



European
Automobile
Manufacturers
Association

IWG-DPPS ACEA Input

Definition of the Sensing Width

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Current State:

- A globally common understanding of the sensing width for DPPS is to be established
- INF-GR/PS/141 Rev.1 Document and common practice for type approvals in sensing width definition are available as the basis

Future State:

- The sensing width is clearly defined to enable certification of deployable systems with no need for interpretation
- The sensing width can be verified in hardware repeatable and reproducible with a limited number of tests

What to avoid:

- A very local/limited sensing area with no effect in the real world
- Defining new areas on the vehicle without scientific justification
- Boundary conditions leading to technically sensible solutions that result in false activation in real world
- Maximizing the requirements, mixing due care considerations with basic proof for certification

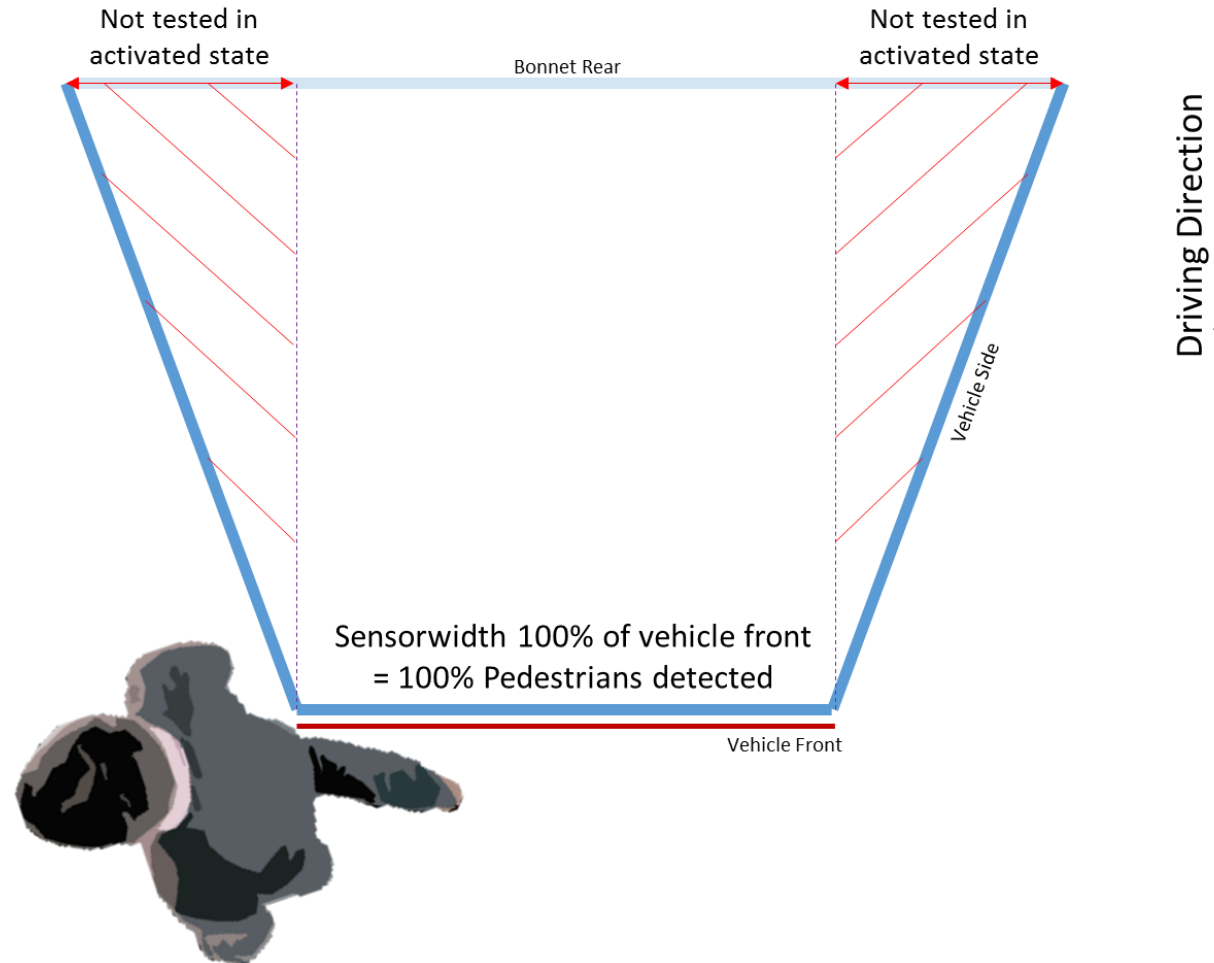
Thoughts:

