

UNECE / ITU symposium on Future Networked Car 2025 Session 1

Activities of Informal Working Group on Acceleration Control for Pedal Error (ACPE)

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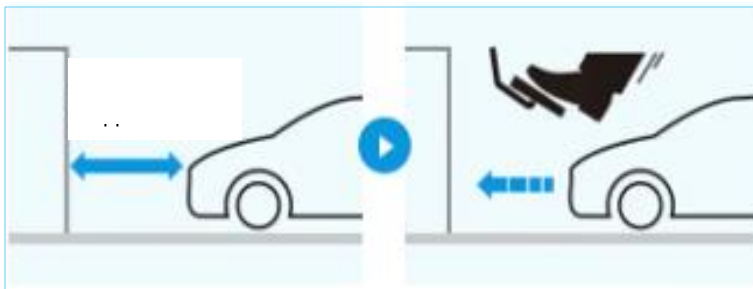
What is ACPE?

Document: GRVA-14-14 (Sep. 2022) proposed by Japan

- Drivers sometimes mis-use acceleration pedal instead of brake pedals by mistake, in the case of unusual situation, such as collision cases, going back cases.
- Especially, elderly drivers tends to make an error more than young drivers.
- If the vehicle accelerate in such error situation, it may cause terrible accidents.

Examples of ACPE

Detecting object in front vehicle



Detecting object backward of vehicle

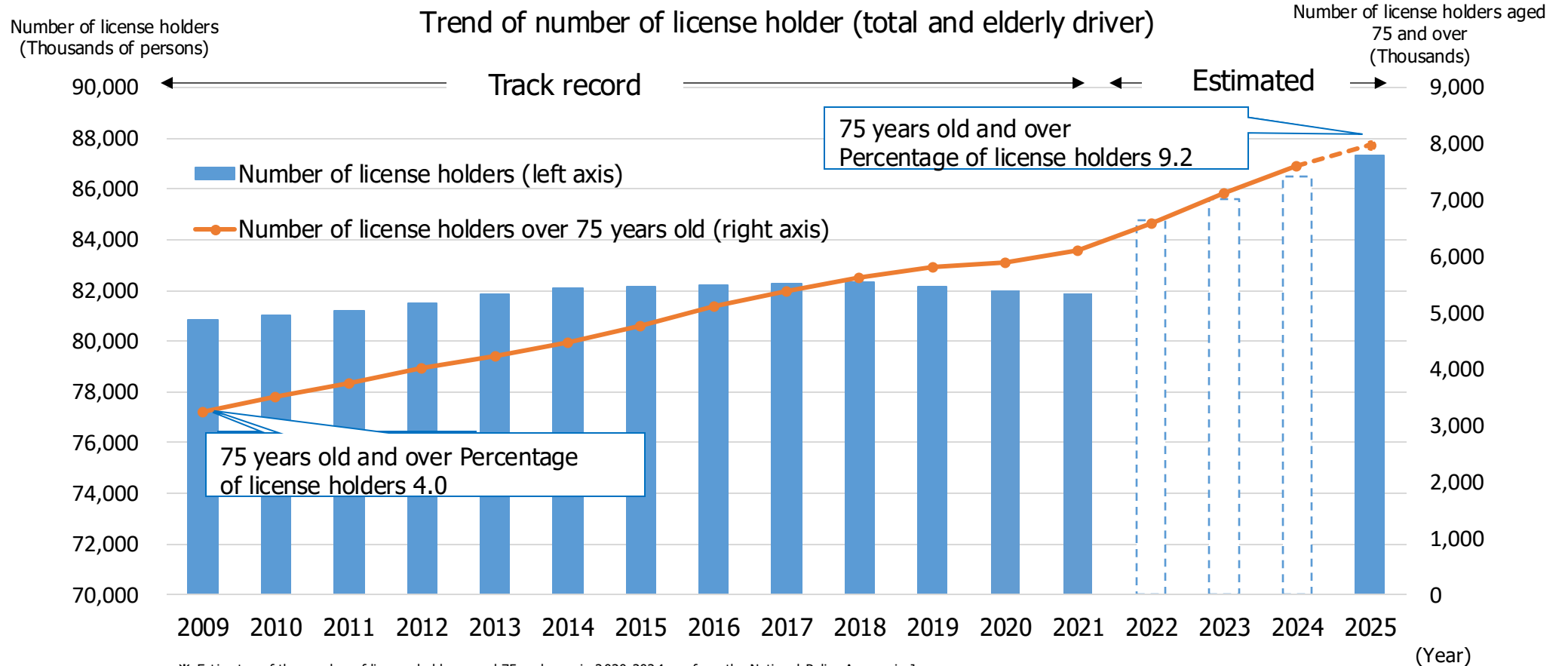


By detecting object, the system determines that the driver has stepped on the wrong pedal.



