INF GR /FI-6-6_draft

Minutes of 6th meeting of the Informal Group on Frontal Impact

Held at OICA Office
4, Rue de Berry – 75008 - Paris
15th September 2009

1. Welcome

The chairman Pierre Castaing opened the meeting and welcomed the delegates.

2. New Secretary

Richard Damm explained that Eberhard Faerber has to step back from his job as a group's secretary due to health problems. With respect to this an email was send to all members of the group, proposing Claus Pastor as a new secretary for the group. The group did not have any concerns in this respect and Claus Pastor was decided to be new secretary.

3. Roll call

4. Adoption of the agenda

Doc. INF GR / FI-06-01
Doc. INF GR / FI-06-02

Peter Broertjes announced that the Commission had commissioned TRL to make a study on frontal impact issues. The study is available for download on the internet. Mr. Broertjes asked Mervin Edwards to have a short introduction to the study. This point was added to the agenda at the beginning of TOP 5.2.

Agenda point 5.1.3 was deleted as there was no data available to be presented.

5. Adoption of the Minutes of last Meeting

Doc. INF GR / FI-05-09

Updates were submitted by Germany, the Netherlands and VDA. The minutes were discussed, amended and adopted.

6. Actions from the Minutes of last Meeting

6.1. Update of French accident analysis presentation (LAB)

There is no update available for the moment. Mr. Chauvel announced that so far all French accident

analysis has been done for France only. France wants to extend its analysis to EU27. Therefore a methodology has to be defined. A possible approach could be based on differences in European fleets. A Cost Benefit Analysis is planned with respect to all Europe. It is planned to have first results for the GRSP meeting in December 2009. Mr. Pastor added that experiences from the EU Project TRACE could be useful in this respect. Mr. Yonezawa said that Japan did accident analysis on compatibility and might be able to contribute to a common study. Mr. Yonezawa indicated however that there will be no Japanese accident analysis available for the December meeting of the group.

Mr. Broertjes expressed his pleasure to have a EU-27 Cost Benefit Analysis. The TRL study on frontal impact issues had shown that there was lack in research to highlight compatibility issues in different European countries. Mr. Broertjes explained that TRL has the order to make a new study in this respect including German GIDAS (German In Depth Accident Study) data and data from LAB. Mr. Broertjes expressed that he is expecting first results from this new study for the December meeting of this group at the GRSP.

6.2. Update of German accident analysis presentation (BASt)

Claus Pastor said that there is no update available for the German accident analysis at this stage. Mr. Pastor mentioned that there are just some preliminary results available which need to be checked and investigated more precisely. First analysis indicated a lower risk of being killed or severely injured for smaller cars (mass ~ 1000 kg) as compared to heavier cars (mass >1400 kg) in single car accidents.

6.3. TRL presentation on frontal impact issues

Doc. INF GR / FI-06-03

Mr. Edwards presented some details of a study on frontal impact issues done from TRL by order of the European Commission. The overall objective has been to gather all relevant information with respect to updating the current R94 regulation and to provide recommendations for potential updates to the Commission.
Mr. Edwards explained the approach, which was

- firstly to review existing legislation, accident data literature as well as dummies and legislation currently under development
- secondly to bring up options for updating the current R94 regulation and
- thirdly to evaluate those options and to make recommendations.

Industry has been consulted and industry opinion has been expressed for all suggested recommendations. The presentation gave more details on each point and concluded that there is no main option ready for regulatory application yet. For the PDB a Cost Benefit Analysis is missing but is in process of being done by LAB. A Full Width Barrier test has been identified as currently being the most promising approach which is also being backed by the industry.

The main recommendation of the study was that there is an urgent need to update some EU-Accident analysis with respect to frontal impact issues.

Comments & Discussion:

Mr. Damm commented that with respect to the German Data Analysis problems of females have become obvious. This shall be considered with respect to dummy applications as well.

Mr. Edwards responded that the now planned accident study will consider this point.
Mr. Pastor made a link to the European FP7 project THORAX, which is doing accident analysis on thoracic injuries in frontal impacts. The results of that analysis shall be considered.

Being asked by the chairman Mr. Pastor agreed to show preliminary results of THORAX accident analysis at the groups meeting in December.

Mr. Ammerlaan commented to Mr. Edwards that the improvement of the Hybrid 3 dummy with respect to chest measurement capabilities was not considered in the TRL study. He expressed his feeling that it is worth considering that option, too.

Mr. Edwards returned that only options have been considered in the report that can be realised on a short term basis (May 2010). In addition Mr. Edwards indicated that the THOR dummy has not the ability to assess thoracic loadings up to the required level.

Mr. Casting made a comment that this group shall use existing tools. Up to date accident analysis shall be used to select the right tool to improve R94 regulation.

