

Minutes of 10th meeting of  
the Informal Group on Frontal Impact

Held at TU Berlin, Berlin

14<sup>th</sup> October 2010

**1. Welcome**

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

**2. Roll call**

**3. Adoption of the agenda**

**Doc. INF GR / FI-10-01**

The Agenda was adopted.

**4. Adoption of the Minutes of last Meeting**

**Doc. INF GR / FI-09-08**

The minutes were discussed, amended and adopted.

**5. Presentations**

**Doc. INF GR / FI-10-02**

**5.1. Report from 47<sup>th</sup> GRSP, May 2011 (Chair)**

Mr Castaing presented the report which he has shown to GRSP, during the 47<sup>th</sup> GRSP meeting in May 2010. The report was accepted by GRSP as it was. Also there have been no specific comments from WP29. It was advised to go on as scheduled.

**5.2. European Accident Analysis on behalf of the European Commission (TRL)**

**Doc. INF GR / FI-10-03**

**Doc. INF GR / FI-10-04**

Mr. Edwards presented a summary on the report TRL, Bast and LAB have done for the European Commission on Frontal Impact Accidents in Europe. The report can be downloaded at [ec.europa.eu/enterprise/sectors/automotive/files/projects/report-frontal-impact-protection\\_en.pdf](http://ec.europa.eu/enterprise/sectors/automotive/files/projects/report-frontal-impact-protection_en.pdf)  
The analysis deals with the field behaviour of R94 compliant cars only. This was not possible before, because there was not enough data available from a single source. Some of the main conclusions have been that the “vehicle to vehicle impact mode” is an important issue (as compared to single vehicle accidents), that full overlap collisions are highly relevant and that thorax injuries are a major concern.

Comments & Discussion:

Comments on the presentation mainly focused on whether more detailed information would be available on certain topics. With regard to the layout of a full width test more details on real world cars longitudinal deformations and speed characteristics would be desirable. It was also a wish to have a more detailed breakdown of collision partners, because of different pulse characteristics for car to car and car to object collisions. Questions on a possible correlation between driver age and speed could not be answered by the analysis as it is now; it was however obvious in the analysis that elderly people have been in general at a higher risk, even in low severity accidents.

Mr. Casting added to the discussion that the target population of R94 improvements given here does not consider rear seat passengers, because they have often not been belted. That does however not mean that they shall not be integrated into the regulation, because once they are belted they can improve considerably.

Mr. Edwards added to the discussion that there has been a considerable – and surprising – difference in the share of head injuries between Germany and Great Britain.

With regard to compatibility issues the higher mass ratios for small cars as compared to heavy cars have been highlighted.

Mr. Broertjes announced that the case studies from the analysis are available for all interested parties by request, but they will not be available for download from the web.

### **5.3. Japanese Benefit Analysis for a Full Width Test (NTSEL)**

**Doc. INF GR / FI-10-05**

Mr. Tanaka (NTSEL) presented a benefit analysis for the frontal full width test. It was shown that a reduction of 50% within the target group could be achieved. It must however be admitted that some important confounders (e.g. vehicle age) could not have been considered in the analysis and therefore the effect of 50% shall be taken as an upper limit for the possible benefit.

### **5.4. Input from Accident Analysis done for EU Projects**

#### **FIMCAR**

**Doc. INF GR / FI-10-06**

#### **a. Global Strategy of FIMCAR (TUB)**

Mr. Johannsen (TUB) gave a presentation on the global strategy of the FIMCAR project. It was highlighted that the FIMCAR approach is let by real world accident experience, that the compartment strength of modern cars must be retained and that – in the light of many thorax injuries - high decelerations must be considered.

Work packages will work separately on the development and implementation of “Offset”, “Full

## **INF GR /FI-10-09\_draft**

Width” and “MDB” testing. All test procedures are developed towards implementation. Due to the fact, that the MDB is the least developed, the strategy is to propose at least a full width test and an offset test at the end of the FIMCAR project. The MDB will be developed as a potential, but FIMCAR is yet unsure in how far problems of small cars can be solved by a suitable MDB test. The MDB test development will consider a PDB face, which is a pragmatic decision because no other barrier is available, yet.

The offset test is important in order to address Loadspread issues. This could mean that the ODB can be kept in a stepwise approach if other offset tests fail to fulfil the expectations.

### Comments & Discussion:

With regard to keeping the ODB it was mentioned that no test procedure shall be kept, which does not provide solutions to open safety issues, visible in the field. Mr. Ammerlaan requested that the MDB will get the necessary attention within the FIMCAR project. He feels that the MDB can solve a lot of the small cars safety issues.

Raising the question whether a test suite of 3 tests would be an option, Mr. Broertjes made a clear statement that this is quite unlikely.

Mr. Castaing made the point that any new test suite must have the potential for worldwide harmonisation. Further comments have been made on the timing of FIMCAR results and the scheduling of IWG R94. Whereas FIMCAR will have a suitable test suite in two years time, the IWG R94 needs to have a planning in May 2011. This means that solutions for all open safety issues in frontal impact need to be identified.

**Doc. INF GR / FI-10-07**

### **b. FIMCAR – Summary of Accident Analysis Findings (TRL)**

Mr. Edwards (TRL) gave a presentation on the findings of the FIMCAR accident analysis. In contrast to former presentations it was outlined that force – meaning compartment collapse – has shown to be less of a problem. However, poor structural interaction because of structural mismatch was still a cause of bad energy dissipation characteristics.

Several comments from the group have been made that it is desirable to understand in more detail the injury mechanisms typically related to intrusion-based injuries.

