

UN Regulation No.46

Devices for indirect vision

(Test procedures)

NTSEL

National Traffic Safety and Environment Laboratory

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Outline

1. Devices for indirect vision
2. Installation of devices for indirect vision

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General Specifications

Target		Requirement
All mirrors		Adjustable
The edge of the reflecting surface		Enclosed in a protective housing (have a value "c" greater than or equal to 2.5 mm.)
When the mirror is mounted on a plane surface which are static contact with a sphere	165 mm in diameter (interior mirror)	Have a radius of curvature 'c' of not less than 2.5 mm.
	100 mm in diameter (exterior mirror)	

Special Specifications

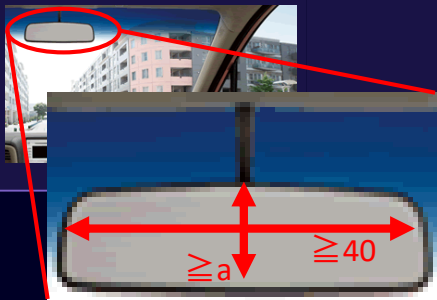
Target

Dimensions

(Class I)
Interior rear-view
mirrors

The dimensions of the reflecting surface must be such that it is possible to inscribe thereon a rectangle one side of which is 40 mm and the other 'a' mm in length, where

e.g.)



$$a = 150\text{mm} \times \frac{1}{1 + \frac{1000}{r}}$$

"r" ; the radius of curvature.

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Special Specifications

Target

Dimensions

(Class II and III)
Main exterior
rear-view mirrors

The dimensions of the reflecting surface must be such that it is possible to inscribe therein:
a) a rectangle 40 mm high the base length of which has the value "a";
b) a segment which is parallel to the height of the rectangle and the length of which has the value "b".

The minimum values of 'a' and 'b' (mm)

Class II	$a \geq \frac{170}{1 + \frac{1000}{r}}$	$b \geq 200$
Class III	$a \geq \frac{130}{1 + \frac{1000}{r}}$	$b \geq 70$

"r" ; the radius of curvature.

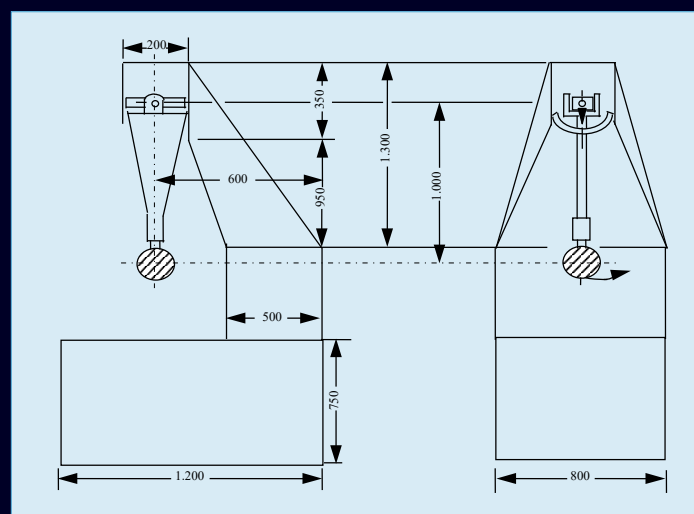
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Special Specifications

Target	Radii of curvature (Minimum values)
Class I	1,200 mm
Class II and III	1,200 mm
Class IV	300 mm
Class V	300 mm
Class VI	200 mm
Class VII	1,000 mm or more than 1,500 mm

