Proposal for Modification of Frontal Impact Test Bench for Booster Type CRS

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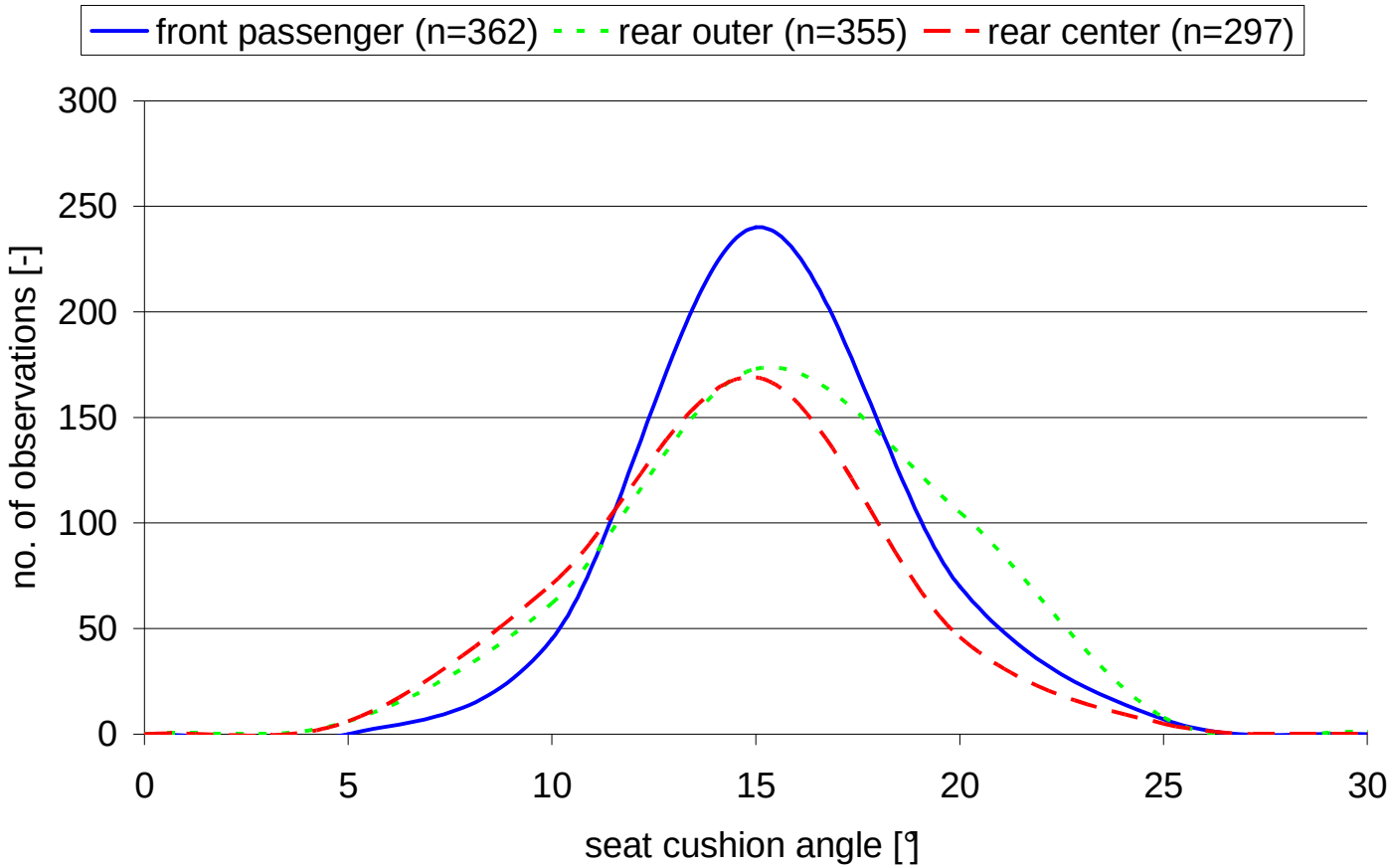
Introduction

