

Minutes of 10th meeting of the Informal Group on Child Restraint System

Held at Test Achats Offices - Brussels
22nd April 2009

1 Welcome and Introductions

Pierre Castaing opened the meeting, welcomed the delegates and presented the meeting arrangements for the 10th meeting.

2 Roll call

See participant list.

Attendees and Apologies for Absence: See Annex 1

3 Approval of Agenda

Doc. INF GR / CRS-10-1

Some participants add presentation to original agenda

- Dorel → Dynamic tests
- TUB → Casper and improve of Casper
- VTI → Swedish point of view on third Isofix anchorage point
- Dorel → US small presentation of method and sled. Document was presented to NHTSA some weeks ago.

4 Approval of the Minutes of last meeting

Doc. INF GR / CRS-9-11

Due to the delay to send last minutes, secretary waits comments and remarks to modify the document.

5 Actions from the Minutes of last meeting

Pierre Castaing announces that the main task for this meeting will be agreement, of members, of basic principles of side impact protocol to have a draft for next GRSP meeting in December 09.

Ronald Vroman requests the chairman regarding frontal impact and conclusion of the past discussions, to remember to the members finale position on this topic? Pierre Castaing answers that principles for frontal test are clearly been identified and it is now only necessary to write technical specifications.

5.1 Dynamic Test – side configuration

5.1.1 Dorel presentation by François Renaudin – step 1 proposal

Doc. CRS-10-3

Main topic of presentation is to propose a side impact procedure for step one approach, taking into account intrusion loading, assessment of occupant kinematic and energy management. This methodology should be a low cost methodology with a minimum modification of currents

equipments in laboratories, which are already equipped to perform tests following ECE.R44 regulation.

Proposed procedure by DOREL, is based on a synthesis of ISO (for intrusion velocity, value of intrusion and sled acceleration), ECE.R44 rear impact test procedure (for test bench) and some evolutions as impactor fixed on rigid wall to generate intrusion. For intrusion, best solution will be to have a moving door on sled and to reproduce intrusion phenomena but due to lack of time to propose a solution for next GRSP meeting, methodology is simplified and a door panel is directly fixed on impactor, which used to generate intrusion. This impactor is directly fixed on the rigid wall. The door panel is cover with a padding material as describes in ISO. Dorel should perform some tests of characterization on material to validate it (with effort/displacement curves). The pulse is standard rearward pulse from R44 and dummies are Q3 and Q1 ½.

Dorel performed 21 tests with 3 types of CRS, 2 CRS, group 1 forward facing and group 0+ rearward facing with support leg, and saw a good repeatability for the sled velocity. Tests, in forward configuration, are compared with test performed on vehicle "Megane" and showed a correct level of correlation. For the tests, with CRS installed in rearward configuration, results on head are different with higher loadings. In a second step, tests are scheduled with less intrusion velocity in line with ISO proposal.

To conclude with this simplified methodology, intrusion is taken into account in line with recommendation and repeatability is satisfactory, especially for head acceleration and for forward CRS installation. This solution could allow using conventional R44 rig very cheaply.

Next scheduled steps are

- To adapt intrusion velocity to Rearward Facing or Forward Facing,
- To investigate influence of different deceleration devices,
- To determine mean to manage Isofix anchorage sliding motion.

Pierre Castaing requests TUV representative advice regarding methodology presented in Dorel document. Rudolf Gerlach specifies that it is in line with TUV proposal made during last meeting.

Different questions were asked regarding

- Necessity of angle for the door and representativeness of worst case
- Difference of velocity for RF and FF (20%) due to hinged position and evolution of relative velocity.
- Acceptable level for head acceleration and equivalence between rearward facing configuration and EuroNCAP test. Answer for this question is to take into account the worst case. Currently it is difficult to have an exact idea with so less cases, only results following NPACS protocol and one vehicle. The group needs active participation of members to provide data, to have more reference cases. Pierre Castaing proposes, also, to look in EuroNCAP database to extract results with children (rear position with P3 and P1 ½).

