ISO WorldSID 50th Task Group
Update To GRSP Informal Group On Side Impact Dummies

September 2012
Overview

- Ongoing review of WorldSID 50th performance continues to be tracked by the ISO WorldSID task group.

- Both the ISO WorldSID 50th task group and the WS5 TEG have been meeting regularly (July 26th, 2012 and Aug. 30th, 2012).
Material Changes

- Several dummy families require material changes due to material availability (including Hybrid III, Q child, WorldSID, etc.)

- Upcoming changes to WorldSID include:
  - Iliac wings and skull (Ureol replacement has been identified and is in production at Humanetics.)
  - Pelvis flesh (Hyperlast foam will require replacement. This investigation is ongoing.)
  - All vinyl flesh (all dummy families will require vinyl changes in the next 2-4 years due to material availability.)

- It is anticipated that the proposed replacement materials will not affect dummy performance. The ISO WorldSID task group is coordinating a limited number of biofidelity tests to confirm.
Pelvis / Outer Rib Interference

Testing has confirmed that this interference has negligible effects and the ISO WorldSID Task Group has recommended no changes to the dummy design.
There are three different IR-TRACC configurations for WorldSID 50th:

- **1D IR-TRACC**
- **2D IR-TRACC** (using current 2D mounting hardware)
- **2D IR-TRACC** (modified pot & hardware – in development)
1D IR-TRACC vs. 2D IR-TRACC in WorldSID

- 1D IR-TRACC
- 2D IR-TRACC
  (using current 2D mounting hardware)
- 2D IR-TRACC
  (modified pot & hardware – in development)
1D IR-TRACC vs. 2D IR-TRACC in WorldSID

Center of Rotation differs between 1D and 2D IR-TRACC

- 1D IR-TRACC
- 2D IR-TRACC (using current 2D mounting hardware)
- 2D IR-TRACC (modified pot & hardware – in development)
1D IR-TRACC vs. 2D IR-TRACC in WorldSID

The WorldSID 50th ISO Task Group recommends the inclusion of 2D IR-TRACC geometry in Build Level F for consistency in center or rotation for all future WorldSIDs.

- **2D IR-TRACC**
  (using current 2D mounting hardware)

- **2D IR-TRACC**
  (modified pot & hardware – in development)
The ISO task group has approved a collection of improvements to be included in build level F. These improvements include:

- Modified suit (enlarged arm openings and reinforced shoulder belt area)
- Replacement material for Ureol for iliac wings and skull
- Modified ankles (similar to WS5, allows retention of pre positioned ankle position)
- Corrected pelvis tilt sensor mount (correcting design error on early dummies)
- Changes to pubic load cell connectors
- 2D IR-TRACC (this is a change from previous recommendation)
The following ISO documents have been completed:

- ISO 15830 part 1 (design specification rational and terminology)
- ISO 15830 part 2 (design specifications – mechanical)
- ISO 15830 part 3 (design specifications – instrumentation)
- ISO 15830 part 4 (user’s manual)
- WorldSID drawings

ISO 15830 parts 1 – 4 have been balloted and approved by ISO. They require only minor edits. No additional ballots are required. These documents will soon be available through ISO.
Some regulators are unable to reference a DAS vendor when regulating an ATD.

A generic geometric requirement for the WorldSID DAS system is therefore required.

The ISO task group has defined the geometric zones ("grey zones") that DAS systems may occupy.

Computer modeling to verify the WorldSID performance with alternate DAS systems in the grey zones is ongoing.

This modeling will define allowable mass requirements for the DAS system.
Modified Verification Corridors

- The larger population of WorldSID dummies and increased time in the field results in more and better data to be used to establish verification test corridors.
- Changes to the corridors for the Pelvis Test, Head Drop Test have been approved by the ISO task group.
- The shoulder verification test corridors will not be changed.
- The thorax verification tests corridors are still under review.
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<thead>
<tr>
<th></th>
<th>Old Specification</th>
<th>New Specification</th>
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<tbody>
<tr>
<td><strong>Head Frontal</strong></td>
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<tr>
<td>Temperature</td>
<td>20.6 - 22.2°C</td>
<td>no change</td>
</tr>
<tr>
<td>Humidity</td>
<td>10 - 70%</td>
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<tr>
<td>Resultant Acceleration</td>
<td>225-275 g</td>
<td>205 - 255 g</td>
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<tr>
<td>Lateral Acceleration</td>
<td>±15 g</td>
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<tr>
<td>Unimodal Oscillation</td>
<td>≤10 %</td>
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<tr>
<td>Resultant Acceleration</td>
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<td>104 - 123 g</td>
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<td><strong>Pelvis</strong></td>
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<tr>
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<td>no change</td>
</tr>
<tr>
<td>Velocity</td>
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<td>37 - 47 g</td>
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<td>Lower Spine accel</td>
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<tr>
<td>Max Probe Force</td>
<td>6.3-7.8 KN</td>
<td>6.8 - 8.2 kN</td>
</tr>
</tbody>
</table>
Thank You

Questions?