

**Informal Group on gtr No 9 – Phase 2 (IG GTR9-PH2)
5th meeting, Bergisch Gladbach/Germany
6 – 7 December 2012**

Discussion on Feasibility of FlexPLI Countermeasures



Presented by the pedestrian safety experts of the
International Automobile Manufacturers' Organization (OICA)

Structure

- Starting point
- Preliminary observations
- Process
- Discussion
- Industry position

Starting point

- Industry is expected to assess the feasibility of FlexPLI countermeasures
- In addition, OEM's would like to assess whether countermeasures to comply with the EEVC LFI requirements are still valid

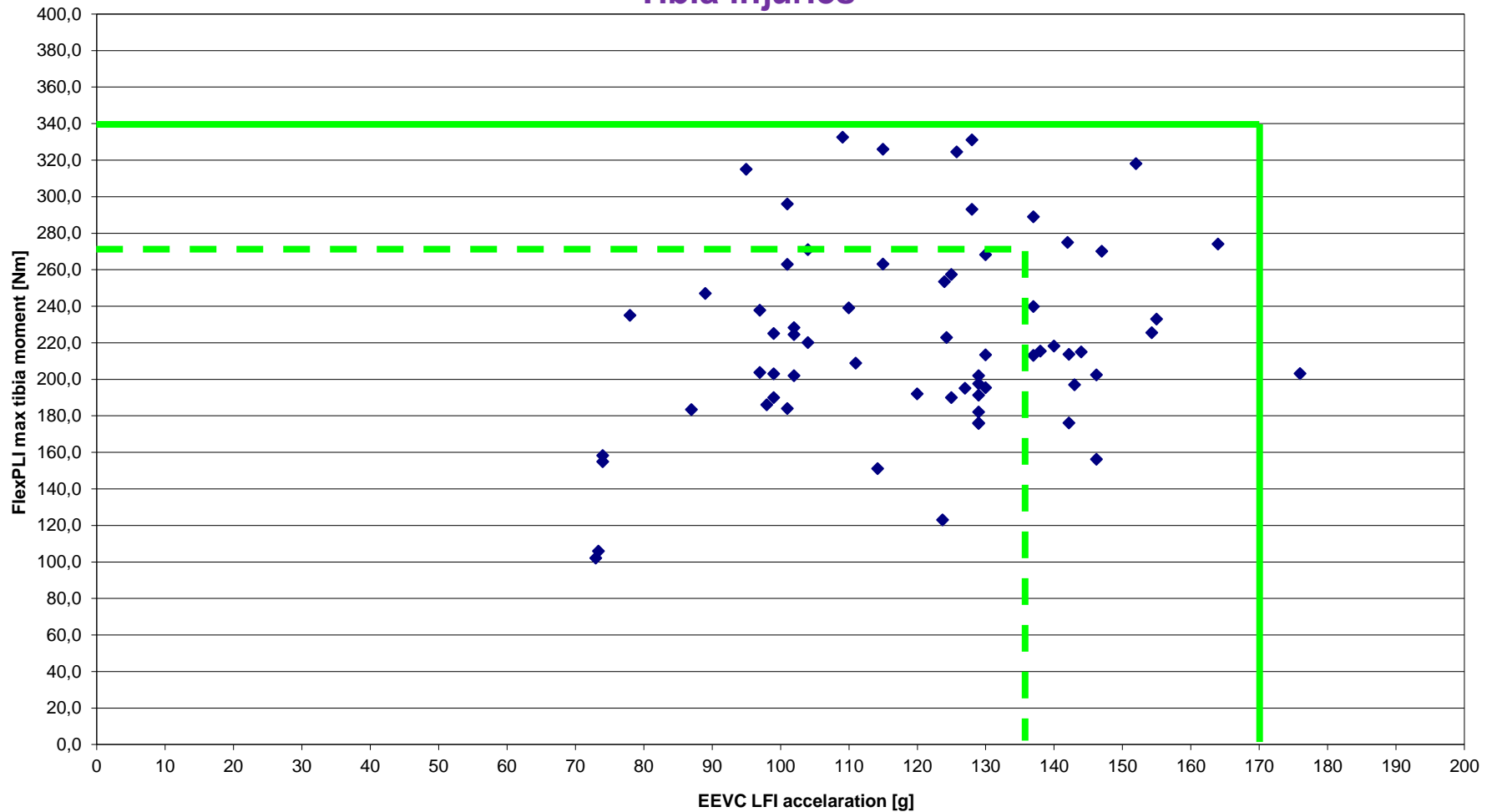
Preliminary observations

- Not all OEM's have access to a FlexPLI which limits an assessment of the overall feasibility
- It has already been communicated that the feasibility for sedan-type vehicles (the “standard” passenger car) is not an issue but limited knowledge/understanding exists for niche vehicles such as sports cars or SUV's
