

KS

KOREAN INDUSTRIAL STANDARD

Video Cassette Tape (VHS Type)

KS C 5517-1998

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Video Cassette Tape (VHS Type)

1. Scope

This Korean Industrial Standard specifies the magnetic video cassette tape (hereafter referred as 'cassette tape') of 12.65 mm in width used in the VHS type video cassette tape recorder (hereafter referred as 'cassette recorder') of vertical frequency of 60Hz and of 525 scanning lines.

2. Normative Reference

The following standard contains provisions which, through reference in this text, constitute provisions of this standard.

The most recent edition of the standard indicated below shall be applied.

KS B 5207 Dial Gauges Reading in 0.001 mm

3. Definition

The definition of main terms applied in this standard shall be as follows.

a) standard tape

The tape used for the criteria of electrical characteristics test

b) reference RF recording current

The required recording current to obtain the maximum level of the playback output which recorded the 4MHz RF signal of standard tape.

c) reference record bias current

The bias current to obtain the maximum playback output from the recording of 1kHz sine wave which is lower than the normal recording level on the standard tape while the bias current of it is changed. The normal recording level means that the recording level which is inputted the setting level of recorder without the operation of AGC amplifier of tape recorder for test.

4. Classification and Symbol

The classification and symbol are indicated in accordance with the time for record or playback as specified in Table 1.

Table 1

Classification	Symbol	Record or playback time
Normal	T-120	120 min
	T-100	100 min
	T-90	90 min
	T-80	80 min
	T-60	60 min
	T-40	40 min
	T-30	30 min
	T-20	20 min
Long play	T-210	210 min
	T-180	180 min
	T-160	160 min
	T-140	140 min

5. Performance

The performance shall be tested by the methods specified in 10., and the results shall comply with Table 2.

Table 2

Item		Unit	Performance	Applied test item
Characteristics of video	S/N of brightness	dB	-2.0 min.	10.6.1
	S/N of color signal	dB	-2.0 min.	10.6.2
	Drop out	each /min	50 max.(attenuation level 20dB, cycle 15 μ s)	10.6.3
Characteristics of audio	Audio sensitivity	dB	± 2.0	10.7.1
	Frequency characteristic	dB	± 3.0	10.7.2
	Alternation of output	dB	Within 2.0(1kHz)	10.7.3
	Erase characteristic	dB	Within 2.0(7kHz)	10.7.4
Magnetic characteristic	Coercive force .	Oe	600 min.	10.8.1
	Strength of magnetic(Hc)			
Magnetic tape characteristic	Residual elongation	%	0.2 max.	10.9.1
	Yield point load	kg	1.8 min.	10.9.2
	Field specific resistance	Ω /sq	1X10 ¹¹ max.(Coated area)	10.9.3
	Light transmissivity	%	1.2 max.	10.9.4
Leader trailer tape	Light transmissivity	%	50 min.	10.9.4
	Adhesion strength	kg	3 min.	10.9.5
	Clamp escape strength	kg	3 min.	10.9.6
Durability	Playback quality of still picture		Picture quality is not to be changed after 60min.	10.10.1
	Continual operation		No change in picture quality.	10.10.2

6. Shape and Dimensions

The shape and dimensions shall comply with **Table 3** and Attached **Fig. 1** to **4**. However, the thickness of magnetic tape in **Table 3** and dimensions of Attached **Fig. 1** to **4** are provided for reference purpose.

Table 3

Classification	Symbol	Magnetic tape				Leader, trailer tape			Dimension of reel hub	
		Length	Width	Alternation of width	Thickness	Length	Width	Thickness	Outside diameter	Inside diameter
		m	mm	μm	μm reference value	mm	mm	μm	mm	mm
Normal	T-120	246min.	12.65 ± 0.01	6max.	19^{+1}_{-2}	170 ± 20	12.65 ± 0.03	40^{+5}_{-25}	88.8min. 90.3max.	26 ± 0.15
	T-100	205min.				170 ± 20				26 ± 0.15
	T-90	185min.				170 ± 20				26 ± 0.15
	T-80	165min.				170 ± 20				26 ± 0.15
	T-60	125min.				150 ± 20				62 ± 0.2
	T-40	84min.				150 ± 20				62 ± 0.2
	T-30	64min.				150 ± 20				$62 \pm 0.2^{(1)}$
	T-20	44min.				150 ± 20				$62 \pm 0.2^{(1)}$
Long play	T-210	428min.			12.4 ± 0.4	170 ± 20				26 ± 0.15
	T-180	367min.			14.4 ± 0.5					
	T-160	327min.			15.7 ± 0.6					
	T-140	286min.			15.7 ± 0.6					

Note ⁽¹⁾ It may be changed to $70 \pm 0.2\text{mm}$.

7. Structure and Material

7.1 Generals of Structure

The basic structure and name of cassette tapes are illustrated in Attached **Fig. 5**, and the magnetic tape installed in cassette is the same recorded by the recording method of **Annex 1**.

7.2 Winding Direction

For winding direction, the magnetic tape is running from left to right in the view from the opposite side of playback head of recorder and the magnetic face is in inside and winding into clockwise direction as illustrated in Attached **Fig. 6**.

