Informal Dummy Working Group
WorldSID
26 October 2011, Seoul, Korea

Static Oblique Loading of the WorldSID 5th dummy: Comparison of 2D IRTRACC to Chestband Displacements

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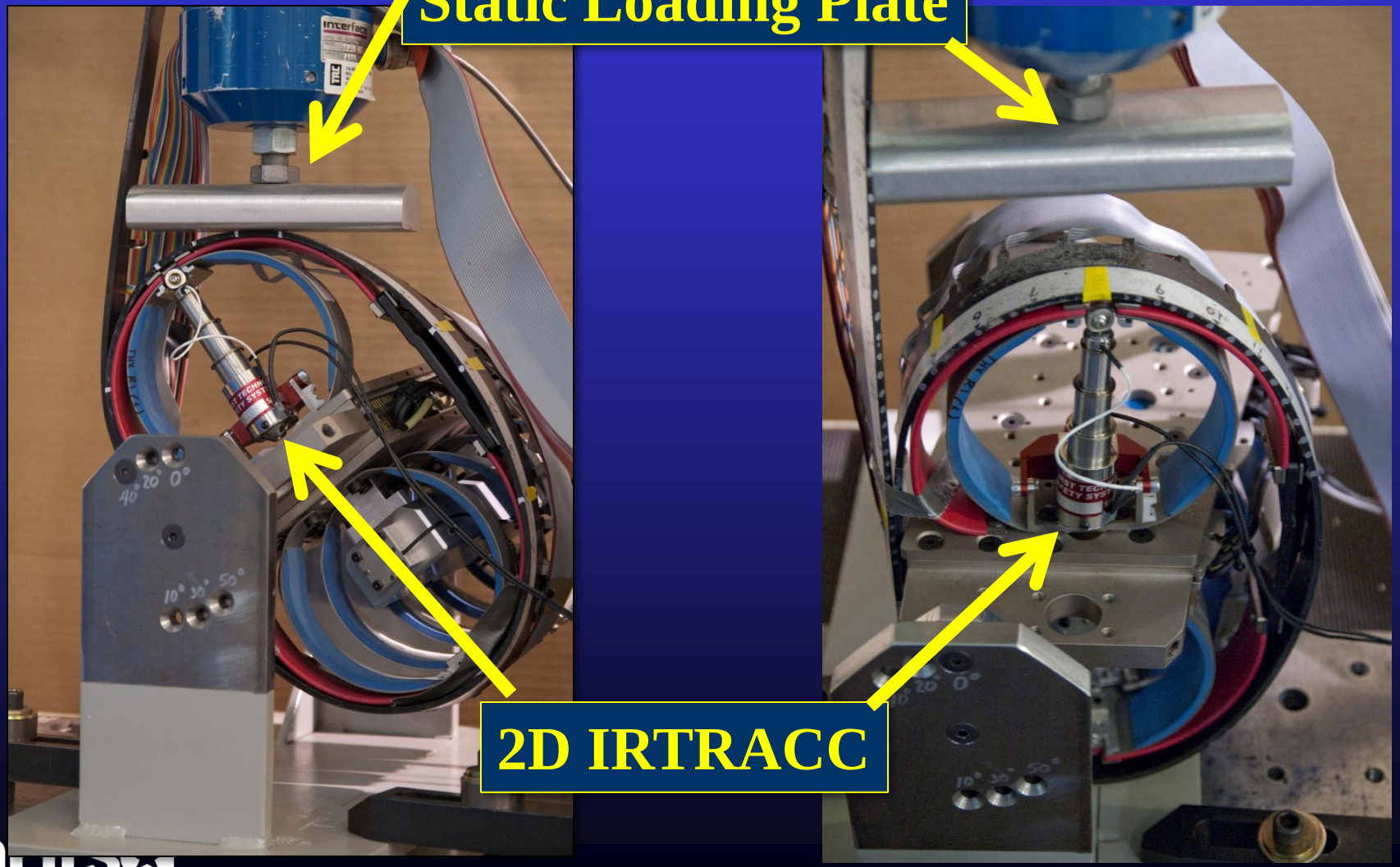
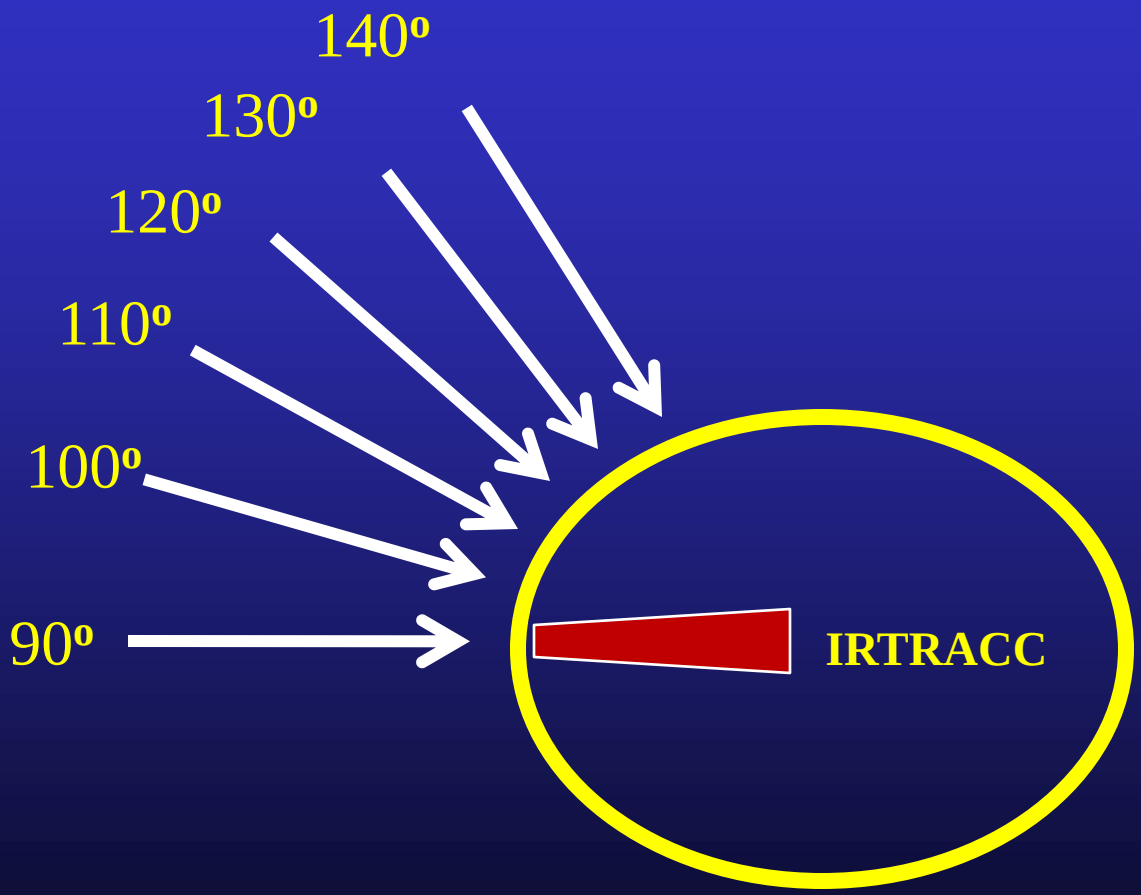
WorldSID 5th Oblique Loading: Setup

