

KES

Cassette Deck

KES D – C620A

(EST.) 1985 – 05 – 01
(REV.) 1987 – 09 – 30 [\[SI\]](#)

Contents

1. Purpose
 2. Scope of Application
 3. Evaluation Result Report
 4. Determination of Terms
 5. Options on Option Paper
 6. Evaluation Standard
 7. Evaluation Method.
 8. Option Change
 9. Indicating Method on Option Paper
 10. Quotation Standard and Regulation
- Appendix
- Commentary



1. Purpose

This standard is to have proper quality by standardize options.

Remark : This standard notifies the option paper and requesting options from our company.

2. Scope of Application

This standard determines controlling unit for cassette deck.

3. Evaluation Result Report

From developing to manufacturing, submit quality evaluation result by each level to KIA according to the appendix.

4. Determination of Terms

(1) Performance

Expressing amount of ability and evaluation standard value of following mechanical and electrical performance that is needed to satisfy the purpose of use.

[Mechanical Performance]

(a) Tape speed

(b) Wow-flutter

[Electrical Performance]

(a) Maximum RMS output

(b) Deck output

(c) Frequency response

(d) Signal to noise ratio

(e) Channel separation

(f) Cross talk

(g) Floor noise

(h) Output unbalance

(i) Distortion

(j) Voltage change character

(k) Dark current

(2) Initial Performance

Performance that is measured about above electrical and mechanical performance items at the standard initialized condition

(3) Function

Expressing characteristics of ability that is needed to satisfy the purpose of use.

(Ex) FF: Fast forwarding tape, REW : Rewinding tape

SCAN : After listening to broadcast for 5 seconds, it receives the closest wave by moving receiving frequency.

(4) System

The maximum possible combination of audio equipment among the combinations indicated on drawing

(5) Operating

It satisfies the functions that drawing indicates.

(6) Normal Performance Range

Environmental state that guaranties the performance that drawing indicates.

(7) Function Range

Environmental state that guaranties the functions that drawing indicates.

(8) Maintaining Range

Temperature that guaranties performance and functions after leaving it without power

(9) Malfunction

Operating as other than the drawing indicates

(10) Installing condition

Condition that the connector supplies main power after installing a bracket as indicated on drawing

(11) Smoking and Firing

Smoking : When a cigarette burns, smoke comes out of the case.

Firing : Fire comes out of the case.

(12) Noise

Cassette deck performing noise. unpleasant sound like noise from outside vibration.

(13) Problem

Condition that malfunction, noise, smoke, fire, bad smell, shape change, color blurring, and cracks occur

5. Options indicated on option paper

5.1 Appearance options

(1) Appearance size (Attaching size)

(2) Connector types (Connector terminal order and its name)