Mr. Edwards commented that for the PDB a Cost Benefit Analysis is necessary. There is also the potential of unintended consequences. At this stage he sees no way to put the PDB forward without answering these questions.

Mr. Slaba made a comment that not only dummies must be available that have the right abilities to assess injury risks but that the industry does also need time after finalization of such dummies to develop appropriate restraint systems.

Mr. Castaing expressed his concerns about the benefit of a Full Width test with respect to restraint optimization. He expressed his thought that a HG sled test might be more appropriate. The Full Width test was however a tool to monitor Front End Stiffness of cars and will, in combination with the PDB, avoid possible misuse.

Mr. Edwards commented that testing the whole system is a better approach as testing the restraint

by HG sled tests alone.

Mr. Castaing expressed his feeling that the Full Width test does not replicate real world accidents crash pulses.

Mr. Edwards commented that there would still be a missing Cost Benefit Analysis for the PDB. Whether there should be no more benefit of the Full Width test than avoiding misuse of the PDB a substantial benefit has to be shown.

Mr. Casting responded with respect to the necessary Cost Benefit Analysis that the benefit of improved Compatibility has already been shown by VC Compat and stated in WG15 documents.

Mr. Slaba commented that the WG15 Cost benefit Analysis of the PDB approach has not been very promising. He feels that there exists no consents in the group that the PDB will bring any considerable improvement over the ODB.

Mr. Casting responded that the PDB will lead to a more homogenous fleet with respect to force distribution. The PDB opens the door for manufacturers to produce softer heavy cars which is not possible under the current R94 regulation.

Mr. Broertjes commented that he was interested in having less stiff heavy cars on the road. However, introducing the PDB without an accompanying Full Width test is not an option. In addition significant improvements must firstly be shown by some Cost Benefit Analysis.
Mr. Broertjes asked the manufacturers if it could be an option to have an optional PDB and Full Width test in parallel to the current regulatory test.

Mr. Casting answered that this is not a question for this group but has to be considered by the GRSP and WP29, respectively. He feels that one must be careful with such “options”.

Mr. Slaba referred to the TRL study where industries position with regard to the PDB approach is already shown. Mr Slaba thinks that the PDB will reduce the overall safety performance.

Mr. Dellanoy responded that the French approach leads to a more severe test for small cars and that this will remove an unintended side effect of the current R94 barrier.

Mr. Ammerlaan commented on the presentation of Mr. Edwards that he is missing the option of an MDB test in the report. An MPDB test shall be taken into consideration in combination with a Full Width test to prevent misuse of the PDB barrier.

Mr. Edwards emphasized again that the report considered only approaches being realisable in a

short term. The MPDB approach is not ready enough.

Mr. Ammerlaan turned to the chairman and expressed his feeling that the necessity of having a short term solution is overly emphasized. VC Compat tried to solve a problem for 4 years and did not finally succeed. He feels that it is more important to do a good job than putting forward an ad hoc solution.

Mr Castaing commented that it was possible waiting for better solutions. However, he feels that sufficient methods are available in order to improve frontal impact regulation. He expressed that there are French concerns against the MPDB which will be brought forward later on by a French presentation.
Mr. Castaing emphasized again that it was time to improve frontal impact regulation. He turned out that the Europe last still being without a regulatory Full Width test.

6.4. French presentation on MPDB problems

Doc. INF GR / FI-06-04

Mr. Delannoy presented a study in order to highlight possible weaknesses of the MPDB approach. He identified the problem that small cars are overly severe tested by the MPDB, assuming a constant trolley mass and constant trolley velocity. In contrast heavy cars will then be tested at a severity level being below the current regulatory standard.
He stated that this is in great conflict with the goal to harmonize the fleet and will increase the dependency between car mass and cars severity rate.

Comments & Discussion:

Mr. Schramm commented that a much higher test severity for small cars is appreciable because it reflects the current real world situation of a small car having an accident with a heavy car. However he doubts that this development will increase the dependency between car mass and car severity rate but on the contrary will decrease this problem.
Mr. Schramm admitted that the self protection level of heavy cars will be reduced in the first place. To keep a good self protection level of heavy cars an additional Full Width would be necessary and sufficient. Mr. Schramm commented that in the frame of a PDB test there is not enough energy available in the test.

Mr. Castaing commented that the MPDB approach can lead to a heavier fleet due to the fact heavy cars are tested at a lower severity.

Mr. O'Brian made a comment on the PDB approach. He argued that – assuming the PDB will as intended test all cars at a constant EES level – this would be equivalent to a rigid barrier offset test.

This would still result in a mass dependent stiffness and would not change the current self protection of small cars when hitting heavy cars. Additionally, the work of VC Compat showed that a constant relationship between mass and stiffness has already been achieved.