- No clear connection between the first contact of the pedestrian (leg) and the head impact position
- Sensing capability does not discretely stop at the most outboard position of the sensors as fascias will be deformed in a wider area
- The shape of vehicles is not linear in the longitudinal direction
- Deflection of impactors occurs on curved shapes
- There is no proven contact biofidelity of any impactor on curved shapes as the real human has a different moment of inertia than lighter impactors

Current Proposals:

- I. Keep description as in INF-GR/PS/141 Rev.1 (enabling centerline local detection only)
- II. Sensing width needs to be as wide as the deployed parts in the impact area
- III. Sensing width needs to be as wide as the Lower Leg tested area per the definition in UN-R127.02

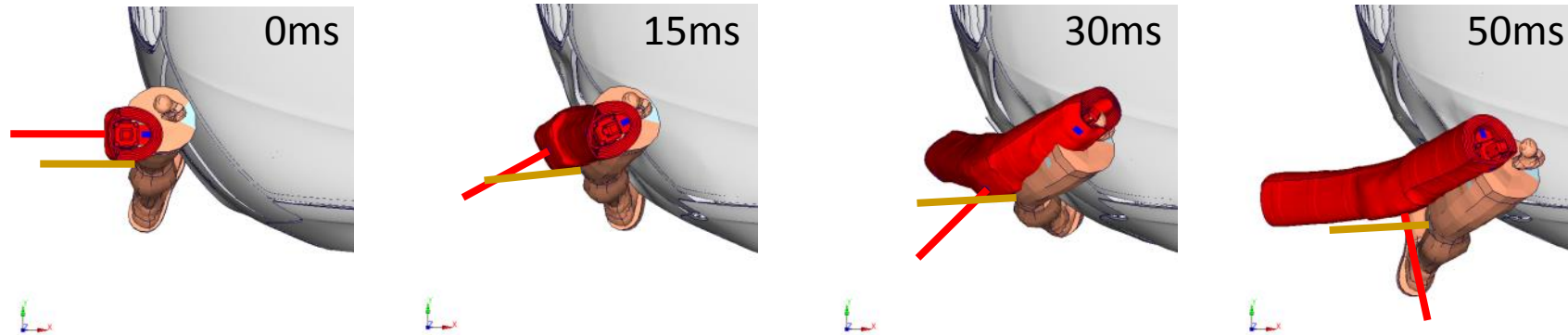
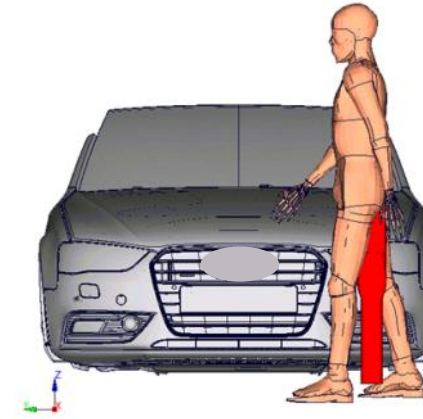
Thoughts on not to activate the deployable system outside of the sensing width:



The leg excites the sensor but the condition for the head impact area would be closed, this cannot be.

Deflection:

Comparison of THUMS HBM and FlexPLI at 40km/h



- The leg impactor shows a non-biofidelic movement compared to a human body model
- Translational impactor energy is converted into rotation leading to reduced excitation of the sensor system

Position:

- Maximizing the requirements, mixing due care considerations with basic proof for certification, shall be avoided
- Differences between impactor behavior and real humans should be respected

Proposal:

- Refer to current regulatory definitions
- Applying the Lower Leg Test area per UN-R127.02 (corner gauge) as the prerequisite for acceptance of sensing capabilities for DPPS certification