Number of elderly drivers

Document: GRVA-14-14 (Sep. 2022) proposed by Japan



※ Estimates of the number of license holders aged 75 and over in 2020-2024 are from the National Police Agency in Japan.
 Estimates of the number of driver's license holders in 2025 are from the 15th Traffic Accident and Investigation Analysis Research Workshop in 2012 by the Institute for Traffic Accident Research and Data Analysis (ITARDA).
 The number of license holders aged 75 and over in 2024 and the number of license holders in 2020 to 2024 are estimated by the MLIT of Logistics and Road Transport Bureau based on the above data.

● The number of license holders over 75 years old will continue to increase in Japan.



Number of Traffic Accident

- **Japan:** 47 fatal M1/N1 accidents (of around 4000 pedal misapplication accidents per year) in GRVA-14-14
- **Germany:** In-depth data, GIDAS 43 possible M1 accidents 2000-2022 in ACPE-02-02
- **France:** In-depth data, VOIESUR 45 possible M1/N1 accidents
- **China:** In-depth data, CIDAS 23 possible M1/N1 accidents in one year period in Pre-meeting of ACPE IWG (GRVA-15-22)
- **Korea:** Korea provided a lot of their traffic accident data, Lim-san will provide this information in the next presentation.

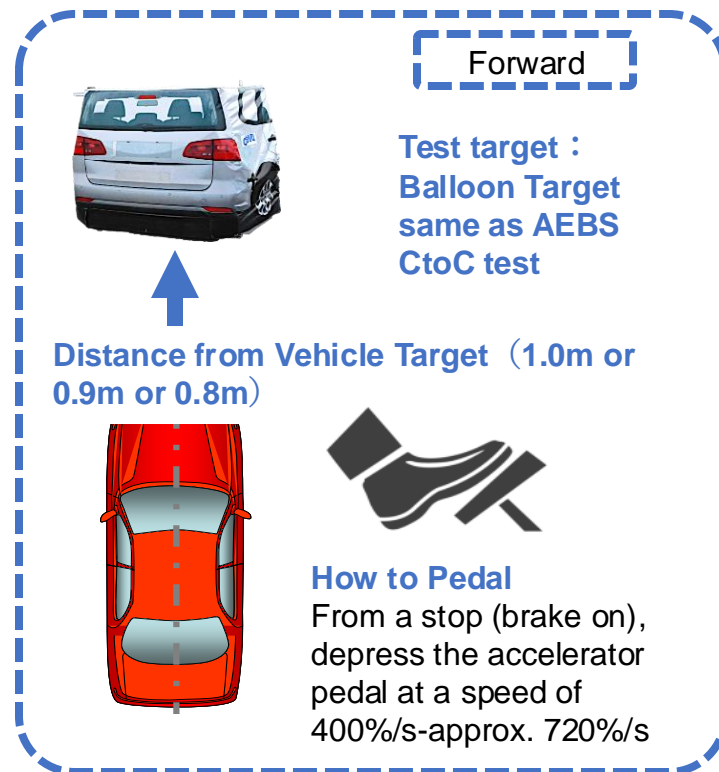
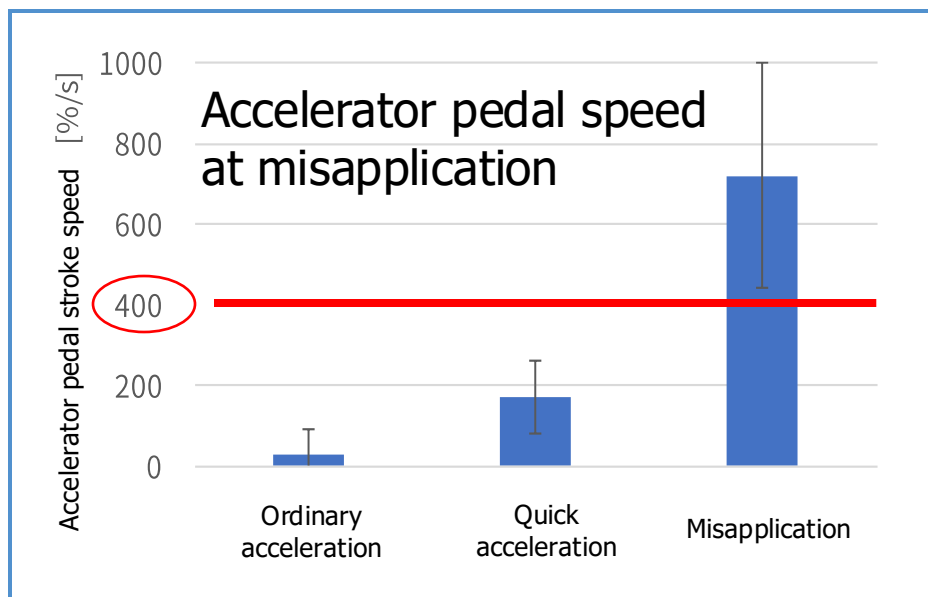


