

KES

License Plate Lamp

KES D-C041

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Appendix



1. Purpose

This standard aims at securing proper quality by standardizing specifications.

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

2. Scope of Application

This standard specifies the license plate 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 productions shall be submitted to KIA or MMUC according to the Appendix.

4. Definition of Terminology

This is not particularly specified.

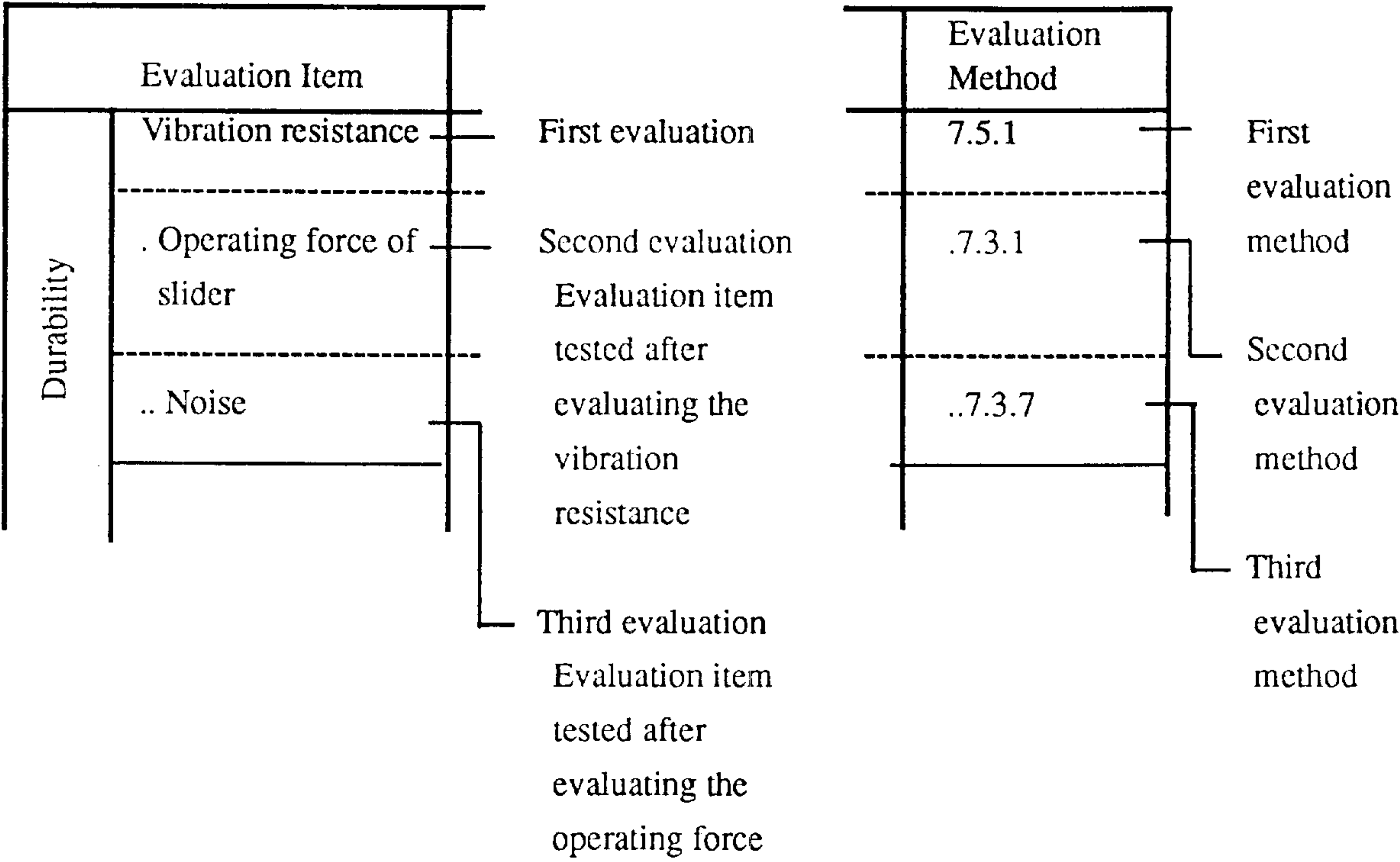
5. Specifications indicated in Drawings

- (1) Assembling condition (*), mating parts and tolerances, peripheral parts.
 - * The worst condition of variation of tolerances between plate and lamp.
- (2) Indication of plate size for Europe. (T type or W type)
- (3) Indication of 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) Rigidity
 - a. The one below the evaluation standard because of the lamp construction.
 - b. Type of fitting.
- (9) Indication of destinations and regulation applied. (Quality requirements for each destination on chromium plating, zinc plating, etc.)
- (10) Indication of window washing liquid to be used at production stage of the car.
- (11) When fitted on a door or lift gate, indication of specs of heavy load test and opening/closing durability test.

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	To conform to Table 2.				AR	7.2.1
	Color of lamp light and reflected light	Within the chromaticity range shown in Table 4.				AR	7.2.2
	Light leakage (only for Korea specification).	0.3 cd or less				AR	7.2.3
	Water-proof, cloud-proof	1. No water intrusion into 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	7.2.4
	Insulation resistance	1 MΩ or more				A	7.6.3
	Air tightness	No water intrusion into the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside.				B	7.2.5
	Corrosion resistance	No occurrence of rust on the portions easily seen in vehicle condition.				B	7.2.6
	Rigidity	* Load direction for each type shall conform to Table 3.				B	7.2.7
		Type	Measuring Direction	Warpage kgf/mm {N/mm}	Load kgf {N}		
A		Upper and lower	5 {49} or less	5 {49}			
B		Fore and aft	20/3 {196.1} or less	20 {196.1}			

Table 1 (Continued)

Evaluation Item		Evaluation Standard				Quality Rank	Evaluation Method
Basic performance	Rigidity	Type	Measuring Direction	Warpage kgf/mm {N/mm}	Load kgf {N}	B	7.2.7
		C	Fore	5 {49} or less	5 {49}		
			Aft	5/3 {49/3} or less			
		D	All direction	5/8 {48/8} or less	5 {49}		
