Nine Recent American Standards

NINE ADDITIONAL American Standards on Motion Pictures appear in the following pages, bringing to 49 the number of new and revised standards made available to the motion picture industry since January, 1946. With the help of many SMPE and Motion Picture Research Council committees, the ASA at that time embarked on an expanded standards program calling for a review of all motion picture standards approved prior to the recent war and reappraisal of all temporary war standards developed for the use of the military services during the intervening years.

All 49 of the standards have appeared in issues of the SMPE Journal for April and September, 1946, August and December, 1947, March, 1948, and the current issue. A complete subject index to these standards has been printed in $8^1/_2$- × 11-inch size and copies were mailed to all who purchased the SMPE Standards Binder shown here. If you have the Binder and your loose-leaf index has not been received, you either are not listed or are incorrectly listed on our records. If that is the case, please send your correct address marked "for the Standards Binder mailing list" to BOYCE NEMEC, *Executive Secretary*. A few complete sets of all standards approved to date, with binders, are still available from the Society office for $8.50, postpaid, when mailed to an address within the United States or $9.00 in U. S. funds when mailed to a foreign country. The nine new standards which appear on the following pages may be purchased, as a group, from the SMPE for $1.00. Individual copies of the standards, however, must be bought directly from the American Standards Association, 70 East 45th Street, New York 17, N. Y. The ASA will also furnish a catalog of American Standards in all industrial fields upon request and without charge.

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American Standard Dimensions for

Theatre Projection Screens

ASA
Reg. U. S. Pat. Off.
Z22.29-1948
Revision of
Z22.29-1946
*UDC 778.55

1. Scope and Purpose

1.1 This standard specifies dimensions for projection screens used for viewing motion pictures.

2. Screen Size

2.1 Sizes of screens shall be in accordance with the table below.

2.2 The over-all size shall be measured from the outer edge of border to the outer edge of opposite border. The ratio of the over-all width to over-all height shall be 4 to 3.

3. Border

3.1 A fabric reinforcing border shall surround the screen. The width of this border shall be from 2.5 to 3 inches.

4. Grommets

4.1 Metal mounting grommets, size No. 3 or No. 4, shall be securely fastened through the fabric border.

4.2 Grommets shall be spaced on 6-inch centers, starting from grommets located at the centers of the four sides of the screen, except that there shall also be a grommet in each corner of the screen. Grommets shall be set in a line parallel to the edge of the screen, with their centers from 1.0 to 1.31 inches inside the outer edge of the border.

5. Selection of Screen Size

5.1 The width of the screen should be not less than 1/6 of the distance from the center of the screen to the most remote seat.

5.2 The distance between the screen and the front row of seats should be not less than 0.87 foot for each foot of screen width.

American Standard Dimensions for

Theatre Projection Screens

ASA
Reg. U. S. Pat. Off.
Z22.29-1948
Revision of
Z22.29-1946

Size No. of Screen	Over-all Width (feet)	Over-all Height (feet)	Minimum Effective Picture Size (feet)	
8	8.00	6.00	7.50	5.50
9	9.00	6.75	8.50	6.25
10	10.00	7.50	9.50	7.00
11	11.00	8.25	10.50	7.75
12	12.00	9.00	11.50	8.50
13	13.00	9.75	12.50	9.25
14	14.00	10.50	13.50	10.00
15	15.00	11.25	14.50	10.75
16	16.00	12.00	15.50	11.50
17	17.00	12.75	16.50	12.25
18	18.00	13.50	17.50	13.00
19	19.00	14.25	18.50	13.75
20	20.00	15.00	19.50	14.50
21	21.00	15.75	20.50	15.25
22	22.00	16.50	21.50	16.00
23	23.00	17.25	22.50	16.75
24	24.00	18.00	23.50	17.50
25	25.00	18.75	24.50	18.25
26	26.00	19.50	25.50	19.00
27	27.00	20.25	26.50	19.75
28	28.00	21.00	27.50	20.50
29	29.00	21.75	28.50	21.25
30	30.00	22.50	29.50	22.00

NOTES:

1. Masking on each of the four sides of the screen is recommended as follows:

   1 inch of masking within the projected picture area on each of the four sides of the picture for every 12 feet of picture width, with a minimum of 1 inch for pictures less than 12 feet in width.

2. Screens larger than Size No. 30 are not specified as such screens are usually custom built or not in 4 by 3 ratio due to projection angle.

