

Preliminary Results of NHTSA's Comparison of the Current Offset Deformable Barrier Specified in FMVSS No. 208 and the Progressive Deformable Barrier

GRSP – 43rd Session
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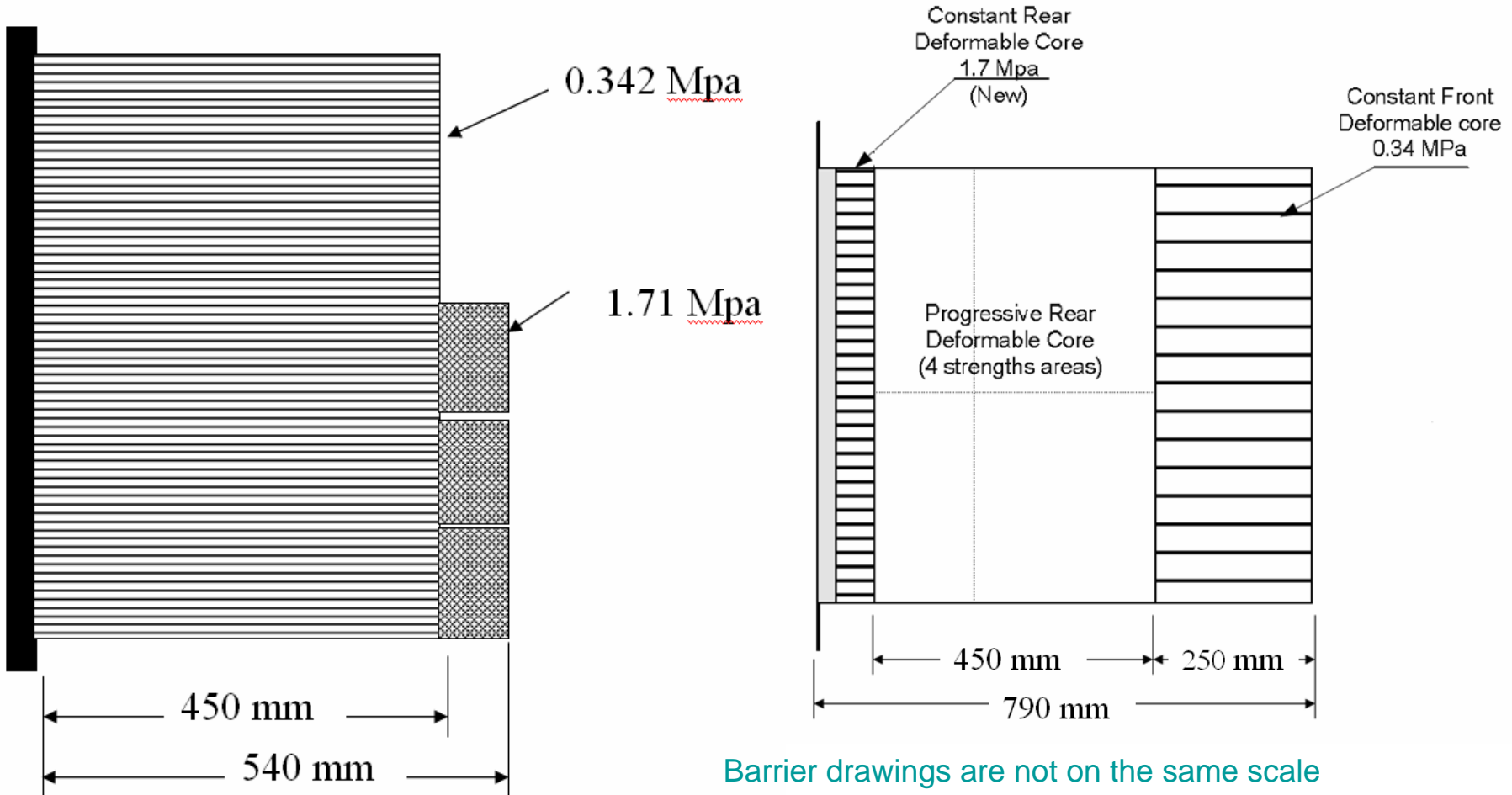
Objective

