

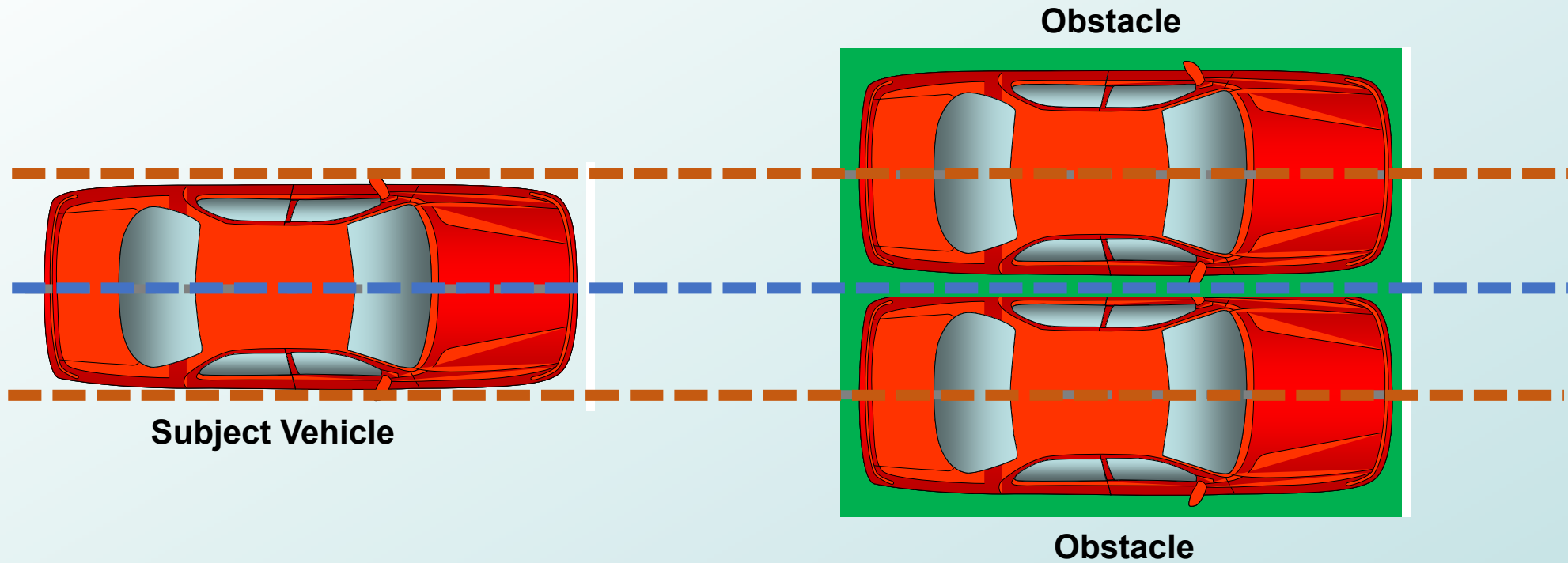


**UK proposal test procedure (ACPE-09-06)
concern and clarification**

5.Specifications

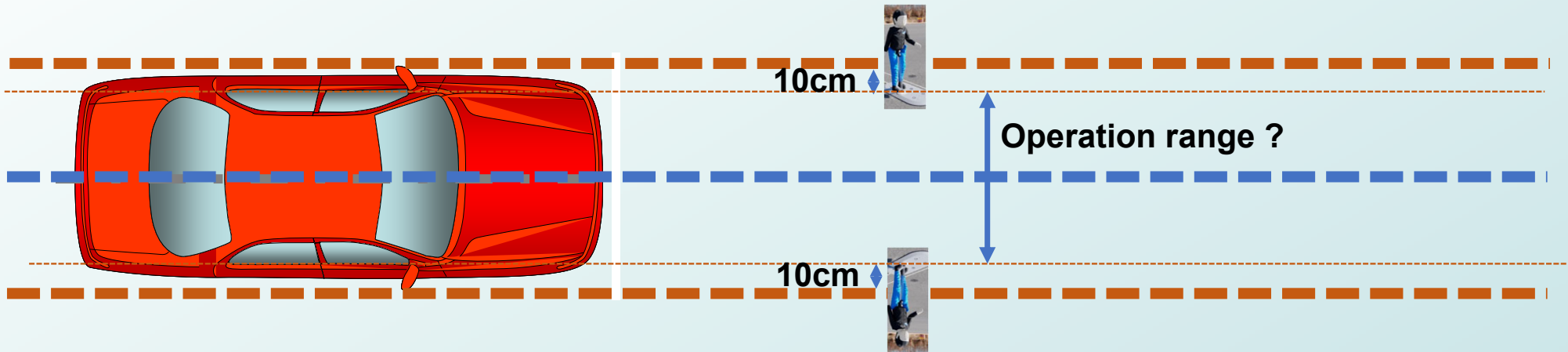
- (d) The situation is unambiguous, i.e.:
- (i) The obstacle is stationary, unobstructed, clearly separated from other objects in the driving direction;
- (ii) **In the case of a vehicle or wall obstacle, the lateral