

## Proposal for a new UN Regulation on Acceleration Control for Pedal Error (ACPE)

This document is intended to inform discussion at the 9<sup>th</sup> session of IWG on ACPE. It contains the text from “ECE-TRANS-WP.29-GRVA-2024-24e” including amendments adopted in document “GRVA-19-29e (amendments to GRVA-2024-24”.

Amendments proposed by the UK are identified **bold red font** and text proposed to be deleted are highlighted as ~~strikethrough with red font~~.

The introduction and Section 7 and onwards are not included in this proposal to help focus discussions.

### I. Proposal

#### UN Regulation No. [17X]

#### Uniform provisions concerning the approval of motor vehicles with regard to the Acceleration Control for Pedal Error (ACPE)

#### Contents

Regulation	<i>Page</i>
0. Introduction.....	X
1. Scope.....	X
2. Definitions .....	X
3. Application for approval .....	X
4. Approval .....	X
5. Specifications.....	X
6. Test procedure.....	X
7. Modification of vehicle type and extension of approval.....	X
8. Conformity of Production .....	X
9. Penalties for non-conformity of production.....	X
10. Production definitively discontinued .....	X
11. Names and addresses of Technical Services responsible for conducting approval tests and of Type Approval Authorities .....	X
Annexes	
1 Communication.....	X
2 Arrangements of approval marks.....	X
3 Special requirements to be applied to the safety aspects of electronic control systems .....	X

## 1. Scope

- 1.1. This UN Regulation applies to the type approval of vehicles of Category M<sub>1</sub><sup>1</sup> ~~[and N1] equipped with automatic transmission with regard to their Acceleration Control for Pedal Error systems (ACPE):~~
- (a) Acceleration Control for Pedal Error systems (ACPE) for a vehicle and wall.
  - (b) ACPE for a pedestrian.
- 1.2. At the request of the manufacturer, vehicles of other categories may be approved under this Regulation.
- 1.3. Vehicles where installation of means of forward and/or rear detection is incompatible with their on-road use may be exempted from the relevant requirements (forward and/or rear direction) of this Regulation, subject to the decision of the Type Approval Authority.

## 2. Definitions

For the purposes of this Regulation:

- 2.1. "Acceleration Control for Pedal Error (ACPE)" means a system to detect misapplication of the accelerator control by the driver and to control unintended acceleration.
- 2.2. "Vehicle Type with Regard to its ACPE" means a category of vehicles which do not differ in such essential aspects as:
- (a) Vehicle features which significantly influence the performances of ACPE;
  - (b) The type and design of ACPE.
- 2.3. "Common space" means an area on which two or more information functions (e.g. symbol) may be displayed but not simultaneously.
- 2.4. "Dry road affording good adhesion" means a road with a sufficient nominal Peak Braking Coefficient (PBC) that would permit:
- (a) A mean fully developed deceleration of at least 9 m/s<sup>2</sup>; or
  - (b) The design maximum deceleration of the relevant vehicle;
- whichever is lower.
- 2.5. "Sufficient nominal Peak Braking Coefficient (PBC)" means a road surface friction coefficient of:
- (a) 0.9, when measured using the American Society for Testing and Materials (ASTM) of E1136-19 standard reference test tyre in accordance with ASTM Method E1337-19 at a speed of 40 mph;
  - (b) 1.017, when measured using either:
    - (i) The American Society for Testing and Materials (ASTM) of F2493-20 standard reference test tyre in accordance with ASTM Method E1337-19 at a speed of 40 mph; or
    - (ii) The k-test method specified in Appendix 2 to Annex 6 of UN Regulation No. 13-H.

コメントの追加 [A1]: UK Position is for N1 vehicles to be included in 01 series.

•Data from Korea supports N1 vehicles. also it is easier for CP to mandate with inclusion in scope.

•And more difficult if not within the scope.

コメントの追加 [A2R1]: Final confirmation for N1 (remove brackets) by GRVA-20 (September

Industry to provide introduction text by September IWG meeting (Industry position: Regulation written for M1, and should be mandated by CPs individually for N1 only as conscious decision).

<sup>1</sup> As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.6, para. 2 - [www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html](http://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html)

(c) The required value to permit the design maximum deceleration of the relevant vehicle, when measured using the k-test method in Appendix 2 to Annex 13 of UN Regulation No. 13.

2.6. "Self-check" means an integrated function that checks for a system failure on a continuous basis at least while the system is active.