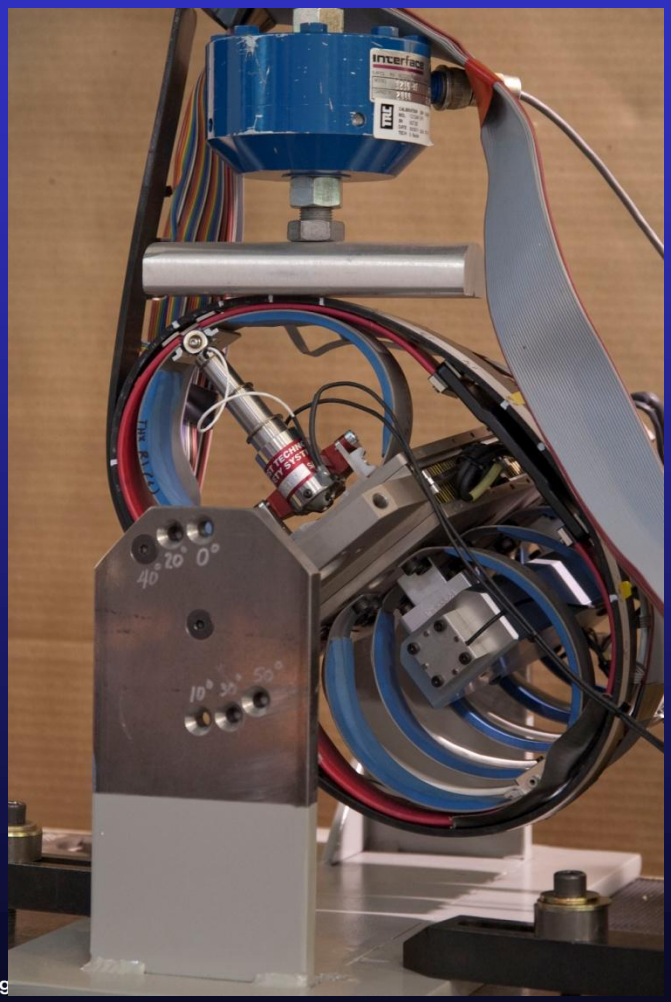


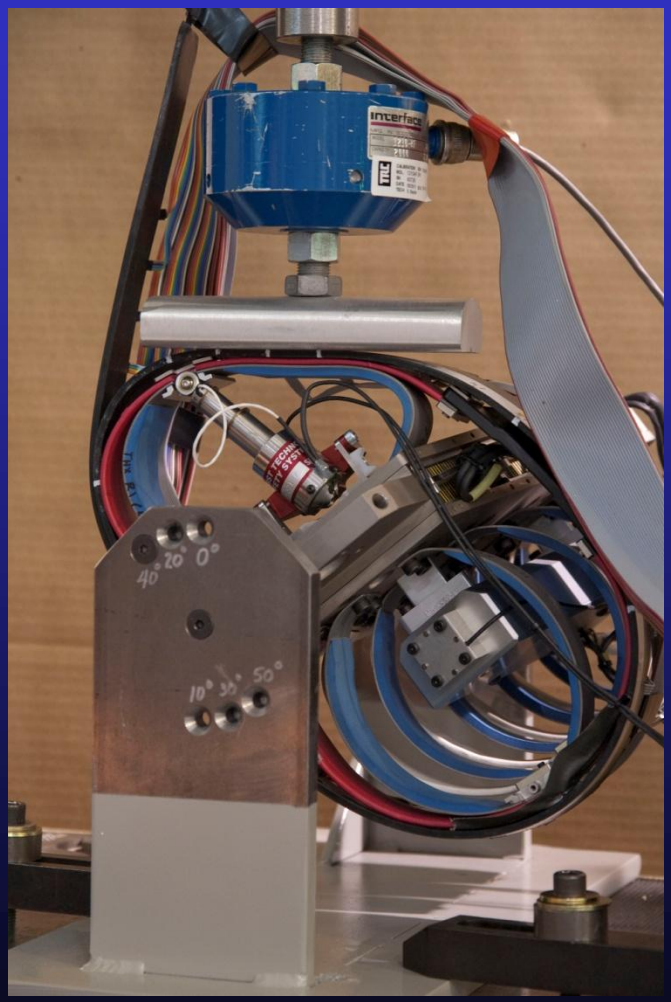
WorldSID 5th Oblique Loading: Setup

Loading Angles



