

Proposed SMPTE Recommended Practice

Magnetic Coating of 16mm Magnetic-Photographic Sound Record

A Proposed SMPTE Recommended Practice, Magnetic Coating of 16mm Magnetic-Photographic Sound Record, is published here for a three month period of trial and criticism. All comments should be sent to Henry Kogel, Staff Engineer, prior to August 15, 1955. If no adverse comments are received, the proposal will then be submitted to the Society's Board of Governors for approval as an SMPTE Recommended Practice.

This proposal originated in the Magnetic Recording Subcommittee in April 1953 as a Proposed American Standard. It was revised several times in an attempt to overcome objections raised within the subcommittee. These objections were concerned with the width of the magnetic coating and its location, whether to place it on the inside half or the outside half of the photographic track. Agreement was finally reached on the question of coating width but there was a great deal of hesitancy on standardizing on one particular location, without a good deal more experience to justify one position over the other. However, lack of an industry-wide directive was also considered undesirable. To solve the dilemma, it was agreed to process the proposal in the interim period as an SMPTE Recommended Practice. Unanimity was achieved on this basis and the proposal published here was approved by the Magnetic Recording Subcommittee, Sound Committee and the Standards Committee.—H.K.

1. Scope

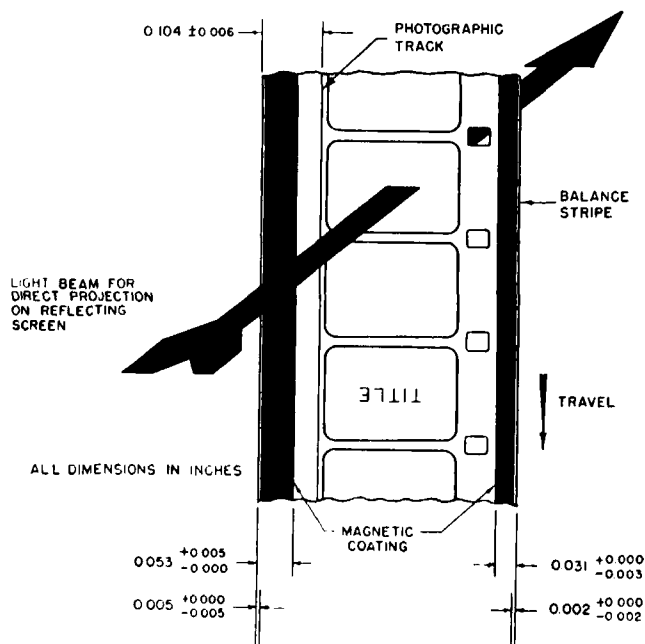
1.1 This Recommended Practice specifies the dimensions and location of the magnetic coating which is applied to 16mm prints containing picture and photographic sound for the purpose of employing both a magnetic sound and the existing photographic sound record.

2. Magnetic Coating

2.1 The dimensions and location of the magnetic coating is specified in the diagram below.

2.2 The magnetic coating shall be on the side of the film toward the lamp on a projector arranged for direct projection on a reflection type screen.

- NOTE: 1. This is not recommended for unilateral variable area track.
2. The balance stripe is optional.
3. It is essential that American Standard Z22.41-1946, or latest revision thereof, be followed in recording the photographic sound.



motion-picture standards

On the following pages is published a new American Standard: PH22.99-1955, 35mm Magnetic Azimuth Alignment Test Film; and revisions of three existing standards: PH22.42-1955, 16mm Sound-Focusing Test Film; PH22.45-1955, 16mm 400-Cycle Signal-Level Test Film; PH22.57-1955, 16mm Buzz-Track Test Film.

These four standards and the history of their development were published in the February 1954 Journal. It should be noted that each of the standards as approved by the American Standards Association and published herein differ to a greater or lesser degree from the standards previously published for trial and comment.—H. K.

16mm Sound-Focusing Test Film



Reg. U.S. Pat. Office
PH22.42-1955
 Revision of Z22.42-1946

*UDC 778.5

1. Scope

1.1 This standard specifies a test film to be used for checking the focus of the scanning beam of 16mm sound motion-picture projectors.

