



ISO WorldSID 50th Task Group

Update to GTR Pole Side Impact

June 2012

Overview

- Ongoing review of WorldSID 50th performance continues to be tracked by the ISO WorldSID task group.
- Design developments with the WorldSID 5th are now being tracked by a WS5 TEG, chaired by VRTC.
- Both groups typically meet on the same day. Both groups recently held meetings on June 14th , 2012.

Agenda

Updates on WorldSID 50th

- Material Changes
- Pelvis / Rib Interface
- Laboratory Experiences
- Seating Procedure
- ISO Documents
- External Dimensions
- Generic DAS Requirements
- Modification to Corridors
- WorldSID Build Levels

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 on going.)
 - 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 / Rib Interference



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

Pelvis / Rib Interference



- Pelvis flesh interference has been evaluated by several groups including EuroNCAP, TRL, Medical College of Wisconsin, and Daimler.
- Pendulum tests with the WorldSID 50th suggest less than 2 mm difference in rib deflection between tests with and without pelvis flesh interference.
- Sled tests on WorldSID 50th also suggest less than 3 mm difference in rib deflections with and without the pelvis interference. In addition, sled tests suggested there was no increase in repeatability with the no interference condition (pelvis cut away).
- The ISO task group recommends the pelvis not be changed, this issue does not adversely affect dummy performance.

Laboratory Experiences

- There are many WorldSID 50th in use in the industry.
- Several organizations (TRL, Autoliv, Transport Canada, and several OEMs) have completed full vehicle crash tests using WorldSID 50th and reported results to the ISO task group.
- User experience is driving reliability and usability improvements to the WorldSID such as:
 - Changes to jacket (completed)
 - Changes to ankle design (completed)
 - Pubic load cell connectors (completed)
 - Changes to lifting mechanism (completed)
 - Changes to IRTRACC mount and pot (design completed, however will not be included in Build Level F, awaiting durability experience)

WorldSID Seating Procedure

- The WorldSID ISO task group has completed a WorldSID50th seating procedure.
- This procedure has been evaluated and used at workshops held at several labs (including EuroNCAP and VRTC.)

ISO Documentation

- 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 were balloted by ISO in 2011 and voters responded with suggested changes.
- These changes have been addressed and ISO 15830 documents are currently being re-balloted (ballots close Aug. 16, 2012)

WorldSID External Dimensions

- A draft procedure for measuring the WorldSID external dimensions has been created and is available for use.
- This procedure is not included in the original ISO documents because it was anticipated that the procedure may change as the industry gains experience with measuring the WorldSID.
- Humanetics is coordinating the collection of measurements from various labs.
- Wording changes for clarification are being implemented.

Generic DAS Requirement

- 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

- Pelvis tests on newer dummies result in data near the edge of the corridor.
- The pelvis test corridors will be modified so that the population of dummies test near the nominal values.
- It is not unusual for the industry to modify verification corridors to match the population of dummies.

WorldSID Build Levels

- The current WorldSID build level is E.
- 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

WorldSID Build Levels

- The following items will NOT be included in build level F at this time.
 - Hyperlast material replacement (this investigation is ongoing.)
 - 2D IRTRACC.
 - The original 2D IRTRACC pot has durability issues and also may generate erroneous data if the pot is loose.
 - A new 2D IRTRACC pot has been identified and the IRTRACC mounts have been modified. However, this new design needs durability evaluations to be completed.
 - 1D IRTRACC will be included in build level F.

Thank You

Questions?