- ★ Direct evaluation of the Progressive Deformable Barrier (PDB) and the ECE R94 Offset Deformable Barrier (R94)

Performance Measures

- ★ THOR LX legs to evaluate lower leg injuries
- ★ Barrier performance evaluated by
 - Bottoming out
 - Vehicle weight
 - Deformation pattern due to vehicle construction
 - Unibody vs. body on frame

Barrier Definition



Test Conditions

★ R94

- 56 kph at 40 percent overlap

★ PDB

- 60 kph at 50 percent overlap

★ Dummy based seating procedure

- Place foot on accelerator pedal

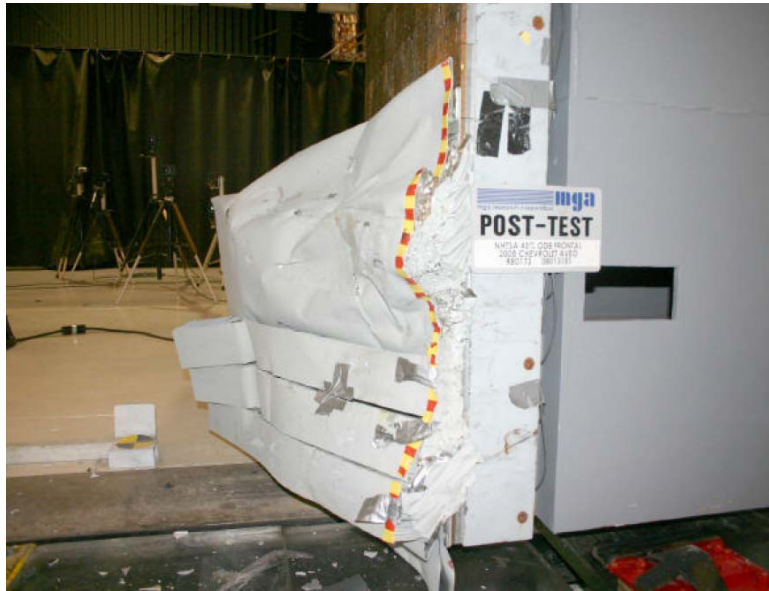
Test Matrix

- ★ Chevy Aveo – small car (1433 kg)
- ★ Ford 500 – midsize car
- ★ Ford Escape – unibody SUV
- ★ Saturn Outlook – unibody SUV
- ★ Ford F-250 – large PU (3291 kg)
- ★ Ford 500 – midsize car
 - 3 repeat tests for both barriers