2.7. "Obstacle" means either a vehicle, or a wall-like structure or a pedestrian.

2.8. "Automatic Transmission" means any transmission which does not require the use of a clutch control by the driver in order to shift gears (automatic transmissions include e.g. single gear transmissions, continuously-variable transmissions, transmissions with an automated clutch).

2.9. "Mass of a vehicle in running order" means the mass of an unladen vehicle with bodywork, including coolant, oils, at least 90 per cent of fuel, 100 per cent of other liquids, driver (75 kg) but except used waters, tools, spare wheel.

**2.10 "Extreme outer edge" on either side of the vehicle, means the plane parallel to the median longitudinal plane of the vehicle and touching its lateral outer edge, disregarding the projection:**

**Of tyres near their point of contact with the ground, and of connections for tyre-pressure gauges;**

**Of any anti-skid devices mounted on the wheels;**

**Of devices for indirect vision;**

**Of side direction-indicator lamps, end-outline marker lamps, front and rear position lamps, parking lamps, retro-reflectors and side-marker lamps**

**Of customs seals affixed to the vehicle, and of devices for securing and protecting such seals**

**Of service-door lighting systems on vehicles of categories M2 and M3 as specified in UN regulation 48**

2.11 "Overall width" means the distance between the two vertical planes defined in paragraph 2.10.

2.12 "Moving off" means starting from stationary and moving forward or rearward after releasing the brakes.

**2.13 "Creeping [off]" means the state of motion which the vehicle is in [for two seconds] after releasing the brakes, with the vehicle powertrain operating at idle, when there is no input to the acceleration control from the driver, and the drivetrain(s) or power transmission system is engaged, and the vehicle speed is below 4 km/h the minimum AEBs activation speed as defined by the manufacturer, if the vehicle is fitted with an AEBs.**

コメントの追加 [A3]: Pedestrian to be included for 01 series as agreed in previous discussions.

コメントの追加 [A4]: Definition required for extreme outer edge & overall width for the defining boundary conditions for pedestrian obstacle and pedestrian target in test procedure (from R48). (may need to be revisited after defining performance requirements)

コメントの追加 [A5R4]: Agreed (from here on: everything not commented is agreed).

書式を変更: 蛍光ペン

書式を変更: 蛍光ペン

コメントの追加 [A6]: What does this mean? AEB How to prevent concrete tests and requirements in the ACPE rgulation while still preventing misuse?

書式を変更: 蛍光ペン

コメントの追加 [A7]: Alternative by Industry for 5.1.4., to be fixed in September (part of alternatives for the operational range)

書式を変更: 蛍光ペン

### 3. Application for approval

3.1. The application for approval of a vehicle type with regard to the ACPE shall be submitted by the vehicle manufacturer or by his authorized representative.

3.2. It shall be accompanied by the documents mentioned below in triplicate:

3.3. A description of the vehicle type with regard to the items mentioned in paragraph 2.2., together with a documentation package which gives access to the basic design of the ACPE and the means by which it is linked to other vehicle systems or by which it directly controls output variables. The numbers and/or symbols identifying the vehicle type shall be specified.

3.4. A vehicle representative of the vehicle type to be approved shall be submitted to the Technical Service conducting the approval tests.

---

## 4. Approval

- 4.1. If the vehicle type submitted for approval pursuant to this Regulation meets the requirements of paragraph 5. below, approval of that vehicle type shall be granted.
- 4.2. An approval number shall be assigned to each vehicle type approved; its first two digits (00 for the Regulation in its initial form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to the same vehicle type equipped with another type of ACPE, or to another vehicle type.
- 4.3. Notice of approval or of refusal or withdrawal of approval pursuant to this Regulation shall be communicated to the Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex 1 and photographs and/or plans supplied by the applicant being in a format not exceeding A4 (210 x 297 mm), or folded to that format, and on an appropriate scale.
- 4.4. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle conforming to a vehicle type approved under this Regulation, an international approval mark conforming to the model described in Annex2, consisting of:
- 4.4.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval<sup>2</sup>;
- 4.4.2. The number of this Regulation, followed by the letter "R", a dash and the approval number to the right of the circle prescribed in paragraph 4.4.1. above.
- 4.5. If the vehicle conforms to a vehicle type approved under one or more other Regulations annexed to the Agreement, in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 4.4.1. above need not be repeated; in such a case, the Regulation and approval numbers and the additional symbols shall be placed in vertical columns to the right of the symbol prescribed in paragraph 4.4.1. above.
- 4.6. The approval mark shall be clearly legible and be indelible.
- 4.7. The approval mark shall be placed close to or on the vehicle data plate.