Mr. Castaing replied that the effect of Euro NCAP must be taken into account.

Mr. Duboc raised a point that the intention of the PDB approach is mainly to open the door for manufacturers to produce less stiff heavy cars. He admitted that the PDB approach will not force manufacturers to do so. The goal was to have all cars at a similar stiffness level accompanied by a more homogenous front end.

Mr. Slaba made a point that this belongs to the area of compatibility. This shall be evaluated by the EU project FIMCAR and is not part of the current proposal to amend R94.

Mr. Castaing emphasized again that compatibility criteria are necessary to force all manufacturers to build more compatible cars. The PDB makes it possible to build a compatible heavy car which is not possible under the current R94.

Mr. Slaba replied that compatible structures (multiple connected load paths) can be designed under the current regulation.

Mr. Casting argued that under the current regulation this will lead to higher front end stiffness, which was rejected by Mr. Slaba.

Mr. Delannoy said that the current R94 will not promote better structural alignment.

Mr. Slaba responded that this is not in contrast to the ability of the PDBs in this respect.

Mr. Thompson commented that he is missing the information how the introduction of PDB will translate into the accident data. Without this link it was not necessarily clear whether the PDB would enforce an improvement. He also asked how the PDB can ensure compartment integrity as this aspect shall necessarily be tested in an offset test configuration.

Mr. Casting responded that EEVC WG15 and IHRA have shown that 5 Stars cars could show compartment collapse in a PDB test, because of not working frontal structures.

Mr. Schäfer made a comment that he is still not clear about the fact whether the group correctly identified all problems in frontal impact.

Mr. Castaing responded that the goal of the French approach has been explained in detail and that

a French proposal is on the table. From a French perspective this approach must not necessarily be implemented and France is open for any alternative suggestions to amend R94 (provided they are put on the table at the next meeting).

6.5. Swedish update on reference collision

Doc. INF GR / FI-06-05

Mr. Thompson presented an update of his study given at the May meeting of the group in Geneva. He said that the planned work of TRL, LAB and BASt can hopefully deliver valuable input to the definition of a suitable reference collision.

Mr. Pastor agreed to show reference collision data from In-Depth sources at the December Meeting in Geneva.

Mr. Cyril said that this will presumably be not possible with any French data.

6.6. A.O.B.

Mr. Castaing prompted the group to have comments and questions on the French presentation (Doc. INF GR / FI-05-07)

7. Next Meetings

7th of December before GRSP, Palais des Nations, Geneva, in room V (9:30 - 17:30 full day)

8. Actions

8.1. Extension of German Accident Analysis (BASt)
8.2. Extension of French Accident Analysis (LAB)
8.3. European Accident Analysis (TRL)
8.4. Input from Accident Analysis done for EU-Project Thorax (TRL/BASt)
8.5. Reference Collision Data based on Real World Accidents (BASt)
8.6. Review Doc. INF GR / FI-05-07 presented by France (All)

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

Action Number	Action	Target Date	Action By	Comp Date
3.				
3.1.	Amend the minute of the first meeting	09/03/10	Secretary	09/03/10
3.2.	Amend the minute of the second meeting	09/03/10	Secretary	09/03/10
3.3.	Document on German accident analysis: for March meeting	09/03/10	Germany	postponed
3.4.	Document on French accident analysis: more detailed	09/03/10	France	09/03/10
3.5.	Injury mechanism (thorax injury)	09/03/10	Sweden	09/03/10
3.6.	Thorax Injury frequency	09/03/10	All	postponed
3.7.	Update of EU project SARAC I&II	09/03/10	Germany	postponed
3.8.	Input from VC-Compat	09/03/10	Sweden	postponed
3.9.	EES Calculation method =>Put the software on the PDB web site.	09/03/10	France	09/03/10
3.10.	PDB test result on heavy weight cars	09/03/10	Japan	09/03/10
3.11.	Update the Swedish document	09/03/10	Secretary	09/03/10
3.12.	VDA to present Document FI_03-09	09/03/10	VDA	09/03/10
3.13.	Input open questions, what is missing, next steps	09/03/10	All	open
4.				
4.1.	Document on German accident analysis: for May meeting	25/05/09	BASt	25/05/09
4.2.	Document on French accident analysis: more detailed for May meeting	25/05/09	France	25/05/09
4.2.1.	Eliminate the older cars	25/05/09	France	25/05/09
4.2.2.	Check if there are 30 people also outside the car for the partner protection.	25/05/09	France	25/05/09
4.2.3.	Compare the fatality rate with the current two categories (single car and car-car)	25/05/09	France	25/05/09

