

Draft Minutes of the BioRID TEG face to face meeting incl. 11th WebEX

Date & Timing: Thursday February 23rd 2012, 10:00-16:00 (CET), 4:00 a.m. (EDT)

Location: BAST, Bergisch Gladbach, Meeting Room No. 4 in Crash Test Facility

WebEx: provided by Humanetics

Minutes drafted by: Bernd Lorenz (BAST)

1. Welcome

The chair welcomed the delegates in the room and those around the world who joined the meeting via WebEx.

2. Approval of Agenda

The agenda was approved by adding a presentation from Japan about jacket tests.

3. Information/Discussion

The chairman of the GTR No.7 group Bernie Frost (UK DfT) reminded the TEG that there is an obligation to present a finished proposal to GRSP in December 2012. This means that the work of the TEG and Informal Group needs to be finalized in 8 months from now. He also reminded the TEG that it is the task of this group to deal with technical issues related to the BioRID and to report back the status to the GTR No. 7 group. He pointed out that on the agenda of the next GTR No. 7 meeting in London there is only limited time reserved for BioRID related issues. The London meeting will focus on the text of GTR No. 7. Bernie Frost informed the group that a small GTR drafting committee has met in January and that on the day following this face to face TEG meeting another meeting of the drafting committee is scheduled. The drafting of the GTR text will be made on the assumption that the TEG work sorts out the remaining issues with the dummy.

3.1. Status and results of the EC/TRL test program

Dr. David Hynd gave an extensive overview of the status of the EC test program (presentation "Progress update – TRL/EC Test Programme"). The testing is performed at BAST. The sled system used at BAST is an acceleration type sled system from Messring (RIS - Rear Impact Simulator).

In total six different BioRIDs have been used (no. 006, 007, 028, 068, 077 and 100). For the tests a special designed lab seat and test set-up is used. The seat back is reinforced, but the interface is entirely that of the original Volvo V70 seat with a rigid recliner (not the WHIPS recliner). The design of the lab seat is aiming at a fixed torso angle of 25 degree

which needs to be confirmed during the test series. The lab seat is designed getting 8° recline angle, with damped return.

20 base line tests have been performed (dummies 028, 068, 077 and 100) with one seat, for pulse tuning and getting the rig working, and no discernable degradation of the seat foams. The pulse used was JNCAP style. The seating procedure is based on the Euro NCAP procedure with minor changes.

On the day of the meeting test no. 49 of the EC/TRL test series was performed and attended by the TEG members.

Dr. Hynd reported that in general repeatability of the BioRID was good, reproducibility was not.

Pelvis flesh seems to have a major influence on the dummy response especially if there is contact with parts of the seat structure.

During the test series pelvis and spines have been swapped between the dummies 68 and 77. Swapping the pelvis showed that the peak values changed with the pelvis. Swapping the spine had a clear influence on the dummy response, also. By swapping the parts back to the original dummies the initial behaviour could be seen again.

Looking at the parts that have been swapped pelvis and spine had the largest influence on the dummy response much more than swapping jackets or legs.

During the test series the PDB dummies no. 6 and 7 have been tested, also. In the past these two dummies produced the largest differences in the results. In advance of the EC/TRL tests both dummies have been refurbished. Pins and bumpers have been replaced etc. Both dummies are now similar to dummy no. 77.

Conclusion of the analysis of the test series so far: pelvis flesh stiffness might be addressed by a certification test and better control of the bumper material properties is needed.

Looking at the certification data of the dummies differences have been seen between the dummies in pot A in the without head rest cert test and differences in My in the with head rest cert test (note: 2 tests have been performed with a wrong skull cap). Corridors need to be tightened.

It is recommended to perform a quasi static spine stiffness test.

Dr. Hynd will present more data/results at the next TEG WebEx in March.

3.2. Status of new certification procedure

Paul Depinet presented the status of Humanetics' activities. He introduced a procedure for a new quasi static spine stiffness test (presentation "Biorid Spine QA Stiffness Test - Initial Trial"). The dummies used in the test series shall be tested according to the proposal at Humanetics in Heidelberg.

At the time of the meeting dummy no. 77 was at Humanetics in Heidelberg. After the refurbishing seat test shall be repeated with dummies 68 and 77. If the dummies will not match parts shall be swapped between the dummies.

Mr. Yoshiji Kadatoni presented about jacket tests performed in Japan (presentation: "Results of BioRID-II Dummy Jacket Calibration Test"). Jacket cert tests have been performed on the jackets of three dummies (no. 095, 102, 115). The jacket of BioRID 095 showed different results compared to the two others. The hardness of the three jackets was measured according to JIS K 6253 or ISO 7619. In the measurement of the jacket hardness, only 095G indicated a hardness of 6, while 102G and 115G showed a hardness of 3. None of the tests indicated any change of hardness during the test. The tests were conducted at an interval of 30 to 60 minutes.

Mr. Kadatoni also mentioned that the geometry of the pelvis should be better controlled.

3.3. Status of data analysis from other test series (OSRP, PDB, VRTC)

Bernd Lorenz mentioned the presentations at the Geneva meeting which were noted to be preliminary results and asked whether there is more information available, now.

Mr. Ed Probst reported that VRTC has discontinued its testing activities to wait for the outcome of the EC/TRL tests. Based on the outcome of the EC/TRL tests VRTC is planning to review the test program.

Barbara Bunn (chair of the OSRP Rear Impact Dummy Task Group) said that analysis is still under review. She expected to have an updated presentation ready for the next WebEx in March.

4. Summary of meeting

Bernd Lorenz summarized the specific objectives before the next TEG meeting in March.

The EC/TRL test series is expected to be finalised by end of February (running out of budget). However, analysis will last longer. Results should be presented and discussed at the March TEG meeting.

More data on pelvis flesh (certification, geometry) and spine stiffness test shall be provided for the next meeting.

Bernd Lorenz thanked all participants for their attendance and contributions.

5. Next Meeting(s)

12th WebEx BioRID TEG 14th of March 2012

19th/20th of March, London (Joint session with GTR 7)