5.1.2 US test method

Doc.CRS-10-4

François Renaudin presents the works done by Dorel US using the Kettering University method. This method normally needs to use Hyge sled test fixture and have similarities with Takata procedure, but main aim of Kettering University is to applied methodology with a deceleration sled test fixture and to assess Takata and ISO paddings which cover the door panel. Tests will be scheduled with European products with and without Isofix.

5.1.3 Repeatability tests results

5.1.3.1 CSI

Doc.CRS-10-2

Purpose of the CSI presentation is a first assessment of the repeatability of side impact test, for CRS, with a deceleration test device equipped with a rigid fixed door. This door, covered by

a styrodur plane with thickness of 20 mm and with a height of 500 mm (from Cr point), is directly in contact with the CRS at T0.

Pulse used for the study is the standard R44 rear impact pulse, with velocity of 30 kph and stopping distance of 275 mm.

CSI tested 5 identical semi universal Isofix group 0+ CRS with a Q1 ½ dummy, installed in line with R44 prescriptions. The weight of the couple “dummy and CRS” is 22.5 kg. Statics measurements from installation during the five tests show maximum deviation of 13, deviation for shoulder distance to seat back top. Standard deviation is around 3% for all the parameter.

Biomechanical results show a deviation of 10% (average) for Head/Thorax/Pelvis. Attributed to biomechanical limits for child regulations (Europe/US/Australia), global repeatability is acceptable.

CSI’s representative give information that tests are not consecutive and general conditions of the laboratory could influence results on the sled or on the dummy.

Farid Bendjellal notes high value, in average, for head deceleration (88g). François Renaudin specifies that, in the case of these tests due to initial conditions (as door is directly in contact with the CRS), loading is provided directly by the dummy which comes in contact with the CRS. Intrusion, which stays important parameter in side impact, is not taking into account.

Pierre Castaing emphasises that the presentation shows that we are able to manage the stopping distance, positioning of the dummy with correct repeatability needs that dummies suppliers define a reference points on the dummy as for adult dummies. Pierre Castaing is not sure that these tests give good information regarding head containment. He notes that loading of CRS, in this study, is different that the one with reproduction of intrusion, but requests experts on the group to check if the load orientation is the same.

Farid Bendjellal wishes more information regarding repeatability of PU tubes, used by laboratories to obtain deceleration curves, and have the same remark regarding variability of stopping distance. Variability is also important regarding biomechanical criteria; so it could be important to focus work on the group on the head in a first step, due to the fact that Q dummy family is not totally develop for side impact, and Qs family is not validated in Europe.

Moreover head containment is difficult tasks for CRS in forward facing position, particularly if the chosen angle, for test bench orientation regarding intrusion system, is not 90° but 80°, as for some consumerist test protocols in Europe. For Rearward Facing installation, it’s not challenging.

Pierre Castaing, following TUV proposal and consolidation from presentation of Dorel, wishes with agreements of members, to amend this solution. All except TUB representative, who is surprised that ISO protocol is not held, members amend TUV proposal.

Regarding head containment, some members request attention on this item. Pierre Castaing reminds to the group that it is a first step and today we have no the best solution for head containment but we could improve our solution in a second step.

Pierre Castaing proposes to prepare a matrix with specific technical points to assess method when group will have finish to write it. Matrix covers all items:

Doc.CRS-10-5

- Test bench with correct foam/Anchorages/Geometry. Currently most laboratories are equipped by standard R44 test bench, but not with device we discussed during previous meeting. Pierre Castaing reminds the group that selected test bench is based on NPACS definition for geometry, anchorages and foam. He is aware that the modifications need time and wishes that information needed to develop new test benches could be sending as soon as possible by concerned members as Dorel or TUB. Hans Ammerlaan reminds that Kees Waagmeester from FTSS waits information from laboratories regarding foam which equipped test bench to give recommendation for new foam.

