ANSI/SMPTE 108-1986
Revision of ANSI PH22.108-1974

American National Standard

for motion-picture film (35-mm)— four 150-mil magnetic audio records

Approved January 9, 1986 Sponsor: Society of Motion Picture and Television Engineers

1. Scope

This standard specifies the position, dimensions, reproducing speed, and identity of the four nominal 0.152-in (3.86-mm) magnetic audio records on 35-mm motion-picture film.

2. Referenced Documents

This standard is intended for use in conjunction with the following documents:

ANSI PH22.139-1980, Dimensions for 35-mm Motion-Picture Film Perforated KS

SMPTE RP 25-1984, Audio and Picture Synchronization on Motion-Picture Film Relative to the Universal Leader for Magnetic and Photographic Records

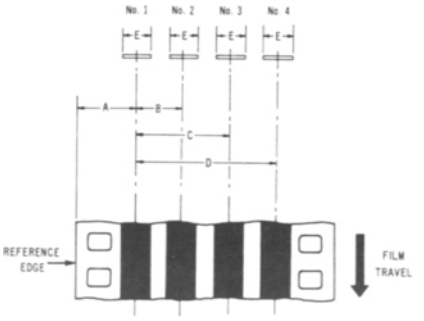
3. Audio Records

3.1 The lateral location and width of the four magnetic audio records shall be as specified in the figure and table.

3.1.1 The records shall be referred to by number as shown in the figure with record No. 1 nearest the reference edge.

3.2 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.

3.3 With the direction of travel as shown in the figure, the magnetic coating is on the upper surface of the film.



Dimensions	Inches	Millimeters
A	0.314 ± 0.002	7.98 ± 0.05
B	0.250 ± 0.002	6.35 ± 0.05
C	0.500 ± 0.002	12.70 ± 0.05
D	0.750 ± 0.002	19.05 ± 0.05
E	0.152 ± 0.002	3.86 ± 0.05

3.4 The audio 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.

4. Reproducing Speed

The recording shall be made so that the audio records will reproduce properly at 96 perforations per second (approximately 90 feet [27 meters] per minute or 18 inches [46 centimeters] per second) which is 24 frames per second.

American National Standards Institute, 1430 Broadway, New York, N.Y. 10018

Appendix

(The Appendix is not a part of this American National Standard, but is included for information 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 meter 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 to 0.0006 inch (0.008 to 0.015 mm).

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.

A2. 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 take into account 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. Film Base

The film base used for the audio records conforming to this standard is usually made in accordance with ANSI PH22.139-1980.

A5. 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 25-1984.

A6. Magnetic Coating

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

ANSI/SMPTE 186-1986
Revision of ANSI PH22.186-1974

American National Standard

for motion-picture film (35-mm)— six 100-mil magnetic audio records

Approved January 9, 1986 Sponsor: Society of Motion Picture and Television Engineers

1. Scope

This standard specifies the position, dimensions, reproducing speed, and identity of the six nominal 0.100-in (2.54-mm) magnetic audio records on 35-mm motion-picture film.

2. Referenced Documents

This standard is intended for use in conjunction with the following documents:

ANSI PH22.139-1980, Dimensions for 35-mm Motion-Picture Film Perforated KS

SMPTE RP 25-1984, Audio and Picture Synchronization on Motion-Picture Film Relative to the Universal Leader for Magnetic and Photographic Records

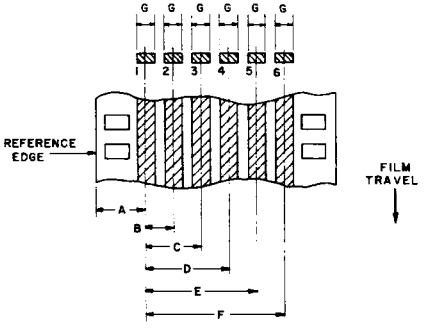
3. Audio Records

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

3.1.1 The records shall be referred to by number as shown in the figure, with record No. 1 nearest the reference edge.

3.2 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.

3.3 With the direction of travel as shown in the figure, the magnetic coating is on the upper surface of the film.



Dimensions	Inches	Millimeters
A	0.289 ± 0.002	7.34 ± 0.05
B	0.160 ± 0.002	4.06 ± 0.05
C	0.320 ± 0.002	8.13 ± 0.05
D	0.480 ± 0.002	12.19 ± 0.05
E	0.640 ± 0.002	16.26 ± 0.05
F	0.800 ± 0.002	20.32 ± 0.05
G	0.100 ± 0.002	2.54 ± 0.05

3.4 The audio 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.

4. Reproducing Speed

The recording shall be made so that the audio records will reproduce properly at 96 perforations per second (approximately 90 feet [27 meters] per minute or 18 inches [46 centimeters] per second) which is 24 frames per second.

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A1. Record Width

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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 inch (0.008 to 0.015 mm).

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 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 take into account 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. Film Base

The film base used for the audio records conforming to this standard is usually made in accordance with ANSI PH22.139-1980.

A5. 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 25-1984.

A6. Magnetic Coating

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