offset between the centreline of the obstacle and the centreline of the vehicle is not 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.**

(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.



How to treat "Wall" ?

(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.

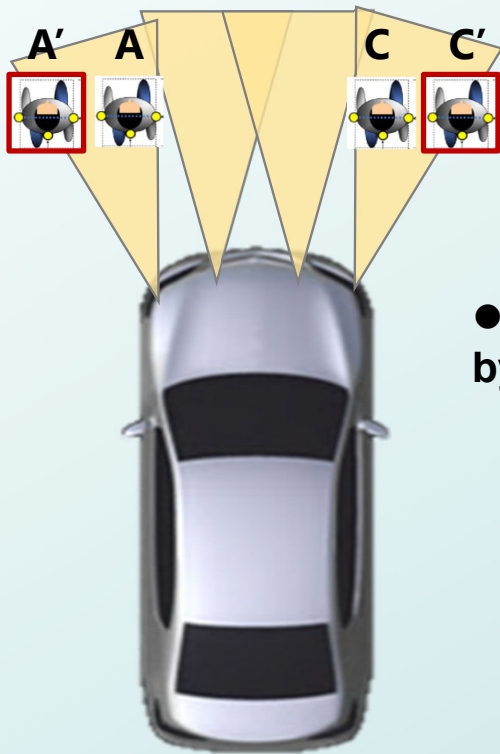


It is hard to detect pedestrian robustly by Sonar sensor.

