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*European Association of
Automotive Suppliers*

GRSP Side Impact Proposal





Target

- Cheap simple method able to be duplicated in different labs (Hyge, PU Tubes, Metal sheet, Hydraulic braking system ...)
- Able to replicate the basics and fundamental parameters of lateral impact





Reference

- **ISO CD/PAS 13396**
 - Essential Parameters
 - Intrusion Loading
 - Intrusion Velocity
 - Intrusion Surface Height
 - Isofix anchorages :
 - Reasonable to allow dedicated movement





Key Learnings from ISO TF1

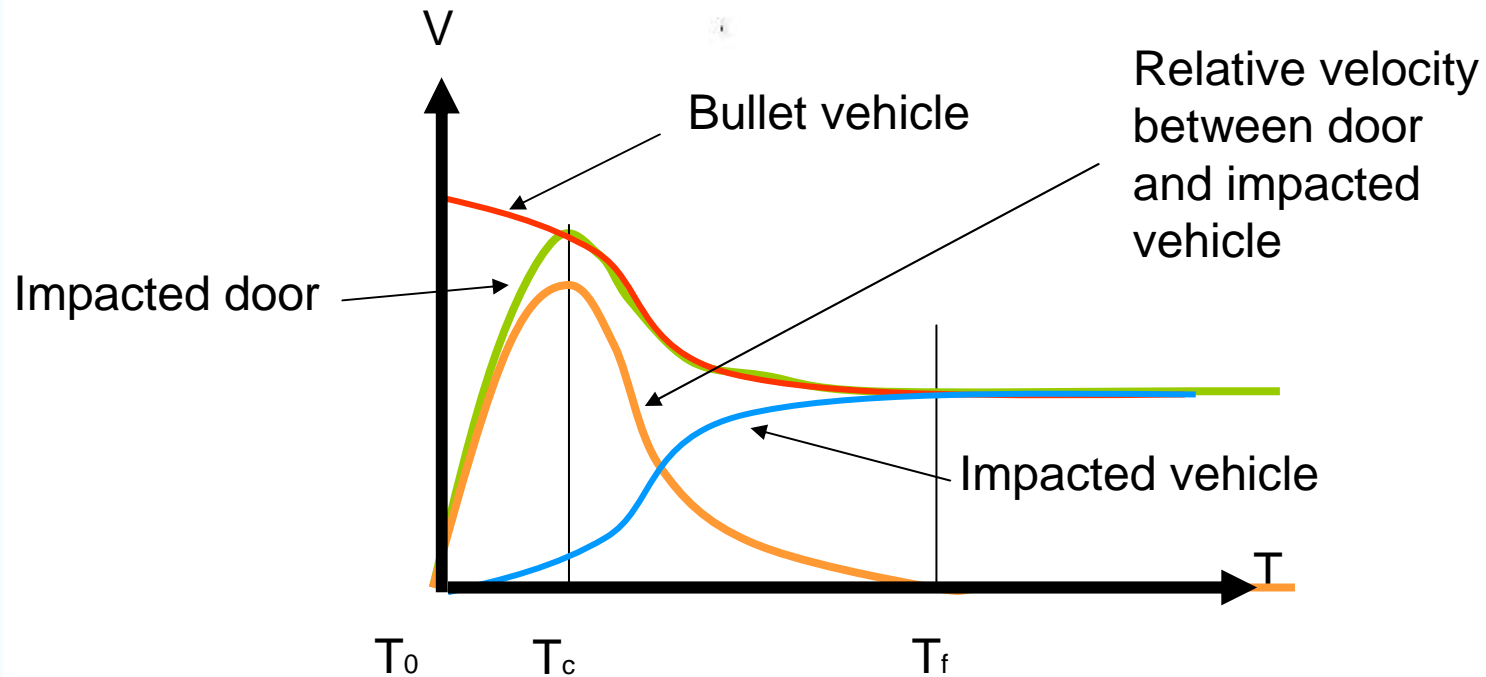
- Intrusion velocity is the main loading parameter
- It is fundamental to manage the intrusion velocity precisely during the impact between the CRS and the door
 - A narrow intrusion velocity corridor is requested.





