



APROSYS FINAL EVENT

Integrated Project on Advanced Protection Systems



New Assessment and Test Tools

Test methods for Vulnerable Road Users

FUNCTIONALITY

- Two new test methods are designed:
- 1 free flight impactor with an additional mass and a connector in between measuring linear and angular accelerations
 - 2 pendulum guided impactor measuring contact forces

EXPLOITATION

- Two new test methods are designed:
- 1 New head form impactor to better reproduce the behavior of a human being.
 - 2 Force based criteria for investigating the highly localized loading of the skull.

SOCIO-ECONOMIC IMPACT

Ability to address a wider range of head injuries in pedestrian accidents as basis to improve pedestrian safety performance of vehicle fronts.

TECHNICAL DESCRIPTION

Objective

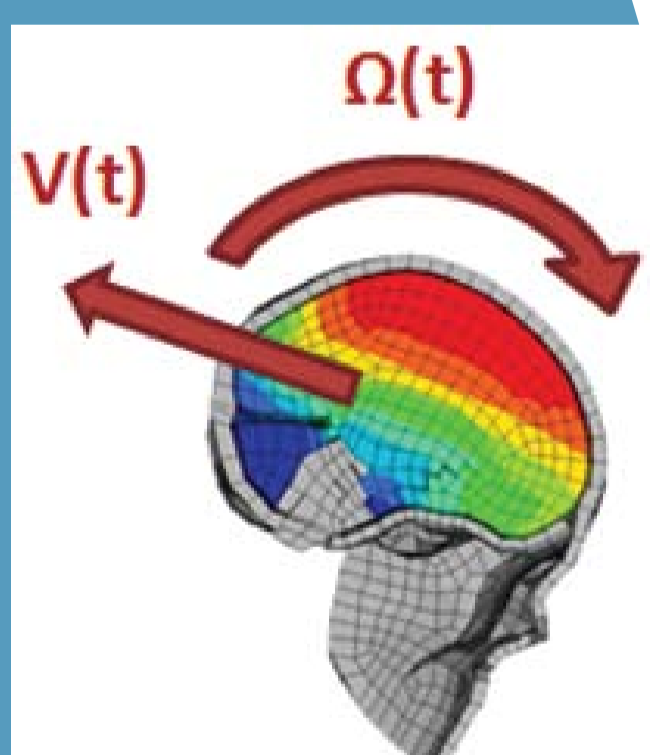
A comprehensive evaluation of a car front-end with respect to pedestrian head protection capability.

Conclusions

Two new test methods are designed to realize a comprehensive evaluation of a car front-end with respect to pedestrian head protection capability.

Further work

Based on the developed headform impactors test methods including test conditions have to be developed



Head FEM
Injury risk assessment by CAE possible

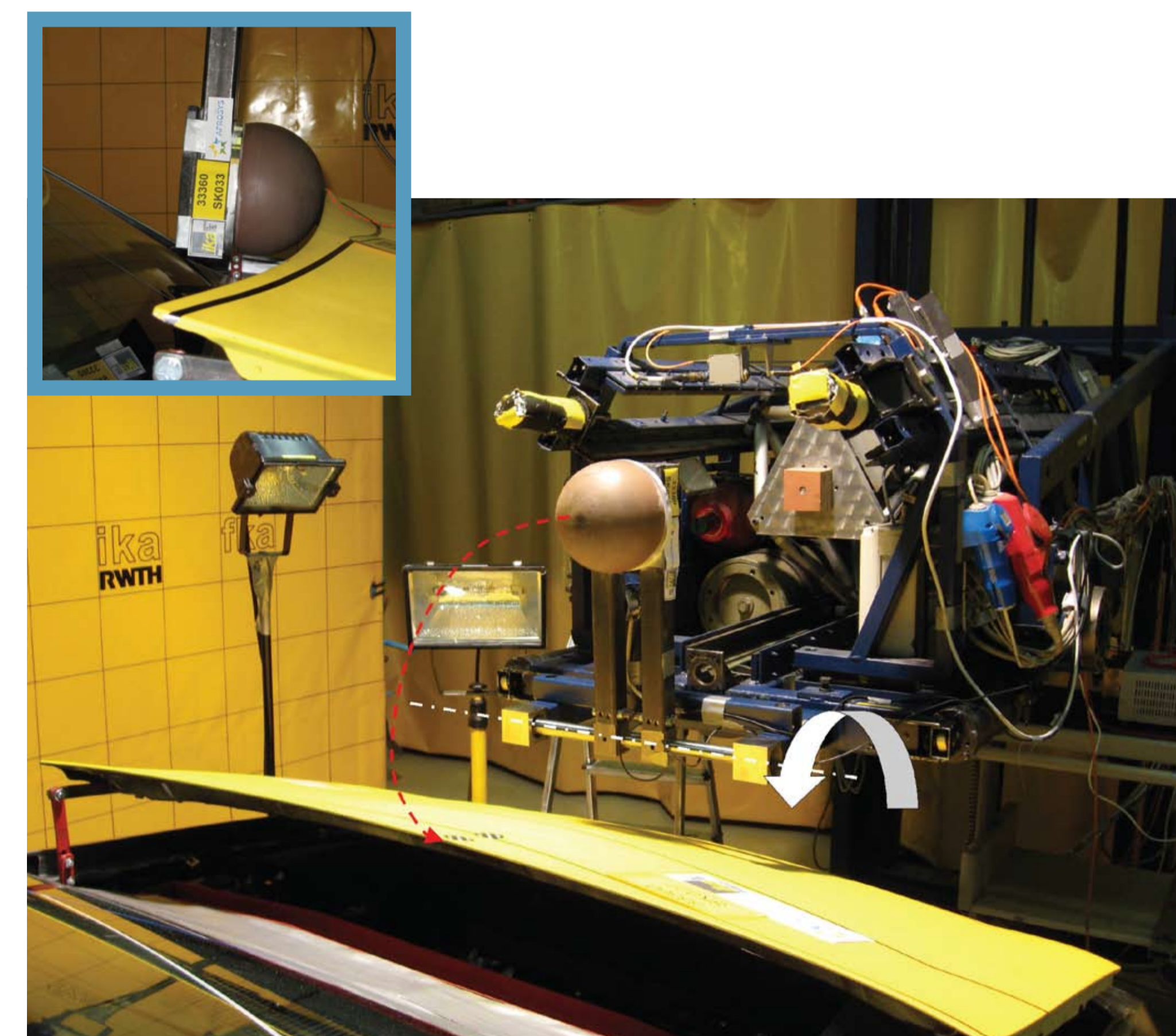
Results

Test method 1
Improved Impactor to Evaluate Car Front End Design



To better reflect real loading to the head in case of an impact with the car front-end, angular acceleration has to be considered, measured and assessed.

Test method 2
New Impactor to Evaluate Sharp Edge Contact



Head to bonnet rear edge impacts may occur with pop-up bonnets, resulting in the impact forces to be considered rather than the head accelerations.

CONTACT

Ingo Kalliske, Takata-Petri; Jens Bovenkerk, ika-RWTH Takata-Petri, ika - RWTH, ULP
ingo.kalliske@eu.takata.com,
bovenkerk@ika.rwth-aachen.de
www.aprosys.com

PARTNERS INVOLVED