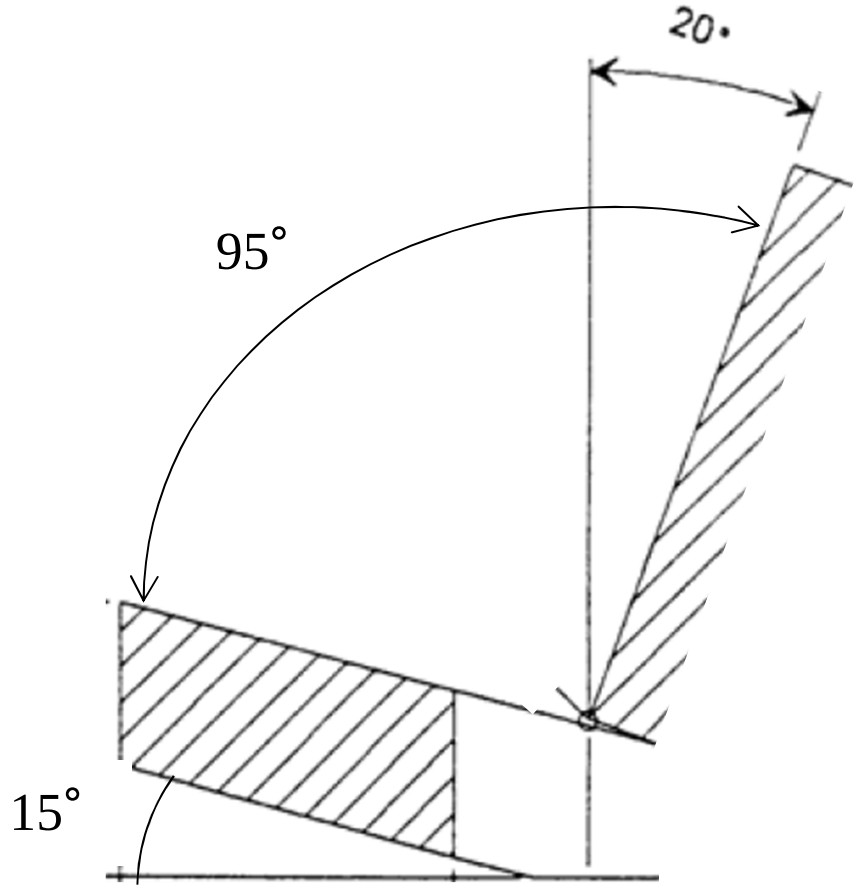
- Main task of booster type CRS is to protect children from submarining
- Discussion is ongoing to include abdominal sensors for phase II
- Abdominal sensors are not needed if the event of submarining is unlikely independent of CRS performance
- CASPER Project proposed to change the test bench geometry for phase 2 in order to better address worst-case conditions for booster type CRS [Lesire et al., Protection of Children in Cars 2011]
  - No change for all other CRS proposed
- TUB and Fahrzeugsicherheit Berlin e.V. analysed potential by numerical simulations

