

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

## **Answers to Comments from IG CRS**

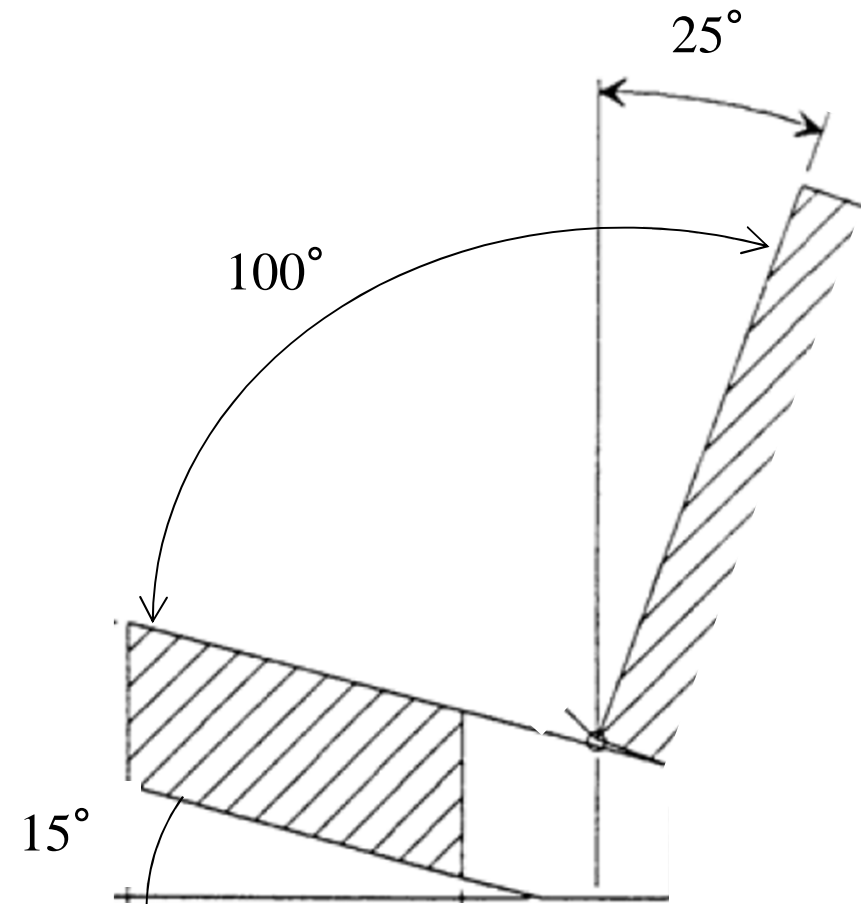
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## Comments from IG CRS Meeting

- Use i-size test bench
- Turn complete bench with backrest instead of modifying cushion angle only
- Patches for Q6 model should be used
- Was there any test with ISOFIX booster conducted?
- How does it work with the generic CRS models?

## Use i-size test bench

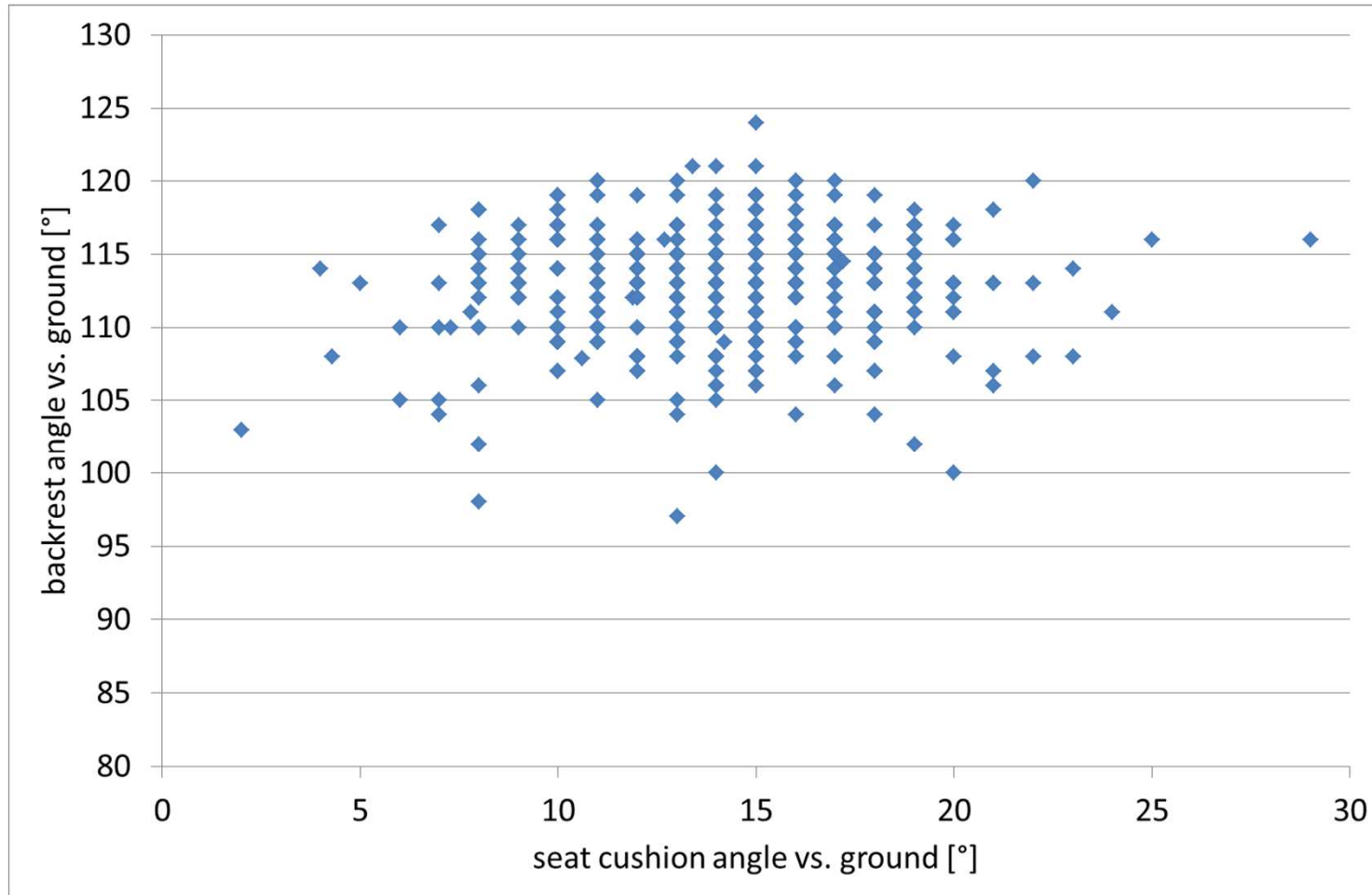
- I-size test bench was used but wrong figure in original presentation



