EVS1311-006

**Draft Meeting Minutes of the 12th Meeting of the Informal Working Group on**

**Electrical Vehicle Safety - Global Technical Regulation**

**(EVS-GTR)**

Location: Paris, France

Time / Date: September 20- 11:00 to 21-17:00, 2016

Chair: Mr. Nha Nguyen (USA)

Vice Chair: Mr. Aleksander Lazarevic (EC), Mr. Liu Minghui on behalf of Ms. Chen Chunmei (China)

Secretary: Dr. Kenichiroh KOSHIKA (Japan)

1. **Welcome**

* Welcoming remarks: Mr. Nha Nguyen, the chair, expressed hopes for a fruitful meeting.

**2. Approvals**

* Approval of the agenda: The agenda of the 12th EVS meeting was approved. (EVS12-06)
* Approval of the previous meeting minutes: The meeting minutes of the previous 11th EVS meeting (EVS12-04) was reviewed.
* Action items: The action items list from the 11th EVS meeting was shared and agreed by all the participants (EVS-11-26e). Action item No.18 was deleted as per the request of TF1 leader (EVS12-02). Action item No.19 has been postponed.

**3. Reports of UN Activities**

* The chairman informed about the IWG EVS progress report presented by the US representative during the 169th session of WP29 in June 2016, announcing that the informal draft will be submitted to the 60th session of GRSP in December 2016.

**4. Update on on-going and planned research and rulemaking activities**

* The United States informed that Argonne National Laboratory will report the results of BMS functionality (TF4).
* OICA informed that SAE J2464 standard (battery abuse test) will be updated in 2017.
* OICA informed that the Swedish government started the national project of battery vibration tests.
* Canada continues the research on thermal propagation, with a particular focus on rapid thermal initiation method and cell degradation. Canada was requested to share the results of the research with the IWG.

1. **Development of draft GTR**

**Report from Task Force 1 – Protection against Water**:

* Mr. Liu (China), on behalf of the task force leader, Mr. Zhang, reported on the progress of TF 1.
* The U.S. raised several concerns about the necessity of the test, the conflicting nature of the general requirement on isolation resistance and the proposed exemption, and also questioned the TF1 leader statement that all the testing parameters have been already agreed.
* China stated that the water tests would serve as guidance for the manufacturers.
* OICA clarified that China already requires (as a national requirement) these water exposure tests and the isolation resistance monitoring system is used as an alternative. OICA proposed that postponing the water test for phase 2.
* The U.S. stated that the U.S. could accept, as a compromise, two options for CP; (a) mandate water exposure tests for all EVs, or (b) to have no requirement at all. OICA also supports this approach.
* Canada questioned the cost benefit of such tests.

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* EC presented a modified proposal on double layers insulation (EVS12-17) and another revised one on electrical vehicle design requirements and invited written comments. EC requested a teleconference in two weeks.
* As a response OICA stated it is not reasonable to require water-tightness for all high voltage components because vehicle structure may provide the additional protection.
* The U.S. suggested to review ISO6469-3 section 8.3 and copy the test procedure into the regulation.
* Japan agreed to send comments on double insulation to the EC.
* With a view to respond to the US concerns d about isolation monitoring systems Japan provided additional justification on the effectiveness of isolation monitoring system. Yet the US maintained that there is a different rationale used to justify the exemption in the GTR 13 and should not be confounded with that applicable to electric vehicles.
* China as TF1 leader recapped the CP options' possibilities.

**Report from Task Force 2 – Low energy option/barrier option:**

* TF2 leader, Mr. Schmidt (OICA) provided a progress report. TF2 confirmed the revised GTR draft proposal will align with the ongoing amendment of FMVSS305. Physical barrier rationale will be modified accordingly (no longer a CP option). The justification for the low energy limit criterion (0.2 J) will also be modified leaving the requirements unmodified. The revised document will be sent to TF members by October 14th.

**Report from Task Force 3 – Electrolyte leakage**: (EVS12-07)

* TF3 leader. Mr. Tripathy (OICA) provided a progress report of TF3 (EVS12-07). TF3 finished the work for Phase 1. Some issues e.g. gas toxicity will be discussed in Phase 2.
* EC requested that a technical background should be prepared providing a historical account of TF discussions. (The draft from TF9 is a very good example.)

