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

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FlexPLI vs EEVC LFI
Injuries to MCL

Dotted lines indicate the limits including a 20% safety margin

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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 BAS (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)
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

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