

Summary of Industry Position



- Industry believes it is **premature to introduce virtual testing with a framework as specific as currently proposed in document AEBS-16-02** (see key concerns on the following slide and Industry position in AEBS-15-09 and AEBS-16-07)
- These provisions, even if voluntary in UN R152, **could be applied in other jurisdictions** (e.g. NCAP, parties not signatories to the 58 Agreement) **and be made mandatory prematurely**.
- Introduction as a guidance would not be acceptable either since **changing existing provisions is very difficult** (cfr. recent experience at GRVA), so anything we establish now, could potentially exist for a very long time.
- As Industry sees **no need to rush the introduction of virtual testing for AEBS**, we propose to
 - **Postpone the decision on the actual text** by which Virtual Testing is introduced for AEBS **until more standardization has been achieved** (e.g. ISO, VMAD)
 - If the need for an **interim solution** arises, this could be derived from the **approach of UN-R140**, leaving more flexibility for the specifics of the validation
 - whether this interim solution is needed should be re-evaluated in 2022, based on the progress of other work

Main concerns of Industry with regard to content of current proposal

Some provisions (highlighted in red below) set an example without proper justification for the proposed values/suggested approach.

These values/proposed approach should be established on the basis of more substantial experience:

- 1.2.3. **At least 10 repetitions of worst cases** scenarios shall be performed and results of the ~~stop~~ relative **stopping** distance from target or **the** target impact velocity shall be **inside a defined interval from the median value**. This **interval is defined by the technical service**.
- 1.3.4. In addition to the parameters listed in paragraph 1.4. of the current this annex, at least the following elements have to be defined in the simulation model:
 - Vehicle dynamic model including transmission, power train, etc;
 - **Sensor model**;
 - ADAS control model;
 - Environment model;
 - Scenario model;
 - **Target model** for pedestrians, cyclists and cars vehicles;
- 1.4.2. The simulation model shall be **checked against the repeatability tests and the median value** defined as specified in paragraph 1.2.5. of this annex.
- 1.4.3. The simulation model shall be considered valid in the requested specified validity domain if, based on a significance level of 5%, there is no reason to believe that the simulation model results and the physical test results come from two different distributions for the following key performance indicators:
- 2.3. In addition to the simulation results, **at least 30% of the simulated test runs shall be conducted as physical tests** as well. The results of simulated test runs and physical test runs shall be checked for differences on an individual basis and using standard statistical tests by the technical service.