	Not to fall down at 30 kgf {294.2N}			30 {294.2N}			
Noise	No noise.				C	7.2.8	
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 in car-mounted condition shall be 0.3mm or less				B	—
	Color, grain, gloss, etc.	The paint color, material color, grain and gloss shall conform to an acceptance sample.				C	Visual
	Other appearance	No flaws, crack, pock mark, unevenness, wrinkle nor other defects.				B	Visual

Table 1 (Continued)

	Evaluation Item	Evaluation Standard	Quality Rank	Evaluation Method
Serviceability	Attachability for back cover.	1. The back cover shall be attached only in the condition specified in a drawing. 2. Back cover shall be attached at one-touch. The looseness after attaching shall be 0.7mm or less.	B	—
	Attachability for bulb socket	The attaching or detaching torque shall be 3-10 kgf.cm {29.4-98.1 N.cm}. The bulb socket shall be moderately attached. No looseness after attaching.	B	—
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 part. No breakage of filament, malcontact nor other detrimental defects.	B	7.3.3
	. Air tightness	No water intrusion into the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside.	B	7.2.5
	. Noise	No Noise.	C	7.2.8
	. Lead strength	No damage, looseness nor solder separation.	B	7.7.2
	Impact resistance	No defects such as deformation and loosening of each part, rotation and fall down of lens, breakage of supporting parts. However, the filament breakage is permissible.	AR (Only for US spec.) B (For spec. except US one)	7.3.4

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Strength	. Water-proof, cloud-proof	1. No water intrusion into 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	.7.2.4
	. Noise	No Noise.	C	.7.2.8
Environmental resistance	Short-term heat resistance	To conform to KES D-G008, HS-02, A2, B1	B	KES D-G008
	. Noise	No Noise.	C	.7.2.8
	. Air tightness	No water intrusion into the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside.	B	.7.2.5
	Long-term heat resistance	To conform to KES D-G008, H 2 -E, A2, B1.	B	KES D-G008
	. Noise	No Noise.	C	.7.2.8
	. Air tightness	No water intrusion into the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside.	B	.7.2.5
	Thermal shock resistance	To conform to KES D-G008, Th-02D, A2, B1	B	KES D-G008
	. Noise	No Noise.	C	.7.2.8
	. Air tightness	No water intrusion into the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside.	B	.7.2.5
	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 50mm
	Dust-proof	Drop in max. luminous intensity shall be 10% or less.	AR	7.4.1

