

Comparison between HBMs (Annex 2) and Pedestrian Dummy

**31st Jan. – 2nd Feb., 2023
21st IWG-DPPS**

Background

- A series of **technical standards** have been developed to define performance specifications of **mid-sized pedestrian dummies**
 - ✓ **SAE J2782_201911**: Performance Specifications for a Midsize Male Pedestrian Research Dummy
 - ✓ **SAE J2868**: Pedestrian Dummy Full Scale Test Results and Resource Materials
 - ✓ **SAE J3093_201901**: Design and Performance Specifications for a Generic Buck Representing a Small Family Car Used in the Assessment of Pedestrian Dummy Whole Body Impact Response
- **J2782** specifies **performance specifications of a pedestrian dummy**, including component and full-scale specifications, while J3093 specifies a generic buck used for the full-scale tests described in J2782
- J2868 describes test data showing that currently available dummies are capable of meeting the requirements specified in J2782
- **J2782 is the only specification** that provides standard posture, generic vehicle buck and kinematics corridors to assess performance of full-scale surrogates of a pedestrian
- **Euro NCAP TB024 refers to J2782** to apply positioning of pedestrian dummies to HBMs after publication of the series of technical standards for pedestrian dummies and presentation of pedestrian dummy test results

Comparison bet. HBMs (Annex 2) and Pedestrian Dummy

	HBMs (Annex 3)	Pedestrian Dummy
Injury assessment in current regulations	Not used	Not used
Biofidelity assessment procedure used	SAE J2782 for pedestrian dummies	SAE J2782 for pedestrian dummies
Generic buck used to assess whole-body kinematics	FE model of the generic buck (published model with erroneous spec)	Actual car buck (original J2782) Actual generic buck (updated J2782)
Publication of results of biofidelity assessment	To be published in Annex 2 (no technical standards or research papers)	Available in SAE J2868 (to be updated based in 2023 SAE paper)
Proposed use in GTR9 amendment 3	HIT prediction to determine test condition, no use for injury assessment	HIT prediction to determine test condition, no use for injury assessment
Cars to be used to predict HIT	FE car models – how to ensure validity of the car models?	Actual cars

Pedestrian dummies have some advantages over HBMs – use of pedestrian dummies should be allowed