(3) Appearance finishing color and material

(4) Letter print color and lighting color

(5) Indication

5.2 Electrical Options

(1) Instrument types

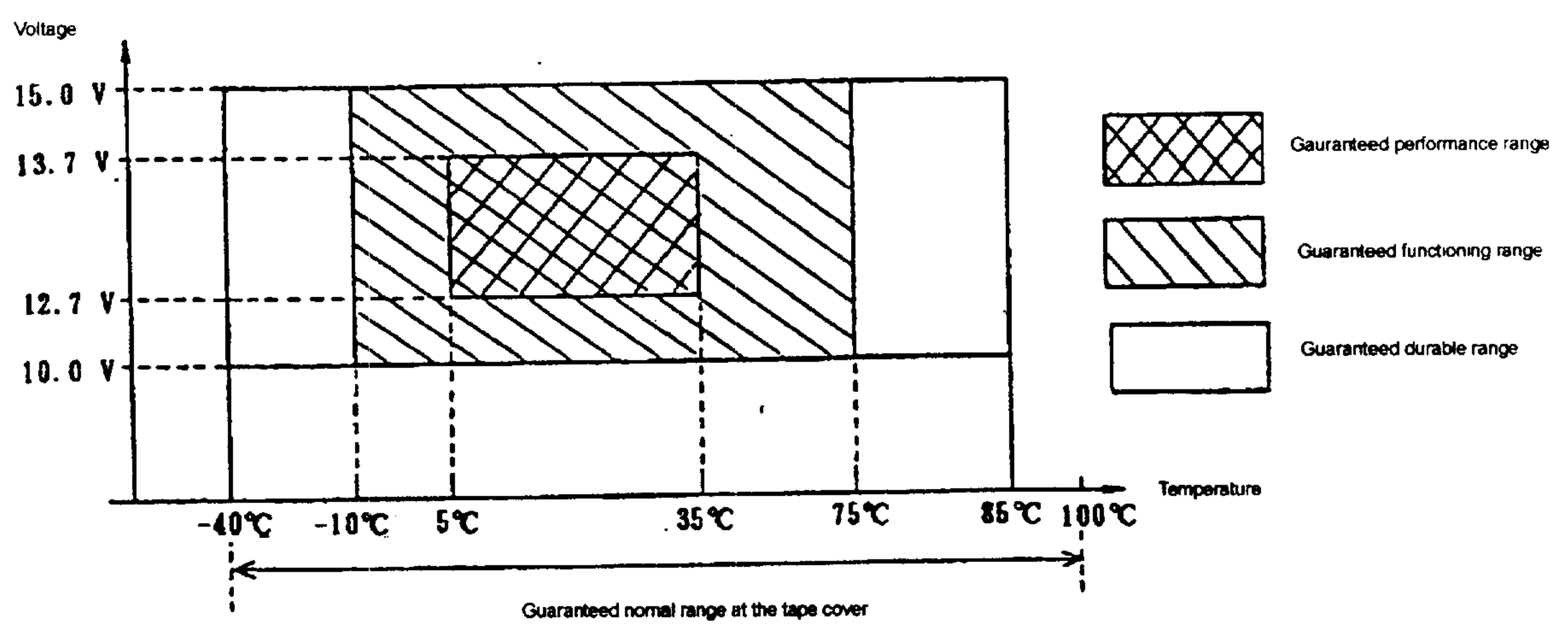
(2) Indication

(3) Function

5.3 Environmental Options

(1) Guaranteed temperature range

(2) Guaranteed voltage range



6. Evaluation Standard

Cassette deck evaluation standard shall follow table 1.

Remark1. Direction to read evaluation items and evaluation rules on table 1 shall be as following.

Evaluation Item		Evaluation method	
Dura- bility	Vibration	7.5.1	First evaluation method
	Resistance		
	Operating force of slider	7.3.1	Second evaluation method
	Linking	7.3.7	Third evaluation method
		First evaluation Second evaluation (Evaluation item tested after evaluating vibration resistance) Third evaluation (Evaluation item tested after evaluating operating force)	

Remark 2. Quality grade shall be indicated by A, AR, B or C.

Follow KES Q-A002 (Quality grade decision and operation)

3. The measured data of 1st evaluation items for evaluation standard shall be limited only for developing stage. Evaluate according to this.

The measured data of 2nd evaluation items for evaluation standard shall be for before/after test data at developing and manufacturing stage. Data shall be indicated on evaluation standard and reported by supplier.

Table 1.

