

Draft Informal document (France):

1/ Justification of the biomechanical chest deflection thresholds:

As the terms of reference (GRSP-51-26) aimed at improving the protection for female and older occupants, the Informal Group (FI-20-02) decided to increase the severity for the chest deflection.

The proposed thresholds are derived from the Laituri, T., Prasad, P., Sullivan, K., Frankstein, M., Thomas, R. (2005), Derivation and Evaluation of a Provisional, Age Dependent AIS 3+ Thoracic Risk Curve for Belted Adults in Frontal Impacts, SAE Paper No. 2005-01-0297. Based on these curves, a political decision was made to choose 50% risk AIS3+ (FI-17-07).

Chest deflection for the HIII 50th male at 65 years old = 42mm (50% risk of AIS3+)

Chest deflection for the HIII 5th female at 50 years old = 42mm (50% risk of AIS3+)

Chest deflection for the HIII 5th female at 65 years old = 34mm (50% risk of AIS3+)

These chest deflection data were used as a basis for the new limits in the amendment of ECE94 and the new ECE13x full lap frontal impact.

For the 5 percentile female chest deflection, the limit was derived only for the HIII dummy, in the front passenger seat.

The threshold limit of 34mm is derived from the injury criteria of a 65-year old 5th percentile female. This criterion should be limited to the front outboard passenger position under the load case and the test condition of this Regulation. Its usage should only be extended following further consideration and review.