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Impact test



Test equipment

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Impact test

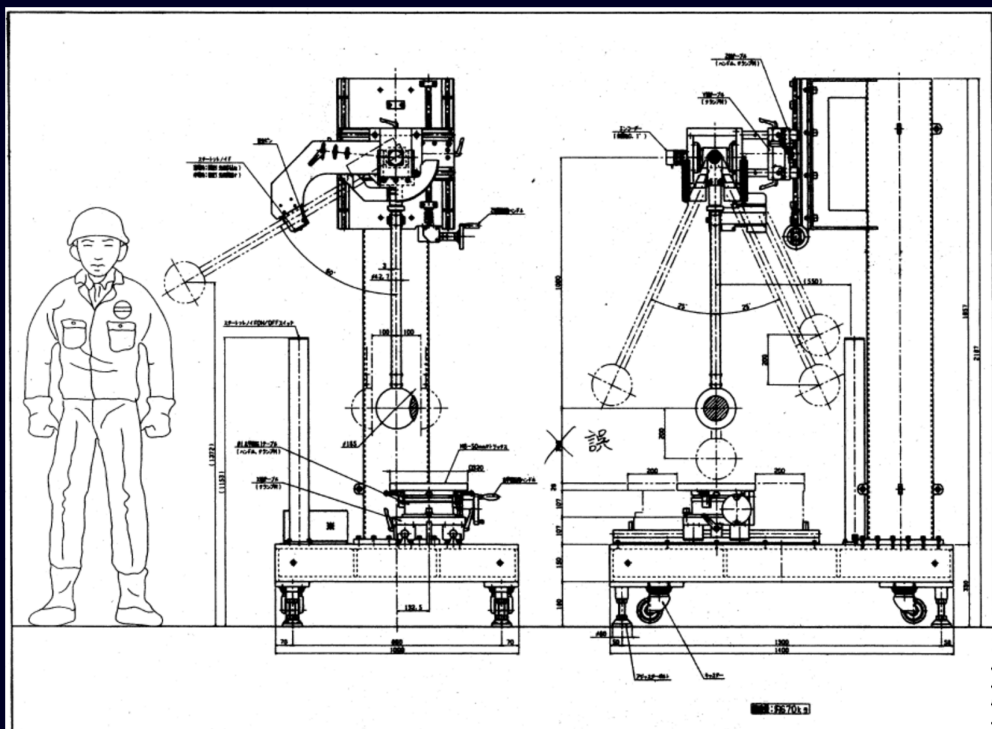


hammer

NTSEL's test equipment

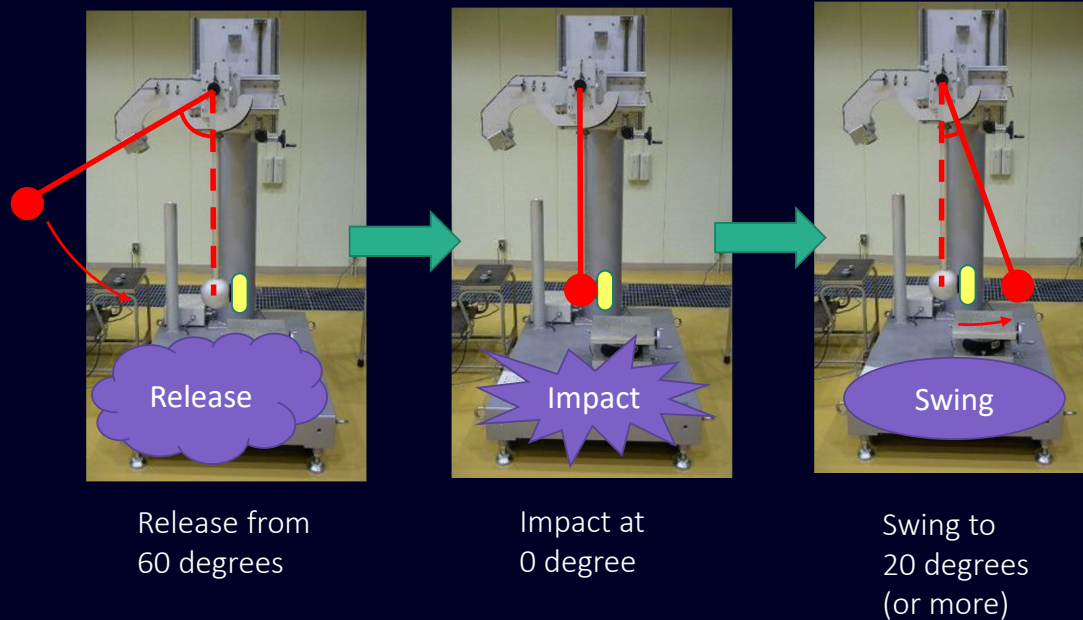
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Impact test