- A validated simulation model is still missing which also limits the possibilities to assess the feasibility of FlexPLI countermeasures

Process

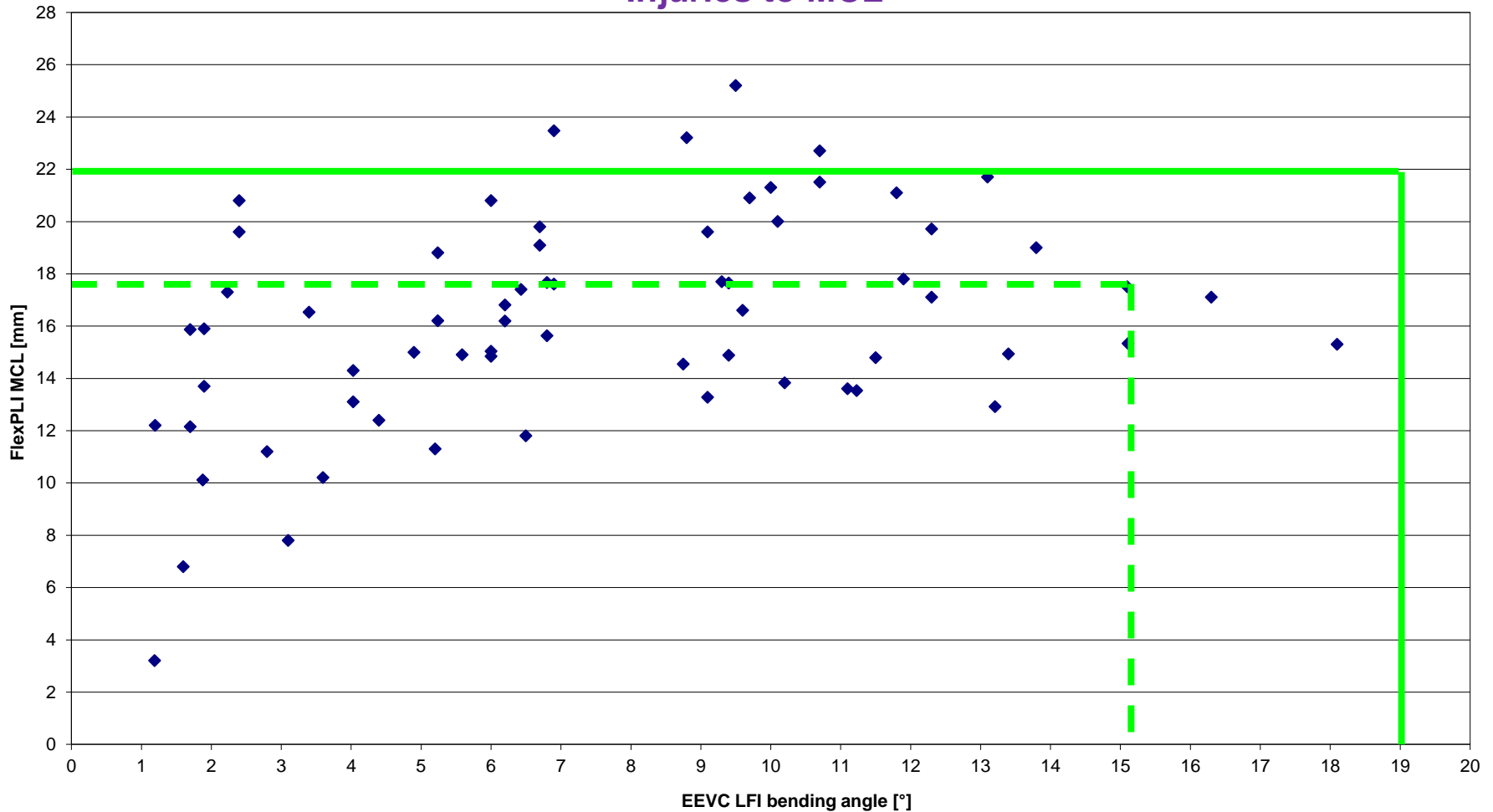
- European OEM's decided to back-to-back assess impact points tested between 2009 and 2012 where test results are available for both, the EEVC LFI as well as the FlexPLI
- Finally, 66 test results could be assessed:
 - Tests conducted in 6 different labs,
 - 10 different vehicles tested, including sedan type vehicles, small family cars, sports cars and SUV's,
 - Impacts at the same impact location with both, EEVC LFI and FlexPLI,
 - FlexPLI's used are prototypes SN-02 and SN-04 that were kindly provided by JARI/JAMA,
 - EEVC LFI's used are those available to the labs and which are used for vehicle design/testing for European requirements (legislation as well as NCAP),
 - Vehicles meet at least phase 1 of European legislation, most vehicles already comply with phase 2 (which corresponds to the gtr No. 9 requirements)

