

KES

Front Combination Lamp

KES D-C043

(EST.) 1988 - 02 - 29

Contents

1. Purpose
2. Scope of Application
3. Report of Evaluation Result
4. Definition of Terminology
5. Specification Indicated in Drawings
6. Evaluation Standard
7. Evaluation Method
8. Alteration of Specification
9. Indication Method on Drawings
10. Quoted Standard

Appendix



1. Purpose

This standard aims at securing proper quality by standardizing specifications of Front Combination Lamp.

Remark: This standard and a drawing communicate together our requirements.

2. Scope of Application

This standard specifies the front combination lamp for automobiles (hereinafter referred to as the "lamp").

3. Report of Evaluation Result

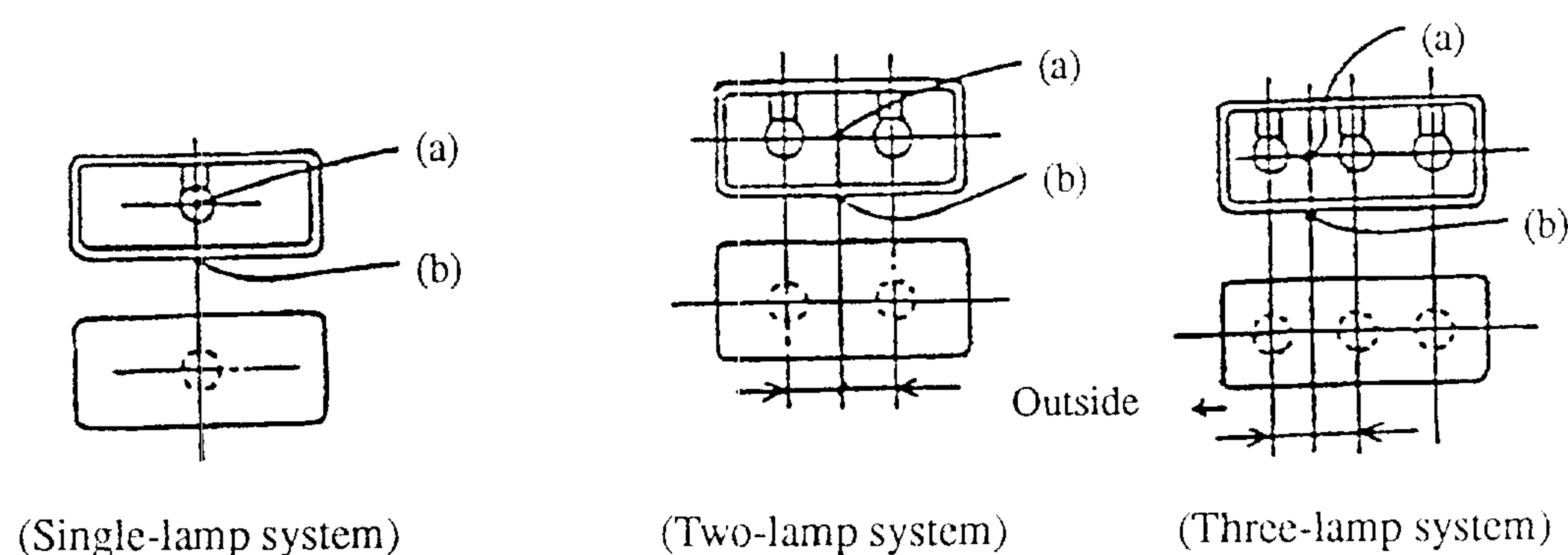
The quality evaluation results at each stage from development to mass production shall be submitted to KIA according to the Appendix.

4. Definition of Terminology

(1) Optical center

- (a) Korea and US specifications: The bulb filament center for single-lamp system. The middle point between the bulb filament centers, on outer two lamps for two-lamp or three-lamp system.
- (b) Europe specification: The intersecting point of the reference line through the bulb center and the lens surface for single-lamp system. The middle point between the intersecting points of reference lines through bulb centers on outer two lamps and the lens surfaces for two lamp or three-lamp system. The center of the first filament when one bulb has plural filaments.
- (c) As to the reflex reflector, the center of the front lens face in which reflector element is incorporated, for every specification for Korea, US and Europe.