WorldSID 5th Oblique Loading: 130o Test





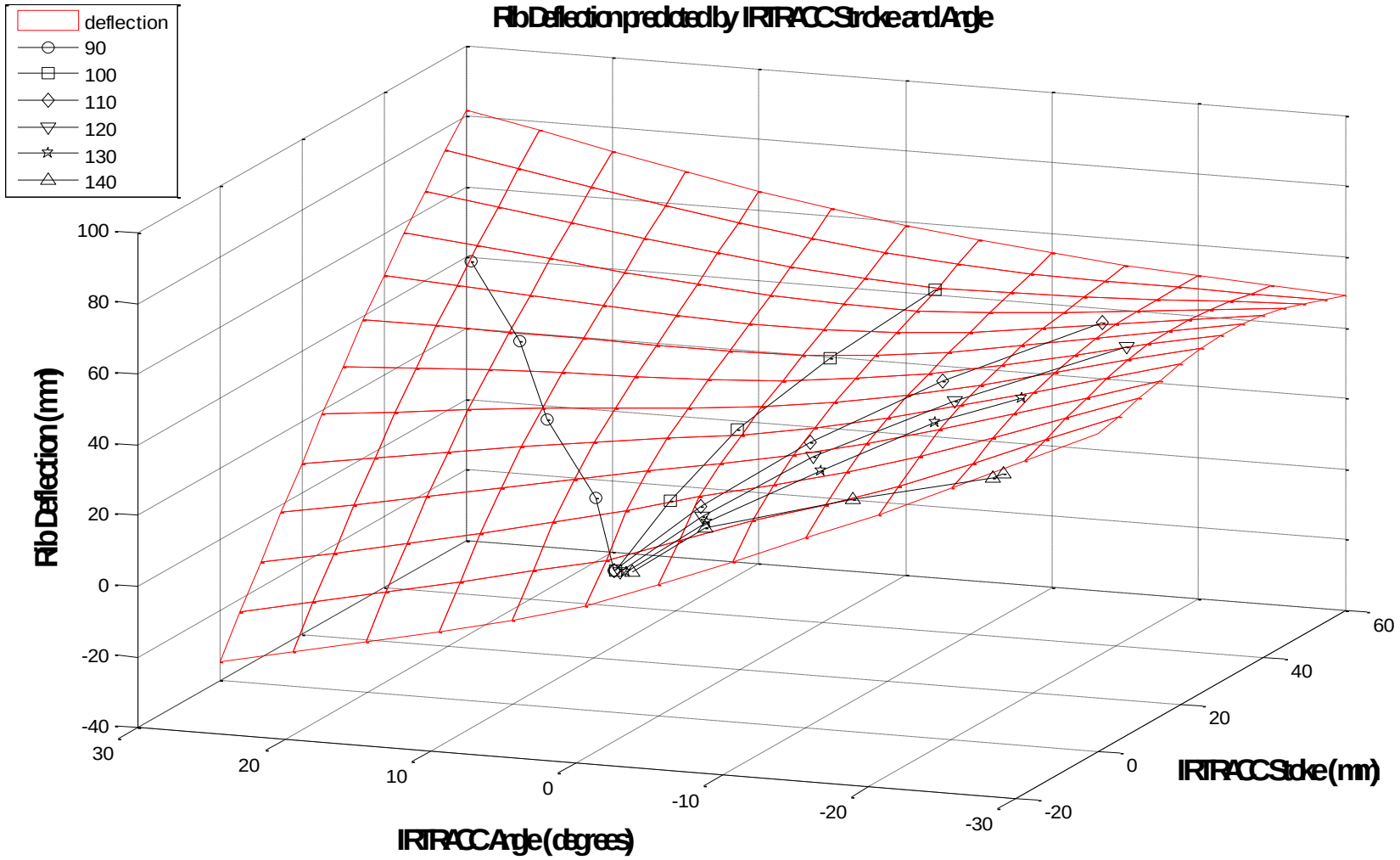
WorldSID 5th Oblique Loading: Test Matrix