FlexPLI vs EEVC LFI Tibia injuries



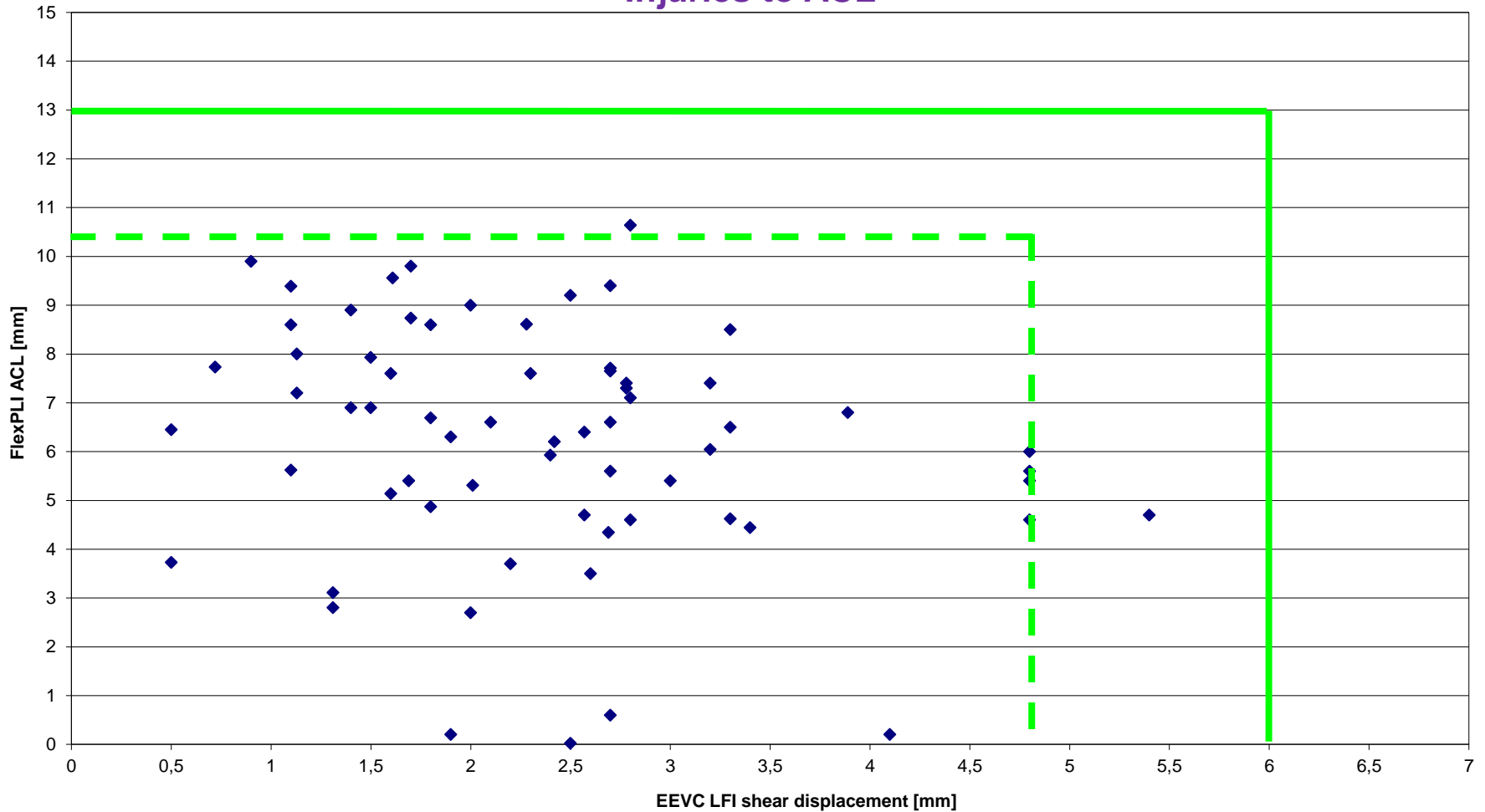
Dotted lines indicate the limits including a 20% safety margin

