WorldSID 5th TEG
ISO WorldSID 50th Group

Summary of Meetings

16 March 2012
London, UK

Thank you

The Chairs and members of the 5th TEG and the ISO 50th Group wish to thank –

- Allan McKenzie and the SMMT for providing the room and facilities for the meetings
- B. Frost for making the connection with Mr. McKenzie and the SMMT
- Humanetics for providing the WebEx capability

Overview

- Both the 5th and the 50th groups met in-person and by WebEx
- Morning and afternoon sessions were held
- A great deal of information was presented by several laboratories
- There was insufficient time to absorb and process all of the new information – few decisions were made!
- An additional meeting in April is planned because there is so much new material to deal with.

Summary 5th Items

- **A data and presentation archive has been created on the UVa Colab site.**
  - Password required
  - Bruce Donnelly is the administrator if interested
- **VRTC biofidelity test data**
  - In progress – both ISO and NHTSA biofidelity tests will be conducted.
  - Reproducibility issues between two 5th dummies, however Left and Right repeatability looks good.

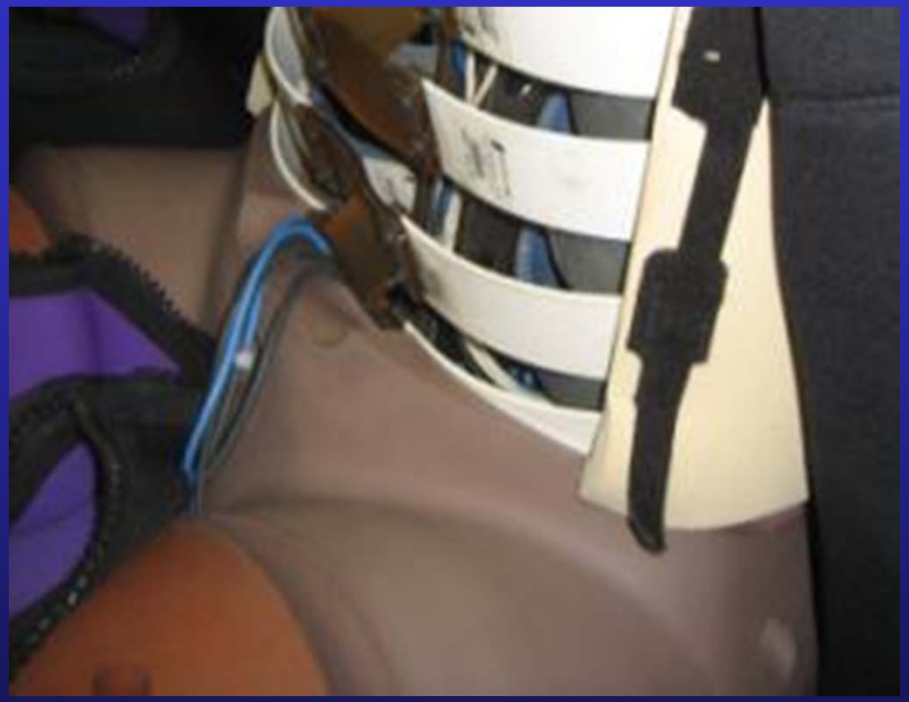
5th continued

- **TRL testing**
  - ISO Biofidelity tests in progress
  - High speed flat wall tests may be too severe?
    - TRL ran at slower speeds
    - This is not unlike SIDIIs biofidelity testing
  - Specific durability concerns with high speed tests:
    - IRTRACC rotation limitations and durability
      - (already resolved by HIS)
    - Shoulder contact with combined lateral and vertical motion
      - (under investigation, may not be problem in crash tests)
    - Pelvis iliac wing contact with S-I load cell
      - (current redesign helped but did not eliminate issue)

5th continued

- **TRL testing – continued**
  - Normalization of 50th and 5th response using ISO 12350 methodology
    - ISO 12350 worked well for scaling test severities.
    - ISO 12350 worked less well for scaling dummy sizes.
    - ISO 12350 did not work well for time components.
- **Preliminary Report on Transport Canada full vehicle crash tests with WorldSID 5th**
    - In some tests the HIC was low but BRIC was high. In other cases the two criteria more closely correlated

50th and 5th Pelvis Flesh Interference



- **Both the WorldSID 5th and WorldSID 50th demonstrate contact between bottom rib and pelvis flesh in certain seating positions.**

50th and 5th Pelvis Flesh Interference

Pelvis Flesh Interference has been evaluated by several groups:

- **EuroNCAP workshop**
  - Evaluated WorldSID 50th
  - Interference can be achieved in certain seating positions
- **TRL**
  - Evaluated WorldSID5th
    - Pelvis flesh tucked behind rib (difficult to achieve)
    - Pelvis flesh in front of rib (easier to achieve)
    - Pelvis flesh cut away (possible redesign countermeasure)
    - Both interference conditions did restrict rib rotation.

50th and 5th Pelvis Flesh Interference

<u>Pelvis Flesh Interference has been evaluated by several groups:</u>

- **MCW**
  - Evaluated WorldSID50th
    - Pendulum tests with flesh in front of pelvis
      - Some restriction of rib rotation
    - Sled tests with interference (planned)
    - Pendulum / sled tests with cut-away flesh (planned)
- **PDB (Daimler)**
  - Evaluated WorldSID 50th
    - Pendulum tests suggested small affect of interference on deflection (approx. 1.5 mm). (rotation not measured.)

50th and 5th Pelvis Flesh Interference

Pelvis Flesh Interference has been evaluated by several groups:

- **Humanetics**
  - Pending MCW sled tests – will redesign flesh geometry to reduce interference for WorldSID 5th and WorldSID 50th.
  - Pelvis biofidelity tests for other reasons (material changes) will wait until geometry is resolved.

Summary 50th Items

- **MCW analysis & testing**
  - Re-analysis of thoracic chestband deflection with spinal origin
  - Spinal origin approx. 23% forward of most posterior position
  - Analysis suggests differences in deflection not a great as anticipated.

Summary 50th Items

- **Material Changes**
  - Japan Green Project and European Reach Project driving material changes in WorldSID and all dummies:
    - WorldSID blue damping material: OK no changes
    - Ureol (WS skull and iliac): replacement identified
    - Hyperlast (WS pelvis flesh): replacement needed
    - Vinyl plasticizer: may affect all vinyls, all dummies

Summary 50th Items

- **Miscellaneous**
  - Tilt sensor
    - Discrepancy with pelvis tilt sensor has been solved by Humanetics
    - Requires changes to mounting block
  - External Dimensions
    - Preliminary procedure is complete.
    - Humanetics waiting for labs to respond with feedback.

Future Plans

- **Next meeting**
  - April WebEx – Doodle invitation
  - May WebEx – 8 May 2012, 7:00AM Eastern US DST