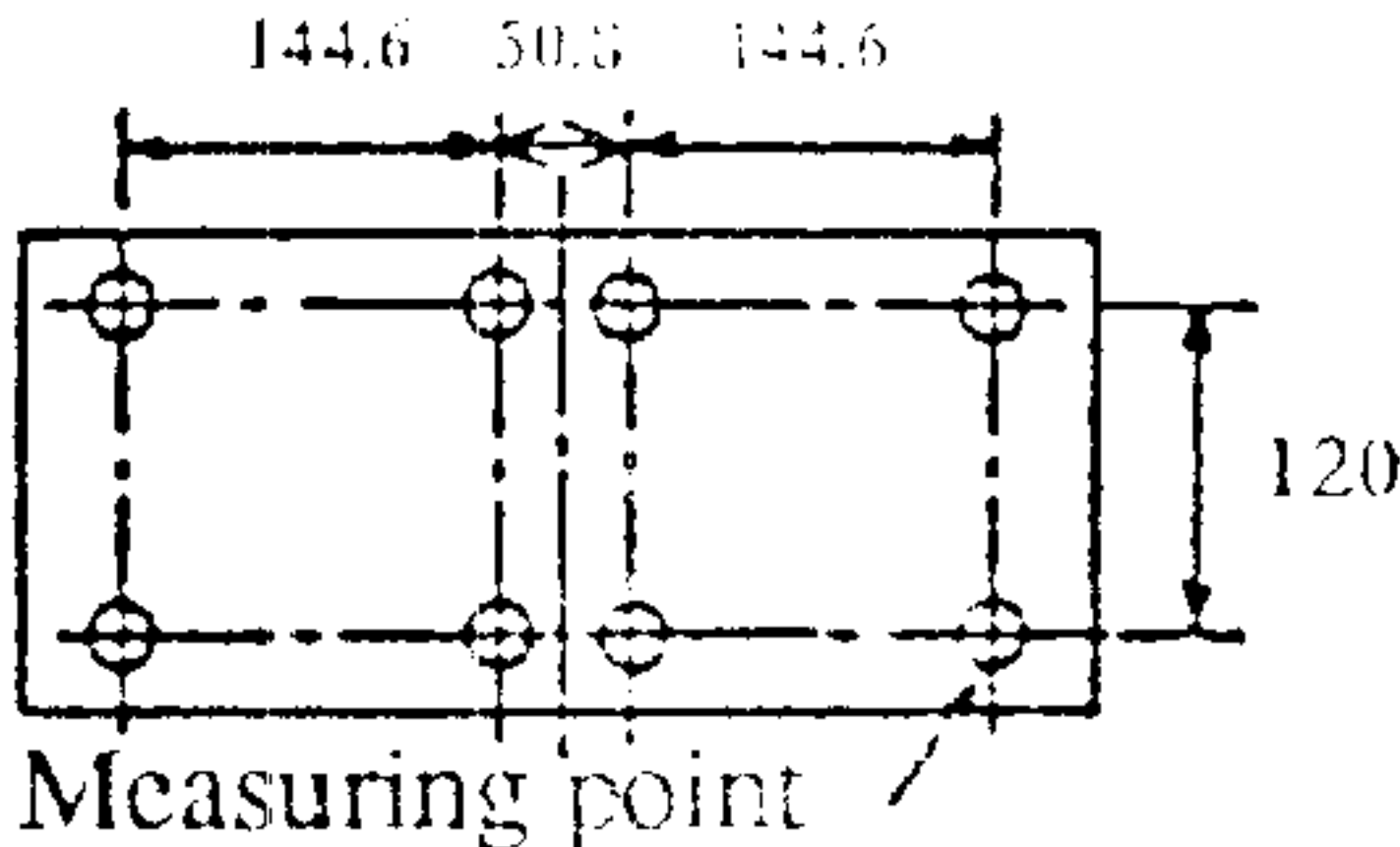
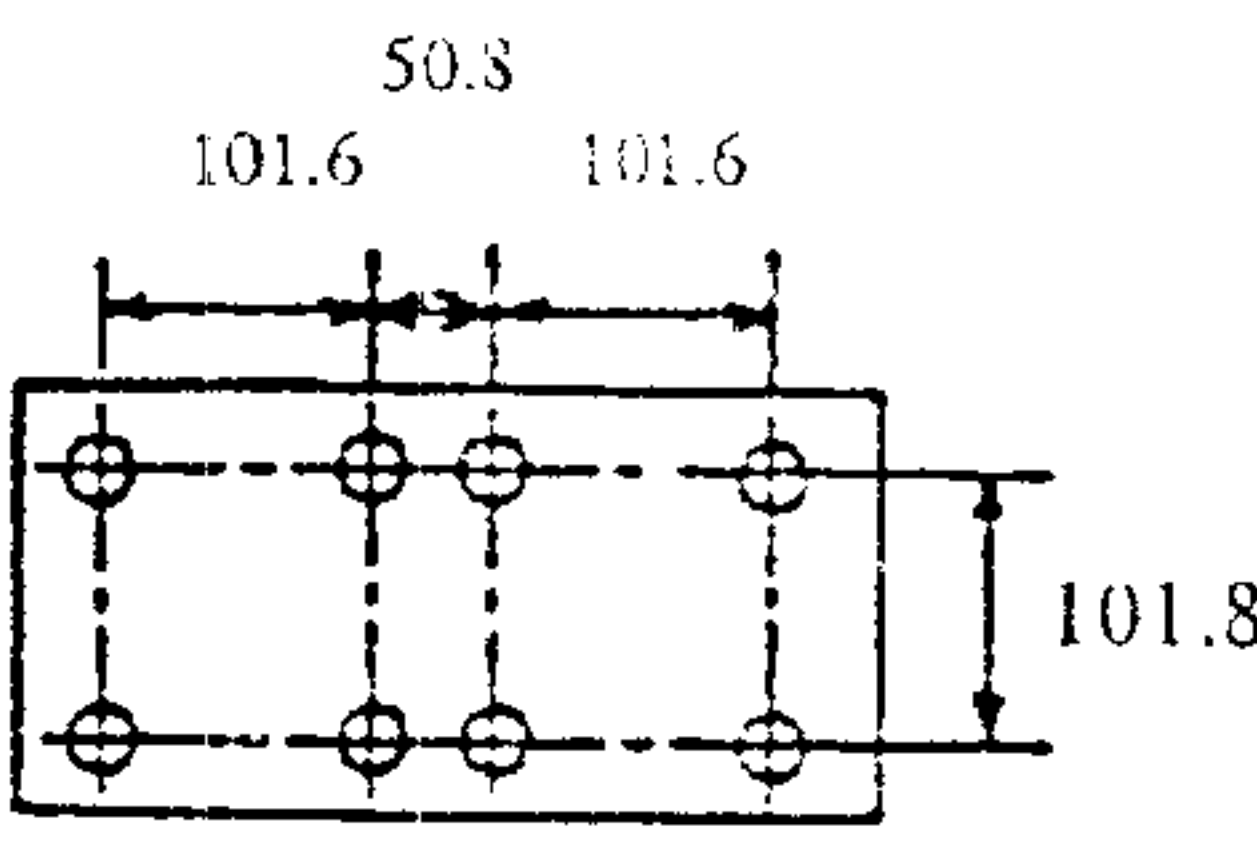
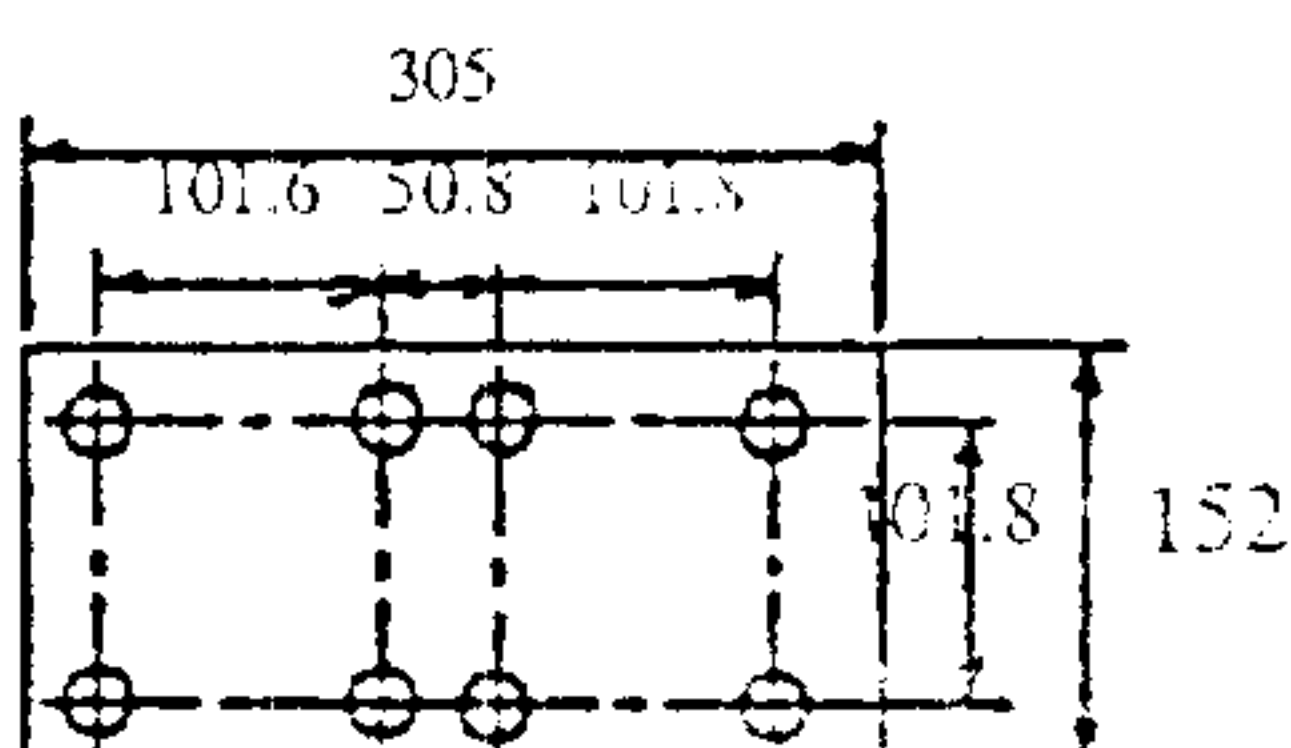
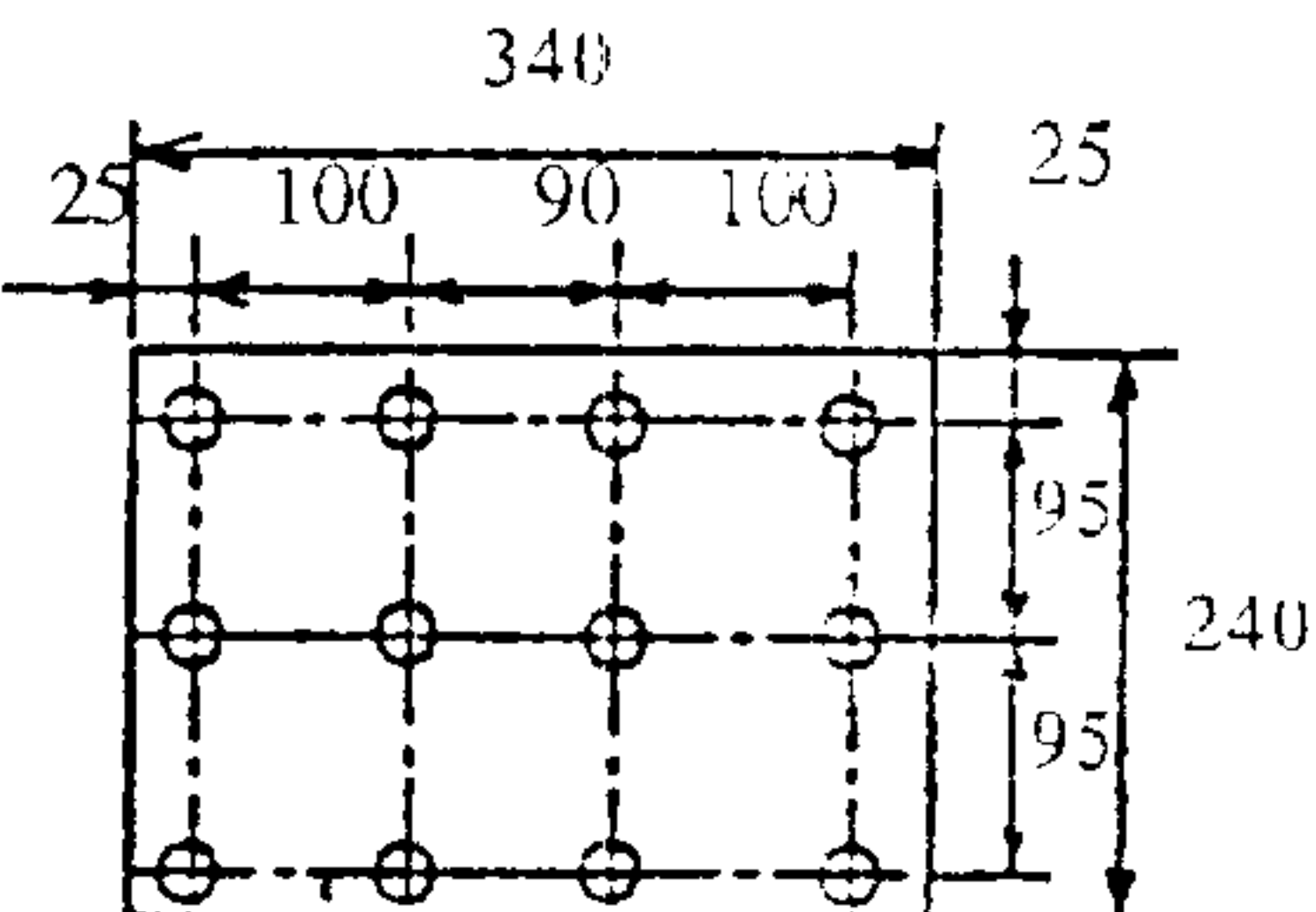
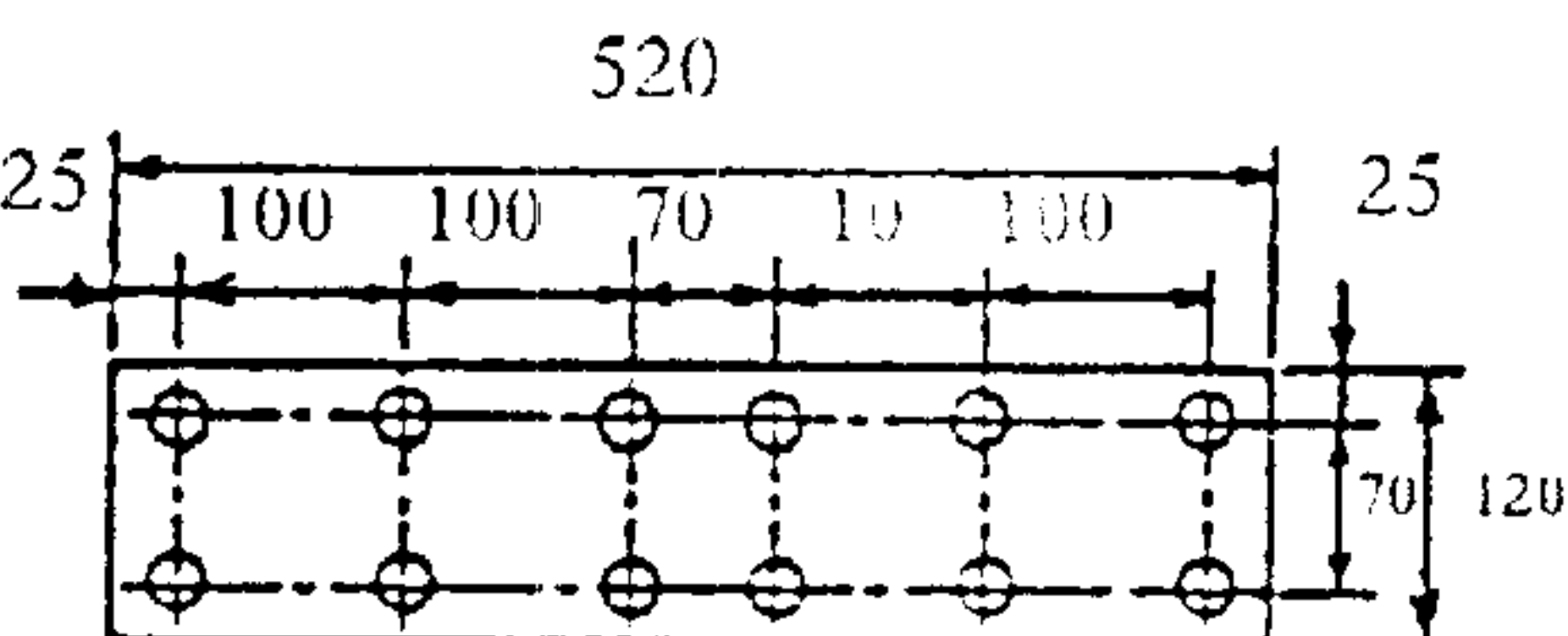
Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Environmental resistance	Continuous lighting property	No deformation, looseness, nor crack in structural part. No breakage of filament, malcontact nor other detrimental defects.	B	7.4.2
	Air tightness	No water intrusion into the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside.	B	7.2.5
	Thermal resisting property	No remarkable defects 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 the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside.	B	7.2.5
	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 crack on lens.	C	7.5.1
	Air tightness	No water intrusion into the lamp. No water intrusion in vehicle condition through the partition that separates the body from outside.	B	7.2.5
	Stress cracking resistance	The degree of crack on the test piece in test liquid B shall be equivalent to or less than that on the test piece in test liquid A.	C	7.5.2
Electrical performance	Jumper start resistance	No fuming, 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	1 MΩ or more	A	7.6.3

