

JIS

JAPANESE INDUSTRIAL STANDARD

**Magnetic tape for
information interchange**

JIS X 6101—1991

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Magnetic tape for information interchange

X 6101-1991

1. Scope

This Japanese Industrial Standard specifies the magnetic tape (hereafter referred to as tape), which is used as recording medium intended for information interchange purpose between electronic digital computers, similar associated devices.

Remarks 1. The applicable standards for this standard are given as follows:

JIS B 7502-Micrometer Callipers for External Measurement

JIS H 4000-Aluminium and Aluminium Alloy Sheets and Plates, Strip and Coiled Sheets

JIS X 6102-Magnetic Tape Reel for Information Interchange

JIS X 6201-200 mm Flexible Disk Cartridges

2. The corresponding international standard to this standard is given as follows:

ISO 1864 Information processing-Unrecorded 12, 7 mm (0.5 in) wide magnetic tape for information interchange-8 and 32 rpmm (200 and 800 rpi) NRZI, and 63 rpmm (1600 rpi) phase-encoded

2. Definition of terms

For the purposes of this standard, the following definitions apply:

- (1) E-value Difference between the radii of the wound tape and of the reel flange.
- (2) self-loading cartridge An annular cartridge mountable to and dismountable from the outer periphery of a magnetic tape reel. Use of this cartridge with a tape on the magnetic tape drive unit with automatic mounting mechanism will make automatic mounting easier, and in addition, will facilitate the storage and preservation of tapes.
- (3) rim end and hub end of tape The tape end farthest from the hub of a tape and the tape end nearest thereto, respectively.
- (4) reference tape A tape of which its electromagnetic conversion characteristics are used as the standard and are specified by the International Organization for Standardization (ISO).

- (5) secondary reference type A tape which is used to compare the electromagnetic conversion characteristics with those of the reference tape.

The deviation on the characteristics between the secondary reference tape and the reference tape is manifested, whereby it enables to compare indirectly the characteristics between the tape under test and the reference tape, provided that the deviation of measured values are corrected.

- (6) reference peak output voltage The average peak output voltage (P-P) materialized by reproducing⁽¹⁾ the consecutive magnetic flux inversion which is recorded in the reference tape with the recording current and density specified in Table 12.
- (7) reference magnetic field A minimum impressed magnetic field that allows the reproduced output voltage to be 95 % of the maximum output voltage (saturated value) at the time of the reproduction of the reference tape having recorded the consecutive magnetic flux inversion with the specified recording density.
- (8) reference edge The top edge of a tape when it is observed by placing the magnetic surface vertical and by making the direction of regular movement for recording from left to right.
- (9) magnetic flux inversion The polarity inversion of magnetization on the magnetic surface of tape corresponding to the direction inversion of recording current, when a series of binary code is recorded sequentially on a track of tape.
- (10) row A group of bits arranged in the direction of tape width to be recorded or reproduced simultaneously.
- (11) dropout A signal error in the case where a portion having such conditions as shown in Table 1 exists in individual pulse amplitudes when consecutive magnetic flux inversions are recorded on all tracks of the tape with the recording current as defined in Table 12 and reproduced⁽¹⁾.

Table 1. Status corresponding to dropout

Nominal recording density (rows/mm)	Status corresponding to dropout
8	Less than 50 % of 1/2 of reference peak output voltage
32	
128	Peak voltage of any consecutive two output voltages in the same track is less than 35 % of the reference peak output voltage
356	Less than 25 % of mean output amplitude of ARA signal

Note (¹) In this case, the recording and reproduction for the testing and secondary reference tapes shall be performed according to the same procedure. For example, the read-after-write in same pass or read at the next pass of rewinding after writing shall be performed by the same method for the two kinds of tapes.

- (12) dropin A signal error in the case where consecutive magnetic flux inversions are recorded on all tracks of the tape with the recording current as defined in Table 12, and then after erasing completely the signal applying d.c. magnetic field in the longitudinal direction of tape, the tape is reproduced(¹) and portions exist where the output amplitude exceeds 10 % of 1/2 of the reference peak output voltage at that density.
- (13) defective portion An area extending over the full width of the tape and totaling 10 mm in the longitudinal direction of the tape which contains areas where dropouts or dropins occur in 1 track or over for 8, 32, 128 rows/mm and in 2 tracks or over for 356 rows/mm in three consecutive tests.
- (14) ARA signal A signal written over definite length and with specified contents in succession to BOT of tapes, for the purpose of adjusting the gain of regenerative amplifier with the output level of signal at the reproduction of information written in tapes.