**Report from Task Force 4 – REESS in Use**: (EVS12-14)

* Mr. Schmidt (OICA), as the TF 4 leader, provided a progress report. The revised US proposal (EVS12-14) for vehicle level tests, with changes concerning definitions, requests and test procedures was in principle agreed while the details will be further reviewed and discussed at the TF4 call to be scheduled in next two weeks.

**Report from Task Force 5 – Thermal propagation**:

* Ms. Wang (China) on behalf of TF5 leader, Mr. Xiao, presented a compromise proposal (EVS12-19), allowing the "documentation requirement" (initially proposed by NHTSA and complemented by OICA) as an alternative to the test requirements.
* OICA noted that numerous stakeholder comments have not been addressed in the latest China proposal. This was also confirmed by Canada.
* As to the alternative requirement OICA flagged that proposed text does not clearly describe the intent as it seems that the documentation is required in addition to the test.
* EC stated it’s too early to discuss CP and OEM options (slide EVS12-19) before hearing the position of JRC.
* Justifying its joint proposal with NHTSA (EVSTF09-26-TF5-14) OICA argued why the proposal by China is not adequate. Also this Phase 1 proposal will allow everyone to gain more experience, while the proposed test methods are verified and tested by different laboratories. This approach was supported also by EU/JRC and Canada.
* OICA was concerned that there will be different outcomes of testing between different test labs and authorities because the initiation methods and test procedures as proposed by China are not reproducible and repeatable. In principle the requirements should focus more on single cell criteria. OICA also questioned the time egress requirement (the proposed 10 minutes or 5 minutes),.
* The U.S. stated the time will be proved by simulations or calculations based on the heat transfer because this test is a component level test. Physical pack level tests are not required. US requested OICA to improve the documents requirements and make them more specific as to how the safety risk due to thermal propagation would be mitigated at the vehicle level. EC/JRC shared the concern.
* It was agreed that a smoke in the passenger compartment should be equally added as a criterion.
* SGS-TUV asked how to judge the documentation as sufficient or not?
* In response the U.S. answered the document will be submitted on a request depending on the CPs. Hence the GTR text should be improved to describe more details.
* JRC explained their proposal (EVSTF09-39-TF5-18) building on a number of elements from the China proposal but equally supporting, subject to further modification, the OICA/NHTSA introduced documentation requirements. The presentation underlines the need to strengthen the OEMs' documentation requirements with a view to provide more tangible evidence of occupants' protection.
* Japan explained the supplemental material (EVSTF09-38-TF5-17) on TF5 Japan comments
* Following the questions from the U.S. and OICA, Japan clarified that its position is similar to that of a new China proposal, but the details of the test procedures, such as the use of overcharge as the initiation procedure, dt/dT (temperature changes) etc. should continue to be discussed.
* China stated the three initiation methods should remain in the compromise proposal. The discussion of dt/dT should be continued.
* EC reminded that the documentation requirement should also be discussed further at the technical level as equal to the tests proposed by China. EC cautioned that without an equal treatment of the two proposals there is a risk of failing to agree on a concrete proposal for phase 1.
* The U.S. reiterated that the proposed test procedure is premature to be included in the GTR atext. More discussion is required on round-robinin testing, repeatability and reproducibility during phase 2.
* The IWG Chair summarised the discussion, explaining the two proposals
* China agreed to correct the definition of the “running tests or providing the documentation”. Contents of the documentation will be discussed.
* The IWG Chair proposed to provide an improved proposal with a new wording for the documentation requirement to be incorporated into the Chinese compromise proposal.

**Report from Task Force 6 – State of Charge**: (EVS12-16)

* Dr. Kawai of Japan as TF6 leader provided a progress report. The final proposal of the rationale was modified and agreed based on JRC comments with respect to the justification.
* TF6 leader invited comments for the final proposal by October 8th.