## 5. Specifications

- 5.1. Performance Requirements
- The following performance requirements shall apply to a vehicle with no trailer coupled, with a mass between maximum mass and mass in running order, and whose powertrain management system is properly operational.
- 5.1.1. The ACPE shall be able to limit unintended acceleration of the vehicle when an accelerator control misapplication by the driver has been detected at least:
- (a) When an obstacle exists in front of the vehicle when the driving direction is selected to be forward, and
- (b) When an obstacle exists behind the vehicle when the driving direction is selected to be rearwards.
- 5.1.2. An accelerator control application having a velocity of at least 400 per cent per second over a travel distance of at least 70 per cent of the total travel distance of the accelerator control, and reaching a maximum position of the accelerator

コメントの追加 [A8]: For the correct E-marking in annex 2 , we as a group need to decide if the group wants to make the ACPE regulation mandatory for type approval to test for pedestrian & wall/vehicle target? it is optional in R152.

コメントの追加 [A9R8]: Agreed. Text to be delivered for September IWG meeting.

control of at least 90 per cent, shall be regarded as an accelerator control misapplication in the context of the paragraph 5.1.1.

5.1.3. Notwithstanding paragraph 5.1.2., in the case of systems that implement force-based triggering of the ACPE, an accelerator control force greater than the triggering threshold shall be considered as accelerator control misapplication. The manufacturer shall justify the triggering threshold to the satisfaction of the Type Approval Authority.

5.1.4. The ACPE shall control acceleration when the vehicle is accelerated from both standstill and while creeping [off].

5.1.4. Alt. [ACPE will be test up to  $\{10/8\}$  (industry: position is still 3 or 4 km/h, but if then not 10) km/h, unless an AEBS is active (as defined by the manufacturer) at a speed between  $\{4\}$  and  $\{10/8\}$  (indsee above) km/h. In that case the ACPE will be tested up to that speed.]

[An ACPE intervention shall not be required when there is an AEB warning as defined in Regulation (UN) No. 152 in any series of amendments.]

5.1.5. 5.1.4.1. The ACPE shall be ready to perform an intervention no later than  $\{6\}$  seconds following the initiation of the vehicle powertrain.

5.1.5. The ACPE shall limit vehicle acceleration in order to prevent or mitigate a collision with an obstacle located between 1.0 m and 1.5 m in front of or behind the vehicle, in the vehicle path, at the time the accelerator control is applied, provided:

- (a) Vehicle external influences allow for the required acceleration inhibition, i.e.:
  - (i) The road is flat, horizontal and dry affording good adhesion;
  - (ii) The weather conditions do not affect the performance of the vehicle (e.g. no storm, not below 0°C);
- (b) The vehicle state itself allows for the required acceleration inhibition, e.g.:
  - (i) The tyres are in an appropriate state and properly inflated;
  - (ii) The brakes if intended to be used are properly operational (brake temperature, pads condition etc.);
  - (iii) There is no severe uneven load distribution;
  - (iv) No trailer is coupled to the motor vehicle and the mass of the motor vehicle is between maximum mass and mass in running order conditions;
  - (v) The vehicle's powertrain management system is properly operational
- (c) There are no external influences affecting the physical sensing capabilities, i.e.:
  - (i) The ambient illumination conditions are at least 1000 Lux and there is no extreme blinding of the sensors (e.g. direct blinding sunlight, highly radar-reflective environment);
  - (ii) The target vehicle is not extreme with regard to the Radar Cross Section (RCS) or the shape/silhouette (e.g. below fifth percentile of RCS of all M<sub>1</sub> vehicles)
  - (iii) There are no significant weather conditions affecting the sensing capabilities of the vehicle (e.g. heavy rain, dense fog, snow, dirt);
  - (iv) There are no overhead obstructions close to the vehicle;
- (d) The situation is unambiguous, i.e.:

書式を変更: 蛍光ペン

コメントの追加 [A10]: See 2.13. Three Alternatives to be reviewed in next IWG meeting.

コメントの追加 [A11]: To allow ACPE to function when creeping also.

