CRS-13-05

Dorel Europe Safety Center

Force transmitted by Support leg

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Summary

- Target
- Description of the tests
  - Pulses
  - Measurement device
  - Type of seats tested
  - Type of floor flexibility
- Analysis
  - Force level
  - Dummy criteria
- Conclusion

Target of the Study

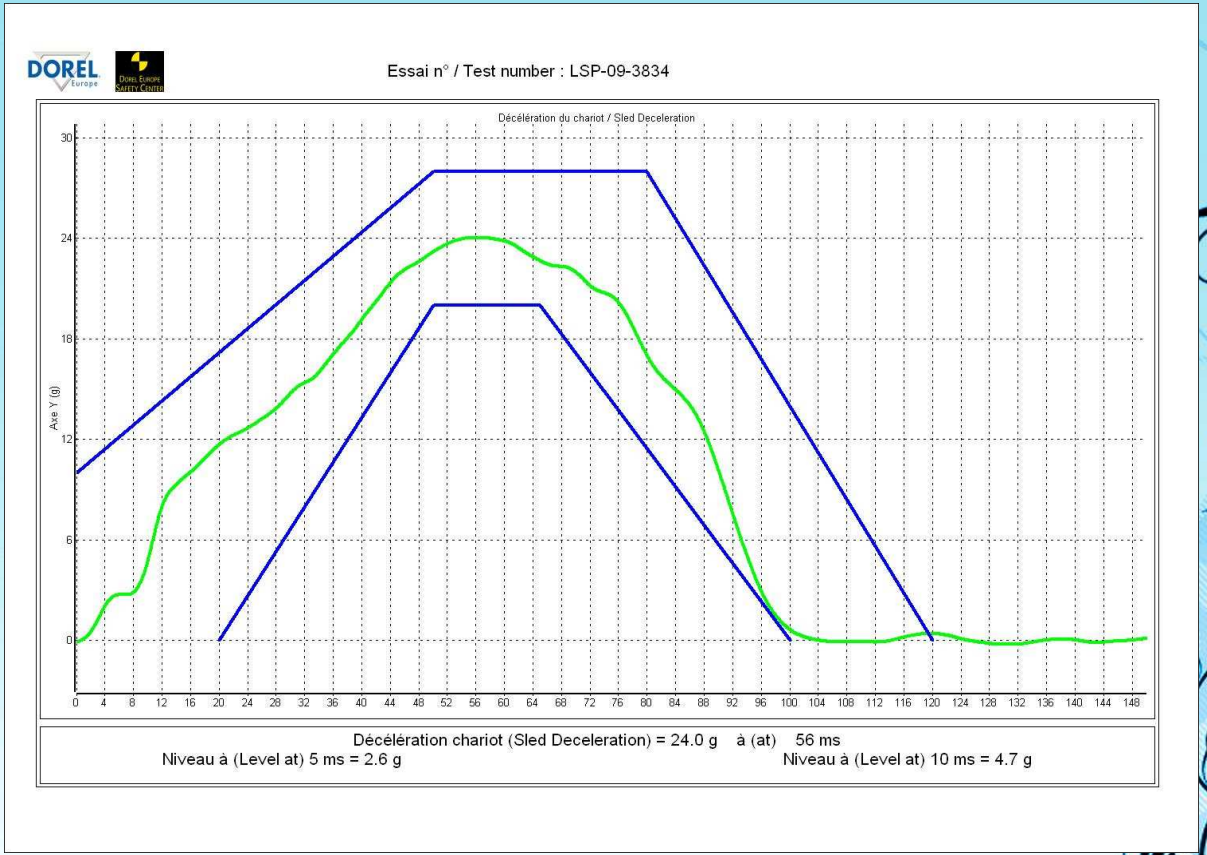
1. Measurement of load level transmitted by Support legs on the floor.