**Report from Task Force 7 – Fire resistance**: (EVSTF09-27-TF702)

* Ms. Lee of Korea on behalf of TF7 leader, Mr. Jung, provided a progress report. The final proposal including the justification was agreed (EVSTF09-27-TF702). The GTR draft was modified based on the input from Japan and OICA regarding test conditions (test equipment for LPG burner). Ms. Lee confirmed that OEMS may choose a LPG burner or gasoline pool fire for the component level test..
* EC requested that a technical background should be prepared providing a historical account of TF discussions. (The draft from TF9 is a very good example.)

**Report from Task Force 8 – Bus and Truck scope study**: (EVS12-13)

* Mr. Tan of China, TF8 leader, provided a progress report (EVS12-13). Definitions, including some pending issues under discussion in other TFs remain to be agreed. OICA proposed to postpone Water protection till Phase 2. OICA was requested to provide the rationale why a whole vehicle test might be an issue for HDV OEMs. It was agreed that only in-use requirements relating to HDV will be addressed in Phase 1. TF8 will arrange a teleconference on October 11th to further discuss the rationale.

**Report from Task Force 9 – Warning system**

* Mr. Nguyen of NTHSA on behalf of TF9 leader, Mr. Sanchez of NTHSA, provided a progress report. The remaining issue for TF9 was a minor editorial change only.
* In relation to the work on TF5, the US clarified that “thermal event” definition is broader and does not only refer to thermal propagation.

**Summary of Chairman**

* TF1: open issue.
* TF2: completed.
* TF3: completed.
* TF4: almost agreed.
* TF5: open issue.
* TF6: completed
* TF7: completed.
* TF8: open issue.
* TF9: completed.
* The chairman stated co-sponsors agreed to keep the current mandate. One more IWG meeting is required to resolve the remaining issues.

**Editorial work (22nd and 23rd September)**

* The drafting team finalized the first consolidated GTR draft and agreed to circulate it to the IWG delegated ahead of the next IWG meeting.

**6. Future plan for establishing GTR**

**Time line (provide there is no further delay):**

* December 2016: draft GTR will be submitted to GRSP as an informal document
* February 2017: draft GTR will be submitted for translation as a formal document for the May 2017 GRSP session.
* June 2017: Draft GTR will be submitted as an informal document to WP29 session for review.
* November 2017: GTR will be submitted as a formal document and possible vote to establish GTR

**Future meetings**:

* 13th EVS meeting is scheduled for November 28th to December 2nd 2016 in China.
* Preliminary schedule: the IWG meeting and the drafting meeting (no TF meetings).

**Action items:** (EVS12-21)

* Action items are reviewed and agreed by the IWG.

(See the attached)

**12th Meeting of EVS-GTR Informal Working Group (Paris)**

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|  | **Action Items** | **Responsibility** | **Due** |
|  | TF leaders will provide background paper for their proposals | TF leaders |  |
|  | TF1:   * EC will provide an updated proposal on component based test * Japan will provide more justification for isolation resistance monitoring system * China will set up a teleconference | TF1 | EC – 9/30  Japan – 9/30  China – 10/14 |
|  | TF2:   * Presentation on revised low energy option * Provide definition for normal use | TF2 leader | 10/14 |
|  | TF4:   * Members provide comments on the latest NHTSA revision * TF leader consolidate the comments and coordinate a teleconference | TF4 | Comments - 10/5  Teleconf – 10/14 |
|  | TF5:   * China/US will work to clarify the Chinese compromised proposal * US/OICA/JRC to provide more details on the documentation requirement * China coordinate a teleconference | TF5 | * 10/07 * 10/14 * 10/21 |
|  | TF6:  Comments to TF leader | TF6 | 10/7 |
|  | TF7:  Comments to TF leader | TF7 | 10/7 |
|  | TF8:  TF leader conduct a teleconference  e.g. Water and application issues | TF8 | 10/11 |
|  | TF9:  Submit final proposal | TF9 leader | 10/07 |
|  | Co-sponsors will continue the discussion on the text of application for the GTR. | Co-sponsors | Before December 1st |
|  | Chair will check with SAE on REESS safety assessment and stabilization procedure. | Chair | 10/14 |
|  | Co-sponsors will provide the exact date for next IWG meeting | Chair | 9/30 |