書式を変更: 蛍光ペン

書式を変更: 蛍光ペン

書式を変更: フォント: 太字 (なし), 蛍光ペン

書式を変更: 蛍光ペン

書式を変更: フォント: 太字 (なし), 蛍光ペン

書式を変更: フォント: 11 pt, 太字 (なし), 蛍光ペン

コメントの追加 [A12]: See also 5.3.3: "A failure warning shall be given to the driver when there is a failure in the ACPE that prevents the requirements of this Regulation being met. The warning shall be as specified in paragraph 5.4.3."

コメントの追加 [A13]: Consider that these parameters should be within the boundary conditions section rather than a separate paragraph.

コメントの追加 [A14R13]: To be decided in next IWG meeting

(i) The obstacle is stationary, unobstructed, clearly separated from other objects in the driving direction;

(ii) ~~In the case of a vehicle or wall obstacle, the lateral offset between the centreline of the obstacle and the centreline of the vehicle is not more than 0.2 m. The centre line of the obstacle is located between two vertical longitudinal planes defining the extreme outer edge of the vehicle.~~

(iii) ~~In the case of a pedestrian obstacle, the entire pedestrian obstacle is located between two vertical longitudinal planes which are 0.1m within the extreme outer edge of the vehicle.~~

(iv) The direction of travel is straight with no curve, and the vehicle is not turning at an intersection and following its lane.

(v) The obstacle is a vehicle of category M<sub>1</sub>, or a wall like structure with a width of at least 2.0 m and a height of at least 1.0 m: ~~or a silhouette of a pedestrian that relates to a human being.~~

When conditions deviate from those listed above, the system shall not deactivate or unreasonably switch the control strategy. This shall be demonstrated by the manufacturer in accordance with Annex 3 of this Regulation and, if deemed justified, may be followed by testing by the Technical Service in conditions deviating from those listed above or those in paragraph 6. The rationale for and the results of this verification testing shall be appended to the test report.

5.1.6. In the case that a collision is not prevented, the collision speed shall be no greater than 8 km/h higher than the vehicle speed at the point where the triggering conditions specified in paragraph 5.1.2. are met.

In addition, the collision speed shall not be greater than 70% of that speed the vehicle would have had in the same position and under the same circumstances but without any ACPE intervention.

5.1.6.1. In the case of vehicles that do not exceed 8 km/h without ACPE in the test scenarios but for which a speed reduction of 30% cannot be achieved due to a low engine power to test mass ratio, the speed reduction shall be of at least 15%.

5.1.7. During any intervention, the vehicle acceleration shall continue to be limited by the ACPE. The intervention may be ended when the obstacle is no longer detected, or the driver has interrupted the function. The Manufacturer shall declare the ACPE continuation conditions to the technical service.

5.1.8. The effectiveness of ACPE shall not be adversely affected by magnetic or electrical fields. This shall be demonstrated by fulfilling the technical requirements and respecting the transitional provisions of the 06 or later series of amendments to UN Regulation No. 10.

5.1.9. Conformity with the safety aspects of electronic control systems shall be shown by meeting the requirements of Annex 3.

5.1.10. The ACPE shall inform the driver of its intervention in accordance with paragraph 5.4.2.

5.1.11. Interruption of ACPE by driver

5.1.11.1. The ACPE shall provide a means for the driver to interrupt its intervention. This interruption shall be started by any intentional action which indicates that the driver has recognised the situation.

5.1.11.2. In the case of interruption by maintaining the accelerator control application, there shall be no rapid increase of acceleration.

コメントの追加 [A15]: Needs to be rewritten and fixed in next IWG after OICA test results are available.

コメントの追加 [A16]: Pedestrian Boundary conditions needs to be considered (definition derived from R152). As an alternative we can define pedestrian boundary conditions in another paragraph, if significant amount of pedestrian conditions to be considered.

コメントの追加 [A17R16]: Agreed

コメントの追加 [A18]: We need to review this for creeping vehicles. Even for stationary vehicles (00 series) it is often not possible to reach 8km/h in 1-1.5m. So do we need this value for creeping vehicles?

コメントの追加 [A19]: As agreed in the previous meeting, however we would like to see further investigation on this to obtain an evidence based decision on the 15%.

