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7th Meeting: WP29 - GRSP – Informal WG on Electrical Safety (ELSA)

Frankfurt – Offices of the German Automobile Association

10 September 2009

11 September 2009

Meeting Report

Agenda (see ELSA-7-1)

With adding the post-crash roadmap under miscellaneous the agenda was adopted

Meeting Minutes of the Sixth Meeting (see ELSA-6-4)

Minutes of the sixth meeting were approved.

Introduction

Mr. Ebner from the German Automobile Association welcomed the members of the Informal Group for Electric Safety (ELSA) in Frankfurt. He noted that the upcoming International Automobile Exhibition (IAA) will focus on electric vehicles. Therefore he sees that the necessary standards for an approval of electric vehicles should be in place as soon as possible. He wished the group a successful meeting.

Report of the 45th GRSP by the ELSA chairman

He reported that the informal document GRSP-45-03 describing the amendment of ECE R100 was presented. In the discussion the European Commission and France stated that they have a particular interest that the amended Regulation will be agreed during the 46th session of GRSP. Furthermore France mentioned that they are working on proposals to amend ECE R94 and ECE R95 regarding post-crash requirements. The documents should be presented during the 46th session of GRSP.

(Remark: During the 46th session of GRSP the amendment of ECE R100 was agreed and France presented their informal document how to amend ECE R94).

Re-write of ECE R100

On the basis of the documents ELSA 7-2 (from Japan) and ELSA 7-7 (from TÜV) the informal document GRSP-45-03 was discussed.

It was agreed that minor changes of the document are necessary. They are described in document ELSA 7-6.

Furthermore it was discussed why vehicles with a speed below 25 km/h are still excluded from the scope of ECE R100. It is the case because electric vehicles below 25 km/h are normally invalid vehicles which have to fulfil separate requirements.

DRAFT

Subsection “in-use” for GTR for hydrogen vehicles

- Based on ELSA 6-6 the following amendments were agreed:
- Replace “galvanically connected” by “conductive connected” in the whole document
- In definition 2-14 “High Voltage” the upper limits of 1,500 V and 1,000 V are accepted by the representatives of the USA
- Definition of “vehicle type” is EU specific and therefore it has to be deleted

The agreed amendments are incorporated into ELSA 7-10 in red.

In addition the representatives from the USA presented a document with comments (ELSA 7-11). They are incorporated into the action items at the end of the report.

Subsection “post-crash” for GTR for hydrogen vehicles

The basis for the work was the status of the 4th ELSA meeting in Paris. During the 5th meeting it was decided to put the “post-crash” part on hold. The background was that the group was unable to come to a decision which protection measures should be allowed for the post-crash. During the meeting in Frankfurt some progress was made:

- The definition of “exposed conductive part” (2-13) was amended because it became obvious that the definition is necessary.
- The upper limits in the definition of “High Voltage” (2-22) are now accepted by the USA.
- Under 5-3 “Resistance isolation” the already agreed test procedure out of the in-use subsection was incorporated.

The agreed amendments are incorporated into ELSA 7-09 in red. Furthermore all parts which are listed below as “open action items” are highlighted in green.

A decision regarding the protection measures was still not possible. It became clear that the US has to finalize their rule making process regarding FMVSS 305 to be in a position to decide on the measures.

Post-crash roadmap

At the end of the meeting France presented their proposal to amend regulations ECE-R94 and ECE-R95. ELSA came to the conclusion that an extra meeting would be necessary to discuss the proposal more in depth. It was agreed to arrange an ad-hoc ELSA meeting in Paris.

(**Remark:** In between the meeting took already place on 22nd and 23rd of October in Paris. During the meeting it was agreed that a further meeting should take place with passive safety experts. Therefore the next meeting of the group will take place together with the experts of the GRSP informal group on frontal impact from 13th to 14th of January 2010 to assess and discuss the proposals of France to amend regulations ECE-R 94 and ECE-R 95.)

DRAFT

Action Items

Action items are listed in attached Table 1 (3rd meeting), Table 2 (4th meeting), Table 3 (6th meeting) and Table 4 (7th meeting) together with the organization/country responsible for each item.

Date and venue of the next Meeting

At the end of the meeting the ELSA members agreed to have the 8th meeting in Washington DC from 23rd to 25th of February 2010, provided that the US rulemaking process is far advanced and decision making is possible.