3. Construction, materials and appearance

3.1 Construction and materials The tape shall consist of base and magnetic material (layer) or of base, magnetic material (layer) and rear (layer), and shall be free from joint throughout the whole length, and its layers shall resist peeling off each other and show inflammability.

The base material shall be made of polyethylene terephthalate or its equivalent, while the magnetic (layer) shall be composed of homogeneous magnetic material and binder, and the rear (layer), of non-magnetic material.

3.2 Appearance The surface of the tape shall be smooth, free from flaw and free of curls and irregular elongation throughout the whole length.

3.3 Tape ends The tape shall have photo reflective markers stuck to the vicinity of both the rim end and hub end for detecting the tape ends.

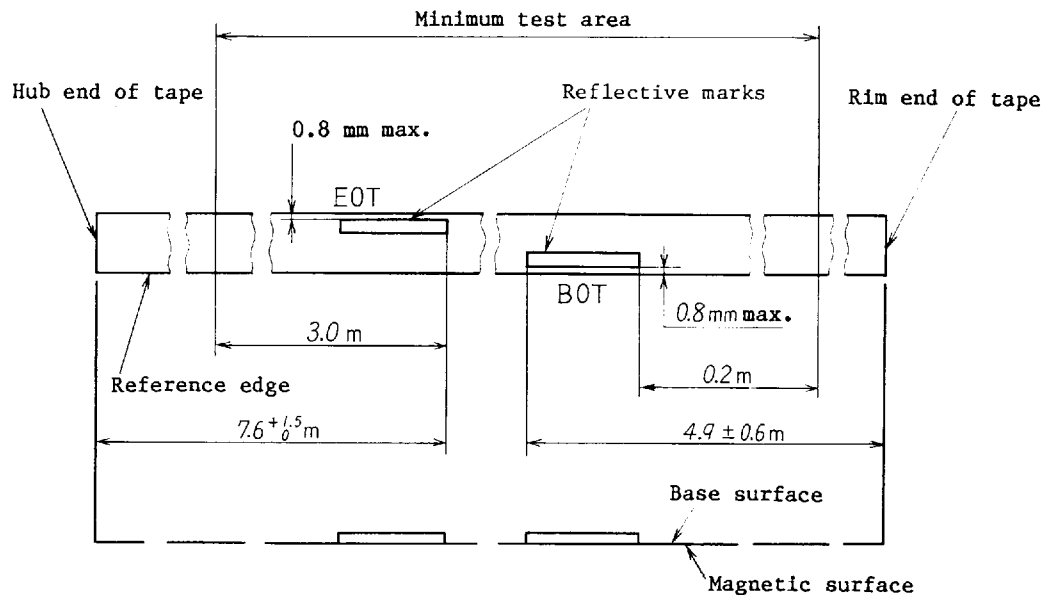
The positions for sticking the markers shall be as shown in Fig. 1 on the base side surface (the side without magnetic coating). The distance from the outer edge of a marker to the edge of tape shall not exceed 0.8 mm from the edge of tape and the marker shall not protrude beyond the edge.

The width and length of a marker shall be 4.8 ± 0.5 mm and 28 ± 5 mm, respectively. Its thickness shall not exceed 0.020 mm measured as stuck to the tape.

A marker shall be a transparent plastic base on one side of which a photo reflective metallic film is stuck to or evaporated with and then applied a thin coating of thermo-setting adhesives or equivalent. The adhesives applied to the tape shall not protrude beyond edge of the tape with the passage of time.

The reflective marker shall be free from wrinkles when applied to the tape, and its surface shall not be conductive.

Fig. 1. Tape ends



BOT (Beginning of tape): Reflective marker for beginning of tape

EOT (End of tape): Reflective marker for end of tape

3.4 Winding of tape The tape shall be neatly wound on the reel specified in JIS X 6102 (hereafter referred to as reel), with the tension of 2 to 3.6 N.

The direction of winding shall be as shown in Fig. 2. The hub end of the tape shall not adhere to the hub. Necessary measures shall be taken to prevent unwinding during transportation.

3.5 E-value The E-value of the tape shall be 3.2 mm or over. However, in using a self-loading cartridge, the value shall be 6.3 to 15.9 mm.