Assumptions

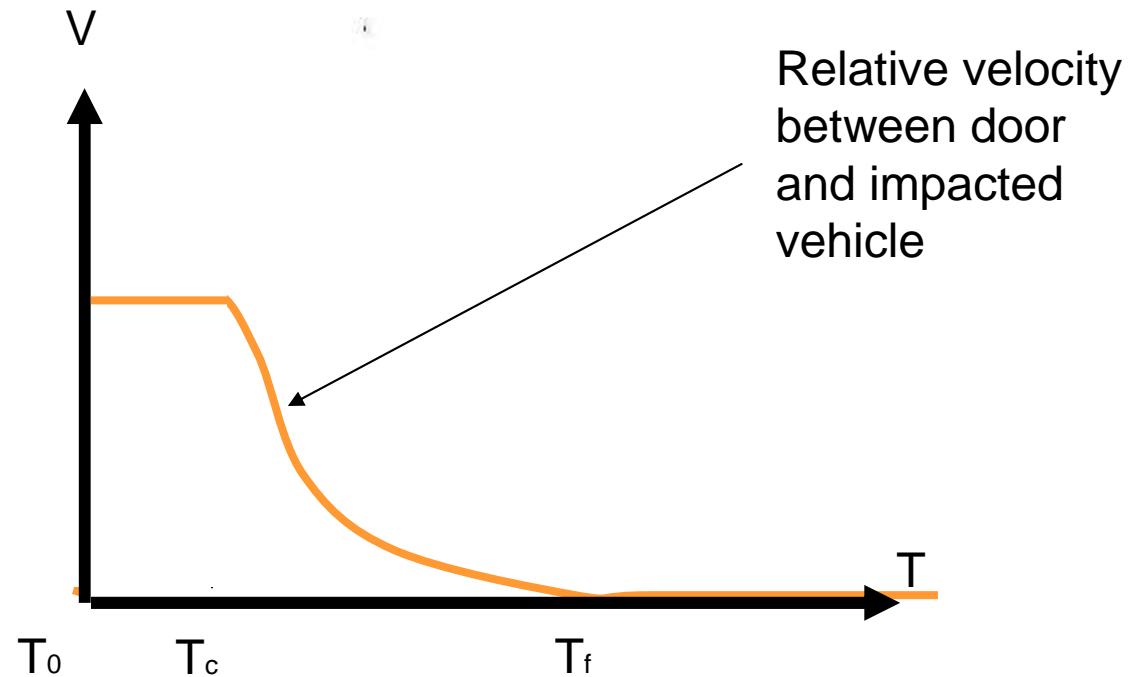
- Velocity change during lateral impact





Assumptions

- Door contact with CRS after T_c
 - Keep only decreasing part of the door to impacted car velocity curve





Assumptions

- In the method proposed to GRSP IG in 10th meeting (April 2009), it has been chosen to duplicate only the decreasing part of the intrusion velocity.
- The proposal includes a narrow corridor to keep the same loading severity for different tests.





Possible solution presented to GRSP IG

One possible solution to reproduce this part of the intrusion velocity was proposed during the 10th GRSP IG meeting.

- Since R44 rear impact parameters were close to ISO CD/PAS 13396 recommendation
 - Intrusion velocity (7 – 10 m/s)
 - Intrusion (200 – 300 mm)
 - Sled acceleration 10 – 14 g

It has been chosen to start from this basis with some light modification

- Decrease of initial velocity.
- Decrease of stopping distance.