2. Evaluation of dummy safety criteria with floor flexibility

Description of the tests

Pulses

Using a R44 bench 2 types of pulses were applied on each type of seat tested



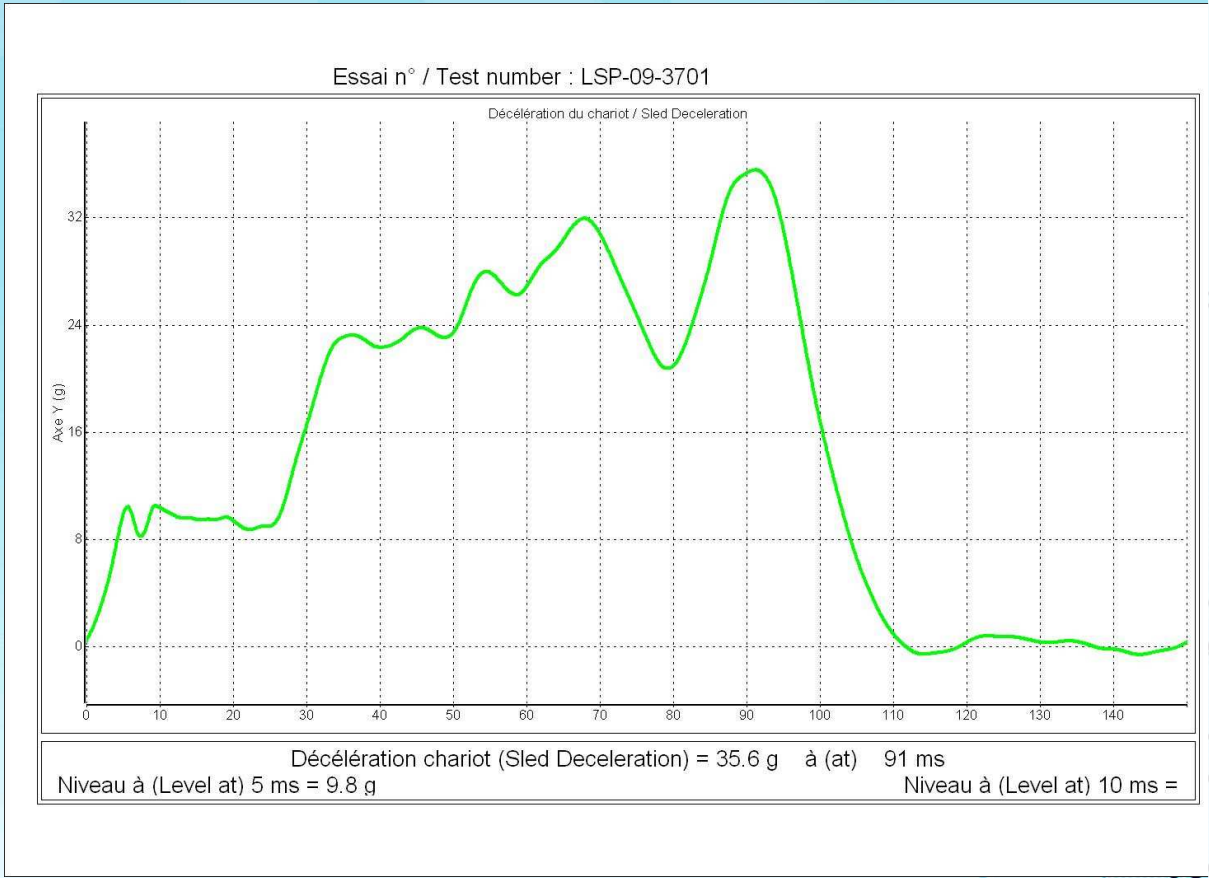
R44 Pulse

Description of the tests

Pulses

Using a R44 bench 2 types of pulses were applied on each type of seat tested

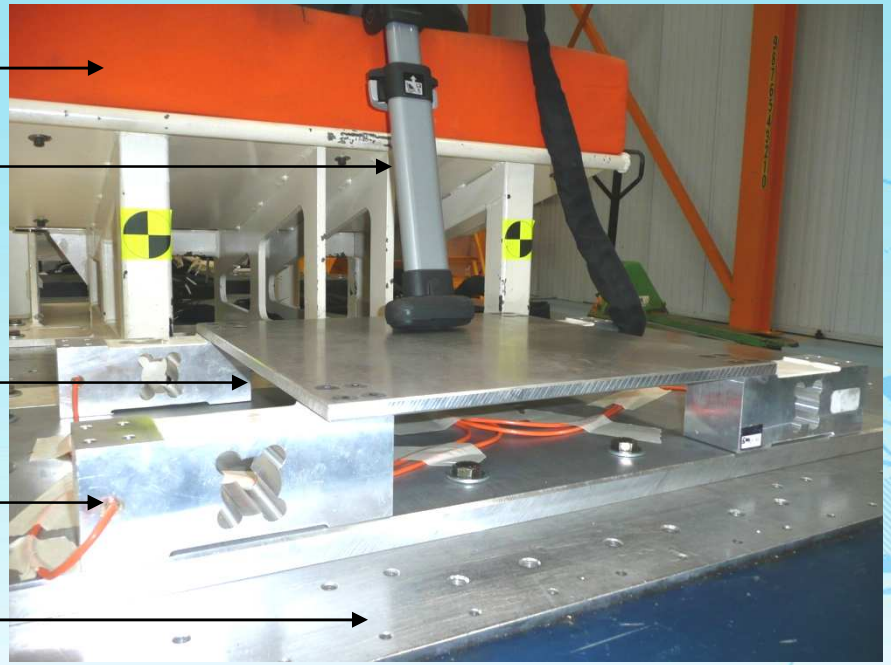
Euroncap type pulse



Description of the tests

Measurement Device

Load Sensor :
Mono Axial
Max Load 500 DaN/sensor



Description of the tests

Type of Seats

Seat A :
Group 1 FWF
Maxi Cosi Priorifix
Weight : 14.6 kg

Description of the tests

Type of Seats

Seat B :
Group 1 RWF
Recaro Polaric
Weight : 13.6 kg

Description of the tests

Type of Seats

Seat C :
Group 0+ RWF
Maxi Cosi Cabriofix
+ Easyfix base
Weight : 12.2 kg

Tests performed only in R44

Description of the tests

Type of Floor

Different type of 50 mm thick materials were placed on the initial bench floor:

- A rigid spacer
- A 84 g/l foam
- A 35 g/l foam
- A 25 g/l foam

The different foam were given by Renault. They seem to be EPP foams

25 g/l

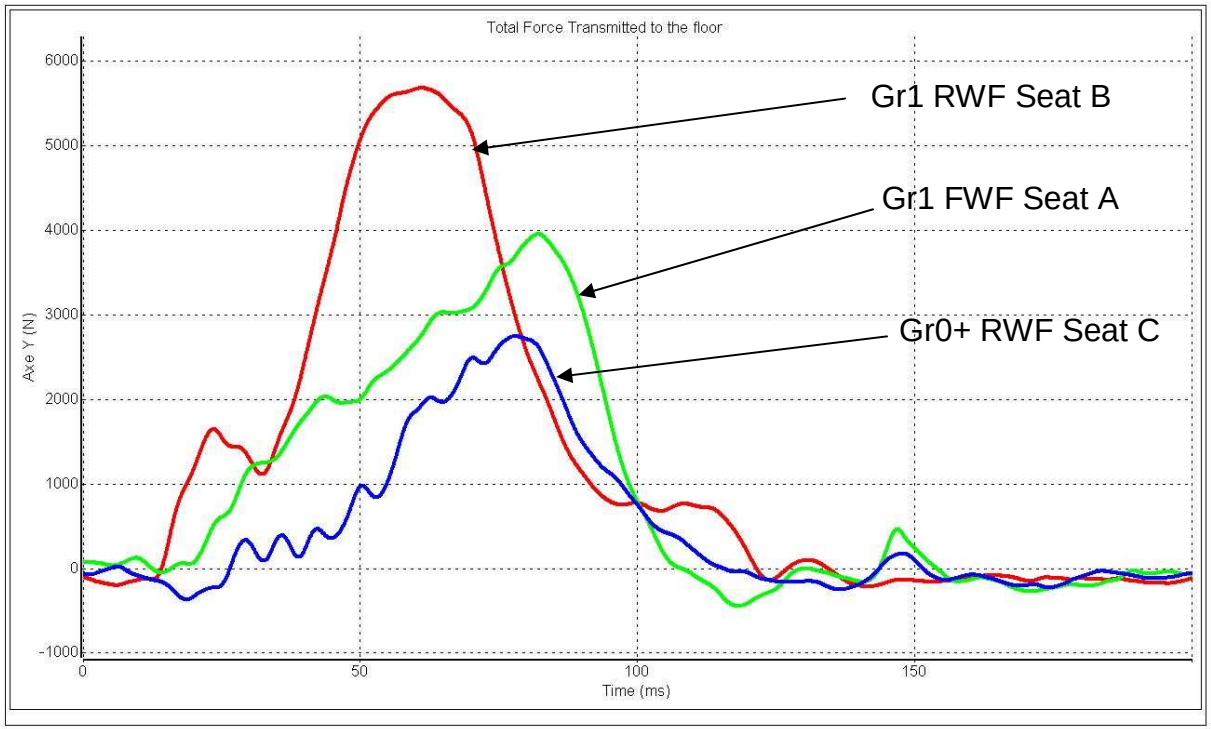
35 g/l

84 g/l

Analysis of Results

Force to the Floor – R44

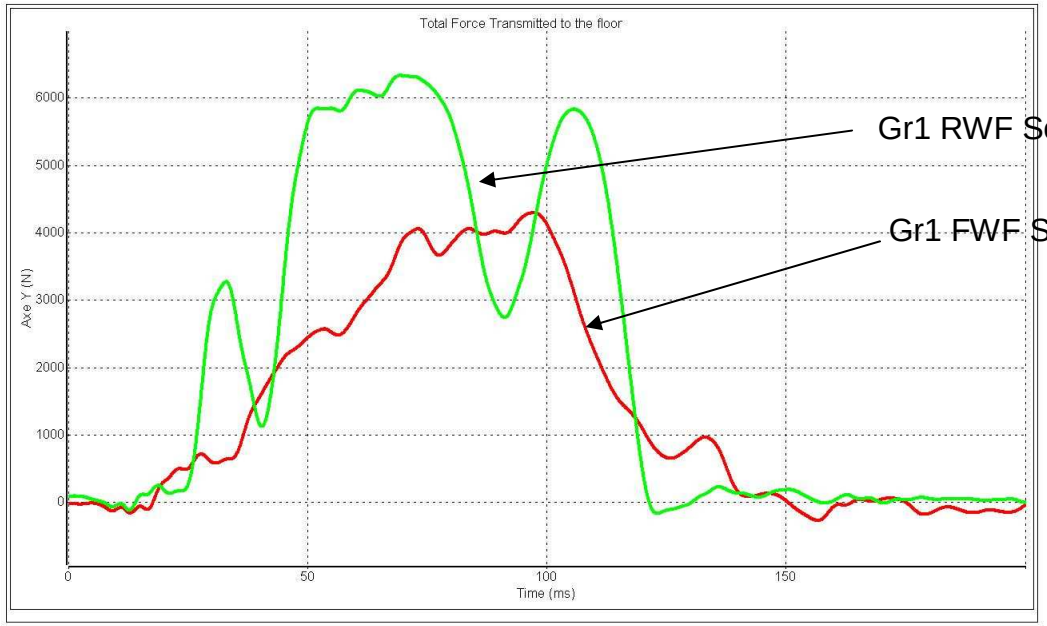
Seat	A PrioriFix	B Recaro Polaric	C CabrioFix (EasyFix)
Dummy	P3	P3	P1.5
Maximum Force (N)	3956	5681	2750