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Impact test



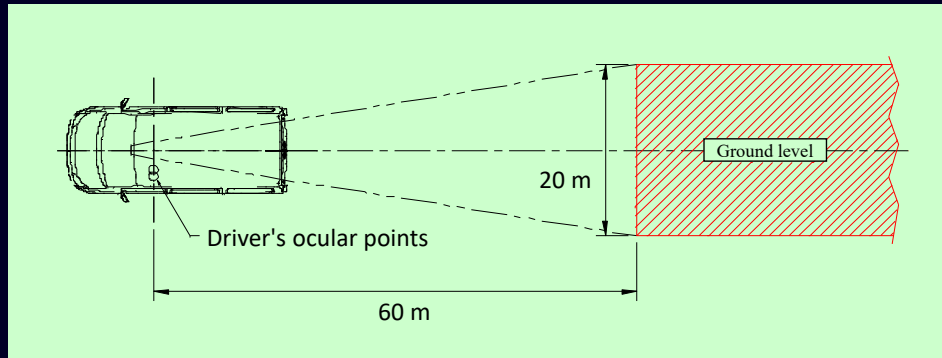
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Outline

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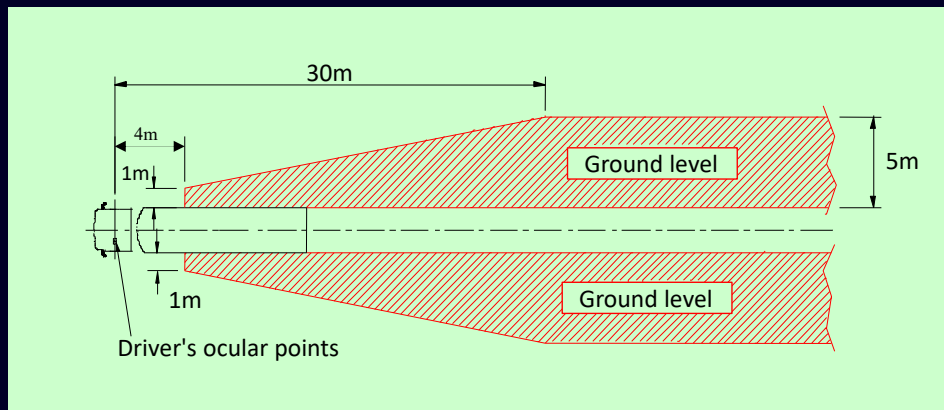
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Class I field of vision



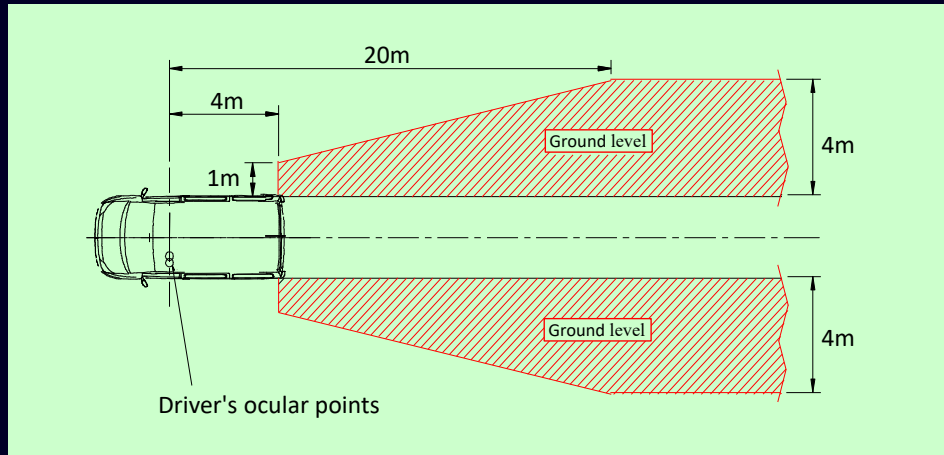
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Class II field of vision