Possible solution presented to GRSP IG

Test setup

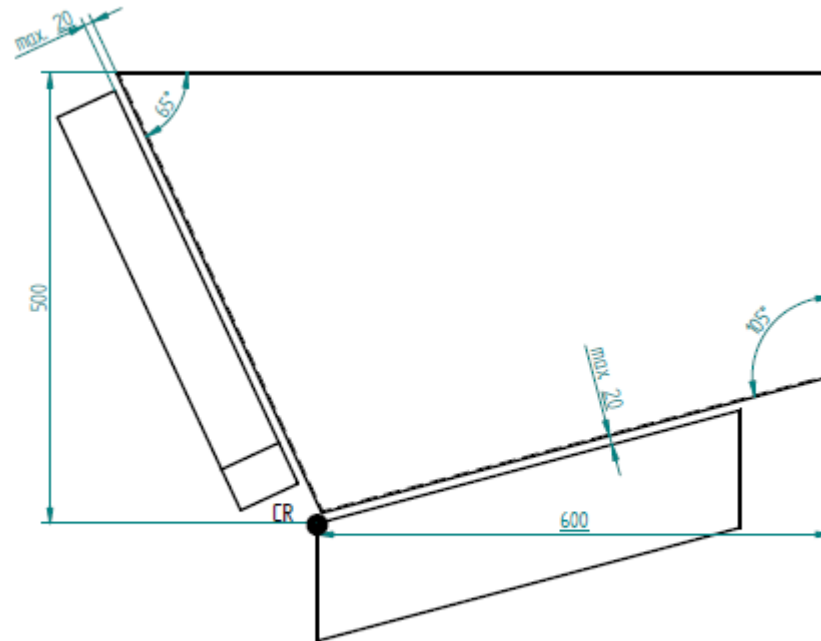
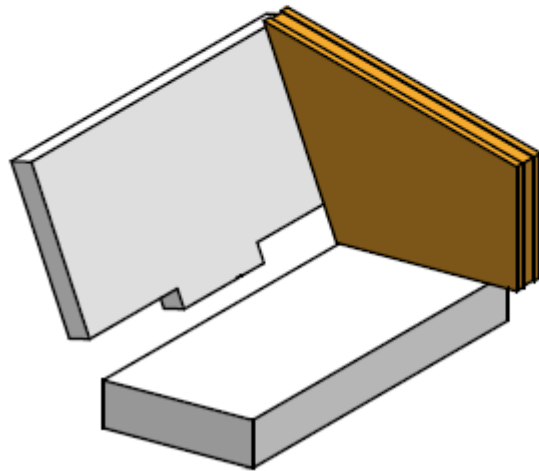
- Impactor on the reaction mass
- Bench on the sled