コメントの追加 [A20]: These three items to be fixed in next IWG meeting with test results

- 
- 5.1.11.3. The fulfilment of these requirements shall be documented and demonstrated by the manufacturer to the Approval Authority during the inspection of the safety concept as part of the assessment to Annex 3.
- 5.1.12. The performance requirements shall be verified using the test procedure as described in section 6.
- 5.2. Deactivation
- 5.2.1. Short term deactivation
- When a vehicle is equipped with a means to manually deactivate the ACPE, the ACPE shall be automatically reinstated at the initiation of any new engine start (or run cycle, as relevant).
- This requirement does not apply when a new engine start (or run cycle, as relevant) is performed automatically, e.g., the operation of a stop/start system.
- A deactivation warning shall be given at least at the time of deactivation.
- 5.2.2. Long term deactivation
- Notwithstanding paragraph 5.2.1., a vehicle may be equipped with a long term deactivation means to manually deactivate the ACPE, in that case, the system is not required to be reinstated at the initiation of each engine start (or run cycle, as relevant). However, the system shall provide information to the driver by either (a), (b) or (c):
- (a) A constant optical warning signal shall inform the driver that the ACPE has been deactivated. The yellow warning signal specified in paragraph 5.4.3. may be used for this purpose;
- (b) The driver shall be periodically informed that the ACPE has been deactivated. In this case this information shall be given for a minimum of 10 seconds or until driver confirmation.
- This information shall be given at least either every 7 days or every 10 engine starts (or run cycles, as relevant), not counting when a new engine start (or run cycle, as relevant) is performed automatically, e.g. the operation of a stop/start system. This information shall be distinct from the failure warning signal specified in paragraph 5.4.3.;
- or
- (c) If deactivation is only for one direction of operation (forward or rearwards), a constant optical warning shall be given when the corresponding driving direction is selected for first time in the engine start cycle (or run cycle, as relevant).
- The long-term deactivation process shall be designed in such a way that deactivation shall not be possible with less than 2 deliberate actions.
- 5.2.3. Automatic deactivation
- 5.2.3.1. When the vehicle is equipped with a means to automatically deactivate the ACPE, for instance in situations such as carrying a bicycle rack or towing a trailer, the following conditions shall apply as appropriate:
- 5.2.3.1.1. The vehicle manufacturer shall provide a list of situations and corresponding criteria where the ACPE is automatically deactivated to the technical service at the time of type-approval and it shall be annexed to the test report.
- 5.2.3.1.2. The ACPE shall be automatically reactivated as soon as the conditions that led to the automatic deactivation are not present anymore.
- 5.2.3.1.3. A deactivation warning shall be given at least at the time of deactivation unless a failure warning is given as per paragraph 5.3.3.
- 5.2.3.1.3.1. While an Automated Driving System is in control of the vehicle, or an Advanced Driver-Assistance System is in active mode (e.g. ALKS or ACSF category A is active), the ACPE may be suspended or its control strategies

- 
- adapted without indication to the driver, as long as it remains ensured that the vehicle provides at least the same acceleration suppression capabilities as the ACPE. The suspension of the ACPE or the adapted control strategies shall be documented and demonstrated by the manufacturer to the Approval Authority during the inspection of the safety concept as part of the assessment to Annex 3.
- 5.3. Failure detection / self-check
- 5.3.1. A failure warning shall be given to the driver when there is a failure in the ACPE that prevents the requirements of this Regulation being met. The warning shall be as specified in paragraph 5.4.3.
- 5.3.1.1. It is not required to provide the driver with a failure warning signal to indicate that the ACPE is temporarily not available, for example due to inclement weather conditions.
- 5.3.2. There shall not be an appreciable time interval between each ACPE self-check, and subsequently there shall not be a delay in illuminating the warning signal, in the case of an electrically detectable failure. However, if the vehicle speed is greater than 10 km/h at the time a failure is detected, the warning signal may be suppressed until the next time the vehicle speed is below 10 km/h.
- 5.3.3. A failure warning shall also be given to the driver in the case of a detected non-electrical failure condition (e.g. sensor blindness or sensor misalignment) unless a deactivation warning is given as per paragraph 5.2.3.1.3.
- 5.4. Warning signals
- 5.4.1. General
- 5.4.1.1. The optical warning signals shall be visible even by daylight; the satisfactory condition of the signals must be easily verifiable by the driver from the driver's seat.
- 5.4.1.2. Each ACPE optical warning signal shall be activated either when the engine start (or run, as relevant) switch is turned to the "on" (run) position or when the engine start (or run, as relevant) switch is in a position between the "on" (run) and "start" position that is designated by the manufacturer as a check position (initial system (power-on)). This requirement does not apply to warning signals shown in a common space.
- 5.4.2. Intervention warning signal
- An intervention warning shall be given by an optical signal. In addition, a haptic or acoustic signal shall be provided to the driver, unless such a signal is already being provided by another vehicle system comprising an object detection capability (e.g. parking distance warning).
- The optical warning signal may be the flashing of the failure warning signal.
- A description of the warning indication presented to the driver shall be provided by the vehicle manufacturer at the time of type-approval and recorded in the test report.
- 5.4.3. Failure warning signal
- The failure warning shall be given by a constant yellow optical signal.
- 5.5. Provisions for the Periodic Technical Inspection
- 5.5.1. At a Periodic Technical Inspection, it shall be possible to confirm the correct operational status of the ACPE by a visible observation of the failure warning signal status. Following a "power-ON" and any bulb check, the failure warning signal shall remain illuminated if any failure was present at the end of the previous engine start (or run, as relevant) cycle, unless this failure is detected to be no longer present.



