Minutes of 9th meeting of the Informal Group on Child Restraint System

Held at OICA Offices - Paris
11th March 2009

1 Welcome and Introductions

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

2 Roll call

See participant list.

Attendees and Apologies for Absence: See Annex 1

3 Approval of Agenda

Doc. INF GR / CRS-9-1_Final

The draft agenda was adopted with the addition of presentations from
- Marianne Hynd regarding bench foam definition,

4 Approval of the Minutes of last meeting

Doc. INF GR / CRS-8-6

The Minutes were not sent before the meeting and so adoption of Minutes of the 8th meeting is postponed to the next meeting.

5 Actions from the Minutes of last meeting

Pierre Castaing decides to start the review of action list by the topic on Side Impact Protocols. We receive numbers of documents and presentations.

5.1 Dynamic Test – side configuration

5.1.1 Initial evaluation of Child side impact protection - Update

Doc. INF GR / CRS-9-2

Suzanne Meyerson presented the NHTSA work on Takata Side Impact Sled protocol assessment. The sled velocity is 20 mph (32 kph) based on small vehicle FMVSS214 tests (door accelerometers), and deceleration is a ½ sine with maximum peak of approximately 28g. This deceleration is obtained by using honeycomb structure. For contact with the CRS, door panel is equipped with padding. Tests achieved a good repeatability.

Previously, in May 2008, the group received a first presentation with test performed on 5 different CRS, use of Q3S dummy and configuration of tests with two angles 0° and 10°. For this second series of tests, impact angle was adjusted to 0°/10°/15° and 20°. 3 of the previous 5 CRS models tested are selected: Graco SafeSeat/ Evenflo Triumph/ Maxi-Cosi

Priori. This selection is based on side wing design. The Graco SafetySafe and the Maxi-Cosi Priori are tested with 15° impact angle, and a second Graco SafetySafe and the Evenflo Triumph with 20° impact angle.
Global results have shown that Graco CRS has good head containment; Angle evolution (0° to 20°) has an influence on HIC and neck tensio n but less influence on spine/pelvis accelerations and lateral chest displacements.

4 Full scale tests, 2 with Nissan Sentra and 2 with Nissan Versa, were performed to obtain more information as the amounts of door intrusion and the vehicle rotation at CRS/dummy location. Moreover dummy responses were studied to assess sled test severity and parameters. These test comparisons could be determining similarities between crash tests and sled tests.
1 test (with Sentra vehicle) is performed following FMVSS214 conditions and 3 others tests are performed with impact points 228.6 millimetres rearward of that specified in US document, to more directly load door at occupant positions.
Dummies used during the tests are Q3s, with the first version for the neck, for the near side and Hybrid III 3Cs for far-side.
Full scale tests have shown very similar responses to sled tests. For both types of tests (with sled or vehicles) results are comparable. Dummy and CRS kinematics are similar too. Additional work and investigations are needed to finalize the study.

5.1.2 ISO presentation

Doc. INF GR / CRS-9-3

Michele Maitre gives to the group an overview of ISO work regarding request of this group, request sent to ISO/TC22/SC12 in April 2008 to support work of the group on the definition of a side impact test procedure. Michele Maitre reminds that there was not International consensus on dynamic test method and due to the deadline to present a first document to GRSP, the working group proposed to ISO to provide a synthesis document which defines essential parameters of a “simplified” test method. This method should be able to validate that a CRS will offer sufficient protection with correct head containment and correct level of energy absorption.

This work is finished and a document is submitted for approval to ISO members. Final vote is in two months (May 09). This document is a strict answer to the group request and offers a matrix with the main parameters.

Members of the GRSP Informal Group on CRS need some technical explanations. Pierre Castaing asks if acceleration or deceleration levels are the same in ISO document and in Takata method. François Renaudin answers that to avoid confusion, it is important to specify which acceleration we take into account, door or sled acceleration.

Action ISO

5.1.3 TUV presentation

Doc. INF GR / CRS-9-4

Mister Gerlach, from TÜV, proposes a method based on ECE.R44 test bench to avoid important modifications on test laboratories benches. A Sliding seat with a fixed door could be fitted on the test bench, seat and back rest based on current device. Position of the door could be defined with a distance between centre of dummy head and the door, and completed with angle between the door and the central line of CRS. Mass of the test bench could be similar to current device and test bench anchorages will give possibility to fix CRS with a belt or by ISOFIX.

Following this proposal, members request additional data as films or results of tests. TUV representative explains that, today, it is only a proposal.

Marianne Hynd reminds to the group some difficulties met during development of side impact methods regarding Isofix anchorages, with fixed or sliding solutions. Luis Martinez has question on control of acceleration of CRS or sled. MPA representative answers that this idea is based, today, on a simpler proposal with fewer difficulties to the laboratories to apply it, compared to current proposals we studied. This idea could be detailed. TUV representative confirms this point of view.

