Minutes of 6th meeting of the Informal Group on Child Restraint System

Held at ACEA office - Brussels
7th October 2008

1 Welcome and Introductions

Pierre Castaing opened the meeting (at 9.55) and welcomed the delegates. He welcomed the participation of Alena Hagedorn from VRTC-NHTSA.

2 Roll call

See participant list.

Attendees and Apologies for Absence: See Annex 1

3 Approval of Agenda

Doc. INF GR / CRS-6-1_Final

The draft agenda was adopted with the additions of:

- Two presentations from Mrs Alena Hagedorn VRTC-NHTSA, on child dummy and side impact sled test.
- A presentation from OICA on Isofix loads
- A document from Hans Ammerlan on classification.
    - Mr Ammerlan requested a clarification on contributions from NL and CLEPA on classification item. Pierre Castaing confirmed that NL work deals with the subject of occupant size while CLEPA is working load level on anchorages. So these are not the same topics.
- Discussion on non Isofix rearward facing seats, requested by Goran Eriksonn. From Sweden.

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 members comments received from Suzanne Meyerson related to items 5 3 2 and 6. The minutes should be corrected as follows :

    - **§5.3.2 -** NHTSA reported that the status was presented at last GRSP. Since then, the omni directional neck is being incorporated by FTSS into the Qs dummy. Also the thorax has been redesigned. The pelvis and upper femur are also changed. NHTSA believes the Qs with the omni directional neck will be a more biofidelic dummy for side impacts than is currently available. A next update will be presented at next GRSP.
    - **§6** – "…NHTSA added they are doing their own research looking at the side impact dummy and the Takata test sled. However, they feel that due to oblique side impacts it may be difficult to expect the child restraint to do all the work in protecting the child, and we should investigate whether we should also look at regulating aspects of the car structure to cooperate in the protection (i.e. energy absorption). NHTSA expects to complete their research in 2009."

- Remark from Ronald Vroman (CI) regarding item 9., “Actions” paragraph on Rear Impact “ … For the rear impact the conclusion was it is **not** necessary to take it on board”.

5 Actions from the Minutes of last meeting

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

5.1 Test bench

5.1.1 ECE.R44 and NPACS benches comparison by TRL

Doc. INF GR / CRS-6-2

Marianne Le Claire presented document which summarizes information on the test bench.
NPACS test bench has a geometry that was established from vehicles investigated in the project. Cushion and seat back of the bench are equipped with foam which is provided by FTSS. At present the foam characteristics are defined as FTSS cushion specifications T57700.
The group needs better specifications for integration into the regulation. A suggestion was put forward to add dynamic test (impactor) to calibrate the material of the cushions.

Action FTSS

FTSS asked to the group to define details regarding specification needed to obtain the best characterization of the foam. General characteristics of material such as density, dynamic behaviour, etc., rather than a specific type of foam (example: definition of honeycomb barrier in ECE.R95).
There is the same issue with the foam covering and the group needs same types of information to define this element too.

Head Restraint on the bench?
A discussion took place on the need to have a HR on the test bench. It was felt that we don’t have enough data on head restraint in vehicles to define a generic HR. FB suggested to keep the HR subject on board as the design of a HR may influence the CRS position in relation to seat bench.

Isofix anchorages - location of 3rd alternative point
Data are needed from car manufacturers on the location of this anchorage.

Adult belt
There is no link between ISOFIX anchorages and safety belt anchorages due to ECE R14. In this regulation these positions are not checked relative to each other. The absence of such a link lead to difficulties in some vehicles where the seat belt buckle interferes with Isofix anchorage. As a matter of fact Michael Degener commented on conflicts between Isofix anchorages and seat belt buckles on VW vehicles Lupo and New Beetle due to geometry of the seats. When Isofix anchorages are between buckle there is no possibility to use seat belt with booster seats equipped with the Isofix system.

It was felt that in the future if we define booster seats with ISOFIX anchorages then such a link will be needed.

What will happen with present R44 test benches?
Old test bench will be kept and technical services will need to have two test benches for both regulations, ECE.R44 and the new one.

Pierre Castaing summarized the discussion on the two items: the relevance of including an head restraint into the test bench and the relative position of Isofix and seat belt anchorages.
Decision was taken by the group to use same axis for Isofix anchorages and seat belt anchorages.

