

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

JAPAN.

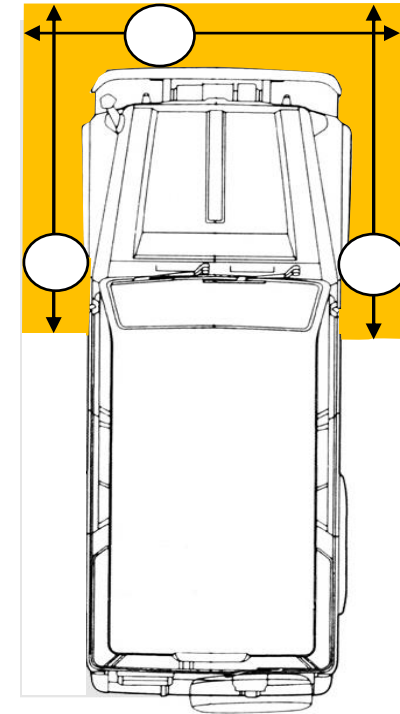
Proposal

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.

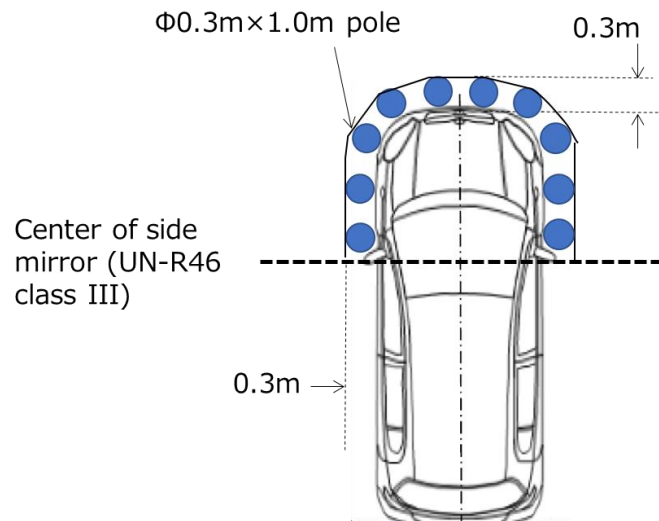
Scope: M1, N1



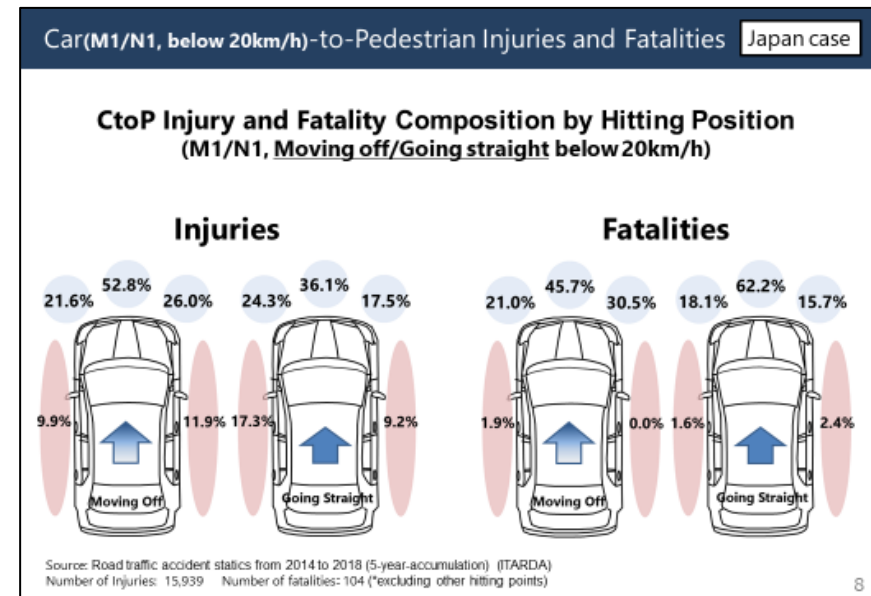
Proposal (continued)

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.