Angle of Applied Load

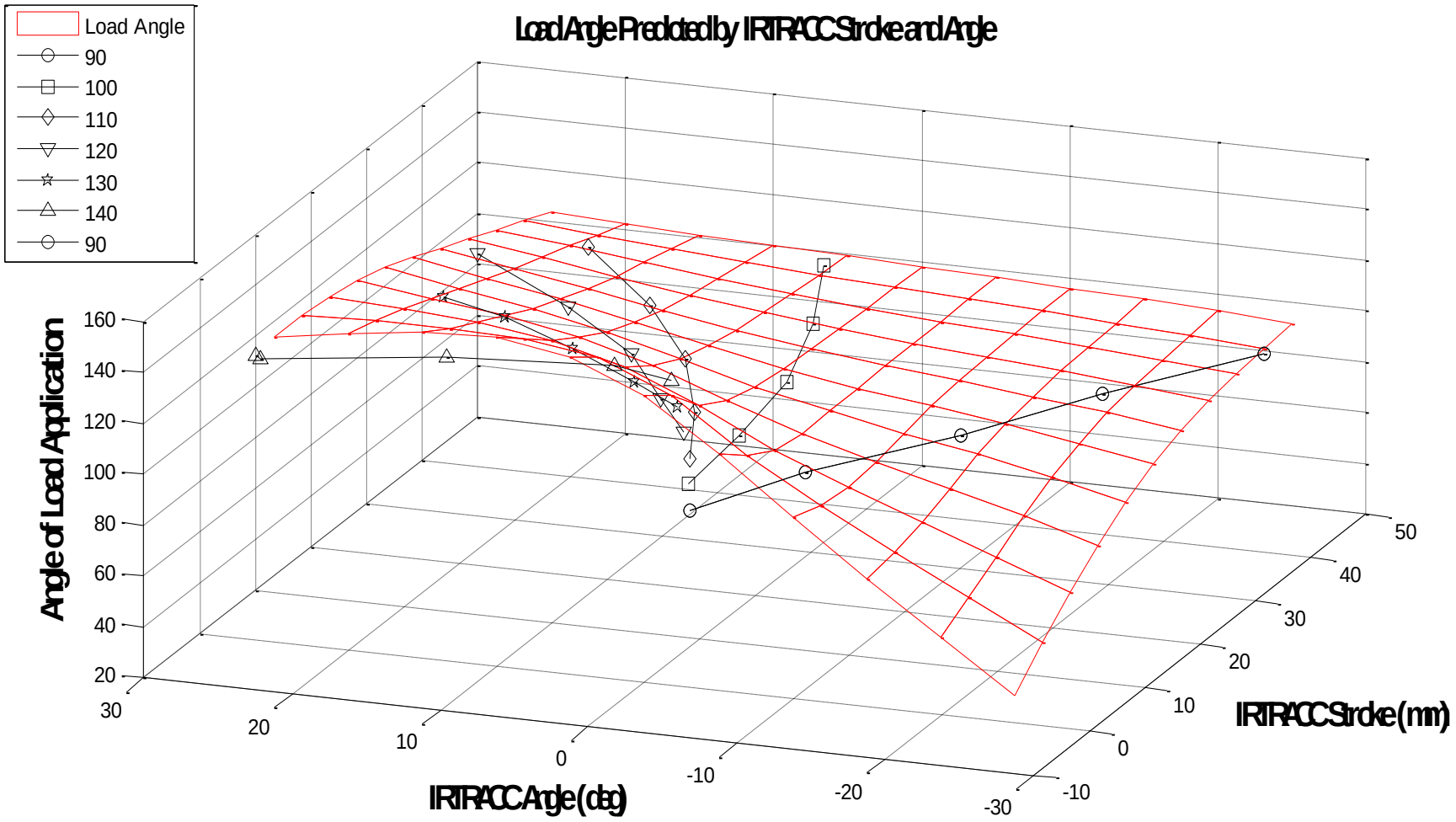
Displacement (mm)

	90°	100°	110°	120°	130°	140°
Zero	0.01	1.35	8.62	-0.04	-0.04	-0.06
Step 1	12.81	14.16	21.48	12.87	12.85	12.81
Step 2	25.56	26.96	34.28	25.76	25.69	25.69
Step 3	38.22	39.61	46.99	38.50	38.47	38.44
Step 4	50.88	52.34	59.49	51.14	45.24	39.44

WorldSID 5th Oblique Loading: Rib Disp.



WorldSID 5th Oblique Loading: Load Angle



WorldSID 5th Oblique Loading

- Rib maximum displacement and location **may** be predictable by 2D IRTRACC
- Least squares 2nd order polynomial surfaces fit to static data for WSID 5th
- $D=a_o+a_1*x+a_2*x*y+a_3*y+a_4*x^2+a_5*y^2$
- Preliminary tests results are promising
- 50th static testing in process
- Will be compared to crash test chestband data

WorldSID 5th Oblique Loading

- Jury is out! No guarantee
- Issues
  - Static test displacement is aligned with IRTRACC center of rotation, crash loading is not
  - Oblique vs Lateral response – same or different? (Rhule, Stapp 2011)
  - Oblique injury criteria needed