## Turn Complete Bench instead of Modifying Cushion Angle

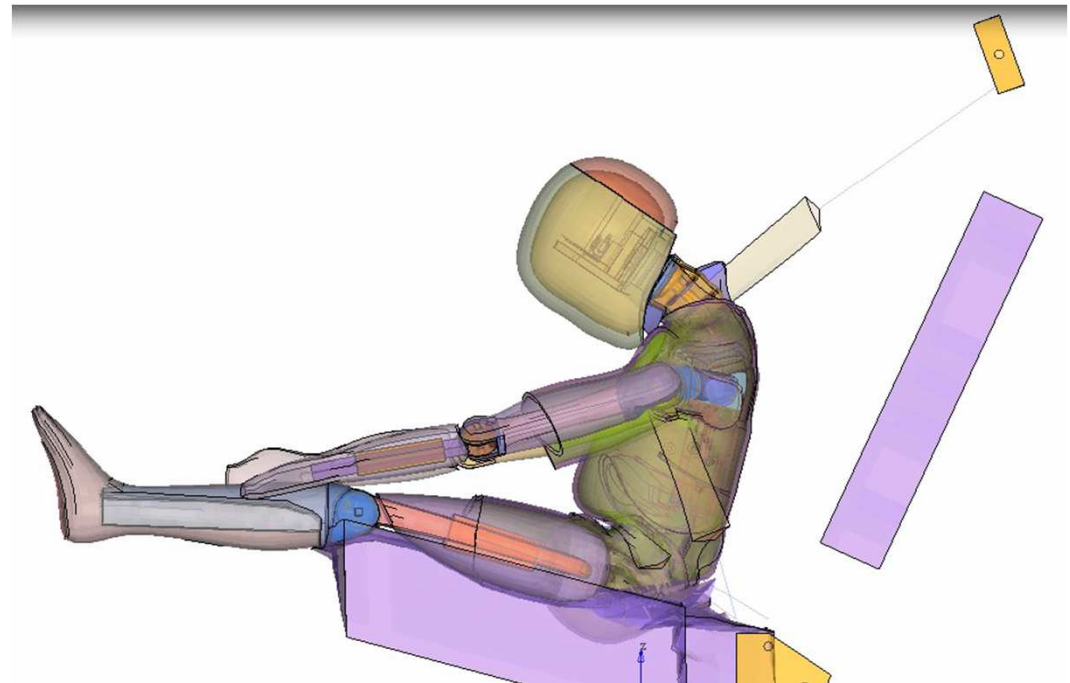
- The proposal is to develop a test bench that is more representative of worst case situation w.r.t. submarining.
  - Avoidance of abdominal loading is the main objective of booster type CRS
  - The capabilities of the booster cannot be assessed on a test bench that does not allow submarining without CRS
- There is no correlation between seat cushion angle and backrest angle in cars (see next slide)
- The larger the torso angle the larger the submarining risk
- Rotation of the complete test bench seems to be a quite big effort for experimental analysis
- Following that Berlin experts do not propose to turn the complete test bench

# Seat Bench Geometry in Cars



## Patches for Q6 should be used

- The patches aiming to prevent the belt from interaction with the gap between thighs and pelvis. This behaviour was not observed in these simulations so no change with patches is expected. Furthermore no models of the patches are existing



## **Was there any test with ISOFIX booster conducted?**

- No
- There is also no simulation planned
- Here physical tests are more appropriate

## How does it work with the generic CRS models?

- Not tested
- Here physical tests are more appropriate