	Evaluation item	Evaluation standard	Quality rank	Evaluation method
Mechanical performance	Tape speed	Frequency deviation shall be $\pm 2\%$.	B	7.2.1
	Wow-flutter	Maximum 0.2% RMS	B	7.2.2
	Winding torque	Measured data shall be submitted.	B	7.2.3
	Taking time to FF and REW	Measured data shall be submitted.	B	7.2.4
	Ejecting power	Measured data shall be submitted at 0° and 30° .	B	7.2.5
	Each button controlling	Measured data shall be submitted.	B	7.2.6
	Width of ejected cassette tape	1. Ejected width shall be 10~40 mm including both sides.	B	7.2.7
Electrical performance	Maximum RMS output (For the cassette deck with amp inside)	Measured data shall be submitted.	B	7.3.1
	Deck output power	$185\text{mV} \pm 3\text{dB}$	B	7.3.2
	Frequency response	Measured data shall be submitted.	B	7.3.3
	Signal to noise ratio	More than 50dB	B	7.3.4
	Channel separation	More than 35dB	B	7.3.5
	Cross talk	More than 35dB	BB	7.3.6
	Floor noise	Measured data shall be submitted.	B	7.3.7
	Output unbalance	Below 3dB	B	7.3.8
	Distortion	Below 3%	B	7.3.9
	Voltage change character	1. Tape speed shall be below $\pm 2\%$ against standard supplying voltage. 2. Playing output power shall be below $\pm 3\text{dB}$ against standard supplying voltage and output power.	B	7.3.10
	Required current	Measured data shall be submitted.	B	7.3.11
	Dolby noise reduction	More than 8dB	B	7.3.12

Table 1(Continued)

	Evaluation item	Evaluation standard	Quality rank	Evaluation method
Electrical performance	Dark current	Maximum 3Ma	B	7.3.13
	Loudness effect ratio	Measured data shall be submitted.	B	7.3.14
	Pop noise	It shall satisfy each noise standard value indicated. (This test shall be applied only for developing level.)	B	7.3.15
	Generator noise	It shall satisfy each noise standard value indicated. (This test shall be applied only for developing level.)	B	7.3.16
	Other noises	It shall satisfy each noise standard value indicated. (This test shall be applied only for developing level.)	B	7.3.17
	Output impedance	Maximum 100 ohm	B	7.3.18
Heat environment resisting	Heat resisting	1. It shall satisfy the performance. 2. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling in appearance. 3. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling inside that can affect the performance and functions.	B	7.4.1
	Mechanical noise	There shall be no unexpected noise.	B	• 7.5.5
	Freeze resisting	1. It shall satisfy the performance. 2. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling in appearance. 3. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling inside that can affect the performance and functions.	B	7.4.2
	Functioning in high temperature	1. It shall perform correctly. 2. It shall satisfy its function.	B	7.4.3
	Functioning in low temperature	1. It shall perform correctly. 2. It shall satisfy its function.	B	7.4.4
	Fluctuating temperature resisting	1. It shall perform correctly. 2. It shall satisfy its function.	B	7.4.5

Table 1(continuing)

Evaluation item	Evaluation standard	Quality rank	Evaluation method
Heat environment resisting	Heat impact resisting	1. It shall satisfy the performance. 2. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling in appearance. 3. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling inside that can affect the performance and functions.	B 7.4.6
	Humidity resisting	1. It shall perform correctly. 2. It shall satisfy the performance. 3. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling in appearance. 4. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling inside that can affect the performance and functions.	B 7.4.7
	Long term heat resisting	1. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling in appearance after 72hours. 2. There shall not be color blurring, shape change, twisting, cracks, creep, linkage floating, and peeling in appearance after 400 hours. 3. It moving part shall work correctly.	B 7.4.8
	Temperature rising measurement (system)	1. It shall perform correctly. 2. Cassette surface is maximum 70°C. 3. Submit the measured data at heater and temperature measuring point. 4. There shall not be problems.	B 7.4.9(1)
	Temperature rising measurement (Cassette deck)	1. It shall perform correctly. 2. Submit the temperature rising data. 3. There shall not be problems.	B 7.4.9(2)
	Soldering strength	1. There shall not be cracks around soldering or bad soldering. 2. There shall be no problem with circuit function.	B 7.4.10

Table 1(Continued)

