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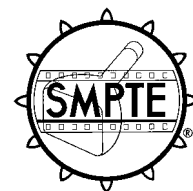
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SMPTE STANDARD

ANSI/SMPTE 249M-1996

Revision of
ANSI/SMPTE 249M-1991for Television Analog Recording —
1/2-in Type M-2 —
Records

Page 1 of 7 pages

1 Scope

This standard specifies the dimensions and locations of the video, audio, time code, and tracking-control records, as recorded by 1/2-in type M-2 helical-scan video tape recorders operating with video signals having a typical scanning structure of 525 lines, 59.94 fields/s, 2:1 interlace, and utilizing the video cassettes specified in ANSI/SMPTE 250M. This standard also specifies the records for two different audio recording modes — common audio mode and pulse code modulation (PCM) audio mode.

2 General specifications

2.1 All dimensions are in the metric system.

2.2 A basic dimension is a fundamental dimension to which no tolerance is applicable.

2.3 Tests and measurements made on the tape record to check the requirements of this standard shall be made under the following conditions unless otherwise specified:

- Temperature: $20^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Relative humidity: $(50 \pm 2)\%$
- Barometric pressure: 86 kPa to 106 kPa
- Tape Tension: $0.31 \text{ N} \pm 0.05 \text{ N}$

2.4 Conditioning of the tape stock before recording and testing shall be as follows:

- Environment: Established to the conditions specified in 2.3
- Tape tension: Wound on a reel at a tension of $0.4 \text{ N} \pm 0.1 \text{ N}$
- Condition time: 24 hours

2.5 The reference edge of the tape for dimensions specified in this standard shall be the lower edge as shown in figures 1 to 4. The magnetic coating, with the direction of tape travel as shown in figures 1 to 4, is on the side facing the observer.

3 Tape speed

The tape speed shall be 67.693 mm/s, basic.

4 Record locations and dimensions

4.1 The locations and dimensions of the video and common audio mode records shall be as specified in figures 1 and 2 and table 1.

4.2 The locations and dimensions of the video and PCM audio mode records shall be as specified in figures 3 and 4 and table 2. The PCM records are recorded by the luminance and chrominance heads and only a single longitudinal audio record shall be available.

4.3 Dimensions O, P, Q, R, W, W', and PE are shown for reference purposes only. The actual value of these dimensions is determined by the tape speed, the transport parameters, and their tolerances.

The tape speed of 67.693 mm/s basic shall result in angle θ as shown. The nominal values given are based on tensioned tape; therefore, direct measurements without tension must take into account tape elasticity.

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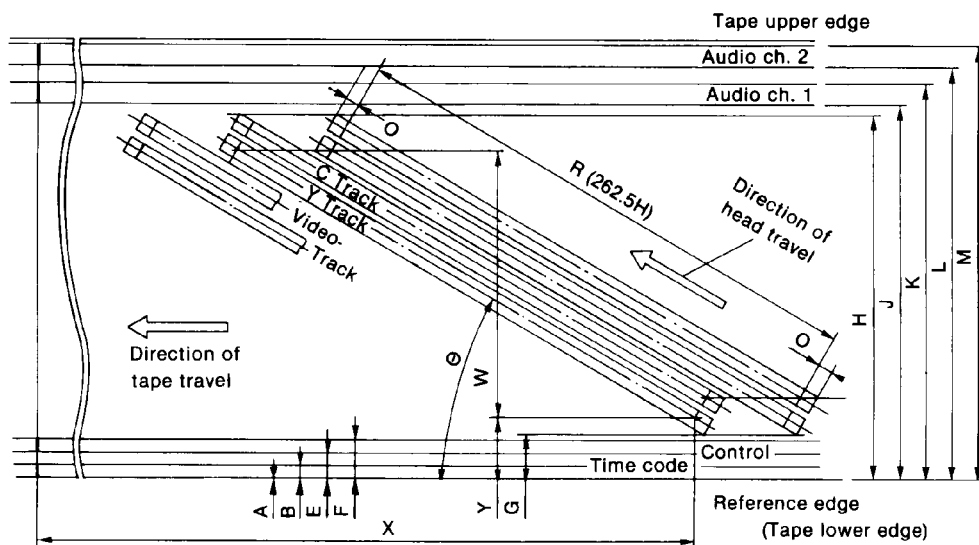


Figure 1 -- Record locations and dimensions (common audio mode)

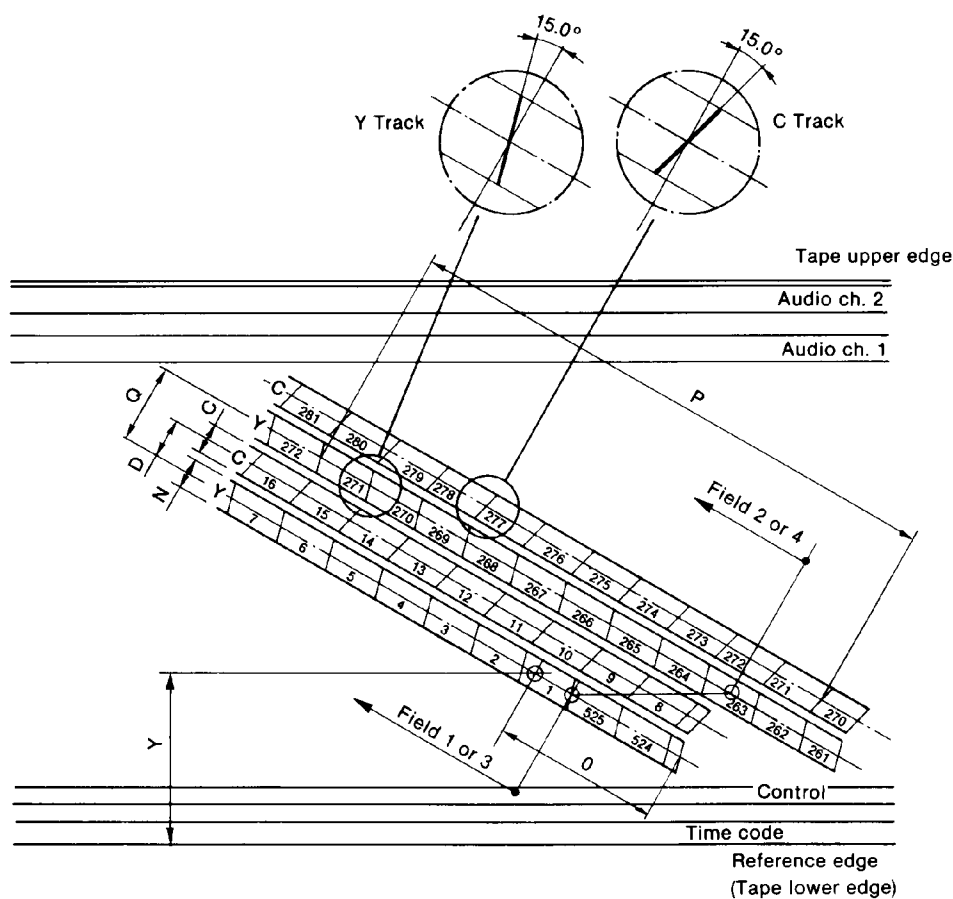


Figure 2 -- Video record locations (common audio mode)