associated. This test could cover important range of tests and it seems difficult to determine the worst case of misuse. A solution to test the worst case of misuse when customers use the top tether could be to test the CRS without top tether. However this solution will be very binding for CRS in terms of behaviour (restraints) and design. It could be very restrictive in term of conception and technical innovations.

FAIR representative reminds that there are important differences between top tether and support leg in term of misuses. Inquiries show that there are more misuses or non-uses with top tether than with support leg. In the case of CRS with support legs, when consumers generate misuses, these misuses lead performance degradation.

Swedish representative proposes again, to use a third rigid point on the vehicles to satisfy all expectation of participants. The chairman reminds that the group discussed during long times on this item, the group is not against this possibility but to defend the third rigid point during future GRSP meeting, it is necessary to have agreements of both CLEPA and OICA, and to have evolution of ECE.R16 for this third point, etc. Due to time and GRSP request, the group must provide a draft and couldn't wait some years that this situation evolves.

Moreover Pierre Castaing wishes that the group take a decision during next meeting on misuse test item. He reminds to the group that there is no other regulation testing vehicles or equipments in misuse configuration and fears that a misuse test could led up to oversize the CRS.

If the group decides to go for a misuse test it is difficult to apply it only to one type of anti-rotation device without being design restrictive. In this case the test must be performed as well on support leg as on top tether.

6.4 Dummy biomechanical criteria

Biomechanical criteria proposed on the draft document are reviewed with further information from TUB presentation and comments:

- Head based on CREST and CHILD results head injuries result from head contacts. The injury risk curve for the head developed within CHILD and used within EEVC report are based on contact cases. Therefore HJ recommends not to use head acceleration or HIC for test bench frontal impact test.
- The scaling method used for the neck shows almost linear trend from 1 YO to 6 YO while much lower forces and moments are allowed for the new born. Taking into account a significant peak in German fatalities over age for the 1 to 2 YO age group HJ fears that the load limits for the neck of the 1 YO and 1.5 YO could be too high. EEVC WG18 chair LM argues that currently no criteria for the neck exists and a number of CRS would fail especially the neck criteria taking into account the test programme of EEVC WG12 and WG18.
- Chest criteria could be based on CHILD program results. Unfortunately today, there is no correlation between the "3 milliseconds acceleration" and deflection of the Q-dummy measured during tests. These problems of correlation are probably due to CAC exceeded or non-appropriate belt positioning on the dummies (Philippe Lesire).
- Abdominal criteria is only mentioned. This criteria could be applied on booster seats in a second step. We could be used measurements from lumbar spine sensor and seat belt

sensors, however, validation is necessary. We couldn't take decision today for universal integral system (step 1 of the draft). The two CHILD sensor systems are not ready for industrial application. However, CASPER focus on choosing one sensor and developing it further to be suitable in the future.

Chairman requests to NL representative to contact members of EEVCE WG12 to obtain current and complete data in order to conclude criteria item. In the same time Philippe Lesire, from LAB, should be discussed with French representative of WG12 to have further information.

Action Misters Ammerlaan and Lesire

Philippe Lesire draws the group's attention to the fact that test conditions for regulation are different than real life and road accident conditions. Inquiries are shown that on the roads, there are lots of misuses with CRS which are generated more important lesions and children and so criteria with high levels of severity. So for the future draft it is not really necessary to have so high levels as met in accidentology or during reconstructions of accidents in laboratories.

Regarding head manikin displacement, François Renaudin suggests that we keep current value of 550 millimetres if the misuse test should be maintained.

Following question from TUB and Swedish representatives regarding dashboard, the chairman reminds that the group took decision to remove it (bar) on new test bench, due to the fact if we keep the dashboard, we are likely to have contact during tests, so we need to define stiffness and padding for the test bench. Moreover it is difficult to have a correct model of dashboard representative to vehicles due to important differences between small/medium/big cars, position of dashboard regarding Cr point of vehicles, etc.

To replace the dashboard, Pierre Castaing has proposed at the beginning of the work, to define two types of tests, a test to validate mechanical behaviour of the CRS and a test to validate restraint brought by CRS through biomechanical criteria. In spite of this decision If members of the group wish that we reconsider the situation, the group will need data from OICA as position of dashboards in cars, average of stiffness, etc. Decision will be taken during next meeting.

Action Group

6.5 Another items

- *Remark: BAST representative specifies some problems of durability with geometric dummies developed by GESAC.*
- *TRL representative draws member's attention to important investment generated by the decision of the group to use Q-serial dummies, geometrical dummies, etc.*

7 Date and Venue of Next Meetings

Dates of next meetings were planned:

- October, 13th – Paris (location to be defined)
- November, 18th –Brussels (location to be defined)

8 AOB

No other business.