New Car Assessment Program

Technology already assessed in Japan New Car Assessment Programmes (JNCAP since 2018)

Target: Vehicle/Wall from 2028, Adult pedestrian from 2023

Vehicle category: M1





Terms of Reference for IWG

TOR discussed in the January 2023 session of GRVA

- **Date:** The activities of IWG started from **March 2023**, and the target was **May 2024** session of GRVA.
- **Vehicle categories:** M1 and N1 vehicles, and possibly for other vehicle categories
- **Items:** State of the art, Performance requirements, Collisions objects (vehicles and/or pedestrians), Activation speed, Trigger of activation (e.g. detecting objects, detecting collision, operation speed of acceleration pedal)
- **Chair:** Germany (Mr. Patrick Seiniger) and Japan (Toshiya Hirose)



Discussion items

- **Series approach:**

- **00 series** is for M1 vehicle, Stationary condition, Obstacles (vehicle, wall)
- **01 series** is for M1 and N1 vehicle, Moving-off condition (below 10 km/h), Obstacles (vehicle, wall, pedestrian)



- **Transitional provisions:**

- New type of vehicle: 1st September 2029
- Existing type of vehicle : 1st September 2031

Amendment of 01 series was agreed in the January session of GRVA, and this will be discussed in the June 2025 session of WP. 29



Bold means the activities of GRVA or WP.29

Red bold means the activities of GRVA or WP.29 with decision

Activities of Informal Working Group on ACPE

- **January 2023: TOR discussed at 15th session of GRVA**
- March 2023: 1st informal meeting with Teams
- May 2023: 2nd informal meeting with Teams
- **May 2023: Status report provided to 16th session of GRVA**
- September 2023: 3rd informal meeting in Germany
- **September 2023: Status report provided to 17th session of GRVA**
- November 2023: 4th informal meeting in Japan
- January 2024: 5th informal meeting with Teams
- **January 2024: Status report provided to 18th session of GRVA**
- February 2024: 6th informal meeting in UK
- March 2024: 7th informal meeting with Teams
- May 2024: 8th informal meeting with Teams



Activities of Informal Working Group on ACPE

- **May 2024: IWG proposed 00 series regulation to 19th session of GRVA, and GRVA agreed 00 series regulation of ACPE.**
- June 2024: 9th informal meeting in Korea
- September 2024: 10th informal meeting in Germany
- **September 2024: Status report provided to 20th session of GRVA**
- October 2024: 11th informal meeting with Teams
- **November 2024: WP.29 agreed 00 series regulation of ACPE**
- December 2024: 12th informal meeting with Teams
- January 2025: 13th informal meeting with Teams
- **January 2025: IWG proposed 01 series regulation to 21th session of GRVA, and GRVA agreed 01 series regulation of ACPE. And GRVA agreed to develop ACPE as GTR (Global Technical Regulation)**
- **June 2025: WP.29 will discuss 01 series regulation of ACPE.**