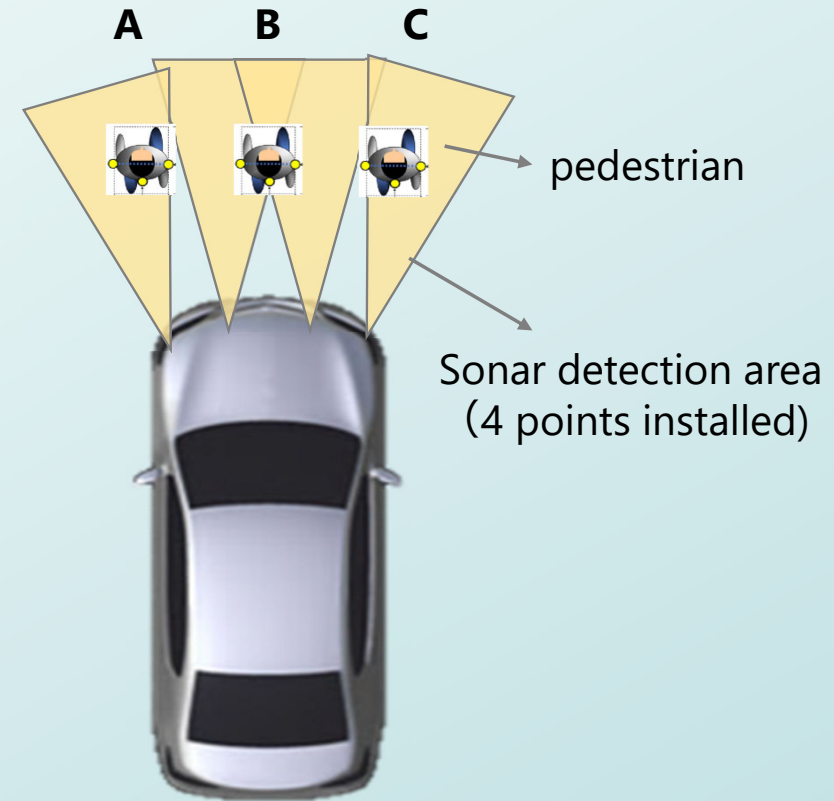
Concern

■ Detection of Sonar sensor

- Sonar sensor does not have lateral resolution.
- Using two sonar sensors data, system decide it's position.
- To avoid false positive, with sonar, objects detected by two sensors are determined to be targets. (Ensuring detection reliability)
- Regarding objects located at the edge of the vehicle, such as A and C, detection reliability cannot be ensured with just one sensor, and it is not possible to determine whether the object should be activated.



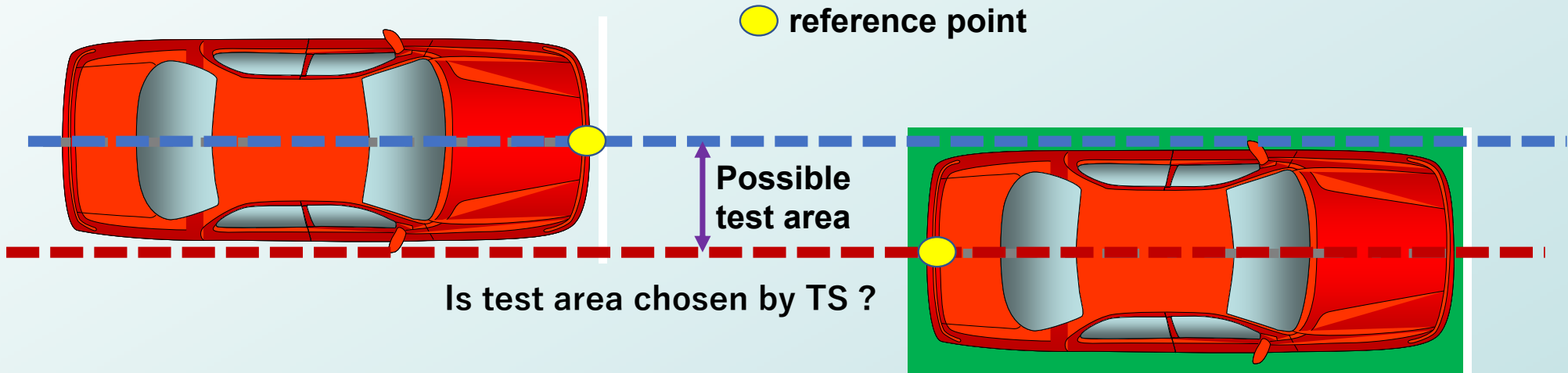
- We can't distinguish between A and A' by one sonar detection data.



6. Test procedure

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.

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**.



■ wall

- Operation to wall is a scope, but not test in the test section in 00 series.
- 6.5.2 means “to conduct Wall test” ?

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.