9 Attachments and Working Documents

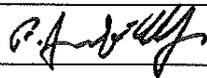
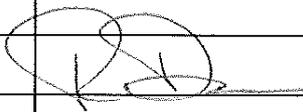
Annex No.	Presented by / on behalf of	Title
1	PC	Attendance list
2	PC	Actions list
3	PC	Documents list

JP LEPRETRE
Secretary
16th September 2009

GRSP_INF_CRS

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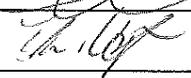
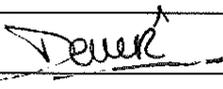
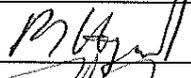
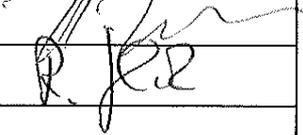
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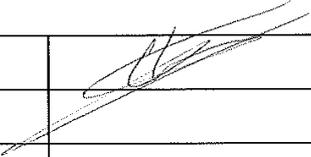
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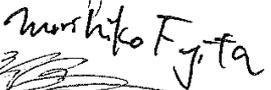
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Action Number	Action	Target Date	Action By	Comp Date
1.12	Validation of door velocity in side impact procedure	Postponed	OICA	
1.14	Misuses – Marking of Isofix anchorages	ASAP	TUV Rheinland	
2.01	EEVC WG18 final report (version of February 07)	18/06/08	Netherlands	
2.03	US situation on rear impact	18/06/08	Chairman	
2.04	Side impact data upgraded	18/06/08	LAB	
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	
4.02	Dummies – Repeatability and reproducibility in Q-family	02/09/08	All	
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	
5.04	Working Document Matrix: Issue / Subject	07/10/08	NL	
6.03	Load level in Isofix Anchorages	25/11/08	CLEPA	
6.05	Q3s/C3s comparisons (repeatability, reproducibility)	ASAP	NHTSA	
6.06	NPACS experience on Q dummy durability	21/01/09	NPACS	
6.08	Working document on Side Impact	21/01/09	F.Bendjellal	
7.02	State of the art regarding rear impact in Japan	ASAP	Japan representatives	
7.03	State of the art regarding rear impact in Europe	ASAP	WG18/WG20	
12.01	Data about the ratio between templates and children statures.	13/10/09	All	
12.02	Position on floor/vehicle	13/10/09	OICA	
12.03	Peter GLASON	13/10/09	Chairman	
12.04	Data on biomechanical criteria on Q-dummies	13/10/09	Ammerlaan /Lesire	
12.05	Position on use or non-use of dashboard	13/10/09	All	

Document Number	Title	Origin
INF GR / CRS-12-4	Minutes of 12th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-12-3	NL contribution on the frontal and rear impact	NL
INF GR / CRS-12-2	Annex 8 proposal for Q-dummies 20090826	NL
INF GR / CRS-12-1	Provisional Agenda for 12th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-11-7	Minutes of 11th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-11-6	Regulation XXX Draft V1 090609 without remarks	Chairman
INF GR / CRS-11-4	Review of ISO position regarding support legform	ISO
INF GR / CRS-11-3	EPOCH Recommendations	TRL
INF GR / CRS-11-2	GRSP45th_INF_CRS_Status_report	Chairman
INF GR / CRS-11-1	Provisional Agenda for 11th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-10-8	Minutes of 10th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-10-7	Geometrical prerequisites for a third ISOFIX type anchorage	CSI
INF GR / CRS-10-6	VTI 3 rd ISOFX	VTI
INF GR / CRS-10-5	Matrix Test Method	Group
INF GR / CRS-10-4	"Kettering University" Methodology Presentation	DOREL
INF GR / CRS-10-3	R44 lateral Dorel Presentation	DOREL
INF GR / CRS-10-2	R44 lateral CSI presentation	CSI
INF GR / CRS-10-1	Provisional Agenda for 10th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-9-11	Minutes of 9th meeting of the Informal Group on Child Restraint System	Secretary

INF GR / CRS-9-10	Classification synthesis	Chairman
INF GR / CRS-9-9	Contribution to the definition of test seat	TRL
INF GR / CRS-9-8	CRS Bench foam definition (V2)	FTSS
INF GR / CRS-9-7	Key metrics of existing side impact methods	BRITAX
INF GR / CRS-9-6	German View Point on side impact test procedure	TUB
INF GR / CRS-9-5	Side impact child program	Transports Canada
INF GR / CRS-9-4	Side impact dynamic test method	TUV
INF GR / CRS-9-3	ISO PAS 13396 document	ISO
INF GR / CRS-9-2	NHTSA's initial evaluation of Child Side Impact Protection - Update	NHTSA
INF GR / CRS-9-1	Provisional Agenda for 9th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-8-6	Minutes of 8th meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-8-5	CLEPA- An approach for a side impact test procedure for new EU Regulation_Draft5	CLEPA
INF GR / CRS-8-4	Stiftung Warentest- Presentation	Stiftung Warentest
INF GR / CRS-8-3	CRS Bench foam definition	FTSS
INF GR / CRS-8-2	ISO_PAS_00000_CRS_Side_impact_GRSP-20090120	ISO
INF GR / CRS-8-1	Provisional Agenda for 8th meeting of the Informal Group on Child Restraint System	Chairman
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 7 th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-6-9	Minutes of 6 th 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-9-6	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 th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-5-6	Minutes of 5 th 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 th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-4-9	Minutes of 4 th 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-4-9	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 (2004-2009) Presentation	FTSS
INF GR / CRS-4-1	Provisional Agenda for 4 th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-3-18	Minutes of 3 rd meeting of the Informal Group on Child Restraint System	Secretary
INF GR / CRS-3-17	Load level in Isofix Anchorages	CLEPA
INF GR / CRS-3-19	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-3-9	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 nd 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