Evaluation item		Evaluation standard	Quality rank	Evaluation method
Mechanical environment resisting	Vibration resisting	1. It shall satisfy the function. 2. There shall not be damage, linkage floating, sold peeling, shape change and cracks.	B	7.5.1
	Impact resisting	1. It shall satisfy the function. 2. There shall not be damage, linkage floating, sold peeling, shape change and cracks.	B	7.5.2
	Cable strength	There shall not be damage, linkage floating, sold peeling.	B	7.5.3
	Fixing strength	1. It shall satisfy the function. 2. There shall not be damage and shape change of connector.	B	7.5.4
	Mechanical noise	There shall be no unexpected noise.	B	7.5.5
	Sswitch knob and lever strength	1. It shall satisfy the function. 2. There shall not be damage and shape change in appearance.	B	7.5.6
	Protrusion solution	Follow ECE-21 and EEC 78/632.	AR	7.5.7
	Performance durability	It shall perform correctly during evaluation.	B	7.5.8
	• Tape speed	95~105% of initial performance		• 7.2.1
	• Wow-flutter	Maximum 0.6% (WRMS)		• 7.2.2
	• Taking time for FF and REW	Below design value		• 7.2.4
	• Ejecting power			• 7.2.5
	• Maximum RMS output (Cassette deck with amp inside)	It shall satisfy the initial function.		• 7.2.1
	• Deck output power			• 7.3.2
	• Frequency response			• 7.3.3
	• Signal to noise ratio			• 7.3.4
	• Channel separation			• 7.3.5

Table 1(Continued)

Evaluation item		Evaluation standard	Quality rank	Evaluation method
Mechanical environment resisting	• Cross talk	It shall satisfy the initial performance.	B	• 7.3.6
	• Floor noise			• 7.3.7
	• Output unbalance			• 7.3.8
	• Distortion			• 7.3.9
	• Voltage change character			• 7.3.10
	Composite evaluation	1. It shall satisfy the function. 2. There shall not be damage, linkage floating, sold peeling, shape change and cracks.	B	7.5.9
	• Tape speed	Frequency deviation shall be 4~2%.		• 7.2.1
	• Wow-flutter	Maximum 0.2%(WRMS)		• 7.2.2
	• Maximum RMS output (For cassette deck with amp inside)	Measured data shall be submitted.		• 7.3.1
	• Deck output power	185 mV ±3 dB		• 7.3.2
	• Frequency response	Measured data shall be submitted.		• 7.3.3
	• Signal to noise ration	More than 50 dB		• 7.3.4
	• Channel separation	More than 35 dB		• 7.3.5
	• Cross talk	More than 35 dB		• 7.3.6
	• Floor noise	Measure data shall be submitted.		• 7.3.7
	• Output unbalance	Below 3 dB		• 7.3.8
	• Distortion	Below 3%		• 7.3.9
	• Voltage change character	1. Tape speed shall be below ±2% against standard supplying voltage. 2. Playing output power shall be below ±3dB against standard supplying voltage and output power.		• 7.3.10
	• Dark current	Maximum 3mA		• 7.3.13

Table 1 (Continued)

Evaluation item		Evaluation standard	Quality rank	Evaluation method
Electrical environment resisting	Surge resisting	1. There shall be no damage. 2. It shall satisfy the function. 3. Surge waveform to the system shall be submitted.	B	7.6.1
	• Tape speed	Frequency deviation shall be 4~2%.		7.2.1
	• Wow-flutter	Mmaximum 0.2% (WRMS)		7.2.2
	• Maximum RMS output (For the cassette deck with amp inside)	Measured data shall be submitted.		7.3.1
	• Deck output power	185mV ± 3 dB		7.3.2
	• Frequency response	Measured data shall be submitted.		7.3.3
	• Signal to noise ratio	Mmore than 50 dB		7.3.4
	• Channel separation	Mmore than 35 dB		7.3.5
	• Cross talk	Mmore than 35 dB		7.3.6
	• Floor noise	Measured data shall be submitted.		7.3.7
	• Output unbalance	Bbelow 3 dB		7.3.8
	• Distortion	Bbelow 3%		7.3.9
	• Voltage change character	1. Tape speed shall be below ±2% against standard supplying voltage. 2. Playing output power shall be below ±3dB against standard supplying voltage and output power.	B	7.3.10
	• Dark current	Mmaximum 3 mA		7.3.13
	Reversed power connection resisting	There shall be no smoking and firing.		7.6.2
	Over voltage resisting(1)	It shall satisfy the function.		7.6.3(1)
	• Tape speed	Frequency deviation shall be 4~2%.	B	7.2.1
	• Wow-flutter	Mmaximum 0.2% (WRMS)		7.2.2
	• Maximum RMS output (For the cassette deck with amp inside)	Measured data shall be submitted.		7.3.1

