

Status of BioRID Evaluation

Findings and Actions

Meeting – BASt, BMVSS, PDB
BASt, Bergisch Gladbach
May 8th 2012

Status of BioRID Evaluation

Findings of TEG studies:

- BioRID response is dependent on (key factors):
 - **Spine bumpers and -adjustment**
 - **Pelvis stiffness**
 - **Jacket stiffness**
- Particularly the spine bumpers (thickness, stiffness) have a significant influence on the dummy behaviour.
- Refurbishment of the BioRIDs (identical bumpers, same jacket stiffness, same pelvis stiffness) leads to improvements of the reproducibility.
- Influence on repeatability has not been investigated in detail.
- Current certification procedures does not ensure acceptable R&R of the BioRID in vehicle seat tests.

Agreement: Yes / No

Comments / Actions: Pelvis Geometrie (?)

Status of BioRID Evaluation

Actions – “What has to be done”:

1. **Set up and agree on an appropriate target for R&R**
2. **Detailed checklist for BioRID maintenance**
 - Detailed inspection manual for maintenance
 - Reliable inspection of the influencing factors
 - Requirement for parts, which must be checked / replaced in a certain time-frame
3. **Revision of the current certification procedure**
 - Agreement on a set of necessary certification procedures:
 - sled-test with and w/o headrest
 - dynamic jacket stiffness test
 - dynamic pelvis stiffness test
 - spine flexion test (quasi static / dynamic ?)
 - ...
 - Agreement on certification corridors to ensure target for R&R
4. **Final evaluation of 2. & 3.**
 - Evaluation of the maintenance and certification procedures by using coincidental selected BioRIDs, refurbished, maintained and certified according the agreements of 2. and 3.

Agreement: Yes / No

Comments / Actions:

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Open questions, which have been answered before using BioRID in GTR7:

- **Effectiveness of proposed actions on R&R assessment in real vehicle seats.**
- **Dummy positioning**
 - Development of an repeatable dummy positioning procedure
 - Agreement on the range of seat back angle suitable for BioRID.
- **Agreement on WAD criteria and limits:**
 - only criteria which fulfill the R&R requirements (s. page 3) should be chosen.
 - criteria for selection of WAD criteria should be biomechanically derived.
 - should be able to identify improvements in seat and head-rest.

Agreement: Yes / No

Comments / Actions:

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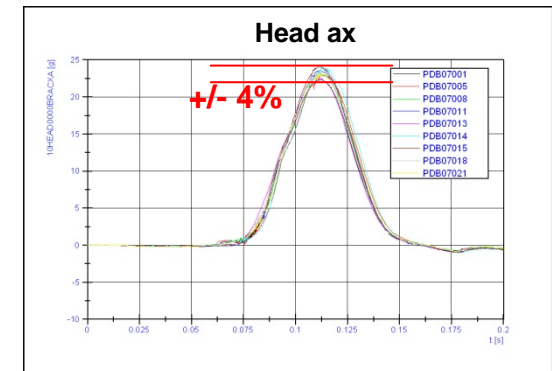
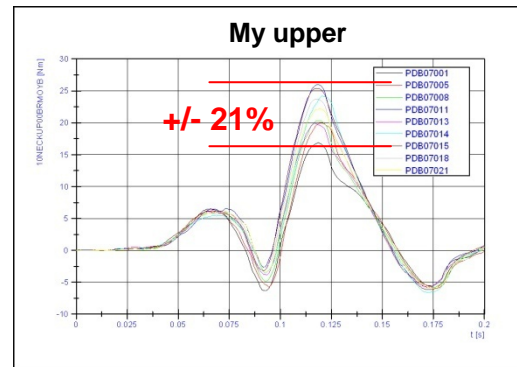
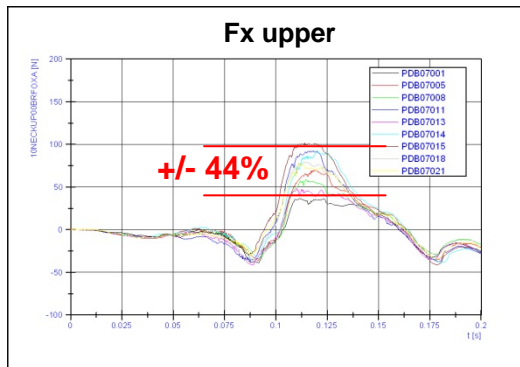


Backup

Status of BioRID Evaluation

Repeatability:

- There is no clear evidence, how the agreed maintenance and certification measures will also improve the repeatability of the BioRID.
- [Repeatability \(Link to Excel Table\)](#)
- Repeatability Study 2007 (Dummy #49; A4 seats, IIWPG-Pulse, 9 repeats)



- Bad repeatability of forces and moments
- good repeatability of head acceleration