Fig. 1



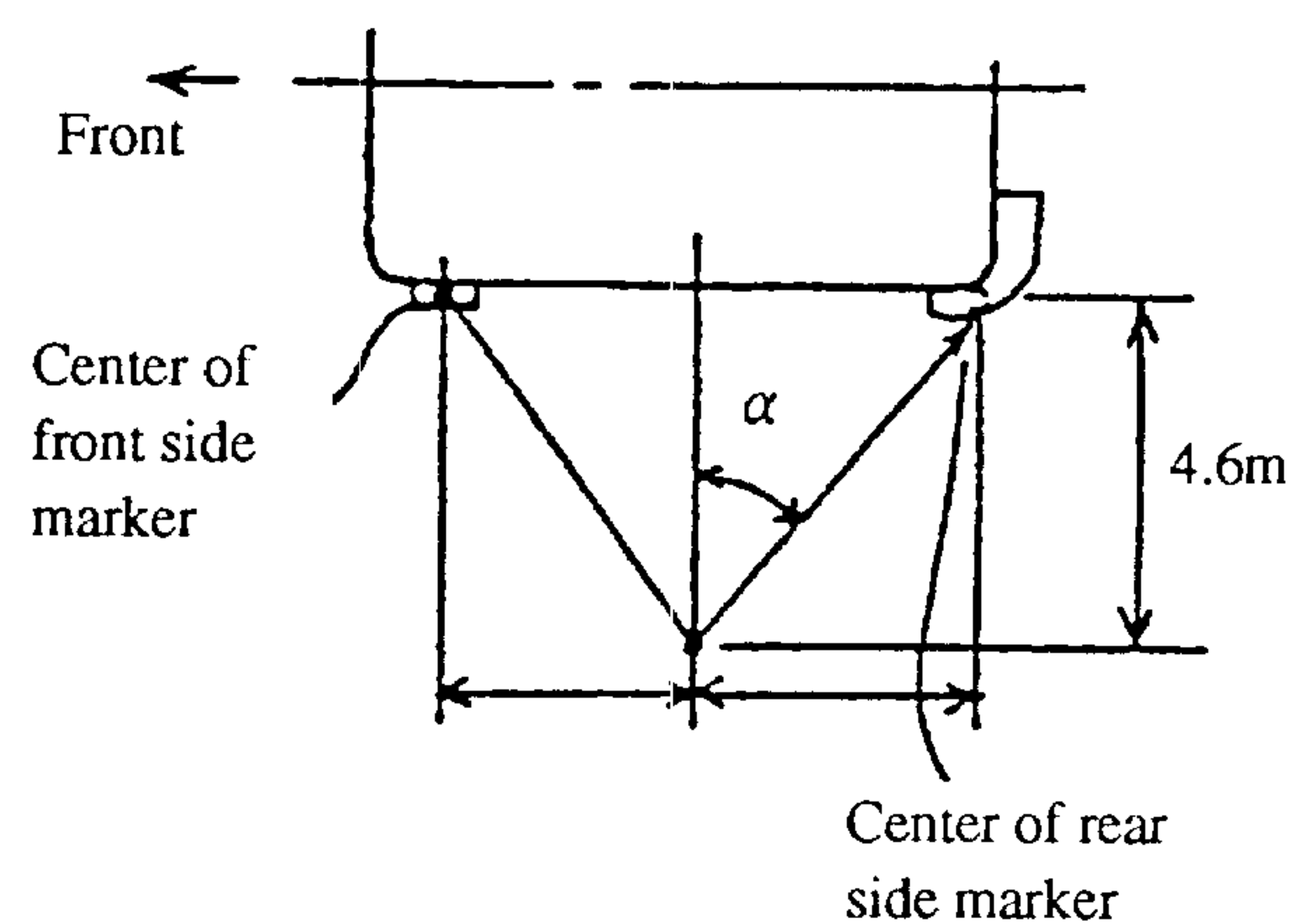
5. Specifications Indicated in Drawing

- (1) Assembling condition*, mating parts and the tolerances, peripheral parts.