UN web of ACPE: <https://wiki.unece.org/pages/viewpage.action?pageId=192841078>

ACPE regulation

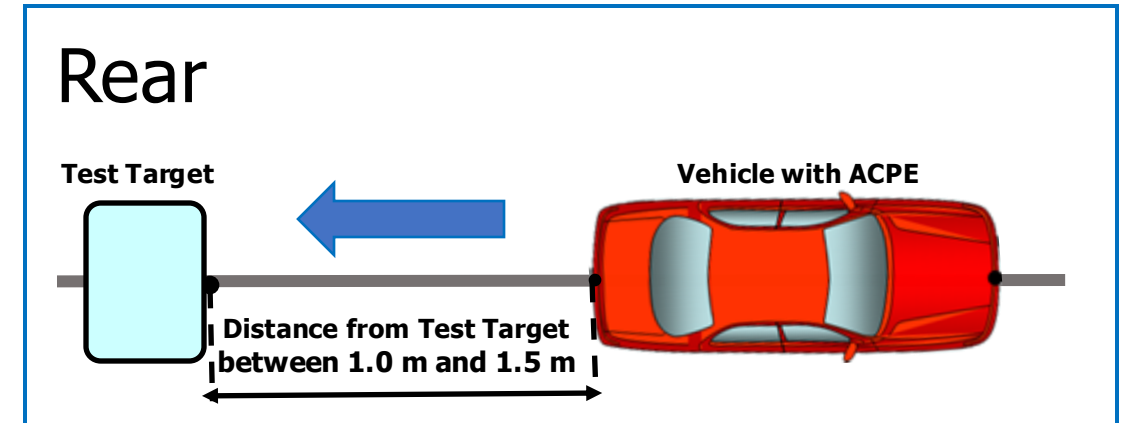
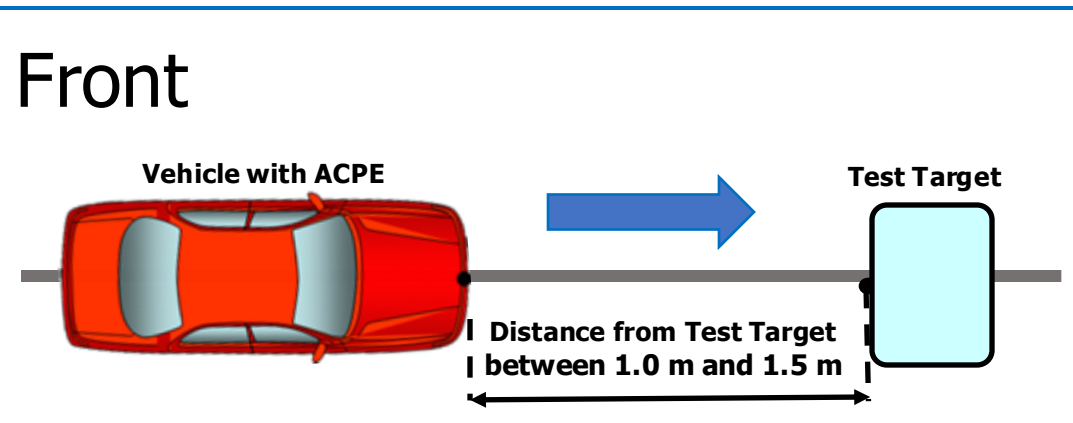
- **00 series:**

- M1 vehicle

- Stationary vehicle (from 0 km/h)

- Obstacles (vehicle, wall*) *: Wall does not include in the test procedure

- Direction: Front and Rear





ACPE regulation

- **00 series:**



Pedal misapplication:

- **Maximum position of the accelerator:** Over 90%
- **Pedal stroke speed:** At least 400 %/s over a travel distance of at least 70%

ACPE Performance:

- **Impact speed:** Below 8 km/h
and below 30% of speed reduction compared to without ACPE
- **Low power to weight vehicles:**
At least 15% of speed reduction compared to without ACPE