Is a dash needed for the new bench?
The current dash in R44 is too stiff. In case of interaction of CRS with the dash high loads on the dummy can be generated. The question is whether it is needed.
It is mentioned that in FMVSS 213 there is no dash. Pierre Castaing mentions that with Isofix the CRS kinematics including its rotation can be controlled. So a dynamic test without a dash could be considered combined or not with a subsystem test on the back of the CRS to provide for some energy absorption.
A discussion takes place on the risk associated with the gap between the front seat or dash and the CRS. For a rear facing seat we consider that Isofix with a support leg that is connected to a 3rd alternative point may offer a universal solution. As a dash is not an anti rotation device it is proposed to drop it from the test. To cover cases where a contact between the CRS and the dash occurs, it is suggested to envisage an energy absorption test on the CRS.
CLEPA expressed their serious concerns about the addition of such a test.

Pierre Castaing proposed a summary for the Test Bench

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

In conclusion volunteers are needed to work on these new data. They are invited to contact Marianne Le Claire.

5.2 Swedish contribution

Goran Eriksson gives us Swedish recommendation regarding CRS: customers should be used CRS rearward facing position until 4 years. This is the best way to protect children. Pierre CASTAING reminds that there is big dispersion in term of size and weight for a same age. Moreover the “Size” presents different aspects as weight, behavior of children in the CRS if he is bigger, difficulties for child to install himself in CRS, etc.

Questions: Sweden is afraid to loose the semi universal approval for non Isofix seats
Semi Universal approval still possible in future: Yes (so our legal responsibility)
We will not stop existing systems such as semi universal RF G 1 2. FB mentioned that having both universal Isofix and semi universal RF seats for non Isofix cars will be complicated to manage by CRS manufacturers.

What is max size used at present in Sweden in RF ‘4 years? Action for Sweden for next meeting

Action Sweden

In our approach, we try to clarify and answer on its topic when we study the chapter classification with the different anthropometric data analysis. For the moment, Group doesn’t finish to discuss around classification. So we have no idea at this time as regards limitation for rearward or forward facing seats.

Regarding question from Alf Holgers, Pierre Castaing reminds that we will keep current ECE.R44 with associated production. New regulation will be for the future CRS. It will be

transition phase between the both regulations. It is not question to re-qualify current CRS with the new regulation.

5.3 Classification – Load level in Isofix anchorages

5.3.1 CLEPA presentation

Tests should be performed in a near future. Measurements in the support leg are planed, but there is a need to develop a specific instrumentation.

Action CLEPA

5.3.2 OICA presentation

Doc. INF GR / CRS-6-3

The presentation is about “Load level in anchorage system (Isofix and Top Tether)” and possible extension of acceptable weight for child and CRS. The study reports on data obtained from simulation and physical tests according to European and US regulations (ECE.R14 and FMVSS 225).

The study included the following configurations:

- Static configuration, forces are applied with a D-FAD - dynamic force application device, which is based on the lower anchorages of S-FAD (from ECE.R14) and geometry of child restraint fixture ISO/F2 (from FMVSS225). The weight of this D-FAD is 40 kg (weighted 6 year old is 30 kg and the CRS mass is 10 kg). Force level is 9 kN for each anchorage.
- Dynamic configuration, force are applied by the same D-FAD. USNCAP pulse is applied (56 km/h)

Analysis results are very similar for both configurations in term of maximum load level. On the contrary, there are differences regarding time application. There are similar plastic deformations of lower anchorages for static and dynamic test.

Load levels in top tether anchorage are approximately the same in both tests (static and dynamic). Load levels are near 5 kN per anchorage.

The dynamic sled test was carried out in the same configuration as for the computer simulation:2 D-FAD with USNCAP pulse on a vehicle body.

Isofix load level measurements in the sled test were 12.5 kN and 5 kN for outboard and inboard anchorages.

The conclusion of the study was that with current static strength requirements of FMVSS225 the extension to an age limit of 6-year old weighted (30 kg child and 10 kg for CRS) may pose problem.

A proposal to reach more flexibility in the application of ISOFIX child restraint could be

- A definition of a total weight for the couple [Child + CRS]
- A permissible weight of the child is then depending on child restraint system weight.

5.3.3 Other issues concerning classification

Doc. INF GR / CRS-6-4

Hans Ammerlaan presented to the group a first document which could serve as a basis to write the new regulation.