* The worst condition caused by the combination of tolerance limit.

- (2) Conditions of alleviatory regulation for luminous intensity distribution of front-side marker lamp
(For a vehicle of which the width is less than 2032 mm, the angle α , shown in Fig. 2 shall be indicated.)

Fig. 2

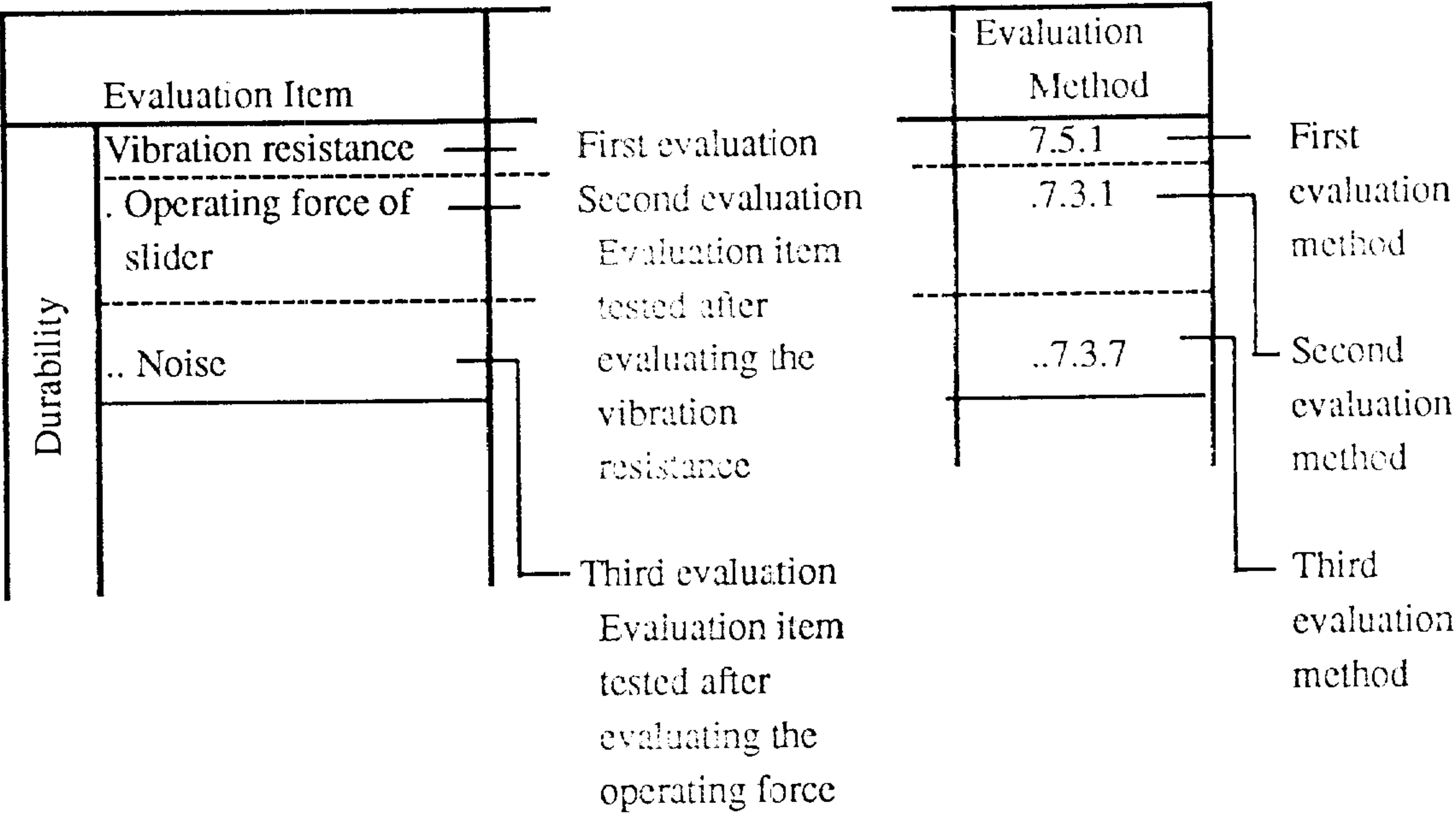


- (3) Grade of vibration test [grade 4 (passenger car) or grade 7 (truck)]
- (4) When painting applied, painting specification and area
- (5) When plating applied, plating specification and area
- (6) Indication of painting color or material coloration
Indication of part colors
- (7) Kind, area and depth of grain
- (8) Dignity (the one which is behind the evaluation standard due to the lamp construction)
- (9) Destination (required specification for each destination on chromium plating, zinc plating, etc.)
- (10) Indication of window washer liquid used at vehicle producing base

6. Evaluation Standard

The evaluation standard of the lamp shall conform to Table 1.

Remark 1. The way of reading evaluation items and methods in Table 1 shall conform to the following example



Remark 2. The quality rank shall be represented by A, AR, B or C.
The definitions shall conform to KES Q-A002 (Determination and Procedure of Quality Ranking).

Table 1

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Basic performance	Luminous intensity distribution	Luminous intensity distribution of a front turn signal lamp shall conform to Table 2.	AR	7.2.1
		Luminous intensity distribution of a side turn signal lamp shall conform to Table 3.	AR	
		Luminous intensity distribution of a position lamp shall conform to Table 4.	AR	
		Luminous intensity distribution of a cornering lamp shall conform to Table 5.	AR	
		Luminous intensity distribution of a running lamp shall conform to Table 6-1. As to Table 6-2, only items of color, luminous intensity, and others shall apply.	AR	
		Luminous intensity distribution of a front side marker lamp shall conform to Table 7.	AR	