FlexPLI vs EEVC LFI Injuries to MCL



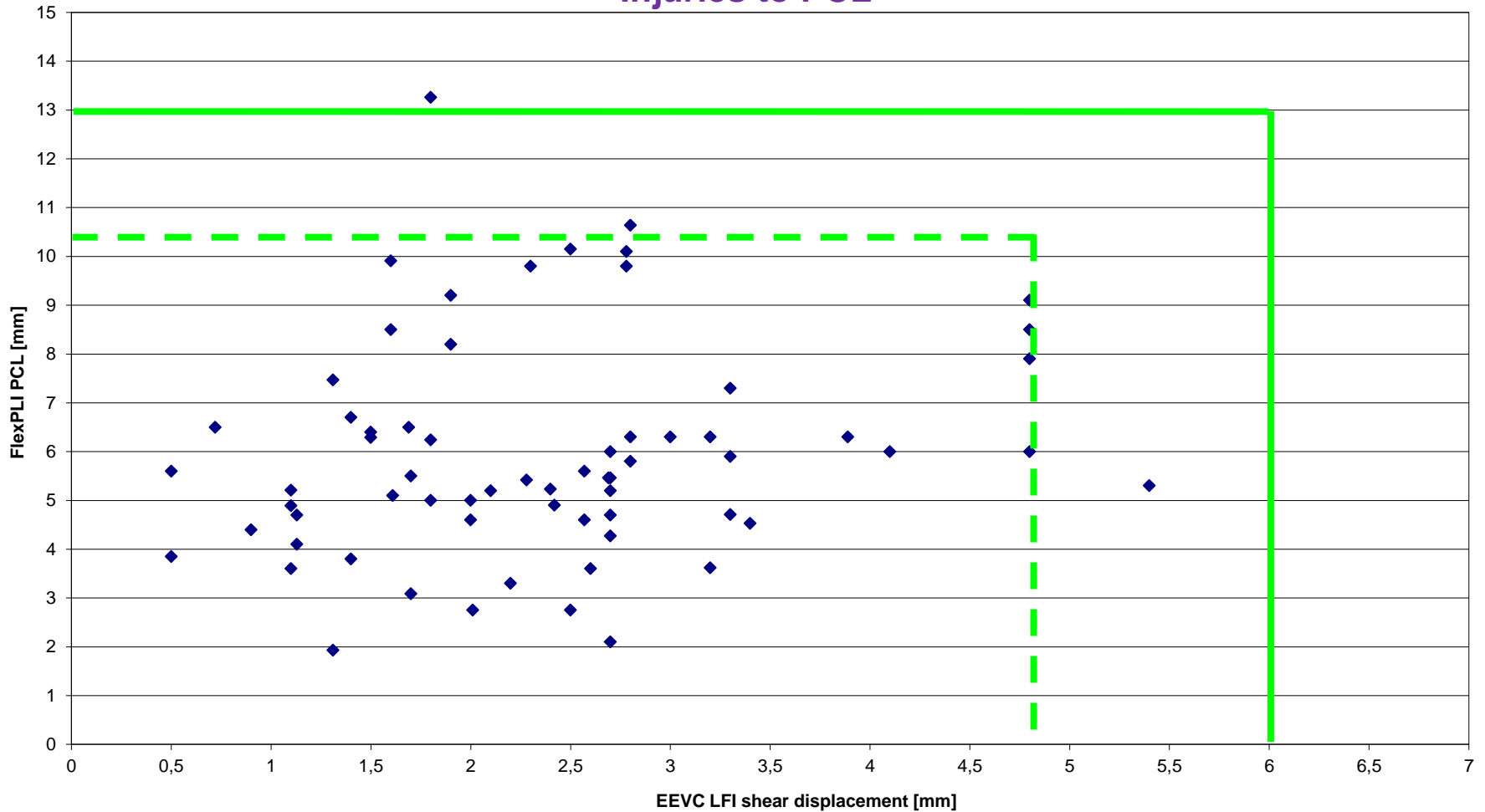
Dotted lines indicate the limits including a 20% safety margin

FlexPLI vs EEVC LFI Injuries to ACL



Dotted lines indicate the limits including a 20% safety margin

FlexPLI vs EEVC LFI Injuries to PCL



Dotted lines indicate the limits including a 20% safety margin

Discussion

- Feasibility seems not to be a general issue despite extreme geometries (very low sports cars, SUV's with extreme off-road capabilities) still remain questionable
- It needs to be noted that the vehicle front ends obviously behave different when tested with the different impactors (results do not correlate!)
- This also challenges the hypothesis of BAST (document GTR9-4-18) that "... car frontends fulfilling the FlexPLI requirements should also pass the EEVC WG 17 PLI [meaning the EEVC LFI] requirements ..." (but not necessarily vice versa)

GTR9-4-18: Zander, O. (BAST): FlexPLI vs. EEVC WG 17 PLI Benefit Estimation; working document for the 4th meeting of the IG GTR9-PH2 held in Washington D.C., 17 – 19 September 2012

Industry position

- Assuming that both impactors, the FlexPLI as well as the EEVC LFI, have been proven to be – at least to a certain extent – biofidelic and that therefore countermeasures are beneficial for pedestrians in real world accidents in both cases, Industry requests to define measures that allow existing front ends to be used without a need to be redesigned in case they meet the EEVC LFI requirements!
- In case of future re-certification of a vehicle - e.g. due to a face lift - it should be allowed to use that impactor (e.g. EEVC LFI) which was originally used during the development process of the vehicle's front.
- This should be stated in the respective amendments of the FlexPLI for the UN R127 and the gtr9

Thank You

For detailed questions please refer to the authors, Mr. J. Kusche / Porsche, Mr. Th. Kinsky / General Motors Europe, Dr. A. Otubushin / BMW and Dr. O. Ries / Volkswagen, as representatives of the Task Force Pedestrians of the European Automobile Manufacturers' Association ACEA