Action Marianne Hynd + Laboratories

- Regarding floor definition, TUB gives confirmation that floor is defined in NPACS protocol, with adjustability required. For future regulation, open question as ECE.R44 or NPACS definition will be used due to the fact adjustable floor is only needed for the support

leg adjustable. In the same time, Pierre Castaing requests ISO representative regarding progress in work on interface between floor vehicles and CRS support legs. ISO group have some data on positions of legs but need time to make a proposal.

- A problem subsists regarding Isofix anchorages. The group need to define if there are free or not on Y-Direction, and connection between backrest and/or lower part of the test device. TUB can provide the drawings even if representative is not sure that it is the best solution for new bench. It is necessary that members consider this item before next meeting

Action All

Moreover François Renaudin asks regarding position of lower anchorages, rearward or forward position, and specifies in NPACS, anchorages are in rearward position. The group accepts to choose the rearward position for our testing device.

- The sled could be a deceleration device with braking system and stopping distance. Laboratories and CRS suppliers have agreed to say that we need minimum constraints on the test device to avoid identical troubles as in current R44, with accumulation of specifications (deceleration/stopping distance/ ΔV)

- The door needs more definition on dimensions, shape form, position and foam. François Renaudin thinks the group could use foam defined in ISO. For the shape of the door, a flat surface is simple and could be enough in first step and the position, height, could be following ISO definition plus position given versus Cr point Dorel can provide drawings of a door.

This door needs to be installed on impactor without angle, for forward or rearward facing installation, in the first approach. In second step, we could check and adopt 10° if angle has influence on head containment or results for forward facing.

- Regarding intrusion conditions, it is necessary to define T0 and location where it is measured, intrusion velocity, final position and definition of displacement distance.

- For pulse, Pierre Castaing requests Paolo Fumagali, from CSI, to supply a shape for future delta-V, based on current ECE.R44.

- For installation, currently, protocol is the same for EuroNCAP, R44 and seems to be identical for NPACS and some consumer's institutes. Without indication against, it could be possible to use standard protocol.

- Last point is about dummy. ? Q1 ½ and Q3 dummies are currently used for tests performed in laboratories. It doesn't seem necessary to perform test with other dummy. By experience, the worst case for head containment is when using Q3 and for biomechanical criteria, the best (for worst case) is the smaller dummy.

Members discuss type of CRS needed to test on this test bench, with the defined technical specifications in order to be sure that we cover the product. François Renaudin proposes to test CRS from Group 0+ rearward facing, Group 1 rearward facing (big one) (with support leg or top tether), Group 1 forward facing (with support leg or top tether).

Pierre Castaing adds that it will be interesting to test CRS ISOfix without wings, even if this type of products is not used in Europe. Solution could be to test US CRS. GRACO representative specifies that CRS fixtures on US CRS are different, by latches and not by Isofix as in Europe. This particularity could generate difference of rigidity in fixation, so not really a good comparison. Definitions of CRS, to be tested, are included in the matrix.

Finally Pierre Castaing requests volunteers to perform tests, with firstly evolution of the test benches, etc. Tests could be performed before end of September 09.

If data are needed for foam cushion, the contact is Kees Waagmeester, for foam door panel, Heiko Johanssen (TUB), for test bench geometry François Renaudin (Dorel).

Pierre Castaing requests members to answer as soon as possible to the tests matrix proposal and send comments or remarks to secretary before next meeting in July.

Ronald Vroman requests the chairman for a schedule regarding writing of draft for GRSP and deadline associated. Pierre Castaing answers that if we want a formal document at the December session of GRSP it should be sent to GRSP before the 20th of September. As it is not possible he proposes to send a draft informal document to GRSP just before December and the formal document for May 2010 session of GRSP.

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

6.2 Draft proposal (chairman)

Pierre Castaing gives a quick presentation of draft document prepared by UTAC. This document is standard ECE format and will be sent to members to be completed and worked on redaction.

7 Date and Venue of Next Meetings

Dates of next meetings were planned:

- July, 2nd – Brussels (CLEPA)
- September, 2nd – To be defined.

