

Informal document **GRSP-55-42**
(55th GRSP, 19-23 May 2014,
agenda item 21)



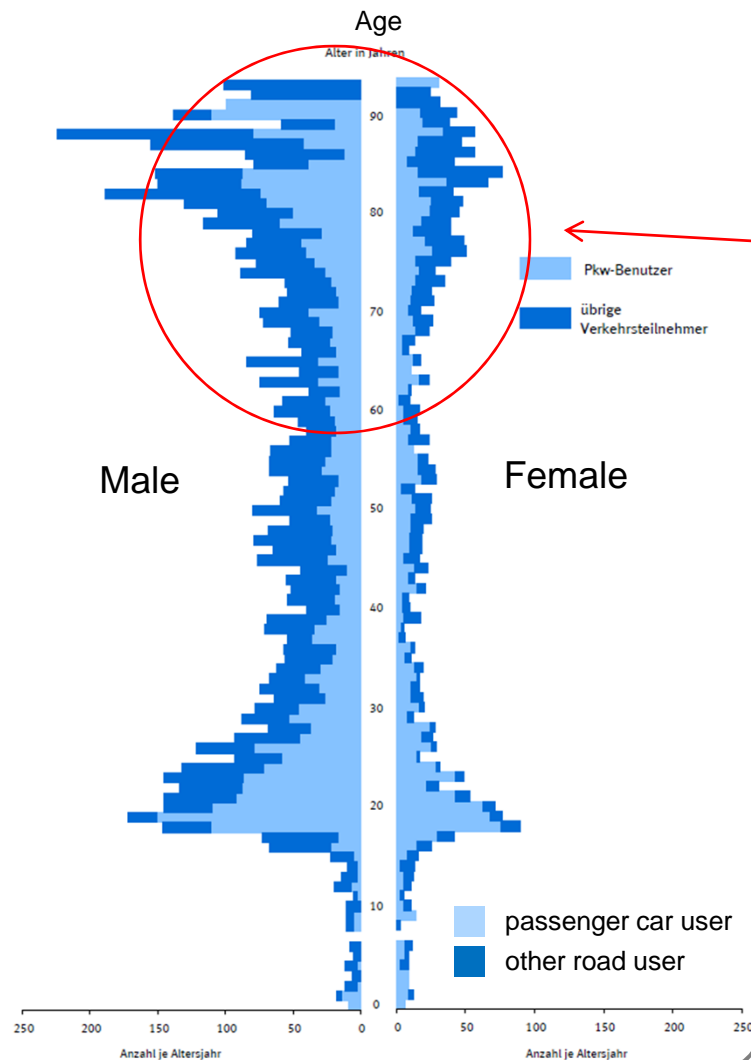
UN Frontal Impact Requirements

Consideration of elderly occupants

Consideration of female occupants

Fatalities: Proportion of Gender and Age

Number of fatalities in traffic accidents per million inhabitants



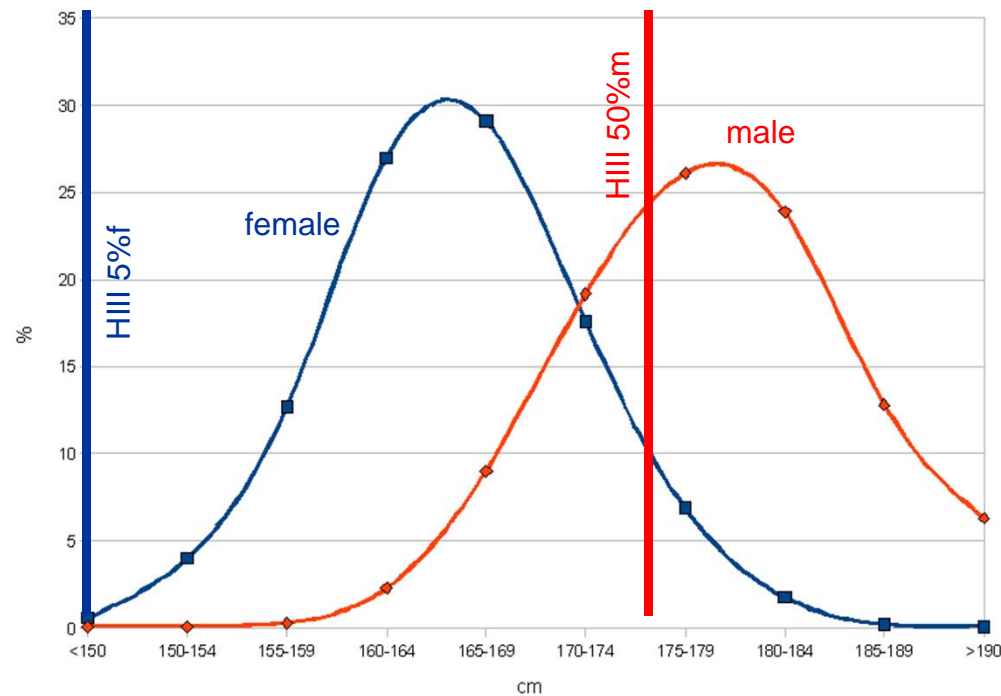
Accident data from Germany

- Higher number of fatal injured males in comparison to females
- No special risk for elderly female in comparison to mid-aged females
- Higher risk for elderly males in comparison to mid-aged males