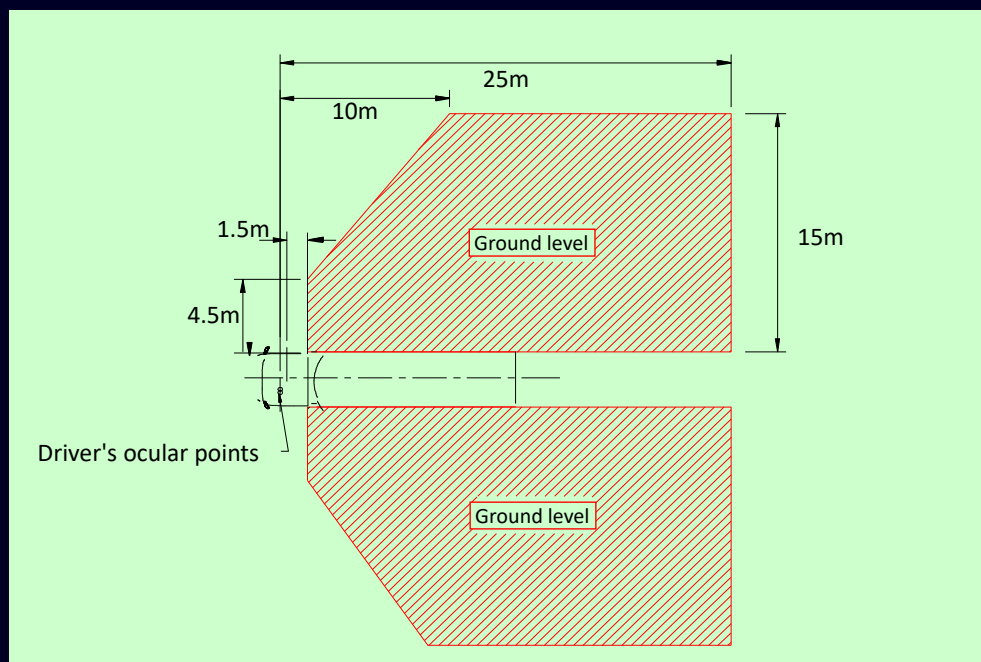
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Class III field of vision



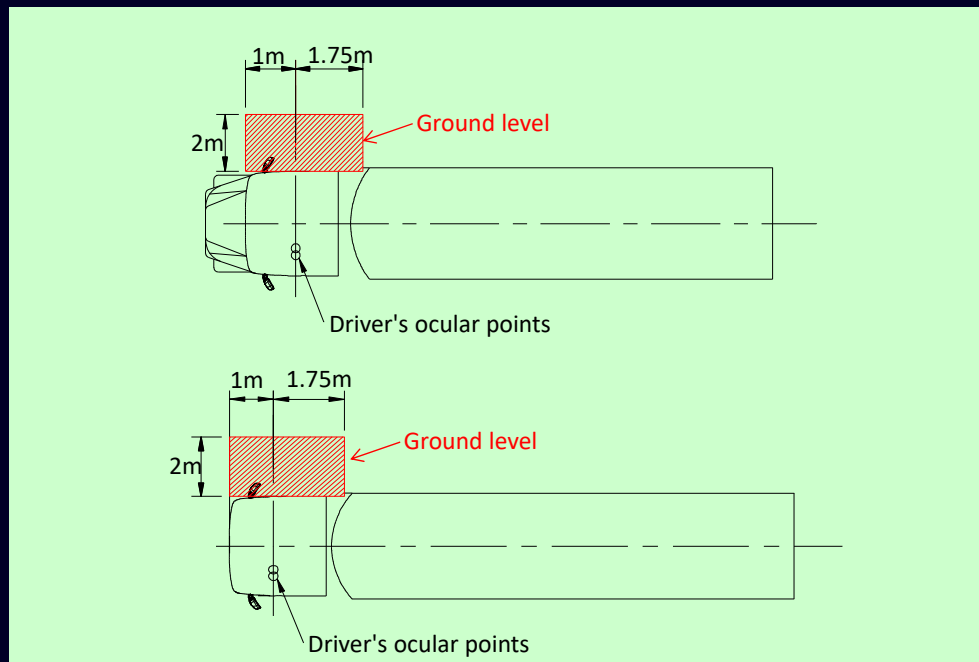
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Class IV field of vision