	Reflection property	Reflection property of a front side reflex reflector shall conform to Table 8.	AR	7.2.2
	Color of lamp light and reflected light	Within the chromaticity range shown in Table 9.	AR	7.2.3
	Light emitting and reflecting areas	The areas shown in Table 10 or more.	AR	By calculation
	Air tightness	No water intrusion into the lamp.	B	7.2.4
	Light leakage (Only for Korea specification)	0.3 cd or less This test shall not apply to the lamps of same colors combination or of same function.	AR	7.2.5
	Water-proof, cloud-proof	1. No water intrusion to the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside. 2. No cloud on lens inside face.	B	7.2.6

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Basic performance	Insulation resistance	1 MΩ or more	A	7.6.3
	Corrosion resistance	No occurrence of rust on the portions easily seen in vehicle condition.	B	7.2.7
	Rigidity	1. The deflection on the tangible area only when hood is opened shall be 3.5 mm or less. 2. The deflection on the tangible area when hood is closed shall be 0.5 mm or less. 3. Provided the one below the above 1 and 2 due to lamp construction shall be as indicated in a drawing.	B	7.2.7
	Noise	No noise.	C	7.2.9
Surface treatment	Paint film	As specified in a drawing.	B	KES T-M010
	Plating	As specified in a drawing.	B	KES C-F002
Appearance	Shrinkage	According to an acceptance sample.	B	Visual
	Weld	According to an acceptance sample.	B	Visual
	Parting line	The step in visible area shall be 0.3 mm or less in vehicle condition.	B	—
	Lighting feeling	According to a target quality sample.	C	Visual
	Color, grain, gloss, etc.	The paint color, material color, grain and gloss shall conform to a target quality sample.	C	Visual
	Other appearance	No flaws, crack, pock mark, unevenness, wrinkle nor other defects.	B	Visual
Service-ability	Attachability for bulb socket	The attaching or detaching torque shall be 3 to 10 kgf.cm {29.4 to 98.1 N}cm. The bulb socket shall be firmly attached. No looseness after attaching.	B	—