Type A — 7000-cycle recording for manufacturing and precision adjustment of sound focusing;

Type B — 5000-cycle recording for quick field adjustment of sound focusing.

2. Test Film

2.1 The test film shall have an originally recorded variable-density sound track heavily overmodulated and developed to high contrast so that the resultant track is essentially a square-wave track.

2.2 The sound track shall have correct azimuth to within ± 5 min of arc.

3. Film Stock

3.1 The film stock used shall be of the low-shrinkage, safety type, cut and perforated in accordance with American Standard PH22.12-1953, Dimensions for 16mm Film, Perforated One Edge, or the latest revision thereof approved by the American Standards Association, Incorporated.

4. Identification

4.1 Each film of Type A shall be marked **ASA — PH22.42 — 7000-Cycle Focusing.** Each film of Type B shall be marked **ASA — PH22.42 — 5000-Cycle Focusing.** This marking shall be printed lengthwise in the picture area, the spacing between consecutive titles to be approximately 12 in.

5. Film Length

5.1 The film shall be supplied in 100-ft lengths.

NOTE: A test film in accordance with this standard is available from the Society of Motion Picture and Television Engineers.

Approved February 2, 1955, by the American Standards Association, Incorporated
 Sponsor: Society of Motion Picture and Television Engineers

*Universal Decimal Classification

Copyright 1955 by the American Standards Association, Incorporated
 70 East Forty-6th Street, New York 17, N.Y. Printed in U.S.A. ASA-P-1313 Price: 25 Cents

16mm 400-Cycle Signal-Level Test Film



Reg. U.S. Pat. Office
PH22.45-1955
 Revision of Z22.45-1946

*UDC 778.3

1. Scope

1.1 This standard specifies a 400-cycle signal-level test film for use in testing 16mm sound motion-picture projection equipment.

2. Test Film

2.1 The test film shall have an originally recorded, direct-playback, positive variable-area sound recording at an amplitude of 0.0480 ± 0.0015 in. Each film shall be measured for amplitude and the measurements shall be made at a point approximately mid-length of the film and at points between 5 ft and 10 ft from each end.

2.2 The frequency of the recording shall be 400 ± 8 cycles per sec.

2.3 The density of the dark portion of the sound track shall be between 1.2 and 1.4. The density throughout the length of the film shall be as uniform as is consistent with the state of the art.

2.4 The combined base and fog density shall be 0.05 ± 0.01 , measured as diffuse transmission density in accordance with American Standard Z38.2.5-1946, Diffuse Transmission Density, or the latest revision thereof approved by the American Standards Association, Incorporated.

2.5 The total harmonic distortion of the recording shall not exceed 5% and the fluctua-

tion of the recorded level shall not exceed 2%.

2.6 Each film shall be run in a calibrated reproducer for the purpose of obtaining the level of recording; this level shall be compared with that of the controlled film of known characteristics and the difference shall be noted in the booklet furnished with each film.

3. Film Stock

3.1 The film stock used shall be of the low-shrinkage, safety type, cut and perforated in accordance with American Standard PH22.12-1953, Dimensions for 16mm Film, Perforated One Edge, or the latest revision thereof approved by the American Standards Association, Incorporated.

4. Identification

4.1 Each film shall be marked **ASA — PH22.45 — 400-Cycle Signal Level.** This marking shall be printed lengthwise in the picture area, the spacing between consecutive titles to be approximately 12 in.

5. Film Length

5.1 The film shall be supplied in 100-ft lengths.

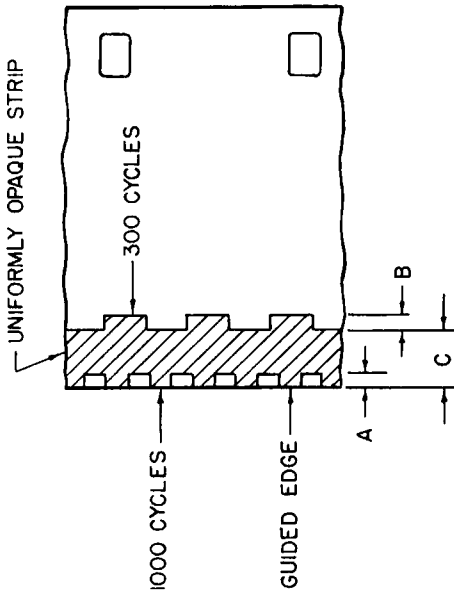
NOTE: A test film in accordance with this standard is available from the Society of Motion Picture and Television Engineers.