7.3 Materials

a) Magnetic Tape

Shall be a polyester film coated with magnetic substance.

b) Leader and Trailer Tape

Shall be a polyester film with suitable performance specified in **Table 2**.

c) **Cassette**

Shall be made of synthetic resin, and their shape and dimensions shall follow the specifications in 6.

8. Appearance

Free from the defects such as foreign matters, dents, bent, cracks or etc.

9. Seeing and Hearing

Free from the defects on screen and the cut out of sound or from other harmful defects.

10. Test

10.1 Standard Condition for Test

The standard condition for test shall temperature of $20 \pm 2^{\circ}\text{C}$, relative humidity of $65 \pm 5\%$. However, the range of temperature of 10 to 30°C and relative humidity of 30 to 80% may be allowed if no objection is raised about the decision.

10.2 Recorder for Test

The recorder for test shall be a recorder suitable to the recording method of **Annex 2**. The recorder shall have the enough performance and be maintained as of proper condition.

10.3 Appearance

Appearance and marking condition shall be examined with the naked eye.

10.4 Seeing and Hearing

The sample shall be replayed and examined.

10.5 Dimensions

10.5.1 Length

Measure the total length of the test tape by means of the standard deck with the accuracy of $\pm 0.2\%$ in tolerance.

10.5.2 Width and Variation of Width

Measure the width of the test tape of 800 mm in length without tension at an interval of every 100 mm by means of a dial gauge specified in **KS B 5207** or at least equivalent in quality for 5 times, and obtain the average of each. Except the maximum and the minimum values from the test result and calculate the average from 6 data, and indicate the width of tape with the average value. The variation of width is the difference between the minimum

and the maximum value of 6 data.

10.5.3 Thickness

Measure the thickness of the 10 sheets of folded test tape in length direction by means of a dial gauge specified in **KS B 5207** or at least equivalent in quality for 5 times, and obtain the average value.

10.6 Video Characteristics

10.6.1 Brightness Signal S/N

Record the 50% of brightness signal as standard with the RF recording current, measure the **S/N** of playback output and compare with the standard tape.

HPF 1 kHz, LPF 4.2MHz

10.6.2 Color Signal S/N

Record the 100% of color signal and measure the S/N of playback output, and compare with the standard tape.

HPF 1 kHz, LPF 500kHz

10.6.3 Drop Out

Playback the gray scale(50% white) signal recorded on the test tape. Define the 1 drop out as the interval of 15 μ sec or longer, or the output level of RF envelope dropped 20 dB or more. However, measure the initial 6min and obtain the average value during 5min(except initial 1min).

10.7 Audio Characteristics

10.7.1 Audio Sensitivity

Record the 1 kHz sinewave signal of the defined recording level with the standard recording bias current, and compare the signal level of playback output with the standard tape.

10.7.2 Frequency Characteristic

Record the 1 kHz and 7 kHz sinewave signal of the recording level lower than 10dB with the standard recording bias current and measure the playback output level respectively, compare the rate of the playback output level of 1 kHz against the playback output level of 7 kHz signal level of playback output with the standard tape, and indicate it with the unit of dB.

10.7.3 Variation of Output

Record the 1 kHz and 7 kHz sinewave signal with the standard recording bias current, and measure the variation of playback output level.

10.7.4 Erase Characteristic

Record the 1 kHz sinewave signal of the defined recording level higher than 10dB to the test tape without the operation of AGC amplifier. In same condition, erase a part of the record with the erase current of 20% higher than the erase current of 60dB in erase rate against the test tape and indicate the rate compared the playback output of not erased part with the playback output of erased part with the unit of dB.

10.8 Magnetic Characteristics

10.8.1 Strength of Magnetic

Measure the strength of magnetic of tape and indicate it with the unit of oersted(Oe).

10.9 Characteristics of Magnetic Tape and Leader. Trailer Tape

10.9.1 Residual Elongation

Load the weight of 1.2 kg and 20 g to the sample of 1 m of test tape for 10 min, and then remove the weight of 1.2 kg, then measure the elongation after 10 min while the weight of 20 g is suspended.

10.9.2 Yield Point Load

Fix the end of the sample of 200 mm of test tape and draw the other end of tape with the speed of 100 mm/min. At this time, it is the force to occur 5% of residual elongation.

10.9.3 Specific Resistance of Surface

Place 2 cylinders type metallic electrodes formed one fourth circle of 1 cm radius in sectional cross section at a distance of 12.7 mm and contact the magnetic face perpendicular to above the electrodes, suspend the weight of 160 g at the ends of tape respectively, then apply the measurement voltage of 500 ± 50 Vd.c. by means of a insulation resistance tester and measure the resistance value. It is the specific resistance of surface.

10.9.4 Light Transmissivity

Measure the light transmissivity with the light of 9000Å(Angstrom).

10.9.5 Adhesion Strength

Sampling the 200 mm of tape with the center of the adhered position, fix one end(leader tape) and draw the other end(magnetic tape) at speed of 100 mm/min. The strength shall be the force at the time of break.