Seat Bench Geometry in Cars

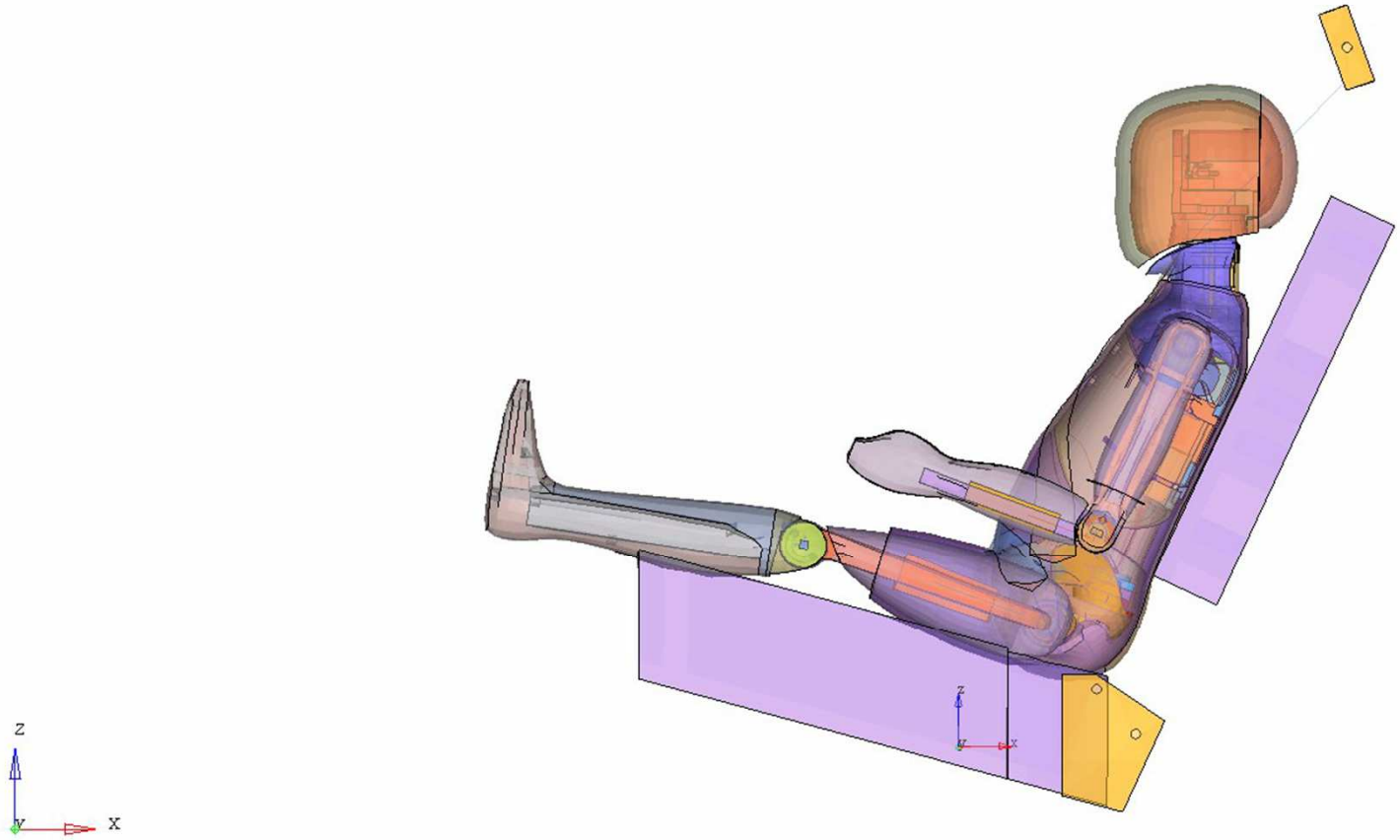


[CASPER Deliverable D4.6]

