



ISO/TC22/SC12/WG5  
Anthropomorphic Test Devices  
Tuesday May 14, 2013

VDA  
Berlin, GERMANY

Draft Minutes

1. Opening of Meeting and Roll Call

Chairman Irwin called the meeting to order at 9:00AM on May 14, 2013. A roll call was taken of the attendees. The attendance list is Document N1022.

2. Review and Adoption of the Agenda (N1021)

Mr. Trosseille offered to give three presentations on the European THORAX project; the biomechanical specifications for THOR, the modifications to THOR, and the biomechanical performance of THOR. These topics will be covered under item 10.

Mr. Ozawa offered to give a presentation on three topics; JASTI's development of a WorldSID, JASTI's chest jacket for the Hybrid III small female, and FMVSS 226. These topics will be covered under item 10.

The agenda was adopted with these additions.

3. Appointment of the Resolution Drafting Committee

Mr. Petit volunteered for French. Ms. Tylko volunteered for English.

4. Review & Approval of Draft Minutes from the Meeting on October 23, 2013 (N1018)

The minutes were approved as written.

5. Dummy Recommendations for Restraint System Tests (TR 12349)

5.1 Review and Approval of Draft TR 12349-1 – Part 1: Adult Dummies

Document N1019 was drafted based on the adult dummy recommendations from the October 23, 2012 meeting of WG5. See Document N1012. Mr. Petit requested to update the adult dummy recommendations from France. France now recommends the ES-2 and ES-2re. In addition, France changed its position on BioRID from "No" with the footnote "France does not recommend BioRID until its repeatability and reproducibility are addressed, or unless it is limited to certain instrumentation" to "Yes" with the footnote "France recommends BioRID with the limitation that repeatability and reproducibility are addressed, or unless it is limited to certain instrumentation." No other countries changed their recommendations and the changes from France did not change the recommendations of WG5. The revised recommendation chart is Document N1023.

Document N1019 was revised to specify SID-IIs build level D in clauses 4.2 and 4.4, and "high-severity" was added to the header of clause 4.3 and the caption of Table 3. The revised Document is N1024. A resolution was drafted to submit the draft document for CD ballot.

## 5.2 Review and Approval of Draft TR 12349-2 – Part 2: Child Dummies

Document N1014 is the child dummy recommendations from the October 23, 2012 meeting of WG5, however not all the cells were filled in during the meeting. Document N1025 is the revised recommendation chart. Canada changed its position on the Q3 and Q6 from "Yes" to "Abstain" for both frontal impact and OOP airbag tests. For side impact tests, Canada changed its position from "No" to "Abstain." Canada added two footnotes, one noting that "Q3s and 6s are for side impact only" and the other noting that "Q6s is recommended for kinematics only." France changed its position on the Q3 and Q6 from "Yes" to "No" for OOP airbag tests. In addition, France does not recommend the other sizes of Q dummies for OOP airbag tests. It was noted that the Q dummies were not designed for use in OOP airbag tests. Japan also does not recommend any size of Q dummy for OOP airbag tests. After all these changes, the only change to the child dummies recommended by WG5 is to delete the recommendation of the Q3 dummy for frontal impact tests.

The draft TR 12349-2 was changed to remove the recommendation of Q3 for frontal impact tests. See Document N1026. A resolution was drafted to submit the draft document for CD ballot.

## 6. Side Impact Dummy Issues

### 6.1 WorldSID (ISO 15830, Parts 1-4)

Chairman Irwin announced that ISO 15830, Parts 1 – 4, 2<sup>nd</sup> edition were published by ISO on May 10, 2013.

The 2<sup>nd</sup> edition of ISO 15830 documents WorldSID build level E, but the WorldSID Task Group and Humanetics are now on WorldSID build level F. Different options were discussed to update ISO 15830 to build level F, as well as future build levels. Ms. Maitre advised that the best option is to add ISO 15830 Part 5, a Technical Report to more quickly document the on-going build level revisions, as well as changes to the verification test procedures and corridors.

Mr. Ferdinand stated that the WorldSID Task Group is working on revising the verification corridors for WorldSID and on a single rib test. Mr. Beebe showed Document N1027 and explained that they are attempting to find the best way to quickly check the response of a single rib. The purpose of the test is for the user to perform a quality check of a single rib and for the manufacturer to have a test procedure to provide certification for the purchase of a single rib. Mr. Hassan recommended that the different test options be studied first in simulations or according to a design of experiments.