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Strength	Lens strength	No occurrence of crack on lens.	B	7.3.1
	Tightening strength	No breaking nor idling of screw.	B	7.3.2
	Environmental vibration resistance	No deformation, looseness, nor crack in structural member. No breakage of filament, poor contact nor other detrimental defects.	B	7.3.3
	. Air tightness	No water intrusion into lamp.	B	7.2.4
	. Noise	No noise.	C	7.2.9
	. Lead strength	No damage, looseness nor solder separation.	B	7.7.1
	Impact resistance	No defects such as deformation and loosening of each part, turn and coming-off of lens, breakage of supporting parts. However, filament breakage is permissible.	AR (Only for US spec.) B (For spec. except US one)	7.3.4
	. Water proof, cloud-proof	1. No water intrusion into lamp. No water intrusion in vehicle through the partition that separates the body from outside. 2. No cloud on lens inside face.	B	7.2.6
	. Noise	No noise.	C	7.2.9
Environmental resistance	Short term heat resistance	To conform to KES D-G008, HS-02, A2, B1	B	KES D-G008
	. Air tightness	No water intrusion into lamp.	B	7.2.4
	. Noise	No noise.	C	7.2.9
	Long-term heat resistance	To conform to KES D-G008, H -E, A2, B1	B	KES D-G008
	. Air tightness	No water intrusion into lamp.	B	7.2.4
	. Noise	No noise.	C	7.2.9

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Environmental resistance	Thermal shock resistance	To conform to KES D-G008, Th-02D A2, B1	B	KES D-G008
	. Air tightness	No water intrusion into lamp.	B	7.2.4
	. Noise	No noise.	C	7.2.9
	Weatherability (Applied only to material coloration)	To conform to KES D-G008, WE-0, C.	B	KES D-G008 A test piece shall be the flat plate of 150 x 50 mm
	Dust proof	Drop in max. luminous intensity shall be 10% or less.	AR	7.4.1
	Continuous lighting resistance	No deformation, looseness nor crack on structural member. No filament breakage, poor contact nor other detrimental defects.	B	7.4.2
	. Air tightness	No water intrusion into lamp.	B	7.2.4
	Thermal resisting property	No remarkable defect to affect the function on the lens, such as softening, crack, distortion, deterioration of luster.	B	7.4.3
	. Air tightness	No water intrusion into lamp.	B	7.2.4
	Ozone resistance	No occurrence of cracks on gasket in visible area in vehicle condition	B	7.4.4
Chemical resistance	Chemical resistance	1. To conform to KES D-G008, Cr-E, 0 2. No cracks on lens.	C	7.5.1
	. Air tightness	No water intrusion into lamp.	B	7.2.4
	Stress cracking resistance	Degree of crack on the test piece in the test liquid B shall be equivalent to or less than that on the test piece in the liquid A.	C	7.5.2

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Electrical performance	Jumper start resistance	No smoking, deformation nor discoloration of plastic part. (The breaking of filament is permissible.)	A	7.6.1
	Abnormal voltage resistance	No igniting. (The breaking of filament is permissible.)	A	7.6.2
	Insulation resistance	1MΩ or more	A	7.6.3
Others	Coupler	The housing lance type coupler shall be used (except cape terminal and direct insertion terminal).	C	—
		Direct insertion terminal shall satisfy the automobile parts standard direct insertion connector for electricals.	B	KES D-C635
	Lead strength	No damage, looseness nor solder separation.	B	7.7.1
	Marking	The following shall be indelibly marked on the lamp: 1. Type No. 2. Manufacturer's name 3. Items necessary for certification 4. Bulb category name 5. DOT mark 6. SAE mark (SAE J 759) 7. Lot No. 8. Material	AR	Visual

Table 2 Luminous intensity distribution of turn signal lamp

(Unit: cd)

