



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 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 / 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.

1D IR-TRACC vs. 2D IR-TRACC in WorldSID

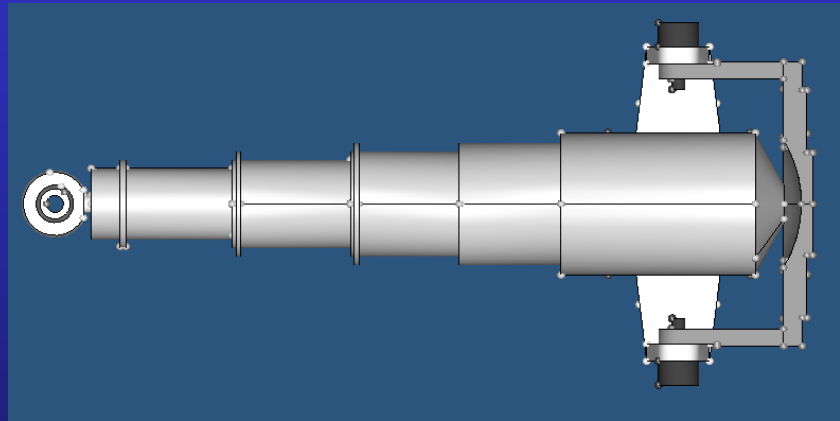
There are three different IR-TRACC configurations for WorldSID 50th:

- 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



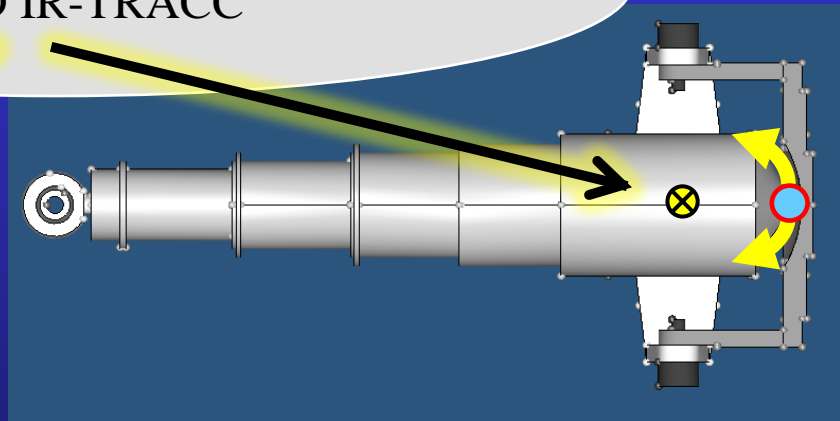
- 1D IR-TRACC



- 2D IR-TRACC
(using current 2D mounting hardware)
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1D IR-TRACC vs. 2D IR-TRACC in WorldSID

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



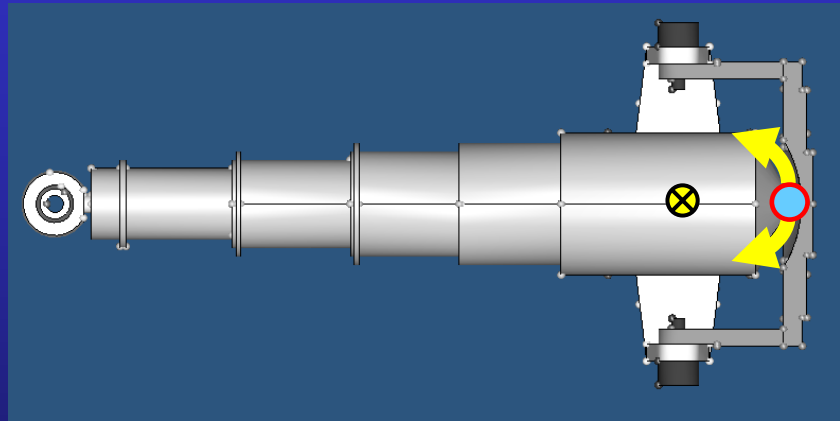
- 1D IR-TRACC

- 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)

WorldSID Build Levels

- 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)

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 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.

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

- 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.

Changes to Verification Corridors

Head Frontal	Old Specification	New Specification
Temperature	20.6 - 22.2°C	no change
Humidity	10 - 70%	no change
Resultant Acceleration	225-275 g	205 - 255 g
Lateral Acceleration	±15 g	no change
Unimodal Oscillation	≤10 %	no change
Head Lateral	Old Specification	New Specification
Temperature	20.6 - 22.2°C	no change
Humidity	10 - 70%	no change
Resultant Acceleration	99-121g	104 - 123 g
Frontal Acceleration	±15 g	no change
Unimodal Oscillation	≤10%	no change
Pelvis	Old Specification	New Specification
Temperature	20.6 - 22.2°C	no change
Humidity	10 - 70%	no change
Velocity	6.6-6.8 m/s	no change
Lateral Accel	41-51 g	37 - 47 g
Lower Spine accel	10-14 g	no change
Max Probe Force	6.3-7.8 KN	6.8 - 8.2 kN

Thank You

Questions?