Proposal



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

| Back angle [°] | Adjustment distance [mm] | | Back angle [°] | Adjustment distance [mm] | |
|----------------|--------------------------|-----------------|----------------|--------------------------|-----------------|
| | Forward/rearward | Upward/downward | | Forward/rearward | Upward/downward |
| 5 | -186 | 28 | 23 | -18 | 5 |
| 6 | -177 | 27 | 24 | -9 | 3 |
| 7 | -167 | 27 | 25 | 0 | 0 |
| 8 | -157 | 27 | 26 | 9 | -3 |
| 9 | -147 | 26 | 27 | 17 | -5 |
| 10 | -137 | 25 | 28 | 26 | -8 |
| 11 | -128 | 24 | 29 | 34 | -11 |
| 12 | -118 | 23 | 30 | 43 | -14 |
| 13 | -109 | 22 | 31 | 51 | -18 |
| 14 | -99 | 21 | 32 | 59 | -21 |
| 15 | -90 | 20 | 33 | 67 | -24 |
| 16 | -81 | 18 | 34 | 76 | -28 |
| 17 | -72 | 17 | 35 | 84 | -32 |
| 18 | -62 | 15 | 36 | 92 | -35 |
| 19 | -53 | 13 | 37 | 100 | -39 |
| 20 | -44 | 11 | 38 | 108 | -43 |
| 21 | -35 | 9 | 39 | 115 | -48 |
| 22 | -26 | 7 | 40 | 123 | -52 |

(2) Based on driver's stretching (passenger's side and front side)

| | Adjustment distance [mm] | | |
|--------------------|--------------------------|---------|-----------------|
| | Forward/rearward | Lateral | Upward/downward |
| Upward stretching | 0 | -10 | 40 |
| Forward stretching | -140 | -15 | 10 |
| Lateral stretching | 30 | -110 | 15 |

(3) Based on driver looks out of the side window (driver's side)

| | Adjustment distance [mm] | | |
|--------------------------|--------------------------|---------|-----------------|
| | Forward/rearward | Lateral | Upward/downward |
| Looks out of side window | [XX] | [YY] | [ZZ] |