Analysis of Results

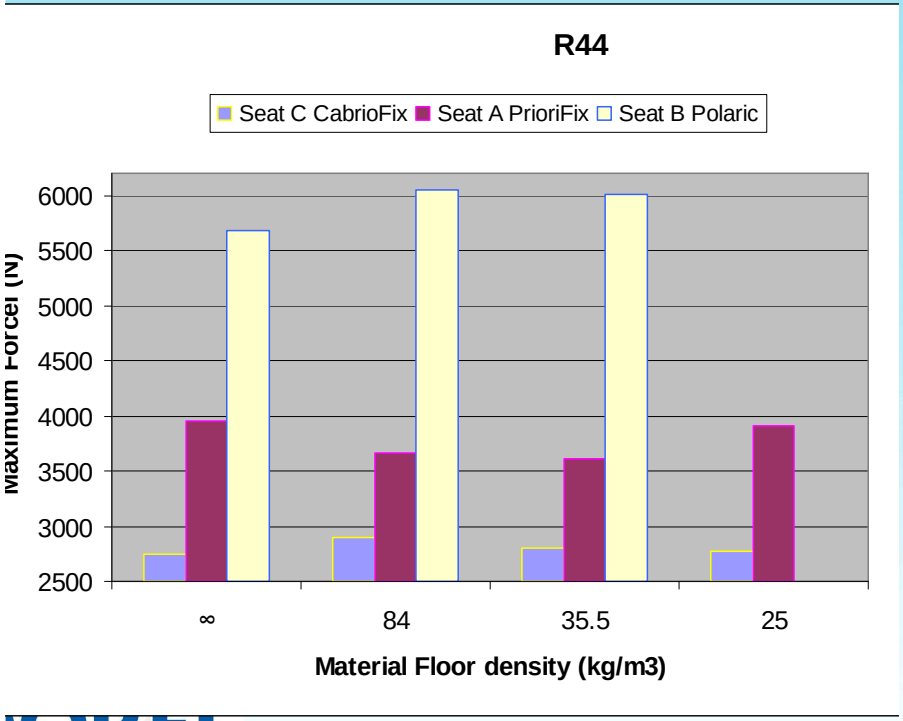
Force to the Floor – EuroNcap

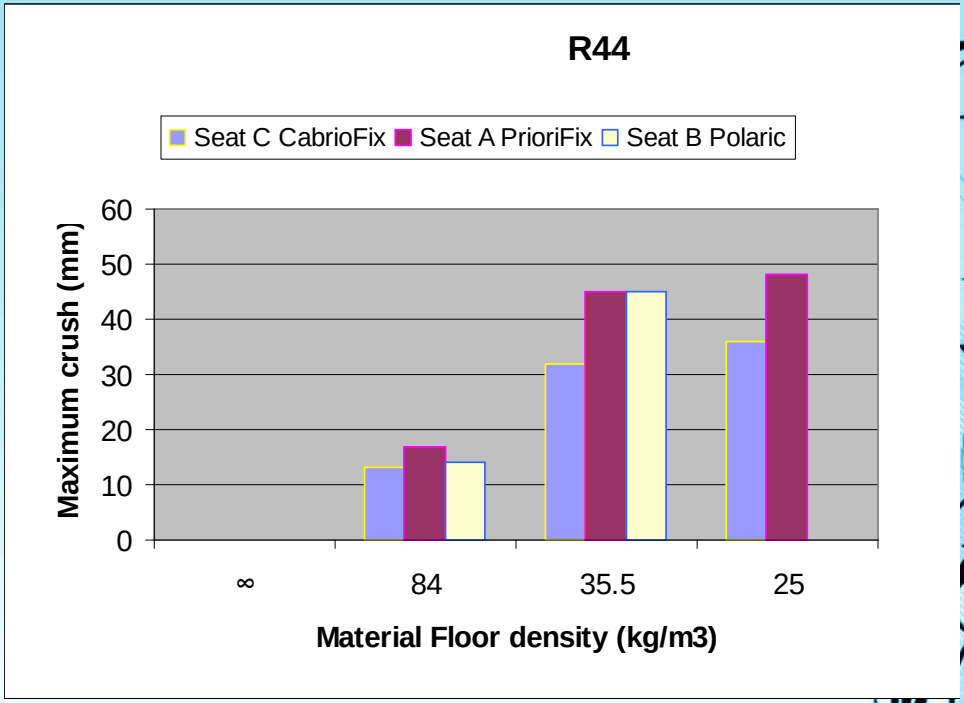
Seat	A PrioriFix	B Recaro Polaric
Dummy	P3	P3
Maximum Force (N)	4295	6334



Analysis of Results

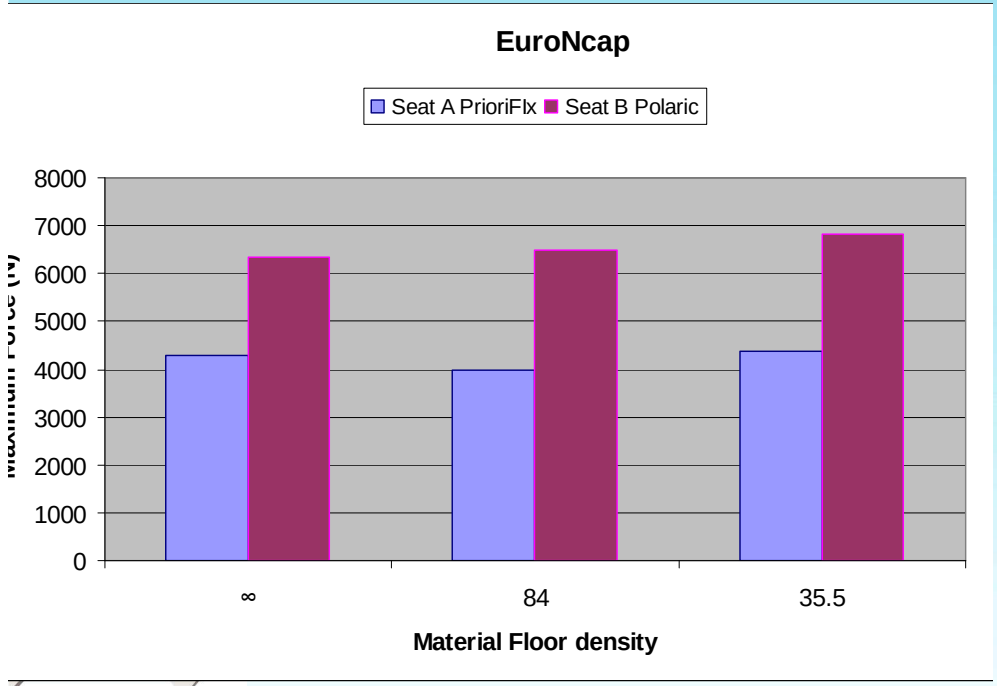
Force to the Floor / Floor Flexibility / R44