Action Number	Action	Target Date	Action By	Comp Date
4.3.	Thorax injury frequency :report similar data than Doc FI_03-06	25/05/09	All	
4.4.	Thorax injury frequency: update data from EU Project SARAC I&II	25/05/09	Germany	closed
4.5.	Results on car-car tests and explain the higher passenger loadings and the barrier calculation.	25/05/09	Japan	
4.6.	UK, Nl, Japan are asked to prepare a position on the VDA presentation	25/05/09	All	open
4.7.	Amend Document FI_03-09 to focus on frontal impact	25/05/09	VDA	
4.8.	Present the methodology for PDB introduction in the regulation.	25/05/09	France	25/05/09
5.				
5.1.	Propose solutions to solve the problem of car to car accident	15/09/09	All	
5.2.	Do similar exercise than Doc. INF GR / FI-05-04 proposed by Sweden	15/09/09	All	
6.				
6.1.	Extension of German Accident Analysis		BASt	
6.2.	Extension of French Accident Analysis		LAB	
6.3.	European Accident Analysis		TRL	
6.4.	Input from Accident Analysis done for EU-Project Thorax		TRL/BASt	
6.5.	Reference Collision Data based on Real World Accidents		BASt	
6.6.	Review Doc. INF GR / FI-05-07 presented by France		ALL	

Document Number	Title	Origin
6.6	Draft Minutes of the 6th Meeting of the informal group on frontal impact	Secretary
6.5	Update work on reference collision	Sweden
6.4	Presentation on MPDB problems	France
6.3	Presentation on frontal impact issues	UK
6.2	Report on frontal impact issues	EU-Commission
6.1	Agenda of the 6th Meeting of the informal group on frontal impact	Chairman
5.10	Minutes of the 5th Meeting of the informal group on frontal impact	Chairman
5.9	dummies-position in Japanese tests	Japan
5.8	joint-researches-USA-France-presentation	France/USA
5.7	French-answer-to-R94amendement-issues	France
5.6	R94-METHODOLOGIE-BENEFITS-May-2009	France
5.5	PDB Research in JPN Mini-Cars & Minivan & PC	Japan
5.4	Swedish-Accident Data Review	VTI
5.3	French-accident-data-analysis	LAB
5.2	German-accident-data-analysis	BASt
5.1	Agenda of the 5th Meeting of the informal group on frontal impact	Chairman
4.6	Final minutes of the 4th Meeting of the informal group on frontal impact	Secretary
4.5	Contract with EC: Provision of information for the development of frontal impact legislation	TRL
4.4	Performance as Test Procedures of the PDB and ODB Tests for the Light and Heavy Cars	Japan

4.3	Injuries Reported in Frontal Impacts in Swedish Accident Data	VTI
4.2	Work progress regarding Self-Protection and Partner-Protection	LAB
4.1	Agenda of the 4th Meeting of the informal group on frontal impact	Chairman
3.12	Draft minutes of the 3rd Meeting of the informal group on frontal impact	Secretary
3.11	PDB research in Japan	Japan
3.10	Mobile Progressive Deformable Barrier and Mobile Rigid Barrier Tests	BASt
3.09	Detailed discussion of the VDA position on the proposal for draft amendments to UN-ECE R94	VDA
3.08	Influence of the PDB on the pulse	France
3.07	Additional research on PDB and MPDB	Netherlands
3.06	Evolution of mortality rate and fatal injury frequencies in Frontal impact since 1990.	France
3.05	APROSYS - Development of a Full Width Frontal Impact Test for Europe	UK
3.04	Single Vehicle Collisions - Extracts from the RISER project.	Sweden
3.03	Accident analysis - Work progress regarding Self-Protection V2	LAB
3.02	Evaluation of the Effect of the Implemented Full-Width Frontal Impact Standard on Reduction of Fatalities in Japan	Japan
3.01	Agenda of the 3rd Meeting of the informal group on frontal impact	Chairman
2.09	Minutes of the 2nd Meeting of the informal group on frontal impact	Chairman
2.08	VDA position on the proposal for the draft amendments to Regulation N°94	VDA
2.07	Japan research on Regulation N°94 amendments	J apan
2.06	Outstanding issues with PDB test	UK
2.05	Accident analysis - Work progress regarding Self-Protection V1	LAB

2.04	First finding of additional research	Netherlands
2.03	UNECE Reg. 94 – Past, Present & Future	Netherlands
2.02	Issue to be resolved in evaluation of Regulation N°94 amendments	Secretary/Sweden
2.01	Agenda of the 2nd Meeting of the informal group on frontal impact	Chairman
1.04	Draft Minutes of the 1st Meeting of the informal group on frontal impact	Secretary
1.03	Agenda of the 1st Meeting of the informal group on frontal impact	Chairman
1.02	Proposal of rules of procedure and terms of reference	Chairman
1.01	ECE/TRANS/WP.29/GRSP/2007/17 – Proposal for draft amendments	France