First part of this document is a synthesis of definitions,

- Definition of a CRS,

- Definition of Isofix as a specific system of connection
- Definition of Integral as a class indication for the restraint of the child, opposite to non-integral
- Definitions of size as stature indication, based on maximum mass of the child in order to provide indications to CRS manufacturers on expected max. loads to which the CRS will be exposed. Example:
    - size 50-74 cm ; 9,5 kg
    - size 50-80 cm ; 11 kg (P1 ½)
    - size 74-98 cm ; 14,5 kg
    - size 98-114 cm ; 23 kg
    - size 114-140 cm ; 34 kg
- Definition of orientation = rearward or forward facing
- Key observations
    - No Forward facing seats up to 50-74 and 50-80 classes
    - Class 74-98 in Rearward Facing mode strongly recommended

Pierre Castaing asked the group to examine the document and to send as soon as possible contribution / reaction / new proposal / comments to Mr Ammerlaan in order to make a progress in the drafting the new regulation.

Action all

Following discussion regarding future qualification of new CRSs, Pierre Castaing reminds the group on the possibility to define two types of test: a mechanical strength test with for instance a weighted dummy and a second test with [CRS + dummy] including measurements of biomechanical criteria. The dummy means here each dummy included in the defined shape of the CRS.

CLEPA raised a reservation on weighted dummies and also on the risk to add too much tests.

5.4 Dummies

5.4.1 Side Impact child dummy

Alena Hagedorn, from Transportation Research Center in US presented to the group NHTSA results regarding the last comparison between Hybrid III 3 yo and Q3s. Both dummies are received new features as new fiberglass skull, improve deign for shoulder, pelvis and arm for the Q3s, and modified head / neck for HIII-3Cs.

Assessments of the both dummies are given on several aspects which include biofidelity comparisons, dummy part durability, current and future developments.

For biofidelity comparisons, tests are performed on standard calibration benches (pendulum) for static assessment and on sled for dynamic assessment. Assessments are concerned head/neck/shoulder/thorax/abdomen and pelvis.

The preliminary biofidelity analysis is indicated improvements for head / neck / shoulder / thorax / abdomen and pelvis on the Q3s and for head / neck on the 3Cs

Durability researches are concerned thorax (rib cage) for dummies, hip and femur for Q3s. Improvements are in progress.

US worked on the development of certification procedure, with used of bench seat for thorax calibration (with arm test) and an increased mass impactor.

Future work will be about

- Evaluations of improved dummy parts (thorax / neck / femur and pelvis),
- To finalize certification procedure and assess repeatability and reproducibility,
- To conduct sled tests for additional biofidelity assessments

New dummy prototype should be delivered for en of this year and tests conducted (evaluations) until March 09. Following these tests, biomechanical criteria are needed to be developed.

Pierre Castaing thanked Alena for excellent presentation and very interesting data. He asked when NHTSA activity will be completed. Alena mentioned that new Q3S prototype is due end of October and the evaluation will last until March. Criteria are needed to be developed. Pierre Casting mentioned that the Informal GRSP Group will be happy to get further input on NHTSA work when available.

Action NHTSA

5.4.2 Q dummy synthesis document from FTSS

Doc. INF GR / CRS-6-6

Mister Waagmeester offered to the members an overview of the Q dummy family modification history. In total FTSS has delivered 23 Q3 (18 Q3 in Europe and 5 Q3 in Asia) and 3 Q6 before 2004. All European Q3 dummies are upgraded and Q6 were delivered on finalized version (no upgrade is needed).

From the document presented it appears that Q dummy configuration is consistent since 2004, and no modification was provided on dummies or on parts since that date.

Mister Waagmeester draws members/users attention to the fact that FTSS customers could keep old parts in their stocks and could use them. He recommends checking these points by each lab with consultation with FTSS.

Moreover FTSS recommends replacing all chest string potentiometers, which may equip certain Q dummies, by IR-TRACC (6 string potentiometers).

Following this presentation Farid Bendjellal asked Mister Waagmeester on the biofidelity of Q dummies for use in side impact test configuration. The most important question for the group now is: Is the Q family designed for side impact tests?

FTSS specifies that they started the design of the dummy for use in both directions (frontal and side). It appears that it was difficult to combine both. Q is “better” tool for frontal impact than P Dummy.