Precise management
of the intrusion
speed by the
braking system of
the sled





Door definition

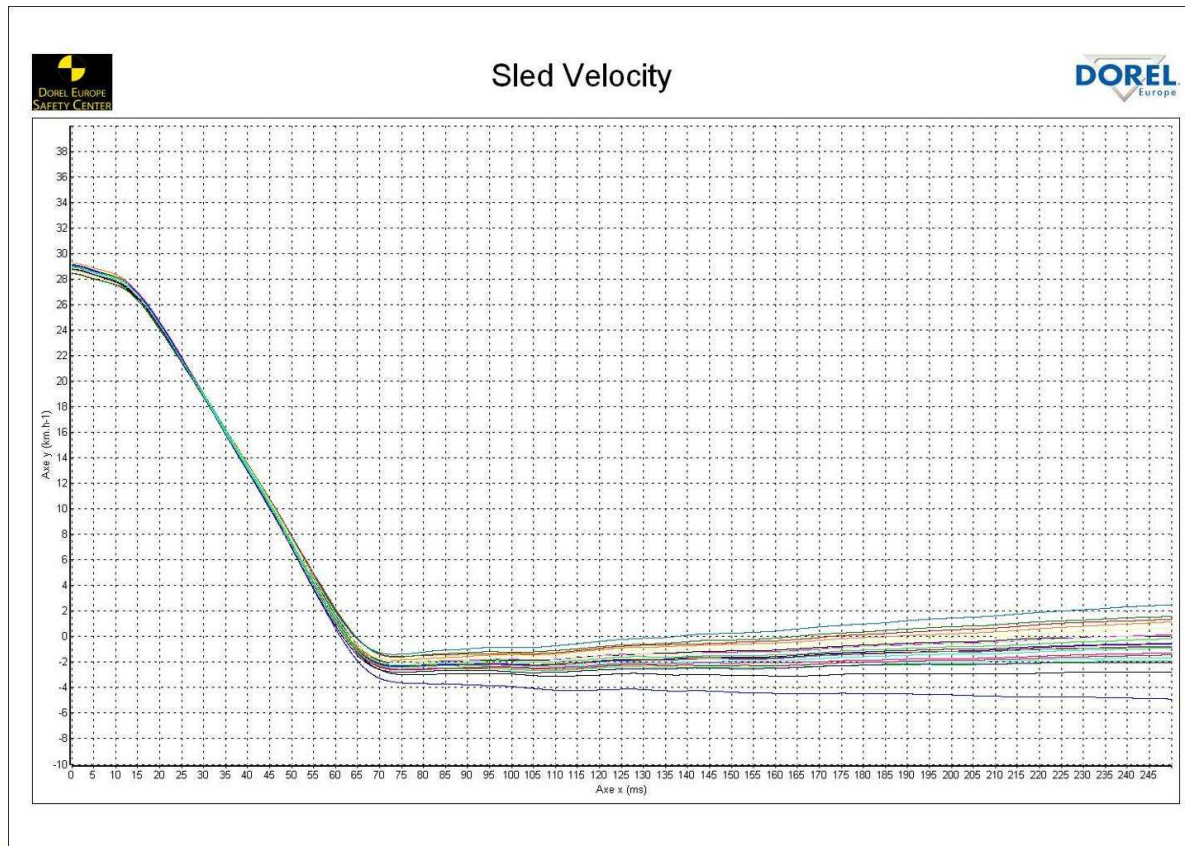




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Possible solution presented to GRSP IG

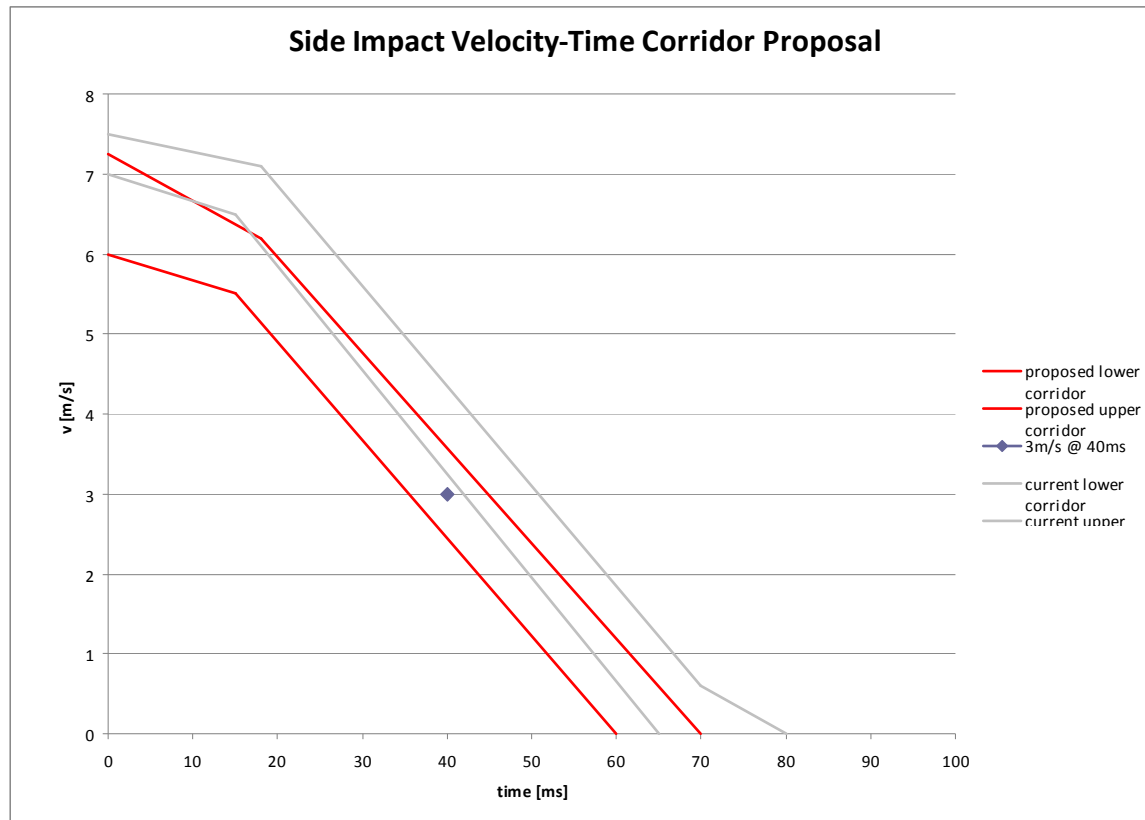
- Repeatability of intrusion velocity (21 tests, 3 types of CRS-es)





