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
   – 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:
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:
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