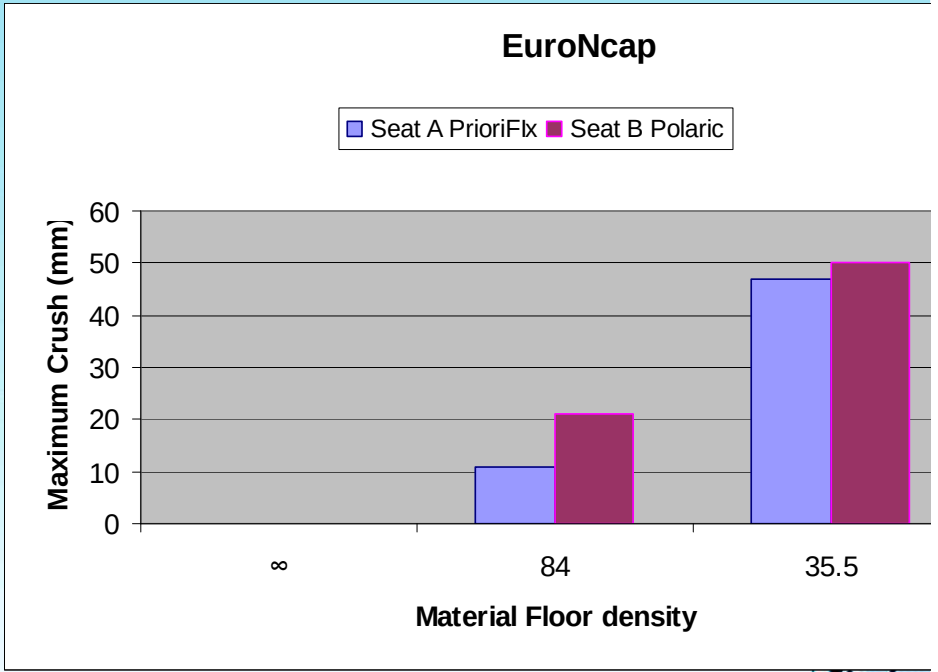




Analysis of Results

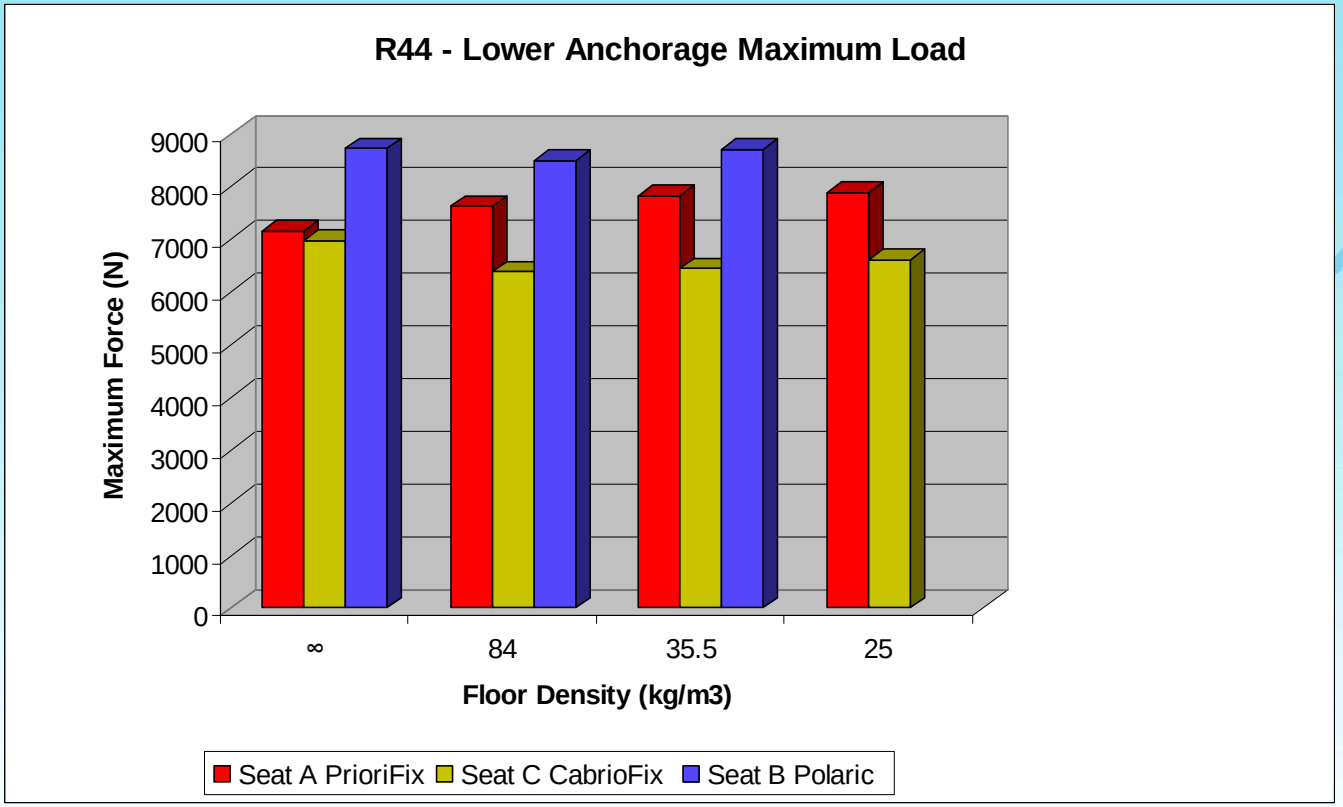
Force to the Floor / Floor Flexibility





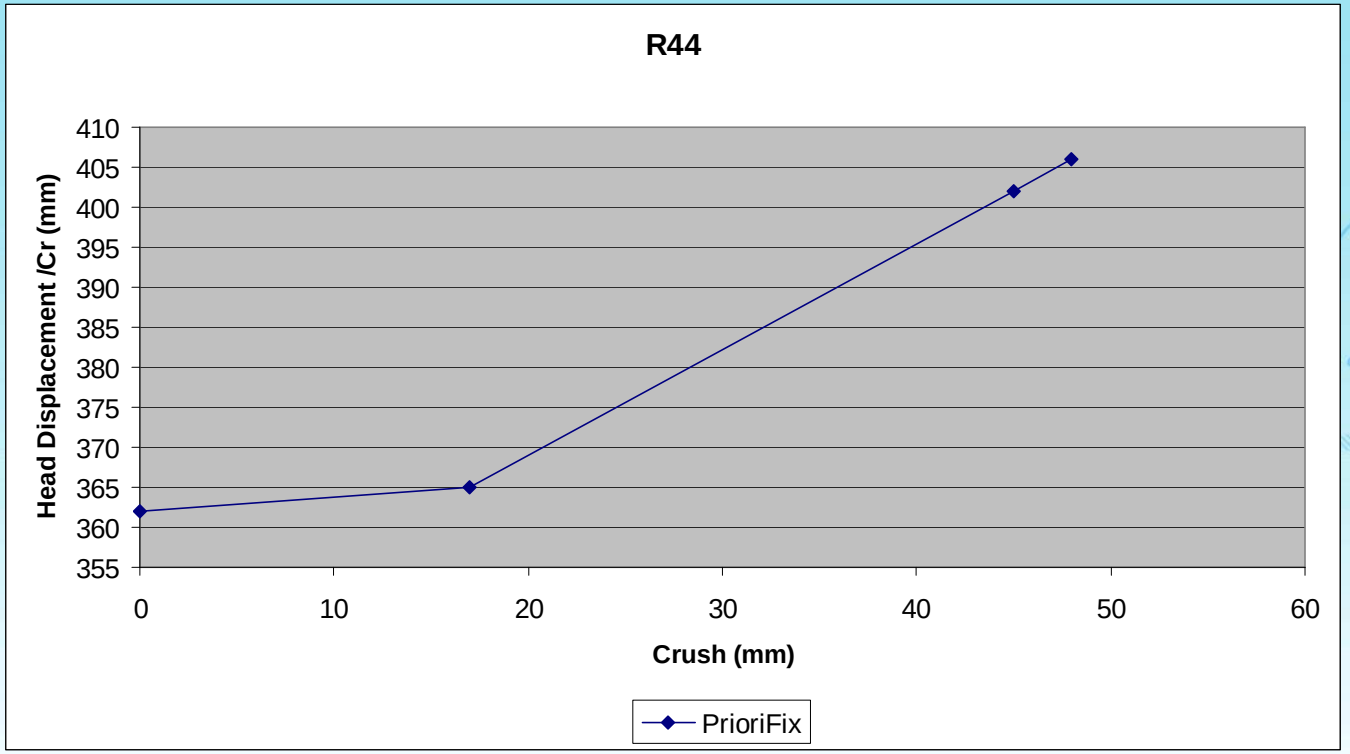
Analysis of Results

Force to the lower Isofix Anchorages – R44



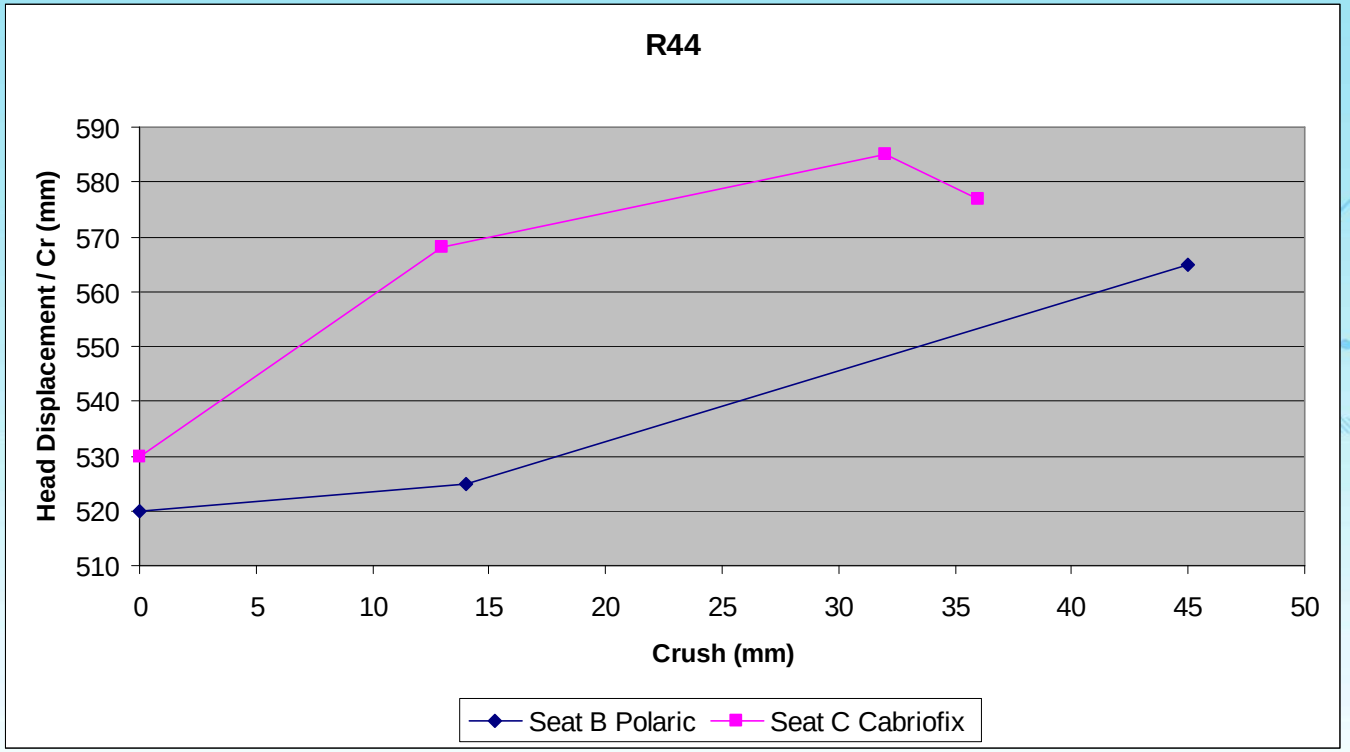