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Others	Peeling of gasket	Peeling of gasket shall be 5mm or less	C	7.7.1
	Coupler	The housing lance type coupler shall be used. (Except cape terminal and direct insertion terminal.)	C	—
		Direct insertion type terminal shall conform to KES D-C635	B	KES D-C635
	Lead strength	No damage, looseness nor solder separation.	B	7.7.2
	Marking	The followings shall be indelibly marked on the lamp: 1. Type No. 2. Manufacturer's name 3. Items necessary for certification 4. Bulb category name (Except for Europe) 5. DOT mark 6. SEA mark (SAEJ 759) 7. Lot No. 8. Material	AR	Visual

Table 2. Luminous intensity distribution of license plate lamp.

Destination	Size of License Plate and Measuring Point of Luminous Intensity Distribution		Min. Value	Ratio	Min. Incident Angle, Visible Range
Korea (New car investigation standard)	For large car		For each measuring points 20 lx min.		
	For medium car		*2 Average illumination 35 lx min.	15:1 min. *1 (Symmetry ratio)	
U.S. (SAE J587 OCT. 81)			0.75 ft-cd min.	20:1 min. (Symmetry ratio)	min. incident angle: 8°
Europe ECE R4 (EEC 76/760)	T		2.5 nt min.	Difference of brightness $B_2 - B_1$	Min. incident angle: 8° Visible range: Vertical section
	W			Difference of distance 1 - 2 $\leq 2 \times$ min. illumination	Upper direction 15° min. Plate Lower direction 15° min. Horizontal section (Left and right direction) 30° min. Plate 30° min.