Approved February 2, 1955, by the American Standards Association, Incorporated
 Sponsor: Society of Motion Picture and Television Engineers

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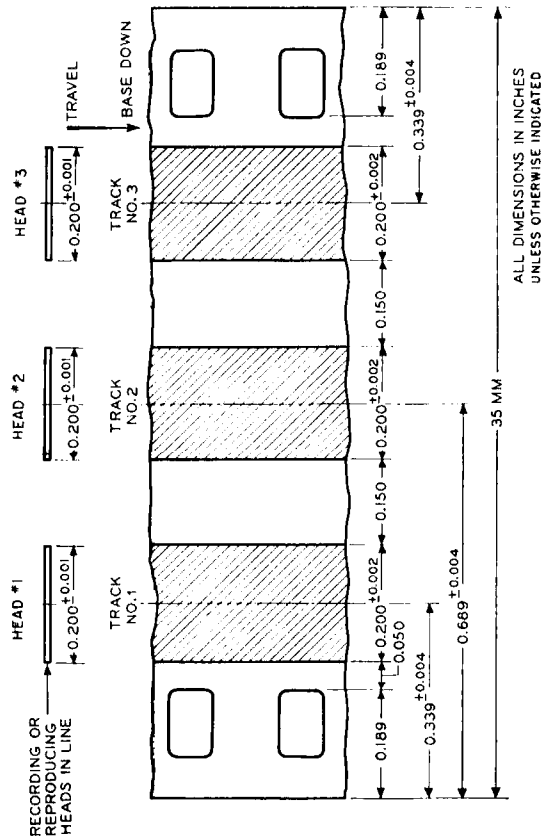
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- 1. Scope**
 1.1 This standard specifies a buzz-track test film used for checking the lateral position of the sound scanning beam in 16mm motion-picture sound reproducers.
 1.2 The test film shall have originally recorded 300-cycle and 1000-cycle signal tracks on opposite sides of the central exposed strip as shown in the drawing.
- 2. Test Film**
 2.1 The position of the tracks, weave in running film on the recorder included, shall be in accordance with the dimensions given in the table below:
 2.2 The test film shall have originally recorded 300-cycle and 1000-cycle signal tracks on opposite sides of the central exposed strip as shown in the drawing.



Dimension	Inches	Millimeters
A	0.0200 \pm 0.0005 — 0.0000	0.510 \pm 0.012 — 0.000
B	0.018 \pm 0.001	0.460 \pm 0.025
C	0.0960 \pm 0.0005 — 0.0000	2.440 \pm 0.012 — 0.000

- 1. Scope**
 1.1 This standard specifies a test film to be used in aligning the azimuth of magnetic heads on 35mm magnetic recording and reproducing equipment where the head width is not greater than 0.200 in. and where the dimensions and location of the soundtracks are in accord with American Standard PH22.86-1953, Dimensions for 200-Mil Magnetic Sound Tracks on 35mm and 17 1/2mm Motion-Picture Film, or the latest revision thereof approved by the American Standards Association, Incorporated.
 1.2 Three sound records shall be recorded in accordance with the dimensions specified in American Standard PH22.86-1953, Dimensions for 200-Mil Magnetic Sound Tracks on 35mm and 17 1/2mm Motion-Picture Film, or the latest revision thereof approved by the American Standards Association, Incorporated, and as shown in the drawing.
- 2. Test Film**
 2.1 The test film shall have an original recording of an 8000-cycle sinusoidal tone with a film rate of 96 perforations per sec or approximately 90 ft per min.
 2.2 Three sound records shall be recorded in accordance with the dimensions specified in American Standard PH22.86-1953, Dimensions for 200-Mil Magnetic Sound Tracks on 35mm and 17 1/2mm Motion-Picture Film, or the latest revision thereof approved by the American Standards Association, Incorporated, and as shown in the drawing.