Thomas Goldbach,

15.12.2009

DRAFT

Table 1(3rd meeting in Bonn)

“post-crash”		
Where	What	Who
§ 2.	Definitions should be listed alphabetically Status: Will be done by the secretary of the group as soon as the document is finalized.	Secretary of the group / open

Table 2 (4th meeting in Paris)

“post-crash”		
Where	What	Who
2-13	Do we need this definition? Status: Yes, the definition is necessary.	OICA / Done in the 7th meeting
2-18 / 2-19	What is the difference between “barrier” and “enclosure”? Is it necessary to have both definitions? Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / open
2-22	Study reservation by the USA regarding 1.500 V DC and 1.000 V AC Status: USA agreed that the scope of the regulation does not include voltage buses greater than 1500 VDC and 1000 VAC. When such high voltage buses are introduced into vehicle designs, separate requirements will be developed.	USA / done during 7th meeting
3-1	Question whether 5.0 liters of electrolyte spillage is still realistic. Therefore information about the battery design in the past and the future is necessary. Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / open
3-2	Check whether the requirements out of FMVSS 305 is o.k. in § 3.2 Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / USA open

DRAFT

Where	What	Who
3-3	It has to be decided which of the four electrical safety measures should be allowed. Status: “post-crash” was not on the agenda of the Budapest meeting	All/ open
4-3	Proposal regarding energy conversion system Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / JASIC open
5	Justification required why alternative test and analysis methods should be allowed. Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / open
5-2	Both sentences in green have to be checked Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / open
5-2	Why 5 seconds? Status: “post-crash” was not on the agenda of the Budapest meeting	USA / open
5-3	Green part of the text has to be re-worded Status: As the same requirements are in the subsection in-use they have been pasted and copied into here.	OICA / done during the 7th meeting
5-4	t0 and t1 have to be defined to be able to integrate the product Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / open
5-5-1	Table 1 is missing Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / open
5-5-2	What does it mean that the access probe shall not touch the live parts? Wording is not precise enough. It may be necessary that the live parts of the vehicle have to be listed in a form. Status: “post-crash” was not on the agenda of the Budapest meeting	OICA / open

DRAFT

Table 3 (6th meeting in Brussels)

“in-use” in GTR		
Where	What	Who
3-3-1 (was 3-4-1) & 3-3-2 (was 3-4-2)	Study reservation form USA regarding the 100 ohms/Volt and 500 ohms/Volt thresholds Status: Because of the ongoing rule making process in the USA a study reservation regarding the up-coming GTR for hydrogen vehicles is still necessary.	USA / open
Whole document	<ul style="list-style-type: none"> • Where does the USA need an explanation or justification for their rule making process regarding the implementation of the GTR for hydrogen vehicles in the USA? • No justifications for the requirements are provided - It is difficult to make an assessment of the relevance of the requirements without review of the justification document. Status: As soon as a complete list is available OICA will provide the necessary justification.	USA / OICA open
3-2 (was 3-3)	“Protection against indirect contact”: design restrictive - It is written for type approval. Status: The paragraph has to be amended in a way that the requirements are acceptable for type approval and self-certification.	All / open
3-3-2; 2 nd paragraph (was 3-4-2)	What is the justification of requiring 100 ohm/volt for AC buses? How would one determine how much insulation was used by the manufacturer? How would we conduct compliance test? Looks like these requirements are designed for type approval. Don't think we could regulate this. Status: Justification has to be delivered by OICA	OICA / open

DRAFT

Where	What	Who
4-1	What is excessive overheating? 150 degrees? Does this coincide with Lithium Ion battery thermal runaway temperatures? What is the justification? Status: Justification has to be delivered by OICA	OICA / open

Table 4 (7th meeting in Frankfurt)

“in-use” in GTR		
Where	What	Who
3-1 (was 3-2)	A generic analysis to ensure that all possible failure modes and scenarios are taken into consideration is necessary. Status: It has to be decided who will conduct the generic analysis.	All/ open
3-2-2 (was 3-3-2)	A test procedure is needed. Status: It has to be decided whether a test procedure is necessary. If yes, who has to define the procedure?	All/ open
3-3-1 (was 3-4-1)	What does “galvanically isolated” mean? Is a definition needed or is it the same as “galvanically connected?” Status: Questions have to be answered by OICA	OICA/ open
“post crash”		
Where	What	Who
3-3-1-1	USA needs from OICA an explanation why a protection degree of IPXXB justifies an reduction of the isolation resistance to 100 ohms/volt Status: Questions have to be answered by OICA	OICA/ open