Possible solution presented to GRSP IG

- Proposed Velocity corridor





Possible solution presented to GRSP IG

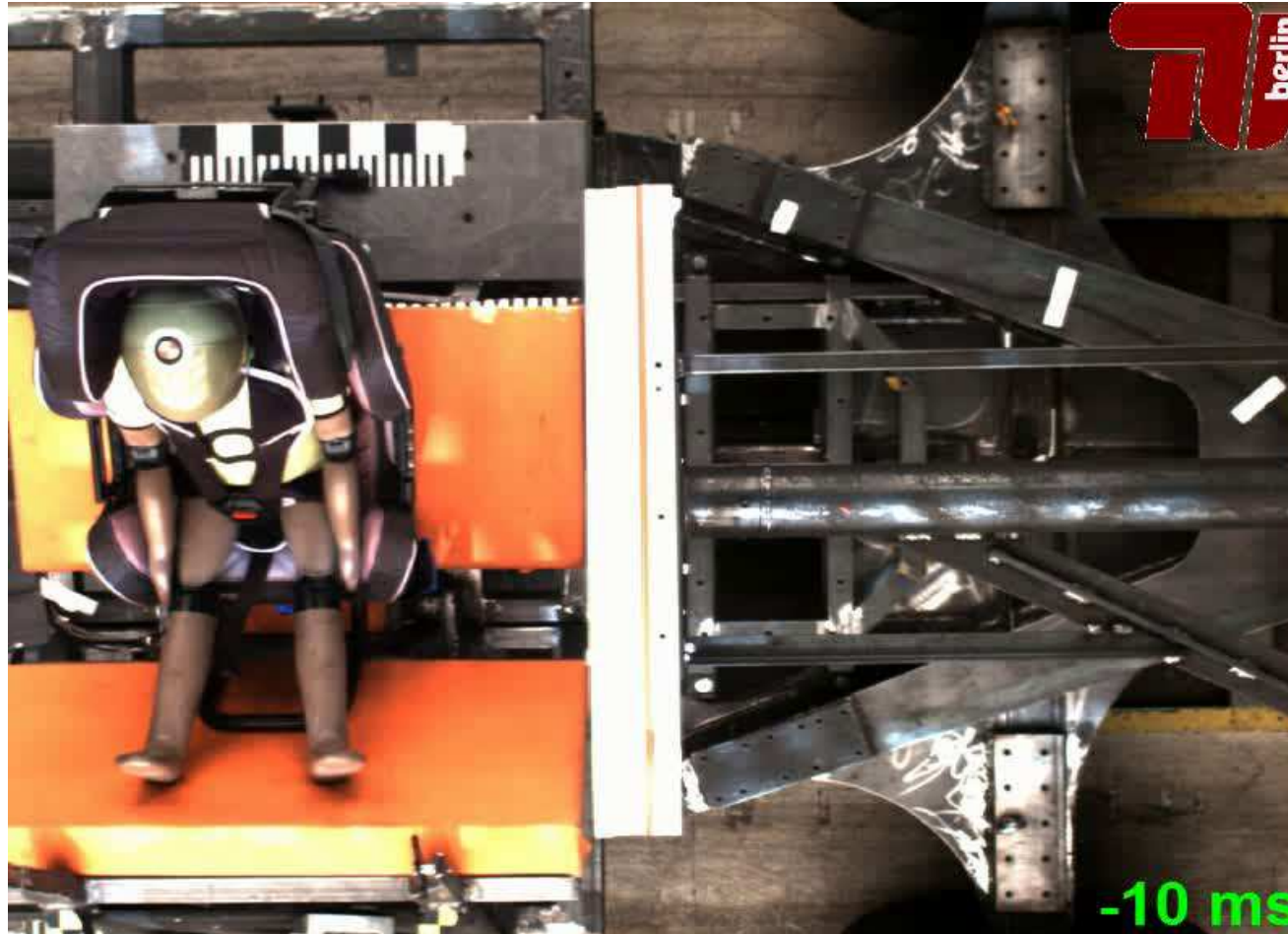
Door Intrusion





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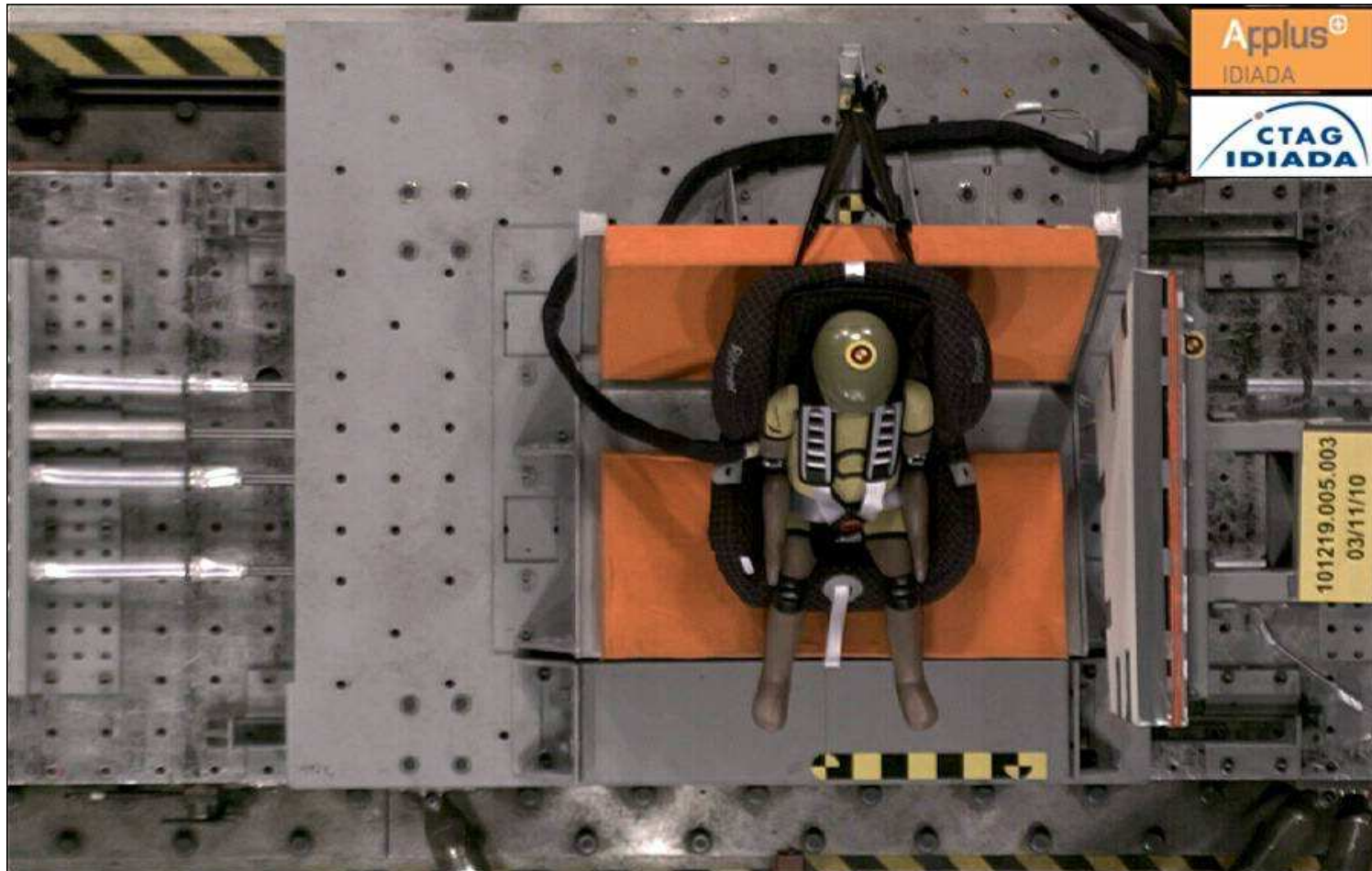
Test with metal bar





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Test with Hyge





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Test with hydraulic break



Video





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Test with PU tubes