Source: Statistisches Bundesamt 2010

Average Size of the Population

Data from Germany



Source: Size of German Occupants - SOEP 2006

- 50% male HIII is covering a large proportion of the male population
- 5% f HIII is covering a very small proportion of the female population

Evolution of New Front Impact Requirements

Decisions in the GRSP Informal Group

TOR

- Consideration of higher injury risk for elderly occupants
- Consideration of injury risk for female occupants

Problem:

- Dummy representing the 50% female is not available

Decision of the IG:

- Female will be represented by the 5% female dummy
- Elderly occupant will be considered by a lowered chest deflection threshold

OICA position

- Consideration of 5% female instead of 50% female is more demanding
- Statistics gives no justification for the need to consider small & elderly females

Impact Assessment

BASt (→ FWRB test)

- Based on low numbers and only good performing cars, no impact assessment is possible

TRL (→ use of the 5% dummy in Regulation 94):

- For the front seat passenger, the optimistic estimate was that there would be a very small benefit from changing to a 5th percentile female, but the pessimistic estimate was for an overall increase in the number of fatal and serious casualties.

TRL (→ the change of the chest injury threshold):

- For the front seat passenger, the optimistic estimate was that there would be a small benefit from using lower chest injury thresholds to represent older drivers, but the pessimistic estimate was for an increase in serious and particularly fatal injuries.



Margins during the vehicle development

to ensure compliance with the legislation

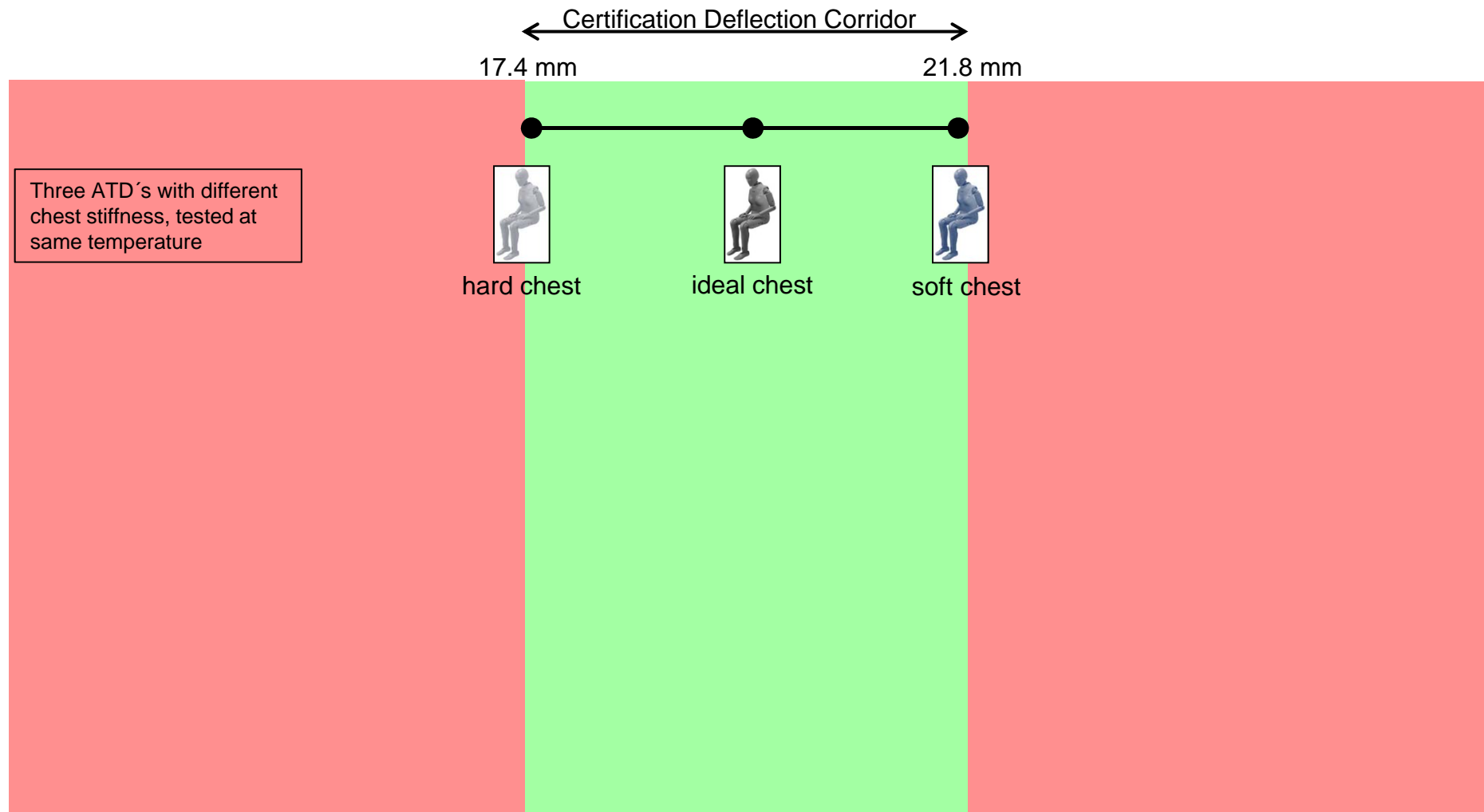
- OEM internal thresholds are lower than thresholds asked from Regulations to consider tolerances in...
 - Test tools
 - Test setup
 - Vehicle production

