

KES

Formed Ceiling

KES D-C801

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1. Purpose

This standard aims at securing proper quality by standardizing specifications.

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

2. Scope of Application

This standard specifies the formed ceiling for automobiles (hereinafter referred to as "ceiling").

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) Stiffener: This means the stiff fringe which is provided at the opening of sliding roof for its reinforcement.
- (2) Cushion material inside the ceiling: Felt or urethane, etc. which is provided inside the ceiling in order to deaden the sound and provide the countermeasure of dew condensation, etc.
- (3) Core material: This means the basic material in order to keep the formed shape.
- (4) Mogol: This is an extruded material of vinyl chloride, etc. which is attached for neat finish of the fore and rear ends of ceiling.
- (5) Spacer: This is a hard or soft material which is separately attached to fill up the gap between roof panel and ceiling.

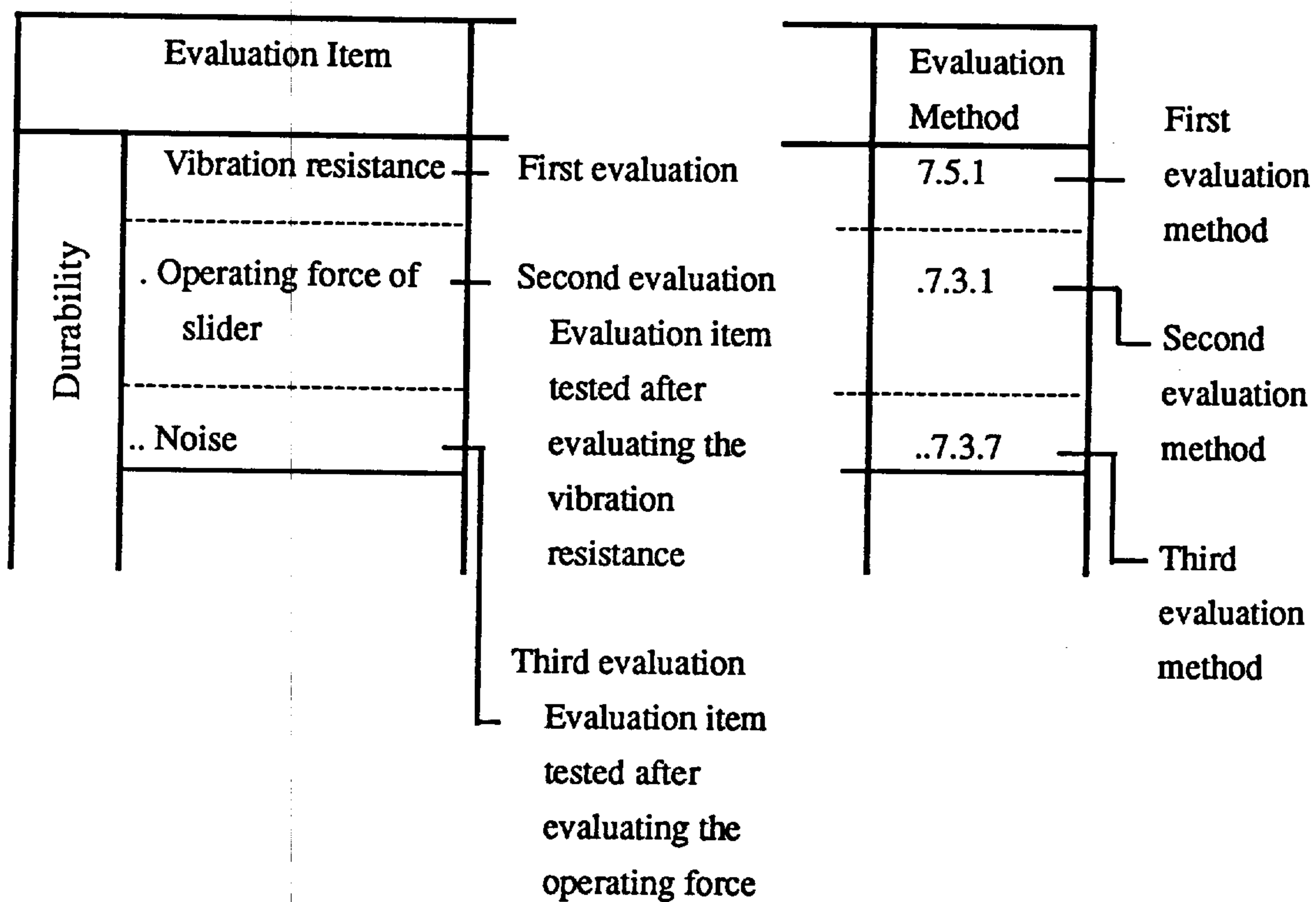
5. Specification Indicated in Drawings

- (1) The required code (specification) of KES D-G008
- (2) The explanatory drawing of "Vehicle condition" of KES D-G008
- (3) The indicating drawing of the range of "Effective surface" of KES D-G008
- (4) The measuring places of each test specified by "Indicated in the drawing." in KES D-G008
- (5) Parts color
- (6) Material construction
- (7) General tolerance
- (8) The range of reinforcement material
- (9) Sampling position of test piece (Top cover peeling test . Bending strength test • Bending elastic modulus test)