Aveo Left Side View



Aveo Barrier Crush



R94

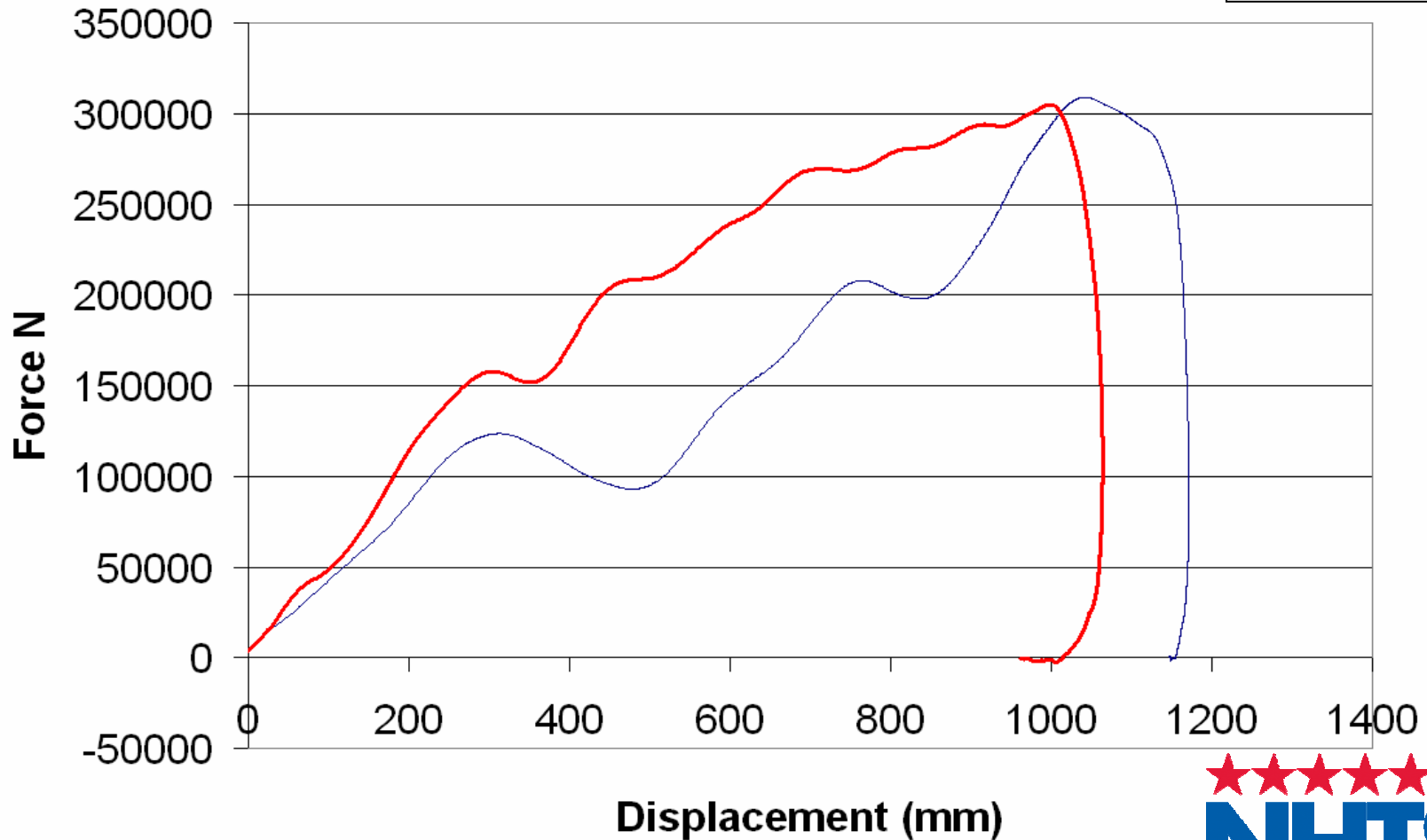


PDB

The Aveo (compact car) bottomed out the R94 barrier

Aveo Force vs. Displacement

PRELIMINARY

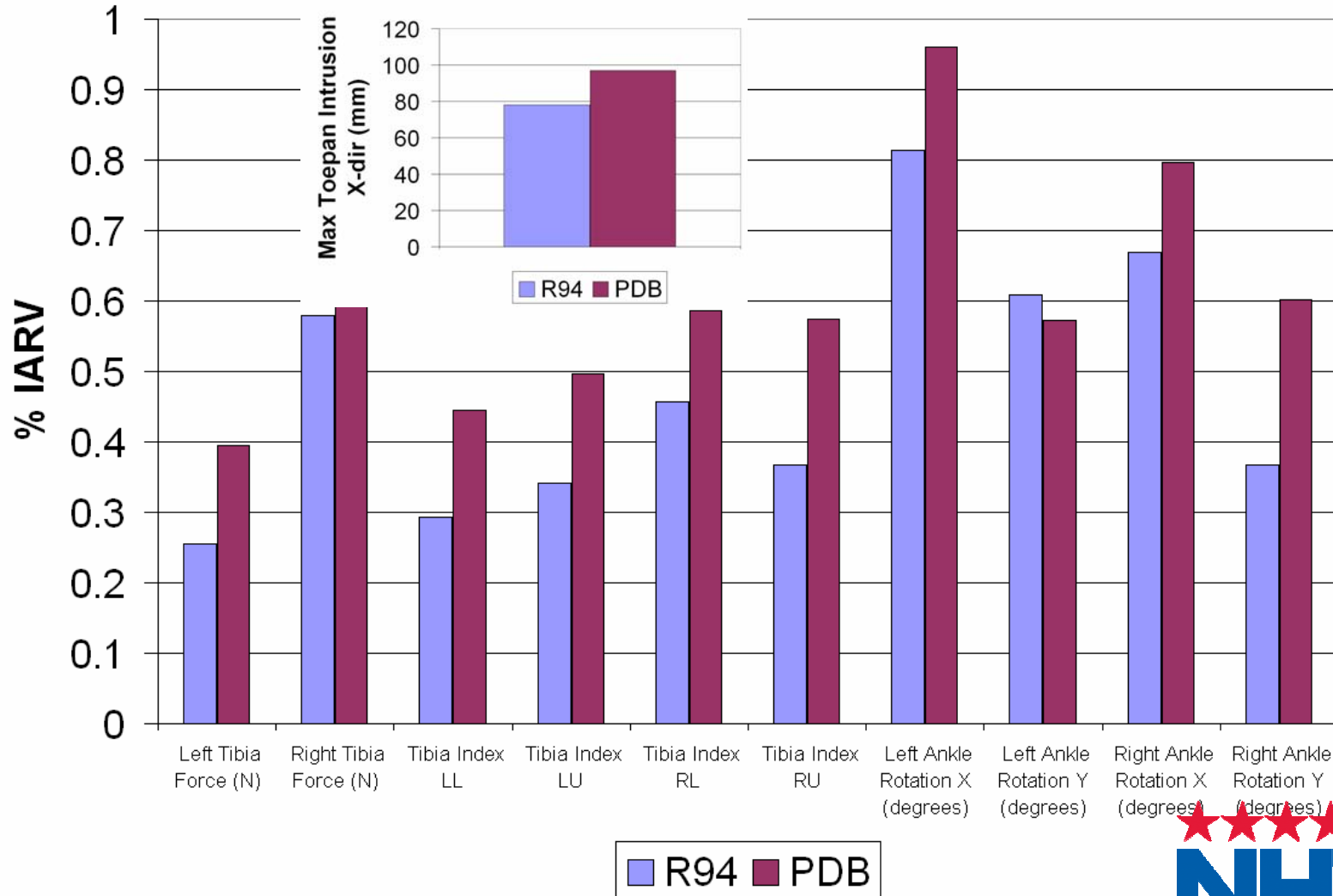


— R94 — PDB



