ANSI PH22.185-1980
Revision of PH22.185-1974

American National Standard

position, dimensions and reproducing speed of six magnetic sound records on 70-mm motion-picture release prints

Approved October 6, 1980

Secretariat: Society of Motion Picture and Television Engineers

1. Scope

1.1 This standard specifies the position, dimensions, reproducing speed, identity, and use of the six magnetic sound records on 70-mm motion-picture release prints.

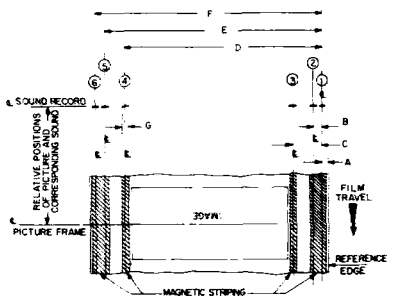
1.2 The standard also specifies the longitudinal picture-sound displacement on the film.

2. Sound Records

2.1 The lateral location and width of the six magnetic sound records shall be as specified in the figure and table.

2.1.1 The records shall be referred to by number, as shown in the figure, with record No. 1 nearest the reference edge. The left and right channel apply to a listener facing the screen. Record No. 1 shall be used for the left loudspeaker channel. Record No. 2 shall be used for the left center loudspeaker channel. Record No. 3 shall be used for the center loudspeaker channel. Record No. 4 shall be used for the right center loudspeaker channel. Record No. 5 shall be used for the right loudspeaker channel. Record No. 6 shall be used for the surround or auditorium loudspeakers.

2.2 The recording shall be made so that the azimuth of the record is at an angle of 90° ± 5′ to the reference edge of the film.



Dimensions	Inches	Millimeters
A	0.052 ± 0.002	1.32 ± 0.05
B	0.110 ± 0.002	2.79 ± 0.05
C	0.316 ± 0.002	8.03 ± 0.05
D	2.328 ± 0.002	59.13 ± 0.05
E	2.534 ± 0.002	64.36 ± 0.05
F	2.644 ± 0.002	67.16 ± 0.05
G	0.060 +0.004 −0.000	1.52 +0.10 −0.00

2.3 With the direction of film travel as shown in the figure, the magnetic striping shall be on the surface of the film facing the projector lens.

2.4 The sound records shall be recorded in such a manner that they can be reproduced properly by reproducing heads whose gaps are positioned along a common plane or in line.

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3. Reproducing Speed

The recording shall be made so that the sound records will reproduce properly at 120 perforations per second (approximately 112 ft [34 m] per minute or 22.4 in [569 mm] per second) which is 24 frames (5 perforations each) per second.

4. Picture-Sound Displacement

The magnetic sound records on the film shall lag behind the center of the corresponding picture by a distance of 23 frames ± ½ frame (see Appendix A5).

Appendix

(The Appendix is not a part of this American National Standard, but is included for information purposes only.)

A1. 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 gap is available, the track width is best measured directly 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 to 0.0006 in (8 to 15 μm).

If the recording head gap is unknown, 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.

A2. Reproducing Head Gap Width

If precision measurements or calibrations are to be made on sound 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.

A3. Erase Heads

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

A4. Reference Standards

Motion-picture prints conforming to this standard are usually made on film made in accordance with American National Standard Dimensions for 70-mm Motion-Picture Film Perforated 65-mm, KS-1870, ANSI PH22.119-1975, and projected in accordance with American National Standard Dimensions of Projectable Image Area on 70 mm Motion-Picture Film, ANSI PH22.152-1969 (R1976).

A5. Picture-Sound Displacement

As a working procedure, the accuracy of picture-sound displacement in a projection print is frequently judged by screening in a review room. It is important that the standard thread path in this review room projector be set accurately to the value specified in this standard plus 1 frame for every 50 ft (15 m) separating the loudspeaker from the observer. Otherwise, nonstandard prints may be produced.

A6. Striping Position

The outer edge of the magnetic striping ideally should be 0.007 in (0.18 mm) from the edge of the film.