Action TUV

5.1.4 Transport Canada Side Impact Child Program

Doc. INF GR / CRS-9-5

Suzanne Tylco presents to the group results of study whose objective was to develop test procedure that simulate side impact crashes for evaluation of all type of child restraint systems types.
The initial test configuration is a crash with a 50 kph bullet car (or trolley) and a 90° angle impact in B-pillar area of the target car. Car to car (or Trolley) tests are initiated to give information for the future crash simulation method.
Tests results provided are born from tests with two types of bullet car/trolley: a SUV (Nissan Murano), and an IIHS barrier. These results are shown that intrusion is more important with SUV, due to aggressiveness of vehicle front end in comparison with the barrier geometry. Moreover biomechanical criteria are showing same tendency, with levels for chest and pelvis acceleration more important in SUV configuration.
Regarding dummy kinematics, study is showing that it is function of impactor geometry. Relative velocities, between pelvis and spine, are different regarding geometries of impactors (rigid wall/chamfered wall or small car).
The crash simulation method should be a reproducible method on different sleds, should be offered a correct interface between CRS and door should take into account energy transfer and load path. Finally this method should be validated by results of car/car.

This presentation gives to the group information of the first step of study on Side Impact Child Program undertaken by Transport Canada institute, which needs some months to finalize and to consolidate it.

Farid Bendjellal needs some clarification regarding type of child dummies used in the program. Suzanne Tylco specifies that in a first time, they used a Q3s and now they wait a Q6s to complete their tests.

5.1.5 Q German view point – TUB presentation

Doc. INF GR / CRS-9-6

Heiko Johannsen, from TUB, presents German view point regarding side impact test procedure for homologation of CRS, taking into account Informal group time schedule conditions: draft version for December 2009 with two phase approach planned.
Some possible procedures are defined:

- sled tests with intrusion (hinged door with rotation or translational intrusion),
- sled tests without intrusion (fixed or without door),
- subsystem tests,

The first proposal included a hinged door, which was investigated by ISO and implemented by TNO, TRL and TUB with different experience and during several validation tests to compare with ECE.R95. Results are shown good reproduction of structural mechanisms measured in ECE.R95 tests.
Solution with hinged door was assessed by TUB and TRL. Repeatability and reproducibility were good (even if for reproducibility, method need to be tested again in another laboratory). Intrusion loading is reproducing and simulating real world occupant kinematics and realistic loading conditions.

A translational intrusion procedure (NHTSA) was investigated and implemented by Takata and US labs. Test bench is fitted with a sliding test seat which translates to impact rigid element which simulate door panel. Currently, there are no more information and no results/data to study.

For method without intrusion, Australian method (CREP) is constituted by test bench mounted in 90° or 66° on sled with a fixed door. No more information on it.

ADAC method (consumer method) is constituted by a body in white mounted in 80° on sled with fixed door. This is a simple test set-up method, with correct level of repeatability (for ADAC). Regarding reproducibility, Dorel and TUB report problem to reproduce severity level with same input conditions. This solution doesn't offer possibility to simulate intrusion loadings and so is not really reproduction of real world loading conditions, according to ISO document (PAS13396).

Heiko Johannsen presents a series of car tests, conducted with NPACS, with 6 CRS, 3 in forward facing position and 3 in rearward facing position. Results are shown comparable behaviors to hinged door tests for forward facing and rearward facing CRS but not for Rearward facing CRS with fixed door.

So following these data, German proposal is to work in two steps.
In a first step, a simple and fast realisation, but representative of real world loading conditions, with the use of existing devices could be considered. Method could be separated in two tests: one for kinematics with head containment and the other for energy absorption with a drop test for assessment of energy management.
For the containment test, the method that could be used is based on the current ECE.R44 test bench with a fixed door and clear definition of the CRS position versus door panel. Aim of this containment test is only head protection.

In a second step, hinged door could be investigated.