8 AOB

1.1. CASPER presentation (TUB)

TUB representative gives some information regarding a European Research Program, CASPER, which succeeds to CREST and CHILD, and is orientated to the protection of children. One task of this program is the assessment of test procedure. So CASPER, and laboratories included in the consortium (BAST/LAB/IDIADA/INRETS/TUB), could from December 2009, support the group and assess the chosen test procedures.

Pierre Castaing thanks this proposal and remarks that CASPER could be useful for the group in the second step of the work, following first presentation to the GRSP, in December.

1.2. Swedish point (VTI)

VTI representative presents Swedish work on a potential geometric zone where it could be possible to define a 3rd ISOFIX anchorage for connection with a rearward facing or forward facing CRS.

VTI develops a measurements fixture, based on R2 and R3 gabarits. With this fixture, 6 vehicles, representative of a part of the fleet, were measured and position of anchorage point, with X and Z coordinates (vehicle coordinate system) was measured for rear seat of car.

The point, defined with this methodology, could simplify works and life for three partners: automotive manufacturers, CRS manufacturers and consumers.

Pierre Castaing asks if this method is applied only on rear seat. VTI representative answers that they work only on rear seat because front seat is not a good solution, due to sliding seat.

Following the presentation Pierre Castaing reminds to the group that definition of a third Isofix anchorage point is a complex issue and needs a revision of ECE.R14. This revision is not in the ToR of our group and if some members want to work on this item, it will be necessary to request GRSP on it and this request should come from a member state.

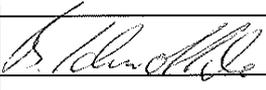
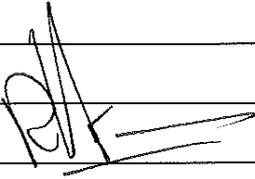
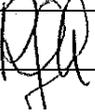
9 Actions

Members are invited to work on each item to finalize the studies and to start redaction of a proposal .

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

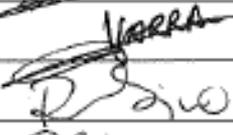
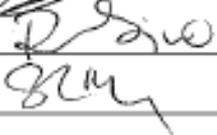
JP LEPRETRE
Secretary
29th June 2009

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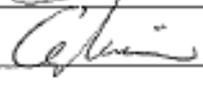
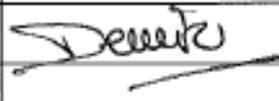
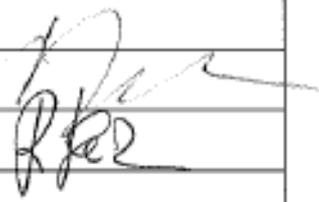
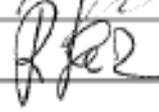
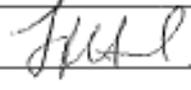
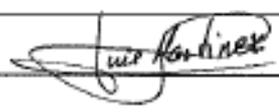
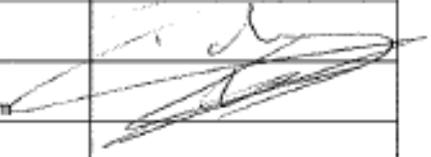
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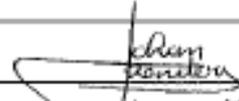
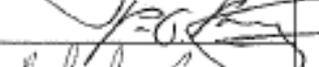
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Action Number	Action	Target Date	Action By	Comp Date
1.1	Terms of reference	01/04/08	Chairman	01/04/08
1.2	Test Bench definition – Information/Presentation following NPACS protocol	13/05/08	OICA / CI	13/05/08
1.3	R point / Cr point correlation	Postponed 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 NPACS 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	
4.02	Dummies – Repeatability and reproducibility in Q-family	02/09/08	All	
4.03	EEVC WG18 Chairman to discuss for future collaborations	02/09/08	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	
4.07	Tests to assess differences between ECE.R44 and R94 pulses	02/09/08	UTAC	
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	

Action Number	Action	Target Date	Action By	Comp Date
6.08	Working document on Side Impact	21/01/09	F.Bendjellal	
7.01	Classification Synthesis	21/01/09	Secretary	
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	
8.01			

Document Number	Title	Origin
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 ISOFIX	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