---

In the case of the failure warning signal being in a common space, the common space must be observed to be functional prior to the failure warning signal status check.

- 5.5.2. At the time of type approval, the means to protect against simple unauthorised modification of the operation of the failure warning signal chosen by the manufacturer shall be confidentially outlined.

Alternatively, this protection requirement is fulfilled when a secondary means of checking the correct operational status of the ACPE is available.

## 6. Test procedure

- 6.1. Test surface and environment conditions

6.1.1. The test shall be performed on a flat, dry, concrete or asphalt road affording good adhesion.

6.1.2. The test surface has a consistent slope between level and 1 per cent.

6.1.3. The ambient temperature shall be between 0°C and 45°C.

6.1.4. The horizontal visibility range shall allow the target to be observed throughout the test.

6.1.5. The tests shall be performed when there is no wind liable to affect the results.

6.1.6. Natural ambient illumination must be homogeneous in the test area and in excess of 1000 lux. It should be ensured that testing is not performed whilst driving towards, or away from the sun at a low angle.

6.1.7. At the request of the manufacturer and with the agreement of the Technical Service tests may be conducted under deviating test conditions (suboptimal conditions, e.g. on a not dry surface; below the specified minimum ambient temperature), whilst the performance requirements are still to be met.

- 6.2. Instrumentation

6.2.1. The speed of the vehicle shall be measured with an accuracy of +/- 0.1 km/h.

6.2.2. The position of the vehicle shall be measured with an accuracy of +/- 0.03 m.

6.2.3. The accelerator control force (if applicable) shall be measured with an accuracy of +/- 1 N.

6.2.4. The accelerator control position shall be measured with an accuracy of +/- 1%. Alternatively, at the choice of the manufacturer, this measurement may be taken from the vehicle's own position sensor.

6.2.5. Measurements shall be recorded at a frequency of at least 100 Hz.

- 6.3. Test Vehicle

- 6.3.1. Pre-Test Conditioning

If requested by the vehicle manufacturer:

(a) The vehicle can be driven a maximum of 100 km on a mixture of urban and rural roads with other traffic and roadside furniture to initialise the sensor system.

(b) The vehicle can undergo a sequence of brake activations in order to ensure the service brake system is bedded in prior to the test.

Details of the pre-test condition strategy requested by the vehicle manufacturer shall be identified and recorded in the vehicle type approval documentation.

- 6.3.2. Prior to any testing, it shall be ensured that the ACPE is switched on and ready to function.

During the conduct of the test the T.S. need to ensure that the boundary conditions of the ACPE - as defined by the manufacturer - wrt. to the detection of the test target are taken into account (e.g. avoid blocking of a sonar system used, ensure that a vision system used can properly identify the pedestrian test target used as a human by making it fully visible to the camera system before testing, etc.)

書式変更: インデント : 最初の行 : 0 mm

6.3.3. Test mass

The vehicle shall be tested:

(a) At the minimum mass (mass in running order with an additional mass of maximum 125 kg);

(b) If this is deemed justified, the technical service may test at any other mass up to the technically permissible maximum laden mass as defined by the manufacturer. No alteration shall be made once the test procedure has begun.

コメントの追加 [A21]: Text from a drafting break. Needs further thoughts – all please review until next IWG.