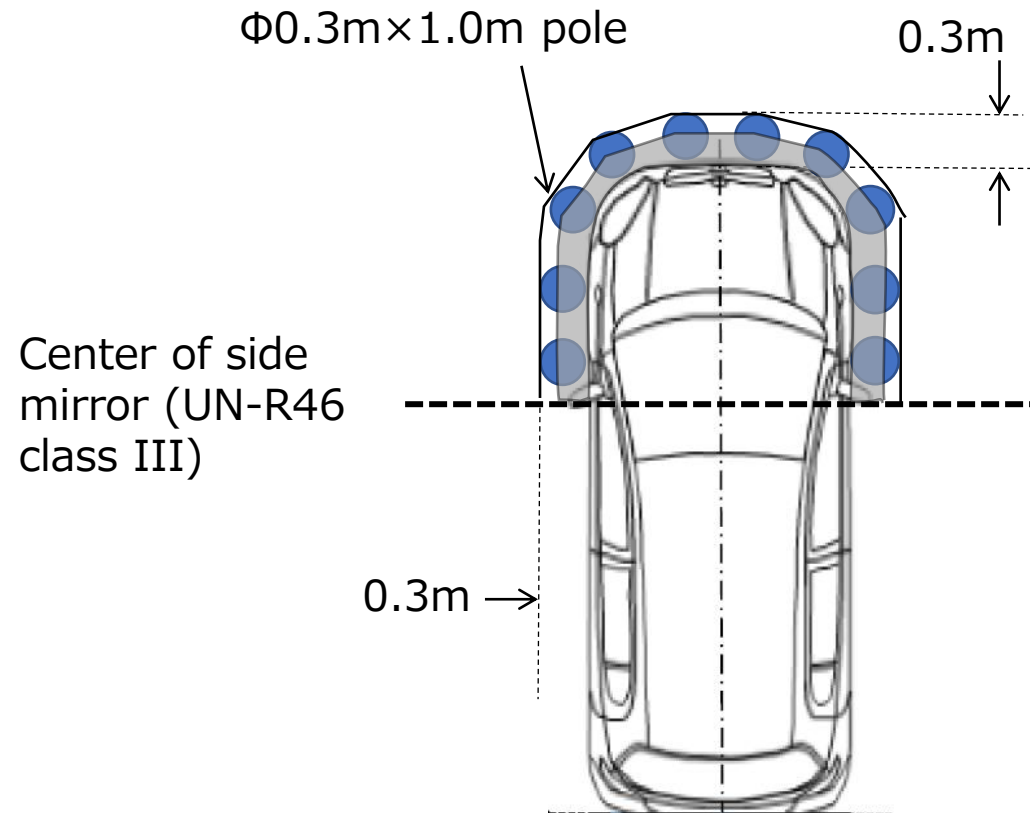
To be defined by on-going study

Proposal (continued)

Indirect vision

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

Detection



Detection needs 0.2m distance from vehicle.



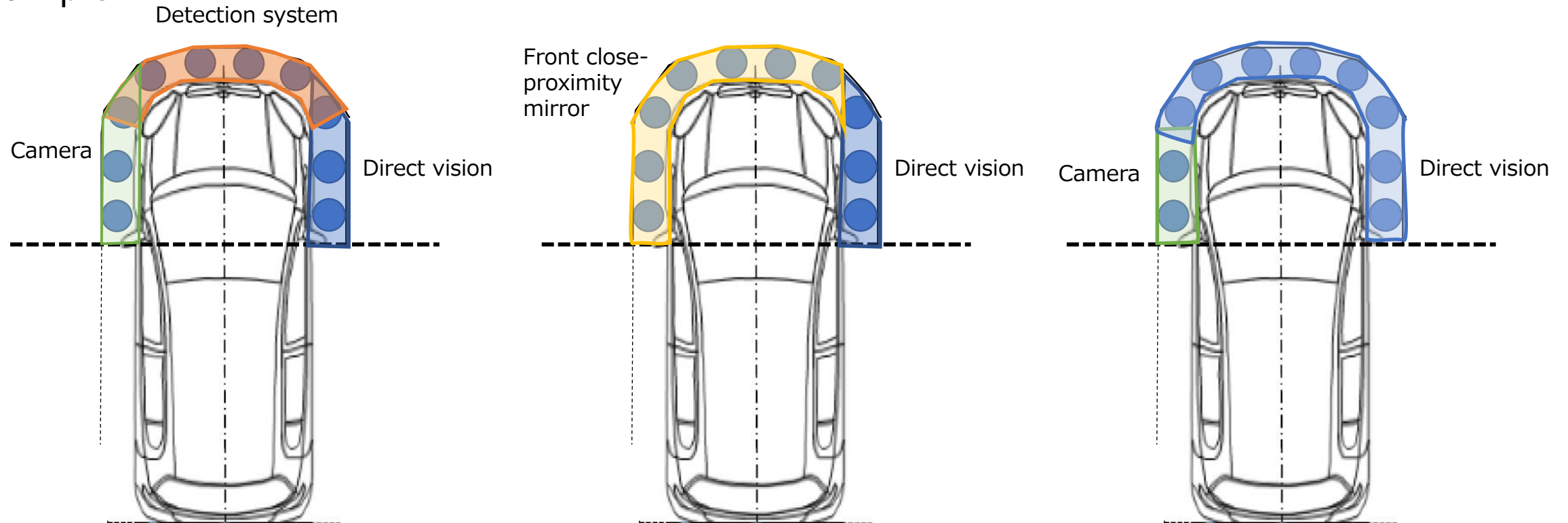
Pole to be detected in the 0.1m range (rest of field of vision).

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.

