New regulation proposal of Close-proximity field of driver’s awareness for vehicle moving off from standstill.

JAPAN.
Proposal

New regulation for Close-proximity field of driver’s awareness for vehicle moving off from standstill.

To propose vehicle close-proximity field of driver’s awareness in order to prevent accidents when the vehicle moving off.

* Japan think 1st priority is increasing driver’s awareness.

**Scope:** M1, N1
Proposal (continued)

Field of driver’s front and lateral side close-proximity awareness

Means of driver’s front close-proximity awareness
- Direct vision from adjusted driver’s ocular point.
- Indirect vision (cameras, mirrors without periscope)
- Detection

* When the class III mirror mounted in front of entire vehicle, field of vision is limited to the front side only.
Proposal (continued)

Justifications for the proposal

✓ Accident data about pedestrian contact is existing not only vehicle front but also front lateral side.
✓ Now, no vision requirements for vehicle front side proximity. Therefore, minimum safety level shall be required. Including reversing, close-proximity vision all around vehicle can be satisfied by this proposal.
✓ Safety requirements shall be technology neutral.
✓ Improvement of front side close-proximity vision provides increase of driver’s awareness not only standstill but also turning left or right.

Accidentology (VRU-Proxi-13-09), Osaka Japan (Feb. 2020)
Basic concept for regulation drafting

Common structure with reversing regulation (R-158).

✓ Part I only for mirror
  ✓ Static test of mirrors covered by other regulations.

✓ Part II Installation
  ✓ Technology neutral approach applied.
  ✓ Add new requirements for each means.
    ✓ Field of driver’s close-proximity awareness.
    ✓ Direct vision from adjusted driver’s ocular point.
    ✓ Requirements for camera and detection system.
    ✓ Test method for detection.
  ✓ Field of driver’s front close-proximity awareness to be satisfied by the combination of means for driver’s front close-proximity awareness.
Proposal (continued)

Direct vision

Any part of pole to be seen from adjusted driver’s ocular point.

• Methods of driver’s ocular point adjustment
  • Based on Back Angle  *same as R125
  • Based on driver’s stretching (passenger’s side and front side)
  • Based on driver looks out of the side window
Proposal (continued)

Direct vision

Any part of pole to be seen from adjusted driver’s ocular point.

Methods of driver’s ocular point adjustment

(1) Based on back angle  *Same as R125

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<th>Back angle [°]</th>
<th>Adjustment distance [mm]</th>
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(2) Based on driver’s stretching (passenger’s side and front side)

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<td>Lateral stretching</td>
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(3) Based on driver looks out of the side window (driver’s side)

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<td>Forward/rearward</td>
<td>Lateral</td>
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</tr>
<tr>
<td>Looks out of side window</td>
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<td>[YY]</td>
<td>[ZZ]</td>
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</table>

To be defined by on-going study
Proposal (continued)

Indirect vision

Any part of pole to be seen in the camera image or mirror surface.

Detection

Φ0.3m × 1.0m pole

Center of side mirror (UN-R46 class III)

Detection needs 0.2m distance from vehicle.

Pole to be detected in the 0.1m range (rest of filed of vision).
Proposal (continued)

Combination of several means for awareness

Close-proximity field of awareness shall be fully covered by the single or the combination of means for driver’s awareness.

Example
Proposal (continued)

On-off conditions of the Close-proximity camera system or detection system

Direct vision or mirrors always provide vision. On the other hand, electrical system can not always active due to power or other static purposes. Therefore, driver’s on-demand activation allowed.

15.2.3. Close-proximity front and lateral side view camera system and detection system requirements

15.2.3.1. Close-proximity front and lateral side view camera system and detection system shall be activated easily by the driver’s operations when the gear in the out of parking range.

15.2.3.2. Close-proximity camera system or detection system that can not cover all field of means for driver awareness at the same time shall be easily show area of the driver’s interest by the driver’s operations.

For the camera system

16.3. Deactivation

The front and lateral side view image may change the camera view by the driver’s operation or automatically without the driver’s operations.
Exemption by blind area caused by A-pillar and side-mirror mount

The range of the blind area created by the A-pillar or exterior rear-view mirror in paragraph 15.2.4.10. shall be an area that meets the following formula. In this case, if there are more than one blind area, each blind area shall meet the conditions of the formulae.

\[ X \leq 0.292L - 0.203 \]

Where:

- \( X \) [m]: is the limit of the excluded area, i.e. the distance between the centre of a cylinder in contact with the front edge of the blind area and the centre of a cylinder in contact with its rear edge.
- \( L \) [m]: is located inside the blind area created by the A-pillar or exterior rear-view mirror. Distance between the rear edge of a cylinder in contact with the rear edge of the blind area and the front edge of the rear wheel.
Thank you for your attentions.