For the test tool only:

- **There is a 8,4 mm tolerance in the chest deflection coming from the certification of the 5%*f* chest**
- **This would lead to an internal threshold of < 34 mm in the case of a legislative requirement for 42mm**

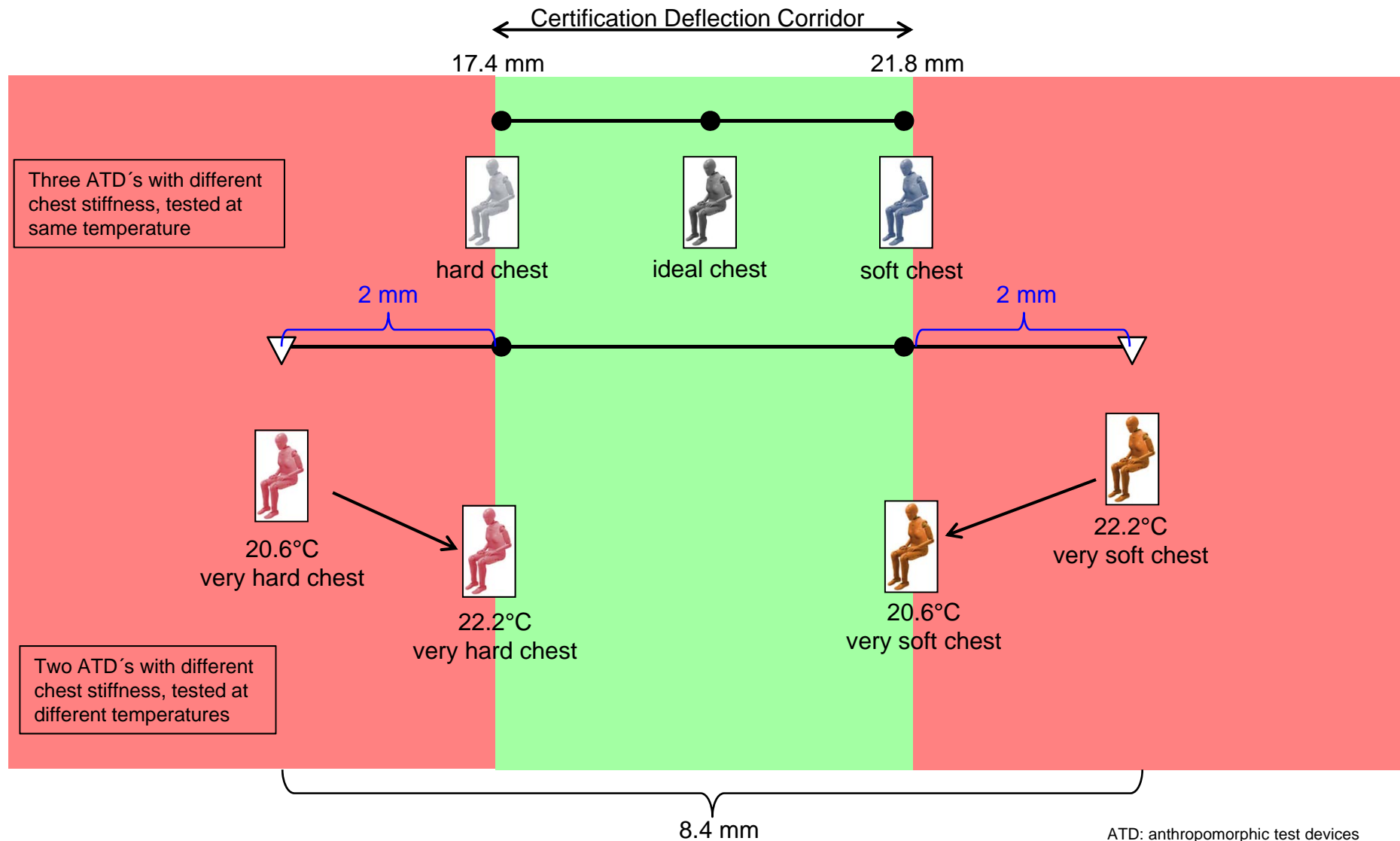
Safety Margins

Certification of 5%*f* chest



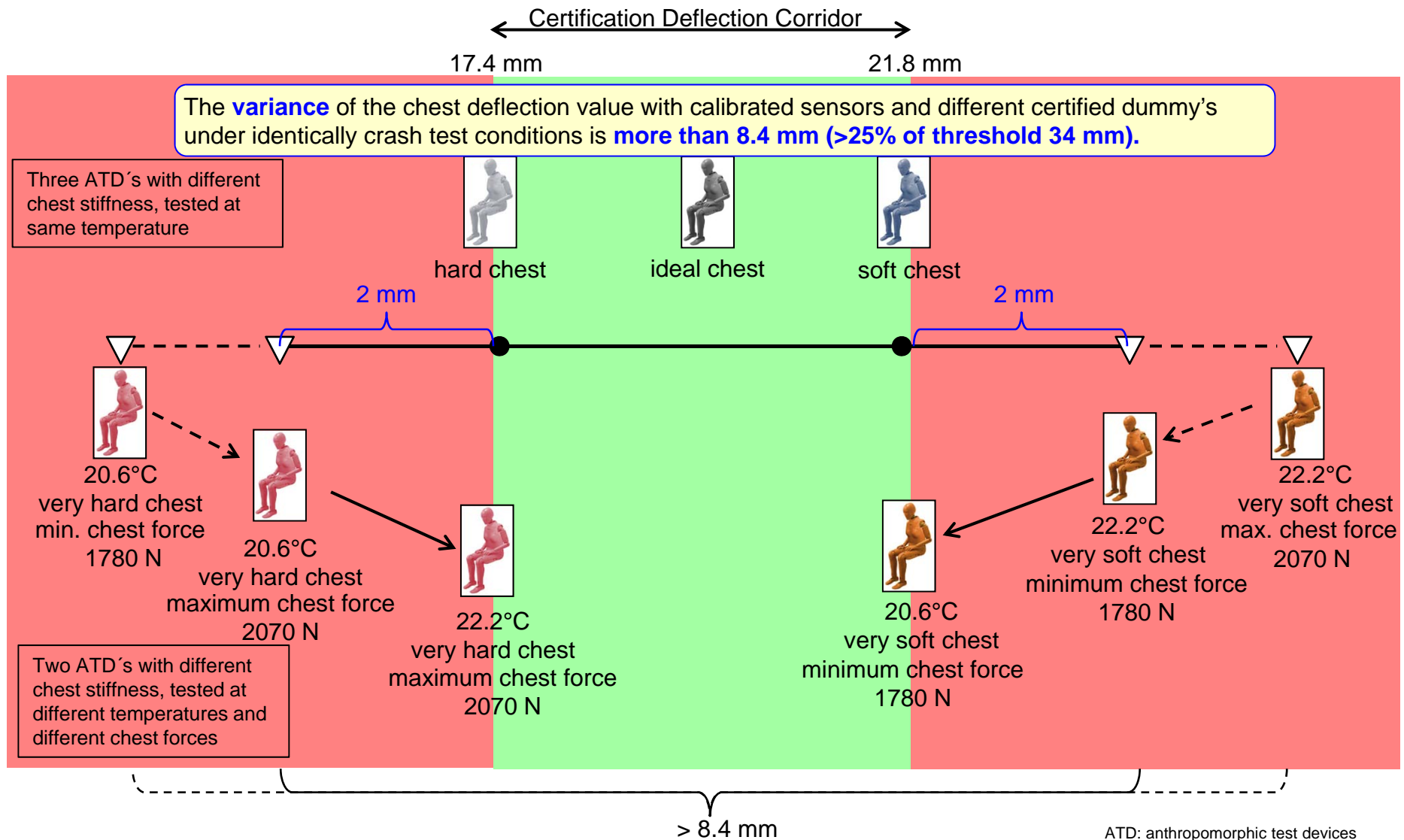
Safety Margins

Certification of 5% chest



Safety Margins

Certification of 5% chest



Conclusion

- OICA understands and supports the justification for reduced chest deflection thresholds for the 50% male
- OICA understands the need for the introduction of the 5%_f HIII as the only available test tool for a female
- OICA strongly recommends a chest deflection threshold of 42 mm for the 5% female