Analysis of Results

Dummy criteria – Head Excursion Seat A



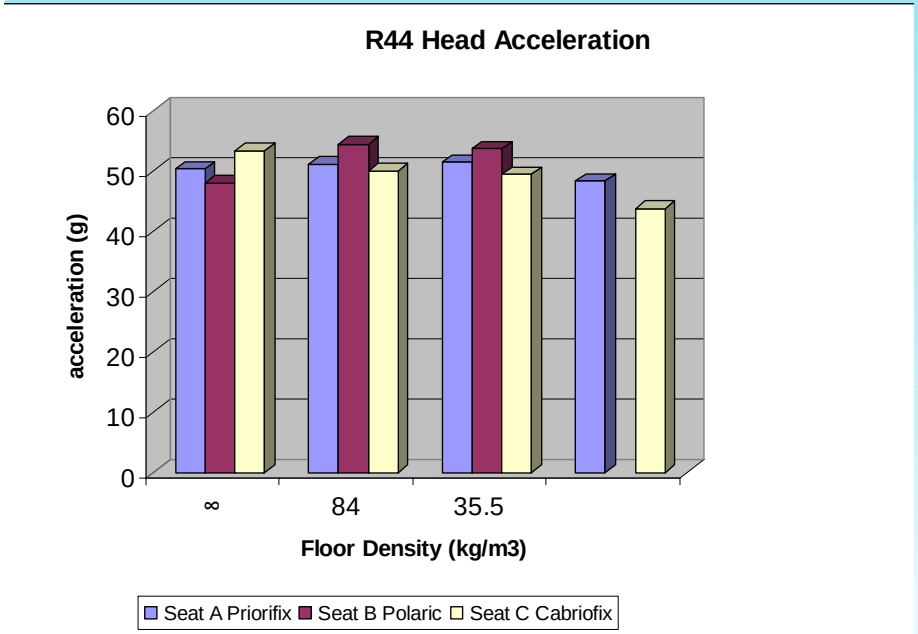
Analysis of Results

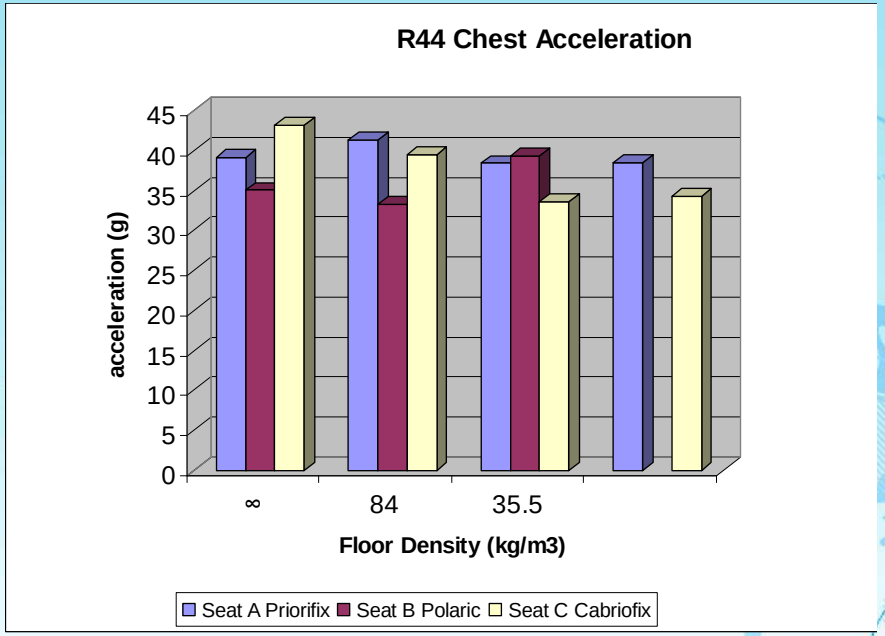
Dummy criteria – Head Excursion Seat B and C



Analysis of Results

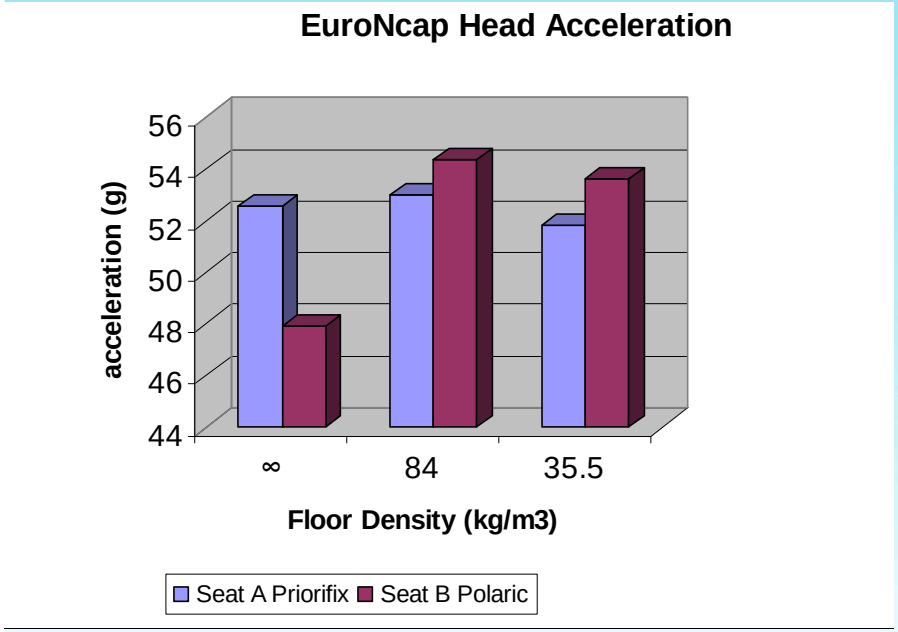
Dummy criteria – Thorax and Head Acceleration R44