書式を変更: フォントの色 : 自動

6.4. Test Targets

6.4.1. The target used for the vehicle detection tests shall be a regular high-volume series production passenger car of Category M<sub>1</sub> or alternatively a "soft target" representative of a passenger vehicle in terms of its identification characteristics applicable to the sensor system of the ACPE under test according to either ISO 19206-1:2018 or ISO 19206-3:2021 at the choice of the manufacturer.

6.4.2. The targets used for the pedestrian detection tests shall be a child non-articulated (standing) "soft target" in its resting position with the articulation being switched off and be representative of the human attributes applicable to the sensor system of the ACPE under test according to ISO 19206-2:2018.

コメントの追加 [A22]: Inclusion of pedestrian target, as stated in Regulation R152 (AEBS)

コメントの追加 [A23R22]: Agreed as amended

6.5. Accelerator control misapplication test-Offset of vehicle and target

6.5.1. The reference point for the location of the vehicle shall be the most rearward point on the centreline of the vehicle when going rearwards, and the most forward point of the vehicle when going forwards.

コメントの追加 [A24]: Mentioned in previous IWG meeting that this is not required, as the test procedure is self-explanatory, but we feel that it adds clarity (particularly with the creeping scenario).

6.5.2. The lateral offset between the centreline of the wall or vehicle target and the centreline of the vehicle shall be between 0.0 m and 0.2 m the distance to extreme outer edge of the vehicle.

コメントの追加 [A25]: Changed to fit with the proposed requirements.

6.5.3. The lateral offset between the centreline of the pedestrian target and the extreme outer edge of the vehicle shall be at least 0.25m.

コメントの追加 [A26R25]: See comment above

6.5.4. The orientation of the pedestrian target is to be determined by the technical service

6.5.5. The orientation of the vehicle target shall be 0° or 180° respectively as defined in ISO 19206-3:2021, chosen by the technical service.

コメントの追加 [A27]: •Performance requirements (UK) - When the entire pedestrian is located at least within 0.1m of the extreme outer edge of the vehicle.  
• ISO Child pedestrian target is 0.298m width. (#0.15 from the centreline of target to the extreme outer edge.

コメントの追加 [A28]: These two items to be decided in next IWG with test data.

The test procedure shall be as follows:

6.6. Test procedure for a stationary vehicle

6.6.1. The test procedure for a stationary vehicle shall be performed with and without an expected ACPE intervention both in a forward and rearward direction and at least with the vehicle situated 1.0 m (+0.1 m tolerance) and 1.5 m (-0.1 m tolerance) from the target position at the start of the test (as detailed in Table 1).

コメントの追加 [A29]: This could be simplified to be one procedure; however if creeping is selectable, preference by UK to test both conditions.

Test procedure not yet agreed, needs to be done in next IWG. (from this point on no comment means not agreed yet)

コメントの追加 [A30]: Potential to revise stationary procedures in line with the development of the creeping procedures.

Table 1  
Test conditions for a stationary vehicle.

Driving direction	Distance to target / Distance to speed measuring point (m)	Tolerance on the longitudinal distance (m)	Tolerance on the lateral (offset) distance (m)	Presence of target

Forward	1.0	+ 0.1	<b>+/-0.2</b>	Yes
Forward	1.0	+ 0.1	<b>N/A</b>	No *
Forward	1.5	-0.1	<b>+/-0.2</b>	Yes
Forward	1.5	-0.1	<b>N/A</b>	No *
Rearward	1.0	+ 0.1	<b>+/-0.2</b>	Yes
Rearward	1.0	+ 0.1	<b>N/A</b>	No **
Rearward	1.5	-0.1	<b>+/-0.2</b>	Yes
Rearward	1.5	-0.1	<b>N/A</b>	No **

Presence of target:

Yes : with ACPE intervention

No : without ACPE intervention or with ACPE deactivation

\* These tests may be combined

\*\* These tests may be combined

**6.6.2** The procedure for each test **with a stationary vehicle shall** be as follows:

- (a) Position the vehicle at a distance to the target or speed measurement point as defined in Table 1.
- (b) Hold the vehicle stationary and select the corresponding driving direction.
- (c) Accelerate the vehicle, whilst maintaining the steering control in the neutral position, by operating the accelerator control in order to achieve the relevant triggering conditions (as outlined in paragraph 5.1.2.) before the vehicle reaches a speed of 0.5 km/h.
- (d) Record the speed at the collision point (if applicable) or the speed at the respective speed measurement point.