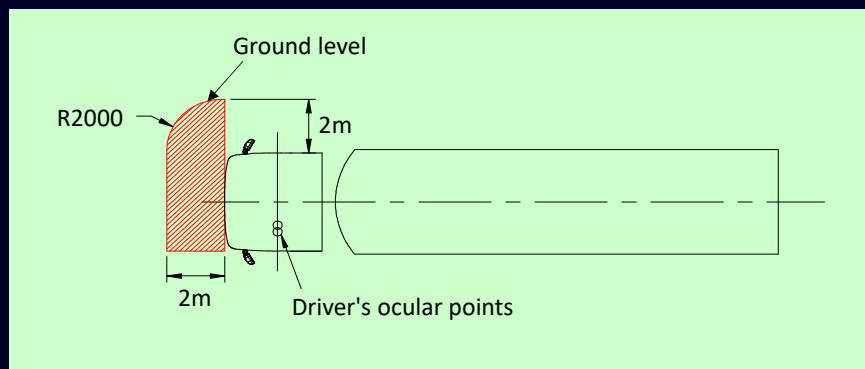
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Class V field of vision



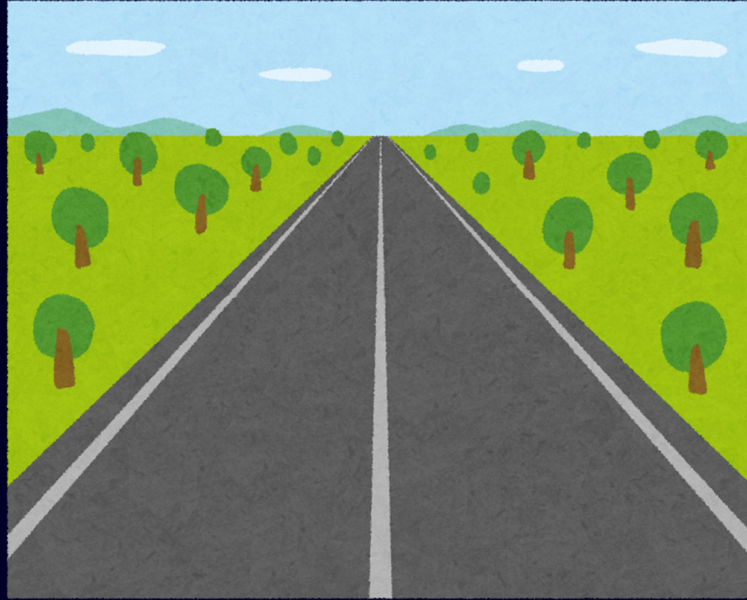
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Class VI field of vision



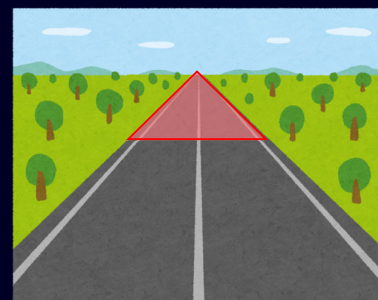
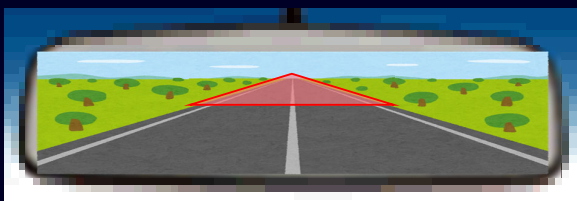
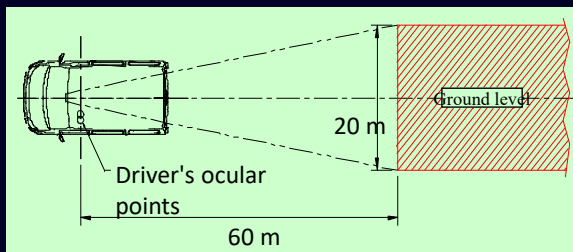
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Evaluation of vision area