Table 1 (Continued)

Evaluation item		Evaluation standard	Quality rank	Evaluation method
Electrical environment resisting	• Deck output power	185mV ± 3 dB	B	• 7.3.2
	• Frequency response	Measured data shall be submitted.		• 7.3.3
	• Signal to noise ratio	More than 50 dB		• 7.3.4
	• Channel separation	More than 35 dB		• 7.3.5
	• Cross talk	More than 35 dB		• 7.3.6
	• Floor noise	Measured data shall be submitted.		• 7.3.7
	• Output unbalance	Below 3 dB		• 7.3.8
	• Distortion	Below 3%		• 7.3.9
	• Voltage change character	1. Tape speed shall be below ±2% against standard supplying voltage. 2. Playing output power shall be below ±3dB against standard supplying voltage and output power.		• 7.3.10
	• Dark current	Maximum 3 mA		• 7.3.13
	Over voltage resisting(2)	There shall be no smoking and firing.	B	7.6.3(2)
	Over current resisting	It shall satisfy the function.	B	7.6.4
	• Tape speed	Frequency deviation shall be 4~2%.		• 7.2.1
	• Wow-flutter	maximum 0.2% (WRMS)		• 7.2.2
	• Maximum RMS output (For the cassette deck with amp inside)	Measured data shall be submitted.		• 7.3.1
	• Deck output power	185mV ± 3 dB		• 7.3.2
	• Frequency response	Measured data shall be submitted.		• 7.3.3
	• Signal to noise ratio	More than 50 dB		• 7.3.4
	• Channel separation	More than 35 dB		• 7.3.5
	• Cross talk	More than 35 dB		• 7.3.6
	• Floor noise	Measured data shall be submitted.		• 7.3.7

Table 1 (Continued)

Evaluation item		Evaluation standard	Quality rank	Evaluation method
Electrical environment resisting	• Output unbalance	Below 3 dB	B	• 7.3.8
	• Distortion	Below 3%		• 7.3.9
	• Voltage change character	1. Tape speed shall be below $\pm 2\%$ against standard supplying voltage. 2. Playing output power shall be below $\pm 3\text{dB}$ against standard supplying voltage and output power.		• 7.3.10
	• Dark current	Maximum 3 mA		• 7.3.13
	Terminal voltage apply resisting	There shall be no smoking and firing.	B	7.6.5
	Earth break resisting	It shall satisfy the function.	B	7.6.6
	Static power break resisting	1. It shall satisfy the function. 2. There shall be no damage.	B	7.6.7
	• Tape speed	Frequency deviation shall be 4~2%.		• 7.2.1
	• Wow-flutter	Maximum 0.2% (WRMS)		• 7.2.2
	• Maximum RMS output (For the cassette deck with amp inside)	Measured data shall be submitted.		• 7.3.1
	• Deck output power	185mV $\pm$ 3 dB		• 7.3.2
	• Frequency response	Measured data shall be submitted.		• 7.3.3
	• Signal to noise ratio	More than 50 dB		• 7.3.4
	• Channel separation	More than 35 dB		• 7.3.5
	• Cross talk	More than 35 dB		• 7.3.6
	• Floor noise	Measured data shall be submitted.		• 7.3.7
	• Output unbalance	Below 3 dB		• 7.3.8