

## **WorldSID50 ISO Task Group**

Meeting Notes DRAFT– August 1, 2013

### **Attendees (in person):**

J. Jensen, R. Kelly, M. Beebe, P. Depinet, M. Brown, C. Allen, T. Miyatake, R. Panek, C. Mampe, J. Prater, K. Bortenschlager, G. Marshall , B. Donnelly

**(remotely):** D. Rhule, J. Stricklin, K. Hallbauer, N. Anantharaju, K. Wiley, J. Bastian, L. Xu, S. Moss, A. Kartenberg, M. Wahl, J. Humm, P. Wernicke

### **Review and Adoption of Agenda**

The agenda was approved with no additions.

### **Review of June 27, 2013 Meeting Minutes**

The notes were approved with no updates.

### **External Communications of WorldSID**

K. Wiley and J. Jensen have developed a “one pager” describing:

- application
- features
- status of the development and documentation
- issues identified that are being resolved

*Action Item: this document will be reviewed at the next meeting with S. Tylko.*

### **Review of Verification Test Data and Review of Corridors**

M. Beebe reviewed the results of “the single rib task force” which met on July 23, 2013. This task force reviewed the development of a Single Rib Test, discontinuing the Thorax with Arm Test and developing an Arm Test.

The task force recognized the need to first develop a dynamic arm test, before dropping the Thorax with Arm Test. The ES2 drop tower will likely be utilized for the dynamic arm test.

*Action Item: the single rib task force will meet again to continue the development of the dynamic arm test.*

L. Ferdinand is continuing to organize a round-robin test series with a WS50th in Europe. A call for volunteers and leaders in North America and Asia to support similar work in their regions has not yielded results.

### **Biofidelity Tests**

P. Depinet has been working with A. Petitjean to identify which ATDs were originally used for biofidelity testing. P. Depinet has received data back from the owners of these ATDs.

*Action Item: P. Depinet to present summary at next meeting*

### **Dummy Seating Procedure**

B. Donnelly has spoken to the NHTSA's compliance and rule making group and they are willing to discuss the differences between the two seating procedures. A. Louden has done an analysis of the two procedures and can demonstrate their differences and similarities.

Note: currently the published ISO document has vertical seating position as full down while the current FMVSS 214 specifies mid vertical position.

*Action Item: B. Donnelly to set up meeting with some members of the WorldSID50 ISO Task Group and NHTSA's Compliance and Rule Making Group. Location to be determined and will likely have a garage with vehicles and at least one WorldSID 50<sup>th</sup>. Possible WorldSID50 ISO Task Group participants: P. Wernicke, L. Ferdinand, M. Wahl, S. Tylko, J. Jensen, B. Donnelly, A. Louden and representatives from JAMA and USCAR.*

### **WorldSID 50 Pelvis Interface Issues**

K. Bortenschlager has added foil metal contact switches on both sides of the pelvis and has run one sled testing (FMVSS 214 pole test). Contact **did not** occur. He will be running more sled tests.

M. Wahl has added foil metal contact switches (both sides of the pelvis?) and has run a sled test simulating an oblique pole. Contact **did** occur on the struck side.

P. Depinet presented the results of a July 18<sup>th</sup>, 2013 meeting where a sub-group compared and contrasted HIS and PDB models. The differences between the two models discussed during the last meeting are now understood. They are due to anomalies in the HIS model. The two models now generally agree in their conclusions that contacts are occurring. However, now with the corrected model, runs with and without contact allowed need to be conducted.

*Action Item: K. Bortenschlager and A. Kartenberg to report out at next meeting.*

### **Recommendations:**

1. Continue modeling effort to quantify interface at PDB.
2. Continue to measure contact switches on crash tests.
3. Update the WS "one pager" clarifying that current injury channels are fine. Optional channels such as S.I. loads may require design changes, before using for injury regulation. There is only limited cadaver injury data on S.I. loading. For S.I. loads to be used in injury criteria, not only would the interference issues have to be understood, but additional cadaver testing would be necessary.

4. Investigate short term solutions to pelvis interference, i.e.
  - a. Relocate the battery box.
  - b. Using the WS5th Female S.I. load cell may solve S.I. interference. Determine if there is a difference between using the WS5th Female versus the WS50th S.I. load cell in the WS50th.

Limited or no progress on:

- Ford's work at developing a computer model of a full vehicle test with pelvis contact switches is not yet complete.
- P. Depinet and M. Beebe are investigating button type load cells load cell and electrically conductive paint.
- P. Depinet to provide method of measuring pelvises with a coordinate-measuring machine.

Both C. Sunnevang and A. Louden have supplied production vehicle loads to P. Depinet.

### **Segment Weights**

K. Wiley reviewed the ISO documents with J. Bastian.

- Neck - current ISO document does have a neck mass and center of gravity that does correspond well with J. Bastian's documents
- Upper Femur - K. Wiley recommended (and the group agreed) adding to the ISO document. The ISO document would show two masses: a) upper thigh mass included with the leg, b) upper thigh mass included with the torso. No updates are necessary to the center of gravity.

*Action Item: upper femur segment weights will be added during the next ISO document update cycle.*

### **Generic DAS Specification**

Background: use FE modeling to understand the sensitivity of moving the DAS to various locations within the defined DAS locations within the ATD ("grey space"). The model input would be a rigid flat wall sled test (Heidelberg sled test).

*Action Item: K. Bortenschlager to get a status update from P. Wernicke.*

### **Next Meeting**

~~The next meeting is scheduled for September 19<sup>th</sup>, 2013.~~ The location will likely be Perrysburg, Ohio.