Aveo Thor-Lx IAV

PRELIMINARY



F-250 Left Side View



R94



PDB

F-250 Barrier Crush



R94



PDB

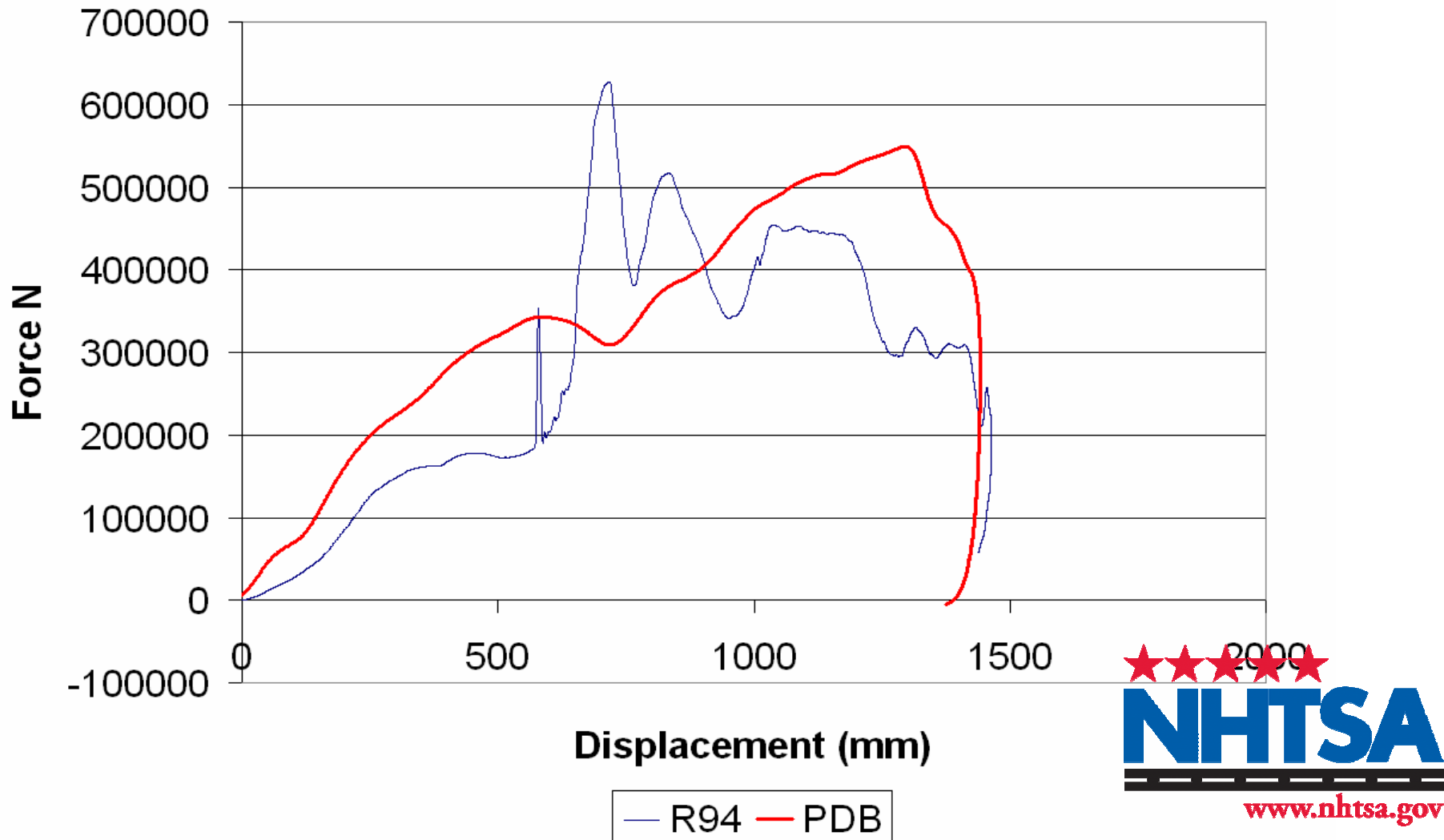
Front View of PDB for F-250



Frame punctured the PDB

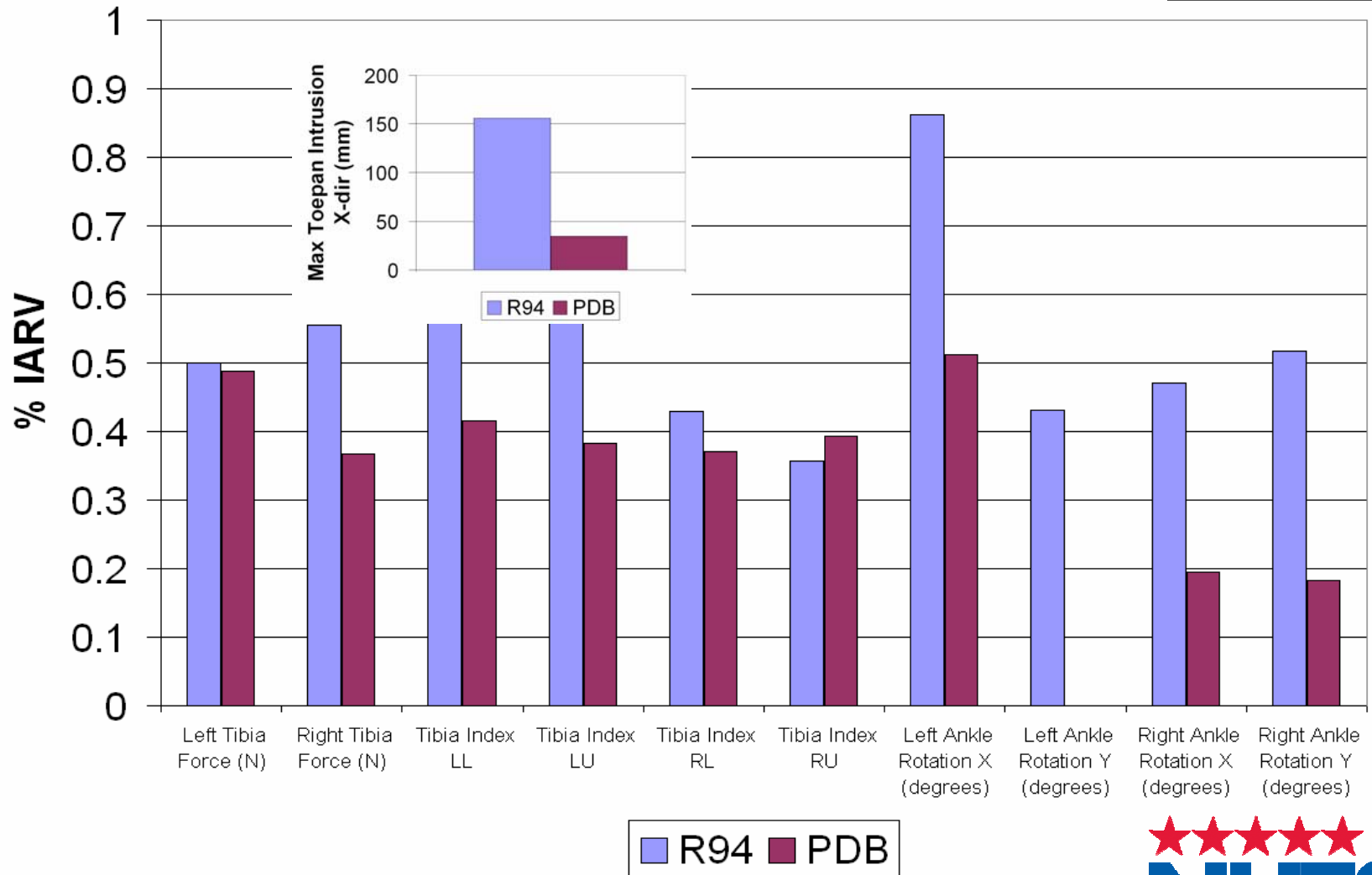
F-250 Force vs. Displacement

PRELIMINARY



F-250 Thor-Lx IAV

PRELIMINARY



Summary

- ★ The PDB barrier did not bottom out when impacted with the F-250
- ★ Both barriers applied the same global force to the Aveo
- ★ The PDB absorbed more energy than the R94 barrier for the F-250
 - Peak Force was later in the event
- ★ The Aveo saw similar intrusion results and similar leg injury results
- ★ The F-250 had significantly lower intrusion results with the PDB and lower leg injury results.