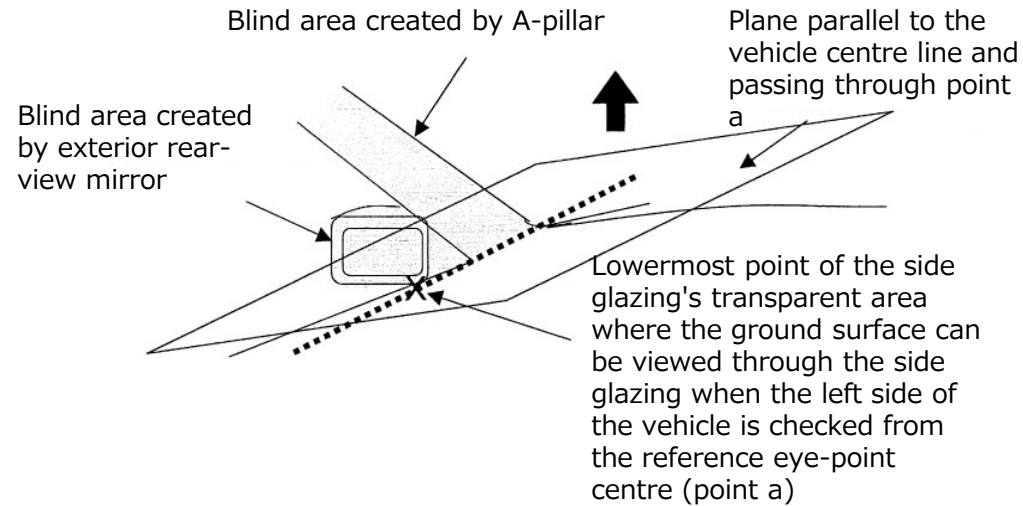
For the camera system

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.

Proposal (continued)

Exemption by blind area caused by A-pillar and side-mirror mount



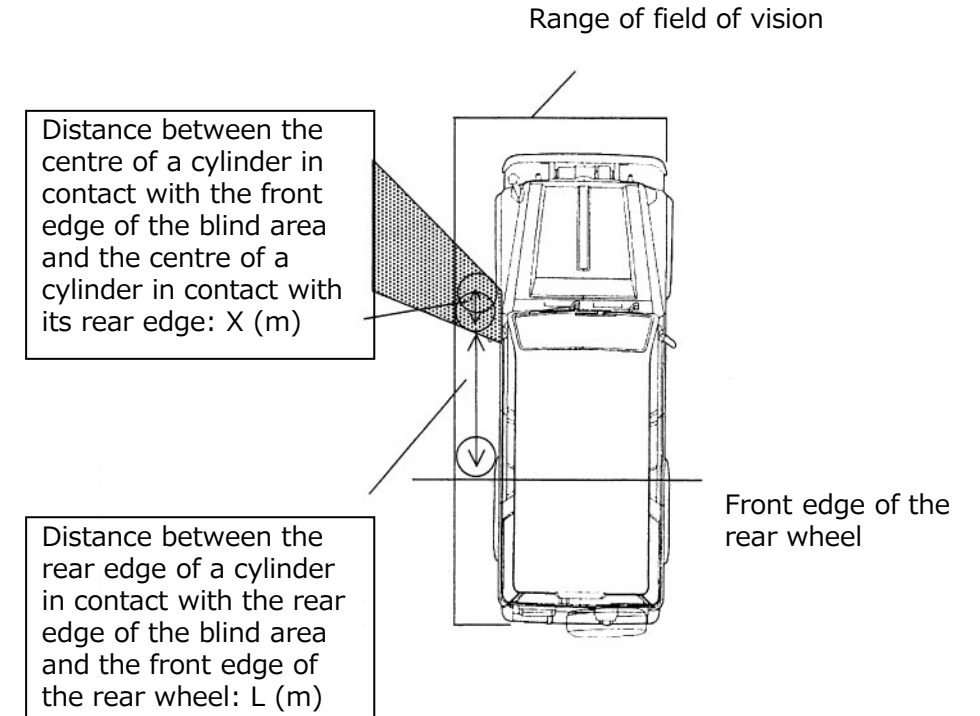
The range of the blind area created by the A-pillar or exterior rear-view mirror in paragraph 15.2.4.10. shall be an area that meets the following formula. In this case, if there are more than one blind area, each blind area shall meet the conditions of the formulae.

$$X \leq 0.292 \cdot L - 0.203$$

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.