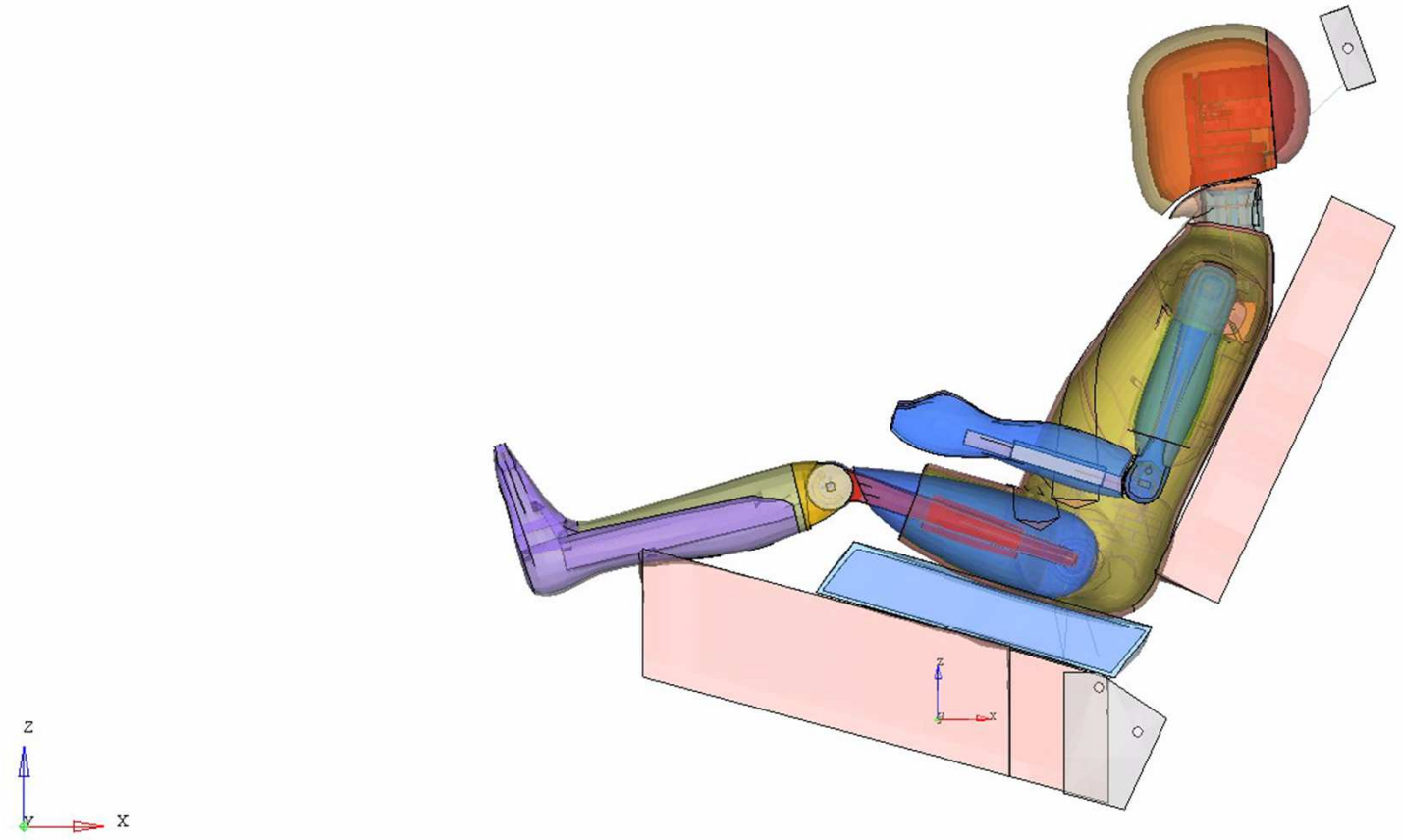
Seat Bench Geometry Test Bench



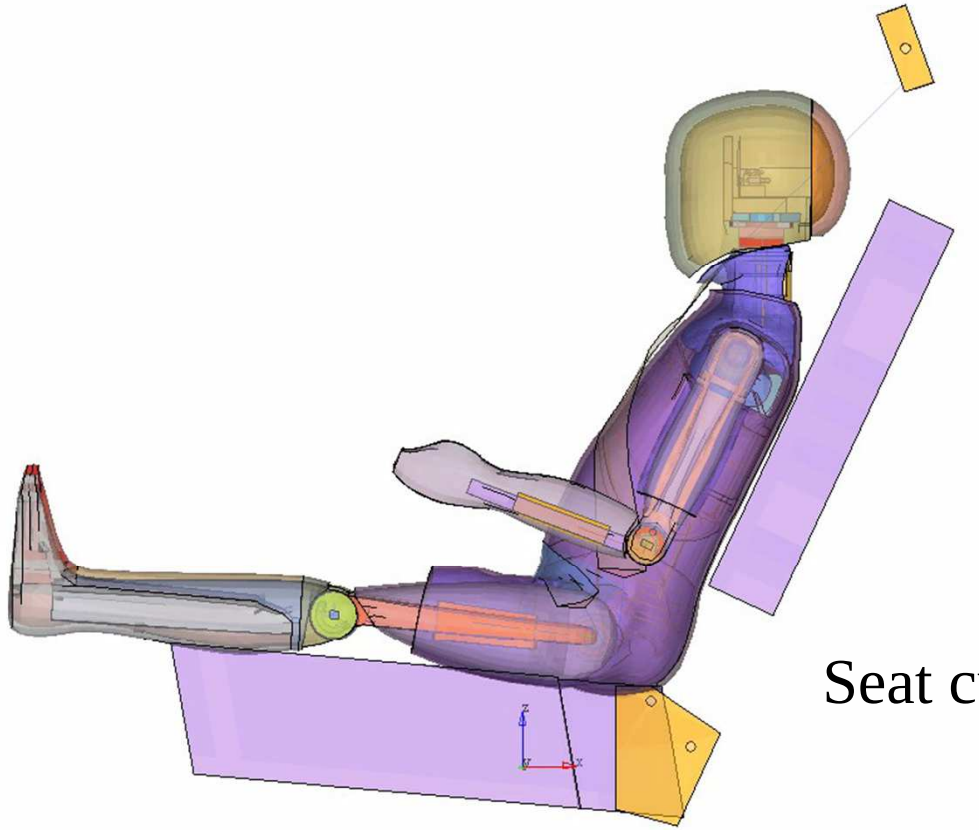
Q6 with Adult Belt only on Standard Test Bench



