# SMPTE STANDARD

**ANSI/SMPTE 218M-1996**
Revision of
ANSI/SMPTE 218M-1991

## for Motion-Picture Film (16-mm) — 200-Mil Center-Position Magnetic Audio Record



## 1 Scope

This standard specifies the position, dimensions, and reproducing speed of the nominal 5.08-mm (0.200-in) center-position magnetic audio record on 16-mm motion-picture film.

## 2 Audio record

**2.1** The lateral location and width of the center-position magnetic audio record shall be as specified in figure 1 and table 1.

**2.2** The recording shall be made so that the azimuth of the record is at an angle of 90° ± 3' to the reference edge of the film.

**2.3** With the direction of travel as shown in figure 1, the magnetic coating is on the surface toward the observer.

## 3 Reproducing speed

The recording shall be made so that the audio record will reproduce properly at 24 perforations per second (approximately 11 m [36 ft] per minute or 183 mm [7.2 in] per second) which is 24 frames per second. An alternate reproducing speed may be 25 frames per second.

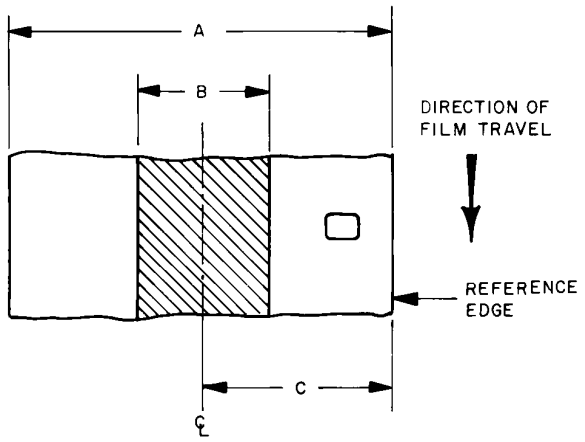


**Figure 1 – Center-position audio record**

**Table 1 – Specifications**

| Dimensions | Millimeters | | Inches | |
|---|---|---|---|---|
| A | 15.95 | ref | 0.628 | ref |
| B | 5.08 | + 0.05 – 0.00 | 0.200 | + 0.002 – 0.000 |
| C | 7.98 | ± 0.05 | 0.314 | ± 0.002 |


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## **Annex A** (informative)
## **Additional data**

### A.1 Record width

The width of the recorded area must be measured with great care as it enters directly into the calculation of flux per unit track width.

When the recording head gap is narrower than the width of the coating or stripe, as is normal for all motion-picture test films, there is a measurement complication involving both the uncertainties in seeing the track and in determining the recording fringing.

If the recording head is available, the track width is best measured indirectly by measuring the gap width and adding to this dimension twice the thickness of the test record magnetic coating. This correction will usually be 0.0003 in to 0.0006 in (8 μm to 15 μm).

If the recording head is unavailable, the recorded record may be made visible by the use of a carbonyl iron suspension. Care should be taken to apply the minimum quantity that makes the recording visible, so that the developed image is not wider than the actual recorded area.

### A.2 Reproducing head gap width

If precision measurements or calibrations are to be made on magnetic audio records made in accordance with this standard, reproducing head gaps of the same width dimension or wider than the recorded track must be used to prevent edge effects or fringing.

### A.3 Erase heads

Erasing head gaps used to erase the records specified in this standard should be substantially wider than the record specified.

### A.4 Film base

The film base used for the audio records conforming to this standard is usually made in accordance with ANSI/SMPTE 109.

### A.5 Picture-audio synchronization

The film is used for audio records only. Any accompanying picture is on a separate photographic film. When audio records are intended to be used in synchronization with pictorial material found on a separate film, the picture-audio relationship should be in accordance with SMPTE RP 25.

### A.6 Magnetic coating

The dimensions of the magnetic coating are not specified, but it is assumed to be wide enough to permit placement of the audio records in accordance with this standard.

## **Annex B** (informative)
## **Bibliography**

ANSI/SMPTE 109-1992, Motion-Picture Film (16-mm) — Perforated 1R and 2R

SMPTE RP 25-1995, Audio and Picture Synchronization on Motion-Picture Film Relative to the Universal Leader for Magnetic and Photographic Records