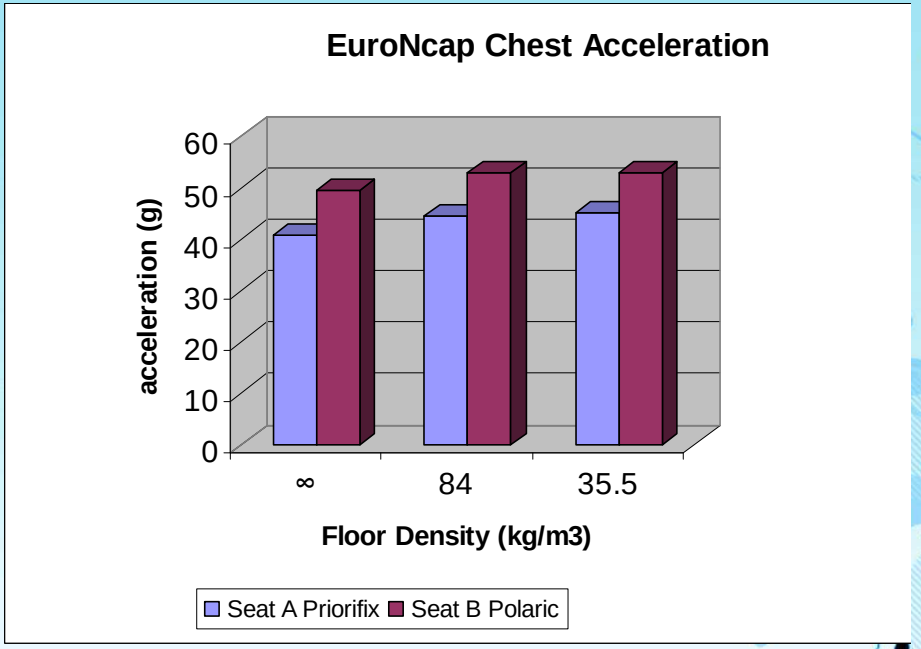




Analysis of Results

Dummy criteria – Thorax and Head Acceleration R44





Conclusion

- Force transmitted by support leg are dependant of CRS weight and configuration.
- The highest load are given by Gr1 Rearward Facing.
- The floor flexibility range given by Renault were either too stiff without big deformation or too soft reaching the maximum available deformation.
- The floor flexibility didn’t show significant increase of Head or Thorax deceleration
- The support leg intrusion into the floor can produce increase of Head Displacement and must be limited.