**6.7 Test procedure for a creeping vehicle**

**6.7.1. The following procedures shall be conducted in both a forward and rearward direction for those vehicles that can creep.**

**6.7.2. Speed profile without presence of target and no expected ACPE intervention**

**6.7.2.1. No target should be present and, if necessary, the ACPE should be switched off.**

**6.7.2.2. The vehicle shall be driven in a straight line for at least 2m at its steady state creep speed.**

**6.7.2.3. The vehicle shall then be accelerated, whilst maintaining the steering control in the neutral position, by operating the accelerator control in order to achieve the relevant triggering conditions (as outlined in paragraph 5.1.2.). The point at which the accelerator control is actuated shall be defined as the *reference accelerator application point*.**

**6.7.2.4. The speed of the vehicle shall be recorded for a distance of at least 1.5m from the reference accelerator application point**

**6.7.2.5. At the request of the manufacturer and not withstanding paragraph 6.7.2.2., for vehicles which reach steady state creep speed above 9km/h, the vehicle shall be accelerated as per paragraph 6.7.2.3. as soon as the vehicle reaches 9km/h.**

**6.7.3 Speed profile with presence of target**

**6.7.3.1. The vehicle shall be positioned, with the ACPE switched on (if necessary), at a distance from the target such that its speed will have reached a steady state creep speed at least 3.5m before the target.**

コメントの追加 [A31]: Not required as lateral offset from the target, is included in the paragraph above. Also consider the table unnecessary.

- 6.7.3.2. The vehicle shall be held stationary and the corresponding driving direction selected.
- 6.7.3.3. The brakes shall then be released and the vehicle allowed to creep in the direction of the target until it reaches a distance of between 1.0m to 1.5m from the target.
- 6.7.3.4. The vehicle shall then be accelerated, whilst maintaining the steering control in the neutral position, by operating the accelerator control in order to achieve the relevant triggering conditions (as outlined in paragraph 5.1.2.). The point at which the accelerator control is actuated shall be defined as the *test accelerator application point*.
- 6.7.3.5. At the test accelerator application point and up until the potential collision point the target shall have a position according to paragraph 6.5.
- 6.7.3.6. The speed of the vehicle shall be recorded at the point of collision with the target as well as the distance travelled from the test accelerator application point.
- 6.7.3.7. If paragraph 6.7.2.5. is applicable then the starting position in paragraph 6.7.3.2. shall be such that the vehicle speed is 9km/h at the test accelerator application point.
- 6.7.4. Evaluation of speed profiles
- 6.7.4.1. The speed of the vehicle at the point of collision (paragraph 6.7.3.6.) shall be evaluated against speed recorded under paragraph 6.7.2.4. at the distance from the reference accelerator application point which is the same as the distance travelled from the test accelerator application point to the point of collision.

~~Before any test is started the vehicle may be driven in the direction of the target for a distance of up to 20 m to the start position and/or the engine may be switched "off" and "on", if requested by the manufacturer.~~

- 6.8. If this is deemed justified, the Technical Service may test in any test condition within the conditions specified in paragraph 5.1. during the tests as described in paragraph 6.4.

[\[transitional provisions template/proposals to be added\]](#)

[\[plan to submit a formal document for January GRVA, end of October. If needed possible to modify this document with an informal document for adoption at January GRVA\]](#)

コメントの追加 [A32]: Still a question of what this actually achieves. Propose to delete this as we are no longer bound by JNCAP test procedure.

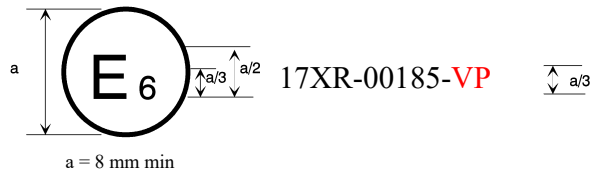
コメントの追加 [A33R32]: Agreed.

---

## Annex 2

### Arrangements of approval marks

(see paragraphs 4.4. to 4.4.2. of this Regulation)



The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in Belgium (E 6) with regard to the **Acceleration Control for Pedal Error systems (ACPE)** pursuant to UN Regulation No. **17X** (marked with **V** for **Vehicle and Wall**, **P** for **Pedestrian**). The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of UN Regulation No. **17X** in its original form.

**UK will provide a text about the marking.**