3. Film Stock

3.1 The film stock used shall be of the low-shrinkage, safety type, cut and perforated in accordance with American Standard PH22.36-1954, Dimensions for 35mm Motion-Picture Positive Raw Stock, or the latest revision thereof approved by the American Standards Association, Incorporated.

4. Film Length

4.1 The film shall be supplied in 50-ft lengths or multiples thereof.

5. Identification

5.1 Each test film shall have suitable identification markings.

2.3 The azimuth sound record shall be perpendicular to the direction of film travel within ± 3 min of arc.

2.4 The recorded level at 8000 cycles shall be that level which results from an input current to the magnetic head which is 1 db below the 400-cycle current input which would give a total harmonic distortion of 2 1/2% when that 400-cycle tone is reproduced.

2.5 The coated side and direction of travel shall be as specified in American Standard PH22.86-1953, or the latest revision thereof, and the base shall be coated from one row of perforations to the other row, or from edge to edge.

PH22.99-1955

Proposed American Standard: PH22.97, 200-mil Magnetic Sound Record on 16mm Film Base Perforated One Edge

A Proposed American Standard, PH22.97, 200-Mil Magnetic Sound Record on 16mm Film Base Perforated One Edge, is published here for a three month period of trial and criticism. All comments should be sent to Henry Kogel, Staff Engineer, prior to August 15, 1955. If no adverse comments are received, the proposal will then be submitted to ASA Sectional Committee PH22 for further processing as an American Standard.

This proposal was submitted to the Magnetic Recording Subcommittee in May 1952. Upon approval by the subcommittee, this first draft was submitted to the Sound Committee in November 1952. Several objections to the proposal were received at this point and the proposal was returned to the subcommittee for further consideration. A second draft was prepared and submitted to the subcommittee in April 1954. This second draft was approved with complete unanimity by the Magnetic Recording Subcommittee, the Sound Committee and the Standards Committee and is the draft published now for comment.

4. Identification

4.1 Each film shall be marked ASA — PH22.57 — Buzz-Track. This marking shall be printed lengthwise in the picture area, the spacing between consecutive titles to be approximately 12 in.

5. Film Length

5.1 The film shall be supplied in 100-ft lengths.

NOTE: A test film in accordance with this standard is available from the Society of Motion Picture and Television Engineers.

PH22.57-1955

2.3 The central exposed strip and the exposed portions of the two signal tracks shall have a density of 1.6 ± 0.4

3.1 The film stock used shall be of the low-shrinkage, safety type, cut and perforated in accordance with American Standard PH22.12-1953, Dimensions for 16mm Film, Perforated One Edge, or the latest revision thereof approved by the American Standards Association, Incorporated.

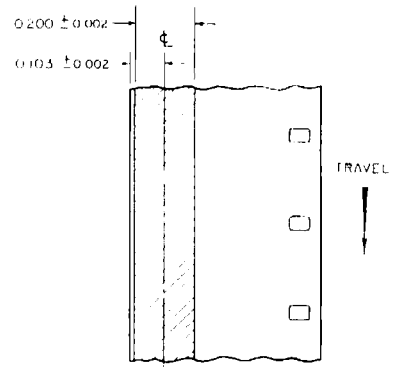
Proposed American Standard

200-Mil Magnetic Sound Record on 16mm Film Base Perforated One Edge (Second Draft)

PH22.97

1. Scope

- 1.1** This standard specifies the location, dimensions and recording speed of a 200-mil magnetic sound record on 16mm motion-picture film base with perforations along one edge.
- 1.2** The film is normally used for sound with out picture.
- 1.3** The dimensions of the magnetic coating is not specified here but is assumed to be wide enough to permit the placement of a sound record in accordance with this standard.



2. Sound Record

- 2.1** The location and dimensions of the sound record shall be as shown in the drawing
- 2.2** The recording speed shall be 24 perforations per second (approximately 36 ft per minute).
- 2.3** With the direction of travel as shown in the drawing, the magnetic coating is on the upper side of the film base or in other words toward the lamp on a projector arranged for direct projection.

3. Film Base

3.1 The film base used shall be of the low-shrinkage safety type, cut and perforated in accordance with American Standard PH22.12-1953, Dimensions for 16mm Film, Perforated One Edge.

NOT APPROVED