Measuring Point		Japan (JIS B 5500 A2, B2)	US (SAE J 588)			Europe (ECE) *1
			Distance between the end of luminous area of low beam nut and turn signal lamp is 100 mm or more. *3			
			Single bulb	Two bulbs	Three bulbs	
10U	10L					
	5L		40 min.	48 min.	55 min.	35 min.
	V					
	5R		40 min.	48 min.	55 min.	35 min.
	10R					
5U	20L		25 min.	30 min.	35 min.	17.5 min.
	10L	40 min.	75 min.	90 min.	100 min.	35 min.
	5L					
	V	90 min.	175 min.	210 min.	235 min.	122.5 min.
	5R					
	10R	40 min.	75 min.	90 min.	100 min.	35 min.
	20R		25 min.	30 min.	35 min.	17.5 min.
H	20L	20 min.				
	10L	45 min.	100 min.	120 min.	140 min.	61.25 min.
	5L	120 min.	200 min.	240 min.	275 min.	157.5 min.
	V	120 min.	200 min.	240 min.	275 min.	175 min.
	5R	120 min.	200 min.	240 min.	275 min.	157.5 min.
	10R	45 min.	100 min.	120 min.	140 min.	61.25 min.
	20R	20 min.				

Table 2 (Continued)

Measuring Point \ Specification		Japan -(JIS B 5500 A2, B2)	US (SAE J 588)			Europe (ECE) *1
			Distance between the end of luminous area of low beam unit and turn signal lamp is 100 mm or more. *3			
			Single bulb	Two bulbs	Three bulbs	
5D	20L		25 min.	30 min.	35 min.	17.5 min.
	10L	40 min.	75 min.	90 min.	100 min.	35 min.
	5L					
	V	90 min.	175 min.	210 min.	235 min.	122.5 min.
	5R					
	10R	40 min.	75 min.	90 min.	100 min.	35 min.
	20R		25 min.	30 min.	35 min.	17.5 min.
10D	10L					
	5L		40 min.	48 min.	55 min.	35 min.
	V					
	5R		40 min.	48 min.	55 min.	35 min.
	10R					
Maximum *2		750				700
Minmum						0.3

Remarks:

*1 In case of tow bulb system of ECE, each one bulb minimum and compound value of two bulbs satisfy maximum x 140%

Minimum range of ECE is as follows. Vertical: within 15°, right and left inside 15°, outside 80°

*2 The maximum value of JIS and SAE shall be applied rear turn only. When turn lamp is integrated with parking lamp, the ratio turn/parking shall be more than three times at the point on above H and more than five times at H-V, H-5LR and 5U-V.

*3 Multipliers for obtaining required minimum luminous intensities regarding the spacing between the end of luminous area of low beam unit and turn signal lamp

Spacing	Multiplier
75 mm to 100 mm	1.5
60 mm to 75 mm (excluded)	2.0
to 60 mm (excluded)	2.5