5.1.6 Key metrics of existing Side Impact Methods (final version)

Doc. INF GR / CRS-9-7

Farid Bendjellal presents document which is a synthesis of side impact methods as ISO/NPACS/ADAC/Australia AS/NZS 1754 (with and without door)/US. Aim of the table is to summarize all methods, to help members to take a final decision.
Document is completed by participants following questions and answers.
Regarding ISO method, Hans Ammerlaan emphasizes that this method is based on data from ECE.R95, when Canada/US method used accidentology data. ECE.R95 is an old regulation and validity of the barrier is discussed in EEVC WG13 due to evolution of the vehicles. Pierre Castaing agreed with this comment but request from participants the possibility to take a first decision for the phase 1 before December 09. The solution could be to define a simple method based on sled test with a level of deceleration of 12g and a velocity of 23kph. This method, which could assess in a first step the CRS restraint, should be reviewed in a phase 2.
François Renaudin specifies that, in side impact, the main parameter is intrusion velocity and not velocity of the sled at the end of impact, so it is important to specify this intrusion velocity. The group must check if the table is in coherence on this subject and ISO document could be the basis for this checking. Following presentations the group received during previous meetings and information/reaction/experiences of members, for Pierre Castaing, hinged door method seems to be sufficiently documented with current data. So in a first step, the group could agree on a simple method with fixed door, as in German presentation with a preliminary work of partners to define the door position before impact.

So the group needs information from tests as position of CRS following positions of Isofix anchorages versus door geometries, etc.
Michele Maitre proposes to introduce ISO parameters in the matrix to continue the discussion about side impact methodology choice.

Action Farid

Farid Bendjellal explains that in Australia, following addition of side impact test in regulation, there are two benefits:
- Apparition of backrest on boosters,
- Evolution of head absorption energy system on CRS

For mister Vroman, regulation must give a minimum level of safety, so a first step could be to define these minima.

Pierre Castaing proposes another simple solution based on ECE.R44 rear impact configuration, configuration known by all members and laboratories. This proposition is a sled with a pulse and velocity between 30 and 32kph + stopping distance of 300 millimeters which impact a rigid element fixed on a wall. The test bench could be fitted on the sled with angle of 90°. The shape of the rigid element needs to be defined. Door will be a fixed door, directly against the CRS. The group will work, in a second step on a hinged door solution.

Members need to analyze this proposal and Pierre Castaing requests volunteers to work on and to assess this simple method.

Action All

Regarding dummy, due to the fact Q3s is not available in Europe, first step of proposal will include standard Q3 and in a second step, we could change the type of dummy with adoption of "Qs series" if studies on this new type of dummy will be satisfactory.

Next point regarding side impact method and drop test assessment, for mechanical test, chairman will appreciate to receive technical data from TUB, following presentation and document INF GR / CRS-9-6 associated, as energy, shape of headform, impact points (inside or outside points on CRS), boundary conditions to fix the CRS for the test.

5.1.7 FTSS Presentation on Test Bench Foam Definition

Doc. INF GR / CRS-9-8

Kees Waagmeester presents recent work from FTSS regarding technical definition of test bench foam. In previous document (CRS-6-2), some characteristics (dimensions) are provided. During The 8th meeting, type of foam was adopted for seat and backrest. Therefore some dimensions need to be clarified due to differences between drawings in NPACS document and ECE.R44 text.
Some technical points are still waiting answers to better define and choose the type of foam. It is important to find and adopt the more realistic and repeatable calibration method for the foam. The group must decide if dynamic drop test is the best way for calibration, position of impact points, which parameter is the most suitable (acceleration, deflection, force/deflection curve, etc.). To answer to these questions, FTSS needs supports and data to propose complete method.

Action All

5.1.8 TRL Presentation on Contribution to the definition of the test seat

Doc. INF GR / CRS-9-9

Marianne Hynd brings some technical data from NPACS calibration drop tests. She gives clarifications of dimensions of NPACS test bench.
Method used in NPACS program to check the behavior of the foam is different than the one in ECE.R44. NPACS method needs to test three different points with three different heights (9 values).

5.2 Classification

Chairman shows briefly curve from CANDAT and DOREL data which synthesis height versus weight, with the addition of groups following ages. Pierre Castaing reminds to the group that one of their aims is to provide a “design regulation” not a “usage regulation”. So definition of classes seems not necessary.
Britta Schnottalle answers the group regarding difficulties for the customers to find the CRS which will correspond to their needs because without classes to give boundaries, suppliers of CRS could be supplying a so large range of CRS.
Pierre Castaing repeats his whish to forget old type of classification (with groups and classes) and to offer possibility to suppliers to work differently with only restrictions which come from mass acceptable by IsoFIX anchorages and geometric limitations of the CRS.

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

No more data.

7 Date and Venue of Next Meetings

Dates of next meetings were planned:

- April, 22nd – “Test Achats” Offices (Brussels)
- June, 19th – To be defined

8 AOB

No other business.

9 Actions

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

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
18 March 2009

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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	
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 rpesent 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-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	Stifftung 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 7th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-6-9	Minutes of 6th 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 6th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-5-6	Minutes of 5th 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 5th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-4-9	Minutes of 4th 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 4th meeting of the Informal Group on Child Restraint System	Chairman
INF GR / CRS-3-18	Minutes of 3rd 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 2nd 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