### 6.1 Revision of TR 9790

There was no new information on revision of TR 9790.

## 7. Frontal Impact Response

### 7.1 Frontal Impact Response Requirements (TR 17626)

Mr. Petit stated that he has not received any revisions to the draft TR 17626. WG5 members were reminded to review Document N1007 and send their editorial comments by e-mail to "philippe.p.petit@lab-france.com."

### 7.2 Pretensioner Characteristics for Abdomen Test of TR 17626

At the last meeting, Mr. Trosseille offered to propose a test procedure to document the performance of the Renault pretensioners that were referenced in the abdomen tests of the draft TR 17626-2. Mr. Trosseille presented Document N1028. It shows the orientation of the lap belt on the abdomen in the original test series and the setup of a pretensioner pulling against a 2.3-kg weight. (Rotate slide 3 90-degrees clockwise to view the proper orientation of the setup.) The belt force-time history from the pre-tensioner pulling the weight is overlaid on the force-time histories from the PMHS tests. Mr. Trosseille added that the belt stretch needs to be documented or eliminated as a parameter from the final test setup. Additional alternatives will be pursued.

Mr. Masuda described his idea to document the performance of the Toyota pretensioners uses a bending plate. The plate stiffness is controlled by using plates of different thicknesses. This would be tuned to energy of the pretensioner. The response of the pretensioner would be reported as a displacement time history.

### 7.3 Proposal to Develop a Foot Verification Test for Hybrid III Small Female

Mr. Ferdinand gave a presentation to propose a New Work Item to develop a test procedure and verification corridors for the foot and ankle of the Hybrid III small female dummy. The test would be used to verify the foot and ankle performance of the dummy for EuroNCAP tests. Document N1029 is a draft, based on the existing test procedure for the Hybrid III mid-size male from ECE R94, Annex 10. Mr. Ferdinand added that tests conducted on three new legs, at three different impact velocities, had good repeatability and reproducibility. He plans to conduct additional tests with older dummies. He proposed that the document be published as a Technical Specification. A resolution was drafted accordingly.

## 8. Repeatability and Reproducibility

A resolution was taken at the last meeting to request a Preliminary Work Item to develop a procedure to assess the repeatability and reproducibility of a dummy. Document N1030 is Mr. Gehre's proposal to develop a step-by-step method that will be documented in a Technical Report. A resolution was drafted to inform SC12 of the Preliminary Work Item.

## 9. Request from SC12/WG6 to Assess THOR-Lx Biofidelity

No information on biofidelity of THOR-Lx was presented by the WG5 members.

## 10. Information from Other Groups

### 10.1 European Thorax Project

Document N1031 is a summary of the final biomechanical specifications from the THORAX project. Mr. Trosseille explained that the relative priorities of the various test conditions for the THORAX project are denoted by the green, orange and red shades shown on slides 12, 13 and 14.

Mr. Trosseille reviewed the presentation from the final workshop of the THORAX project. See Document N1032. Three demonstrator THOR dummies were developed with the SD3 shoulder, thorax modifications and mod kit, but only two were equipped with strain gauges on ribs 2-7. In the two demonstrator dummies that were equipped with rib strain gages, the strain gages were reported to be more durable than the 3D IR-TRACC units. In addition to the damaged IR-TRACC units, three failures of the iliac crest were reported and the ASIS load cells caused damage to the pelvis flesh and lap belt. Damage specific to the SD3 shoulder and thorax modifications are detailed on slide 13.

Mr. Trosseille gave a summary of the overall biomechanical performance of THOR. See Document N1033.

## 10.2 Information from JASTI

Mr. Ozawa gave an update on JASTI's development of WorldSID components. He asked for clarification on the correct design for the chest jacket for the Hybrid III small female. He also showed JASTI's head impactor for FMVSS 226. Mr. Ozawa's presentation is Document N1034.

## 11. Approval of Resolutions

Five resolutions were unanimously approved by Canada, France, Germany, Japan and the United States. The delegates from the United Kingdom observed the meeting and chose not to vote. See Document N1035.

## 12. Date & Location of Next WG5 Meeting

The next meeting will be held during the week of November 18, 2013. The meeting will take place at the SAE Automotive Headquarters in Troy, Michigan, U.S.A.

## 13. Adjournment

Chairman Irwin thanked the experts who participated in the meeting. She thanked Ms. Tytko and Mr. Petit for volunteering to draft resolutions.

Chairman Irwin thanks VDA for providing the meeting facilities.

The meeting was adjourned at 5:00 PM.