Table 3 Luminous intensity distribution of side turn signal lamp

(1) Japan

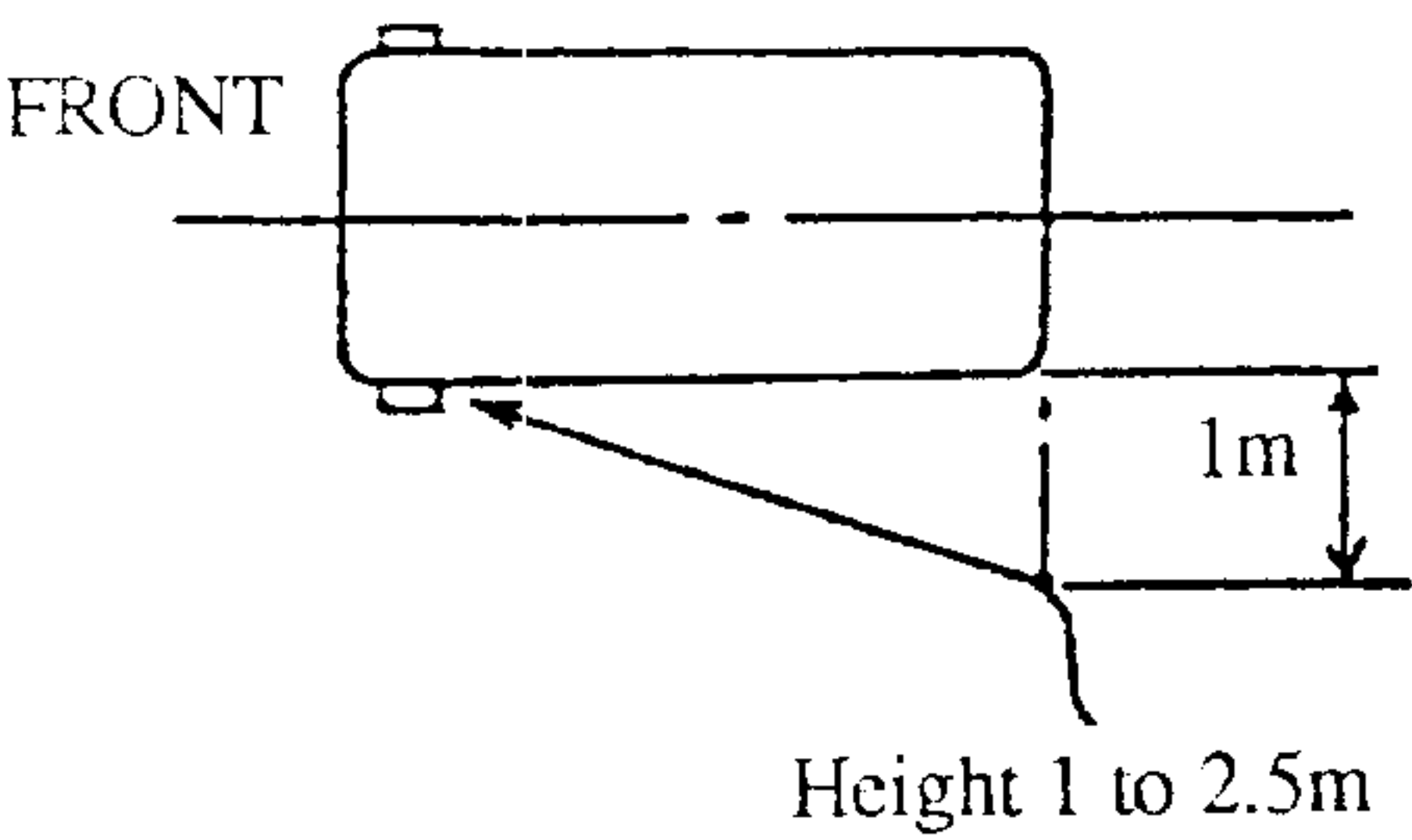
- ① Luminous intensity distribution of turn signal lamp (for side) JIS D 5500 (Lighting and Signalling Equipment for Automobiles)

(Unit: cd)

Measuring range	A3	B3
from 10U to 10D and from V to 45 R	3.0 min.	1.0 min.
from 15U to 15D and from 45R to 45L	0.7 min.	0.3 min.
Maximum luminous intensity point	300 max.	

Remark: This table shows the right also side use to vehicle running direction. For the left side, apply after changing R to L.

- ② Rear side visibility
- (1) Standard value: 0.35 (cd)
 - (2) Test voltage: 12.8 (V) (Mass production bulb)
 - (3) Visual range: At all points from 1 m height to 2.5 m on 1 m side point on the line of vehicle rear end.



(2) Europe (ECE)

(Unit: cd)

Measuring point		Specification
15U	5	0.3 min.
	60	0.3 min.
10U	5	0.3 min.
	60	0.3 min.
5U	5	0.3 min.
	60	0.3 min.
H	5	0.3 min.
	60	0.3 min.
5D	5	0.3 min.
	60	0.3 min.
10D	5	0.3 min.
	60	0.3 min.
15D	5	0.3 min.
	60	0.3 min.
Maximum		200 max.