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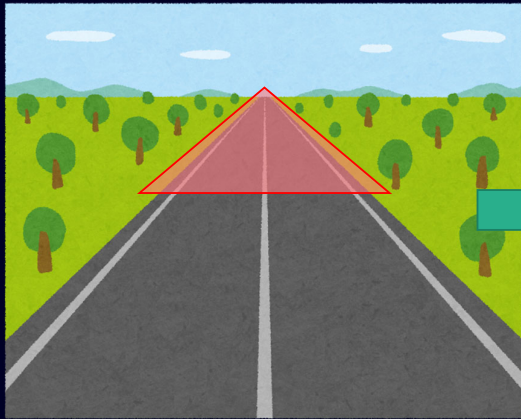
Evaluation of vision area



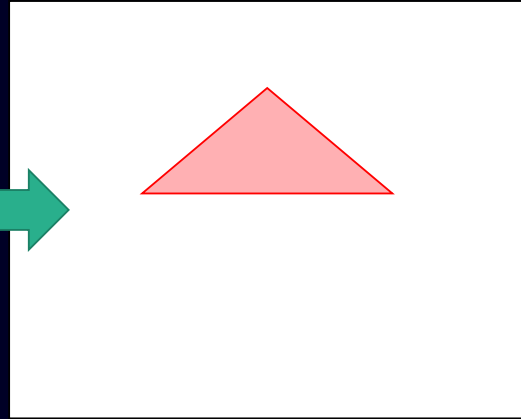
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Evaluation of vision area

Real world



Projection

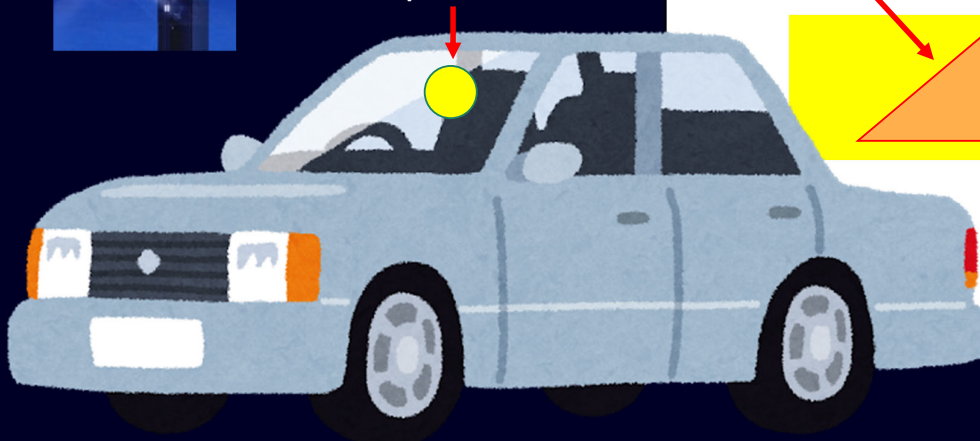


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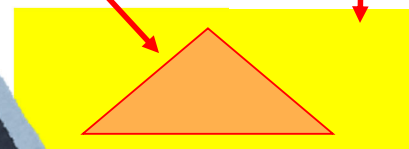
Evaluation of vision area



Powerful light source
at ocular point



Required area Illuminated area



White board

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e.g.) Fail situation

Far side area is not illuminated.
(e.g. Drivers cannot see far area.)



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Other methods

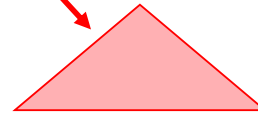


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Other methods



Required area



White board

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Thank you for your attention !

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