6. Evaluation Standard

The evaluation standard of the ceiling 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
External appearance . Quality	Parts color	Satisfy the parts color indicated in the drawing. It shall conform to the standard color plate approved and supplied by KIA.	B	JIS Z 8723
	Dirt on the surface, adhesion of foreign matter	By the acceptance sample.	B	Visual
	Wrinkling and wave on the surface	By the acceptance sample.	B	Visual
	Blister and sag on the surface	By the acceptance sample.	B	Visual
	Peeling on the surface	It shall not exist.	B	Visual
	Dip in the surface	Amount of dip δ 1 shall be max. 2m/m. Measuring position shall conform to the drawing.	B	7.2.1
Environmental resistance	Short period heat resistance	As indicated in the drawing.	B	KES D-G008
		Dip in the surface shall be max. 8 m/m (δ 2).	B	7.2.1
	Cold resistance	As indicated in the drawing.	B	KES D-G008
	Long period heat resistance	As indicated in the drawing.	B	KES D-G008
		Dip in the surface shall be max. 8 m/m (δ 2).	B	7.2.1
	. Repeating cold-heat resistance	As indicated in the drawing.	B	• KES D-G008
		Dip in the surface shall be max. 8 m/m (δ 2).	B	.7.2.1

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Environmental resistance	.. Fastening strength of stiffener	Min. 5 kgf/60mm {49 N/60 mm}	B	.. 7.3.1
	.. Fastening strength of mogul	Min. 5 kgf/60mm {49 N/60 mm}	B	.. 7.3.1
	Chemical resistance	As indicated in the drawing.	B	KES D-G008
	Light fastness	As indicated in the drawing.	B	KES D-G008
	Inflammability	As indicated in the drawing.	AR	KES C-H001
	Moisture and heat aging resistance (Evaluate only if it is indicated as an additional specification in the drawing.)	Amount of change shall be max. 1 m/m. Measuring position shall conform to the drawing.	B	7.3.2
Strength . Stiffness	Scratch strength	Min. 0.5 kgf {4.9 N}	B	7.4.1
	Bending strength	Min. 1.3 kgf/50 mm {12.7 N/50 mm}	B	7.4.2
	Strength of flexural elasticity (Elastic modulus)	General part: min. 0.25 kgf/mm {2.45 N/mm}	B	7.4.3
		Reinforced part: min. 0.5 kgf/mm {4.9 N/mm}	B	7.4.3
	Stiffness	As indicated in the drawing.	B	KES D-G008
	Shore hardness	Min. Hs 50	AR	KES B-L006 item 5
	Peeling resistance of top cover	This resistance shall be 0.3 kgf/25 mm {2.94 N/25 mm} minimum or not less than the destructive strength of the cushion material at normal temperature and after short period heat resistance test.	B	7.4.4
	Peeling resistance of cushion material	At the normal temperature only: 0.1 kgf/25 mm {0.98 N/25 mm} at least or not less than the destructive strength of the cushion material.	B	7.4.4

Table 1 (Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Strength . Stiffness	Fixing strength of spacers and the like	5 kgf {49 N} at least or spacer shall not fall off when the test jig passes over the test piece due to the collapse of the spacer. Bonded surface peeling without spacer falling off is permissible.	B	7.4.5
	Restoring stability of pressed traces on top covers	Pressed trace shall return to normality within ten seconds.	B	7.4.6
Physical properties of top cover material	Leather	Constant load elongation rate	B	KES B-P001
		Longitudinal: 45 - 90% Lateral : 50 - 110%		
		Weight reduction by heat (g/m ²)		
		Stickiness (class)	B	KES B-P003
		Non-processing of surface: min. 4 Processing of surface : min. 3		
		Color fastness to rubbing (class)		
	Cloth	Sweat: min. 4	B	KES B-P003
		Abrasion resistance (class)		
		Min. 4		
		Abrasion resistance (class)		
		Min. class 4, after applying A method 3000 times.		
		Color fastness to water (class)	B	KES B-P003
		Min. 3		
		Color fastness to rubbing (class)		
		Dry : min. 3 Sweat : min. 3		
		Heat aging property	B	KES B-P003
		Tension : min. 20 kgf/50 mm { 196 N/50mm } Tear : min. 2.5 kgf {24.5 N}		
		Wear resistance after heat aging (class)		
		Min. 3		