Following this information, the group needs to have clarification regarding the limits of Q dummy for side impact test configuration? Load level acceptable, etc.?

For FTSS, ADAC use Q dummies in side Impact, NPACS and TUB too, and for durability, there are no problem.

How did Q Dummies behave in NPACS tests? TRL was requested to provide envelop of results on body regions.

Action TRL

5.5 Dynamic Test

5.5.1 CLEPA upgrade of information on lateral impact methodologies

No more data.

5.5.2 NPACS study on rear impact by IDIADA

This presentation is postponed next meeting (November).

Action IDIADA

5.5.3 UTAC presentation on pulses

This presentation is postponed next meeting (November).

Action UTAC + Partners to lend second Q3

UTAC will supply more data (PDB data expected). In the group Ad'hoc on Regulation 94, UTAC will produce complete study on pulses with comparison between ECE.R94 and PDB test results. This study could be presented to the group on CRS to discuss about the future frontal pulse.

Action UTAC

Pierre Castaing requested OICA if it is be possible to obtain data of vehicle decelerations from manufacturers (ECE.R94, EuroNCAP, USNCAP or TRIAS, PDB, etc.) to have a broad overview on the subject.

Action OICA

5.5.4 Sled test investigation - presentation from VRTC/NHTSA

Doc. INF GR / CRS-6-7

1/ Alena Hagedorn presented the progress of NHTSA VRTC investigation into a sled test method. The starting point was the evaluation of the Takata double sled method.

2/ NHTSA evaluation of Takata Sled including sled variables (sliding seat acceleration, door velocity, door padding stiffness, seat cushion, foam, ….)

4/ Sled test pulse parameter: Sliding seat acceleration = 20g; Sled door velocity = 20mph

First series of test with sliding seat = no head containment for the both configuration 0° and 10°

Second series of tests with locked seat (fixed door)

Sliding vs locked seat => locked seat configuration appeared to be more severe for all body segments/criteria.

5/ Summary

Sliding = better real-world simulation + sliding seat configuration repeatable

Locker = simpler to fabricate, but no repeatability tests yet; resulted in higher injury values.

6/ Recent tests with another angles (15 and 20° angle tests)

7/ Next Steps - Continue test procedure development and evaluation, including buck angle, etc.

Knowledge of the group today regarding the dummy for side impact is based on Q family and there is no knowledge at all regarding Q3s.

For Pierre Castaing, it is too early to introduce side impact test due to lack of knowledge today. WG18 will work on it in the future (depend on new EEVC ToRs and EEVC SC decision).

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

- Nederland promised to provide a Working Document Matrix: Issue / Subject.

Hans Ammerlaan provided the document and requested to the group comments on it to improve if necessary the form.

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

Pierre Castaing informed the group that he wrote to Michelle MAITRE and requested assistance from ISO on side impact.

Summary of the letter: No international consensus on common dynamic test method. Taking into account time to provide a draft proposal method to GRSP, ISO can give us essential parameters in lateral impact for simplified methods allowing to test CRS in conditions to obtain in minimum, containments capacity and maxi energy absorption capability.

- Farid Bendjellal promised to prepare for next meeting a working document on side impact.

Action FB

- EEVC WG18: universal rearward facing ISOFIX: WG18 work to include an analysis on the need for a 'fourth' point. Mr Martinez explained the new mandate for WG18 is being drafted and this request can be included. Sweden explained they use support legs since many years and supports a technical solution.

7 Date and Venue of Next Meetings

Dates of next meetings were planned:

- November, 25th – BNA (Suresnes)
- January, 21st – BASt (Köln)

8 AOB

No other Business

9 Actions

To conclude the 6th meeting, Pierre Castaing mentions that priority will be given during next meeting to:

- Pulses from EuroNCAP
- Pulses from OICA
- Pulse: UTAC will draft a first proposal
- Side Impact : Working document from CLEPA

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
October, 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	~~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	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 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	25/11/08	NPACS	
6.07	Tests to assess differences between ECE.R44 and R94 pulses	25/11/08	UTAC/OICA	

Action Number	Action	Target Date	Action By	Comp Date
6.08	Working document on Side Impact	25/11/08	F.Bendjellal	

Document Number	Title	Origin
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-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 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-4-6	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 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-3-16	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 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