ACPE regulation

- **01 series:**

- M1 and **N1** vehicle

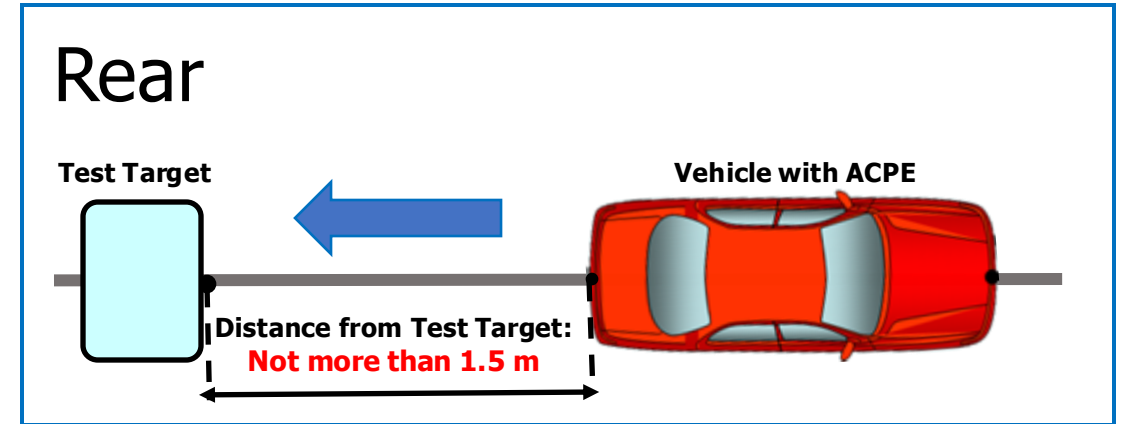
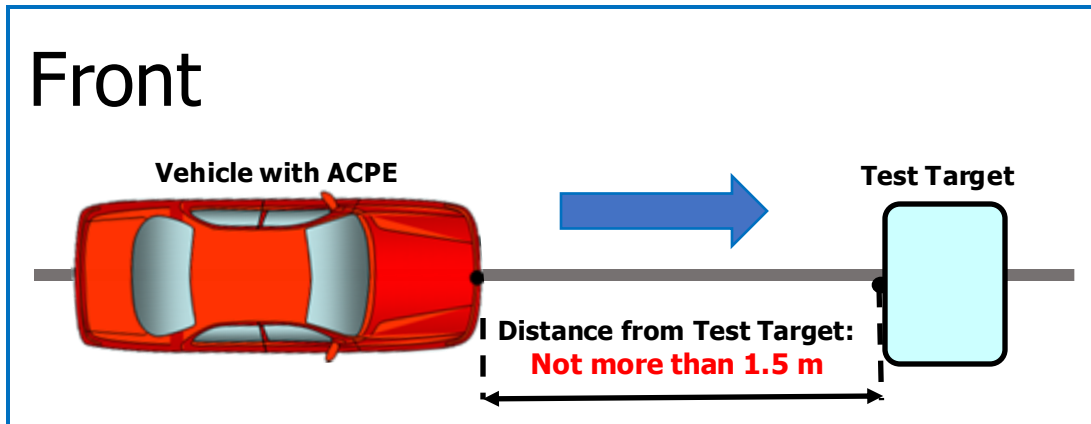
- **Moving-off condition (below 10 km/h)**

Moving-off means starting from stationary and moving forward or rearward after releasing the brakes

- Obstacles (vehicle, wall*, **Child pedestrian**)

*: Wall does not include in the test procedure

- Direction: Front and Rear



Amendment of 01 series was agreed in the January session of GRVA, and this will be discussed in the June 2025 session of WP. 29



ACPE regulation

• 01 series:



Pedal misapplication:

- **Maximum position of the accelerator:** Over 90%
- **Pedal stroke speed:** At least 400 %/s over a travel distance of at least 70%

Relationship with AEBS :

ACPE intervention is not required if the warning or braking of AEBS activate.

ACPE Performance:

- **Impact speed:** Below 8 km/h and below 30% of speed reduction compared to without ACPE
- **Low power to weight vehicles:** At least 15% of speed reduction compared to without ACPE

➤ **Acceleration while creeping:**

In the case a collision is not prevented, the ACPE shall reduce the effective demand of the accelerator control to zero at or before the point of collision.

Amendment of 01 series was agreed in the January session of



Summary

- **00 series** is for M1 vehicle, Stationary condition, Obstacles (vehicle, wall)
 - WP. 29 agreed to establish the new regulation of ACPE as R. 175 on November 2024
- **01 series** is for M1 and N1 vehicle, Moving-off condition (below 10 km/h), Obstacles (vehicle, wall, pedestrian)
 - WP.29 will discuss 01 series regulation of ACPE as a series amendment of regulation.
- The activities of ACPE informal working group will continue to develop ACPE regulation as GTR (Global Technical Regulation). And the target is at **201th session of WP.29 in March 2027.**

**Thank you very much for
your attention!**

24 March 2025