RibEye for WorldSID 50th

February 16, 2011

Southfield, MI
Original WorldSID RibEYE, Model 8700

- Delivered June 2009
- 3 LEDs per rib, 3-axis measurement, 54 data channels
- Integrated with Mini-DB for power, trigger, Ethernet
- Controlled by RibEye software
- Red set – upper three ribs, Blue set - lower 3 ribs
- Tested at PMG, TRL and RTA

Issues:
- Insufficient measurement range
- Middle rib on each set can block upper and lower ribs on the set
- Sensor connectors damaged during testing
- Lenses moved causing errors
- Firmware bugs
New WorldSID RibEye, Model 10000

- Delivery February 2011
- 3 LEDs per rib, 3-axis measurement, 54 data channels
- Power, trigger and Ethernet through DAS
- Controlled by DAS or RibEye software

Improvements:
- Increased range
  - LED and sensor angles optimized
  - LEDs relocated on rib mounting blocks
  - Mounting block thickness minimized
  - Updated electronics with improved LED current control
- Improved durability:
  - Sensor connectors relocated on controller
  - Sensor lenses bonded in position
- Firmware improvements
XY Range for all ribs
for Y and Z error <1 mm, X error <2 mm

-120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120

Dummy X (mm)

0 10 20 30 40 50 60 70 80 90 100 110

Dummy Y (mm)

Original
New

HUMANETICS
Innovative Solutions
New and Original Y-Z Range
for Y and Z errors <1 mm, X errors < 2 mm
Sensor input connector damage
Bottom of thorax, non-struck side
Design Improvements

Model 8700
- Sensor connectors relocated

Model 10000
- Communication connectors relocated
Control enclosure with connectors installed
Model 8700 Middle Rib (Thorax 1 and Abdominal 1)

Interference

Middle Rib

LED can block light path
Improved LED Housings
Model 10000  Model 8700

LED Lower on Rib

Reduced cross section to prevent blocking