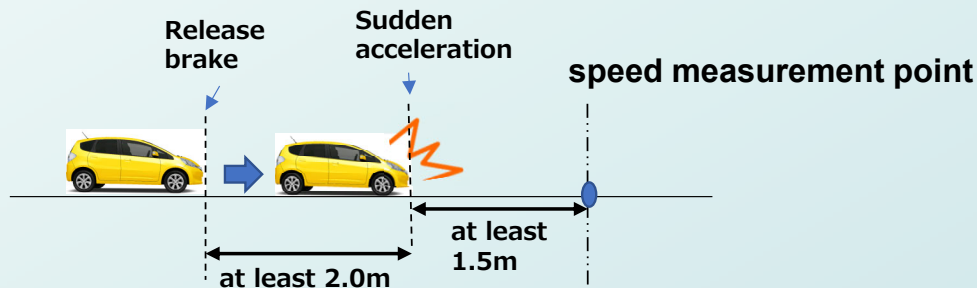
6.7.2. Speed profile without presence of target and no expected ACPE intervention

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



- steady state creep speed : How to define “steady state creep speed” ?
(→ see next slide)

■ Propose

“creeping steady state”, → “creeping off” and apply a max. duration of 2s and max. speed of 4 km/h



OICA Creeping speed profile (ACPE-06-09 document) (repost)



OICA

ACPE-06-XX



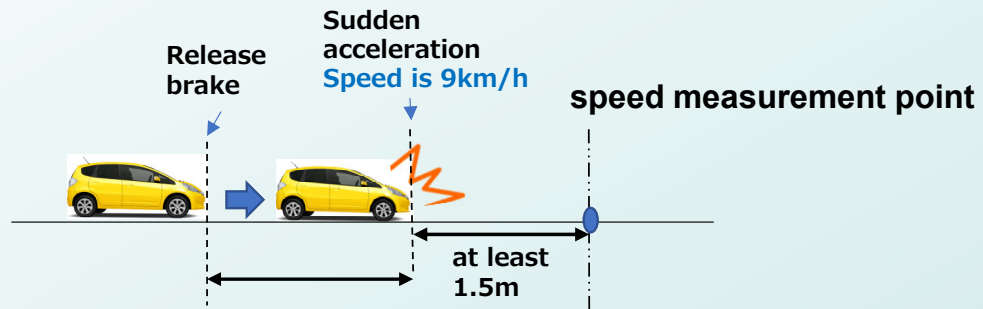
■ 1. Creeping speed profile (11 models, 20 data)



There is a vehicle whose creep speed exceeds 10 km/h.

Some OEMs **operate AEB to very low speeds.**
For example, 3km/h.

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.



- steady state creep speed : How to define “steady state creep speed” ?

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.

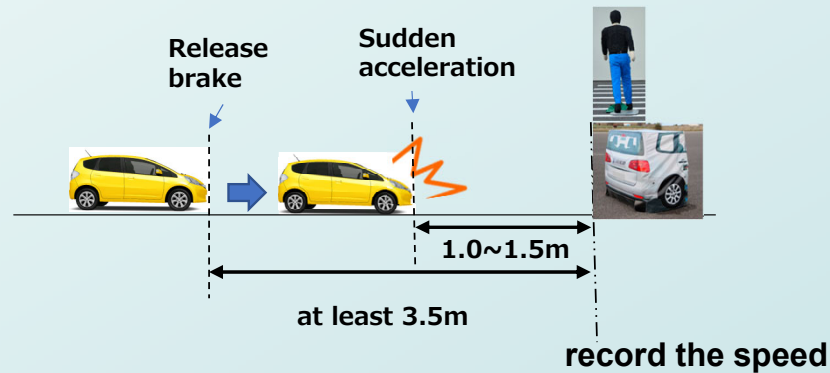
6.7.3.2. The vehicle shall be held stationary and the corresponding driving direction selected.

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.

- **No obstacle situation**

6.7.2.4 mentioned “at least 1.5m” = distance is 1.5m or more

- **Presence of obstacle**

6.7.3.3~6.7.3.4 mentioned : accelerator input “between 1~1.5m” = distance is below 1.5m

- **How to compare the speed with and without ACPE function ?**