**Doc. INF GR / FI-10-08**

### **c. FIMCAR – Full Width Test (BAST)**

Mr. Adolphs (BAST) gave a presentation on the status of the FIMCAR Full Width Test Group.

## **6. AOB**

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## **7. Next Meetings**

20<sup>th</sup> of January 2011, Brussels , European Commission DG Enterprise and Industry, (9:30 – 16:30 full day)

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	BASSt	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
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, NI, 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	

Action Number	Action	Target Date	Action By	Comp Date
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	7/12/09	BASSt	7/12/09
6.2.	Extension of French Accident Analysis	7/12/09	LAB	postponed
6.3.	European Accident Analysis (PART 1)	7/12/09	TRL	7/12/09
6.4.	Input from Accident Analysis done for EU-Project Thorax	7/12/09	TRL/BASSt	postponed
6.5.	Reference Collision Data based on Real World Accidents	7/12/09	BASSt	open
6.6.	Review Doc. INF GR / FI-05-07 presented by France	7/12/09	ALL	7/12/09
7.				
7.1.	Japanese benefit analysis for a Full Width Test for March 2010 meeting	04/03/10	Japan	postponed
7.2.	Extension of French Accident Analysis	04/03/10	France	04/03/10
7.3.	European Accident Analysis on behalf of the European Commission (PART 2)	04/03/10	TRL	postponed
7.4.	Input from Accident Analysis done for EU-Project THORAX	04/03/10	TRL / BASSt	postponed
7.5.	Reference Collision Data based on Real World Accidents	04/03/10	BASSt	open
7.6.	Time schedule	04/03/10	ALL	04/03/10
8.				
8.1.	Japanese benefit analysis for a Full Width Test	27/04/10	Japan	14/10/10
8.2.	Paper on the groups conclusions to present in May 2010 to GRSP	27/04/10	Chairman	14/10/10
8.3.	European Accident Analysis on behalf of the European Commission (PART 2)	27/04/10	TRL	14/10/10
8.4.	Input from Accident Analysis done for EU-Project THORAX	27/04/10	TRL	27/4/10
8.5.	Input from Accident Analysis done for EU-Project FIMCAR	27/04/10	TUB	14/10/10
8.6.	Input from Accident Analysis done for former EU-Project APROSYS	27/04/10	Mr. Schramm	cancelled

Document Number	Title	Origin
10.9	Draft Minutes of the 10 <sup>th</sup> Meeting of the informal group on frontal impact	Secretary
10.8	FIMCAR Status of Full Width Test Metric	BASt
10.7	FIMCAR Accident Analysis Findings	TRL
10.6	FIMCAR General Strategy	TUB
10.5	NTSEL Benefit analysis for a Full Width Test.	NTSEL
10.4	EC Accident Analysis – Final Report	TRL
10.3	EC Accident Analysis – Summary Presentation	TRL
10.2	GRSP IWG R94 Status Report May 2010	Chairman
10.1	Agenda of the 10 <sup>th</sup> Meeting of the informal group on frontal impact	Chairman
9.8	Draft Minutes of the 9 <sup>th</sup> Meeting of the informal group on frontal impact	Secretary
9.7	Japanese benefit analysis for Full Width Test – provisional	Japan
9.6	FIMCAR UK accident analysis headlines	TRL
9.5	FIMCAR presentation for GRSP IWG R94	TUB
9.4	COVER and THORAX work related to frontal impacts	TRL
9.3	EC Accident Analysis (provisional)	TRL
9.2	GRSP IWG R94 Draft Status Report May 2010	Chairman
9.1	Agenda of the 9 <sup>th</sup> Meeting of the informal group on frontal impact	Chairman
8.5	Minutes of the 8 <sup>th</sup> Meeting of the informal group on frontal impact	Secretary
8.4	Extension of French accident analysis to European Scope	France
8.3	Future steps – important points for R94 change	Secretary
8.2	IWG R94's GRSP position after December 2009 session	Chairman

8.1	Agenda of the 8 <sup>th</sup> Meeting of the informal group on frontal impact	Chairman
7.7	Minutes of the 7 <sup>th</sup> Meeting of the informal group on frontal impact	Secretary
7.6	Presentation on ideas to amend R94	Germany
7.5	Presentation on possibilities to avoid misuse of the PDB	France
7.4	Presentation to review open questions	Sweden
7.3	Presentation on the first results of a frontal impact study by order of the EU Commission	UK
7.2	Presentation on updated German accident analysis	Germany
7.1	Agenda of the 7 <sup>th</sup> Meeting of the informal group on frontal impact	Chairman
6.6	Draft Minutes of the 6 <sup>th</sup> 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 6 <sup>th</sup> Meeting of the informal group on frontal impact	Chairman
5.10	Minutes of the 5 <sup>th</sup> 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 5 <sup>th</sup> Meeting of the informal group on frontal impact	Chairman
4.6	Final minutes of the 4 <sup>th</sup> 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 4 <sup>th</sup> Meeting of the informal group on frontal impact	Chairman
3.12	Draft minutes of the 3 <sup>rd</sup> 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 3 <sup>rd</sup> Meeting of the informal group on frontal impact	Chairman

## Annex 3 –Documents list

## INF GR /FI-09-08\_draft

2.09	Minutes of the 2 <sup>nd</sup> 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	Japan
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 2 <sup>nd</sup> Meeting of the informal group on frontal impact	Chairman
1.04	Draft Minutes of the 1 <sup>st</sup> Meeting of the informal group on frontal impact	Secretary
1.03	Agenda of the 1 <sup>st</sup> 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