Q6 with booster on Standard Test Bench

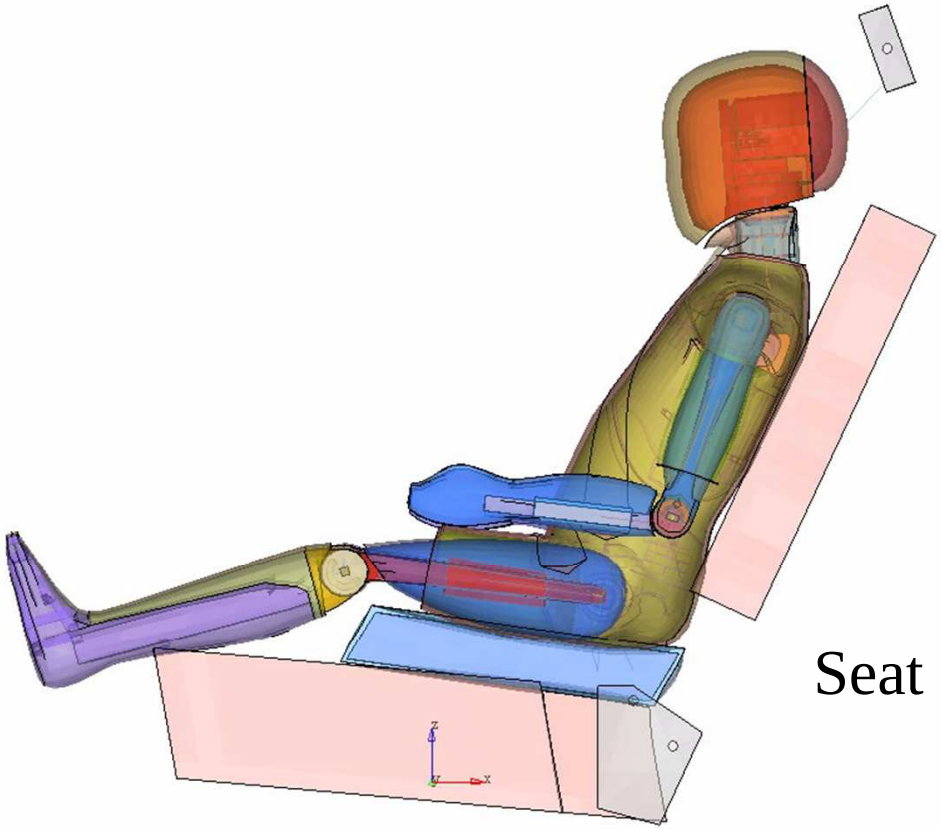


Q6 with Adult Belt only on Modified Test Bench



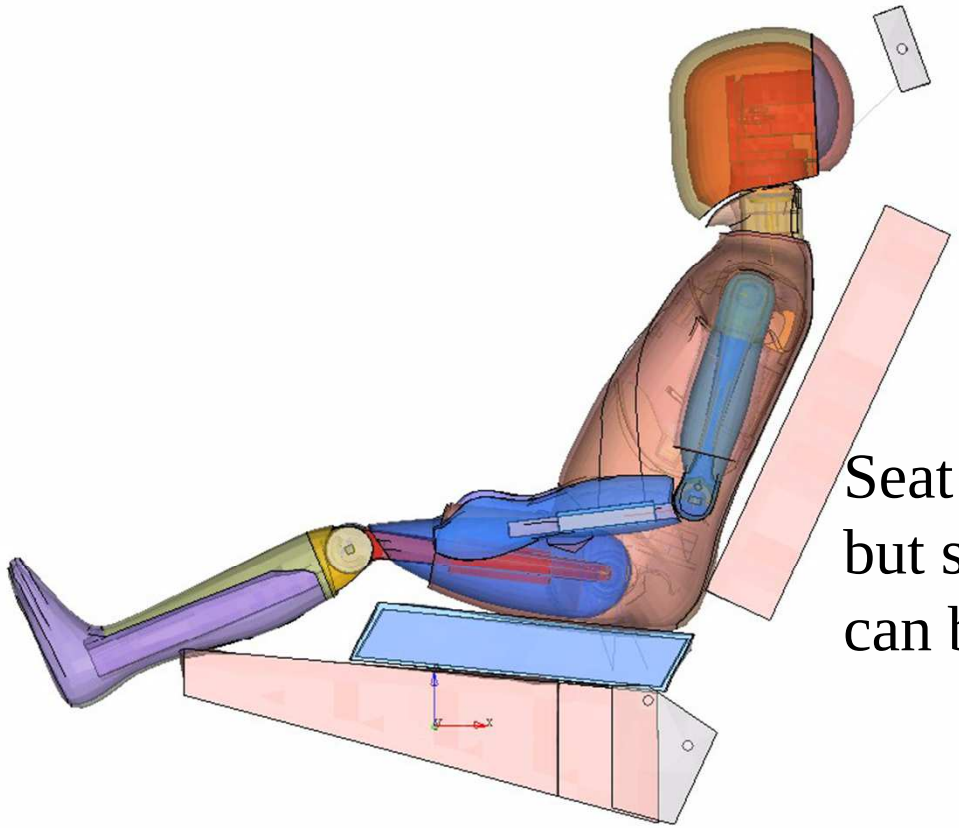
Seat cushion angle 5°

Q6 with booster on Modified Test Bench



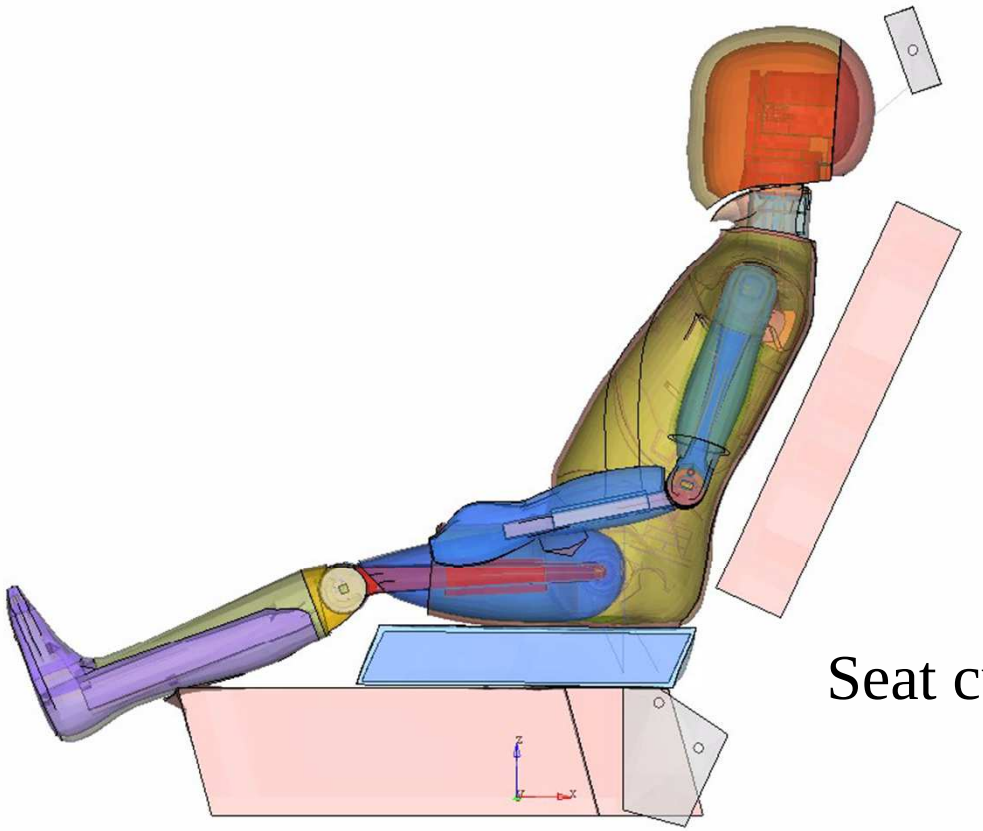
Seat cushion angle 5°

Q6 with booster on Modified Test Bench 2



Seat cushion angle 5° but same sled structure can be used

Q6 with booster on Modified Test Bench



Seat cushion angle 0°

Conclusion

- It is recommended to
  - keep test bench geometry for integral harness systems
  - modify the seat cushion geometry for booster type CRS to
    - fit with 5° cushion angle
    - fit with test bench structure geometry for integral harness systems