American Standard Specification for

Buzz-Track Test Film

for 16-Millimeter Motion Picture Sound Reproducers

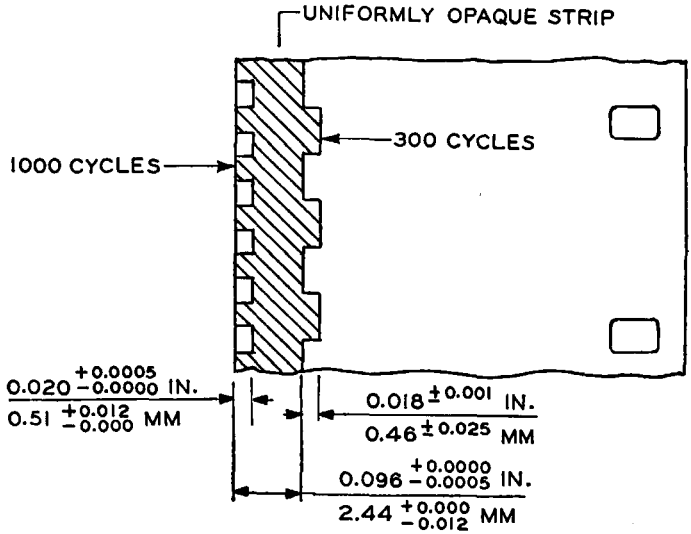
ASA
Reg. U. S. Pat. Off.
Z22.57-1947

1. Scope and Purpose

1.1 This specification describes a buzz-track test film used for checking the position of the sound scanning beam in 16-mm motion picture sound reproducers.

2. Test Film

2.1 The test film shall have originally recorded 300-cycle and 1000-cycle signal tracks on either side of the central exposed strip as shown in Fig. 1. The position of the tracks, weave in running film on the recorder included, shall be in accordance with Fig. 1.



2.2. The central exposed strip and the exposed portions of the two signal tracks shall have a density of 1.6 + 0.4.

2.3 Film Stock. The film stock used for the test film shall be cut and perforated in accordance with the American Standard Cutting and Perforating Dimensions for 16-Millimeter Sound Motion Picture Negative and Positive Raw Stock, Z22.12-1947 (Revision of Z22.12-1941), or the latest edition thereof approved by the American Standards Association.

American Standard Specification for

Buzz-Track Test Film

for 16-Millimeter Motion Picture Sound Reproducers

ASA
Reg. U. S. Pat. Off.
Z22.57-1947

2.3.1 Resistance to Shrinkage. The film stock used for the test film shall have a maximum lengthwise shrinkage of 0.50 percent when tested as follows: At least 20 strips of film approximately 31 inches in length shall be cut for measurement of shrinkage. After normal development and drying [not over +80 F (+26.7 C)], the strips shall be placed at least ¼ inch apart in racks and kept for 7 days in an oven maintained at +120 F (+49 C) and a relative humidity of 20 percent. The strips shall then be removed, reconditioned thoroughly to 50 percent relative humidity at +70 F (+21.1 C), and the shrinkage measured by an adaptation of the pin-gage method outlined in Research Paper RP-1051 of the National Bureau of Standards. The percent shrinkage shall then be calculated on the basis of deviation from the nominal dimension for the length of 100 consecutive perforation intervals given in American Standard Z22.12-1947.

2.4 Each test film shall be provided with suitable leader and trailer, and a title or other markings to identify the film.

2.5 The standard length of test film shall be 100 feet.

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

American Standard

Theatre Sound Test Film for 35-Millimeter Motion Picture Sound Reproducing Systems

ASA
Reg. U. S. Pat. Off.
Z22.60-1948
*UDC 778.5

1. Scope and Purpose

1.1 This standard describes a film for qualitatively checking and adjusting 35-millimeter motion picture sound reproducers and for judging the acoustical properties of the auditorium in which the sound is reproduced.

2. Test Film

2.1 The film shall have a sound track and accompanying picture. The sound track shall comply with American Standard Sound Record and Scanned Area, Z22.40-1946, and the film stock used shall be cut and perforated in accordance with American Standard Cutting and Perforating Dimensions for 35-Millimeter Motion Picture Positive Raw Stock, Z22.36-1947, or any subsequent revisions thereof.

2.2 The test film shall contain samples selected from studio feature pictures by an appropriate engineering committee of the Motion Picture Research Council and the Society of Motion Picture Engineers. The following sound samples are typical of those which may be included:

(a) Main title music
(b) Dialogue
(c) Piano
(d) Orchestral music
(e) Vocal music

2.3 The assembled film shall include appropriate samples of typical release-print material intended to provide a qualitative check of such reproducing system characteristics as:

(a) Frequency response
(b) Volume range
(c) System noise
(d) Power-handling capacity
(e) Flutter

2.4 Each film shall be provided with head and tail leaders as specified in American Standard Specifications for 35-Millimeter Sound Motion Picture Release Prints, Z22.55-1947, or any subsequent revision thereof. The main title shall include the issue number of the film so that revised versions, which may be issued periodically to conform to changing studio practices, may be easily identified. Subtitles superimposed over each sample shall indicate the particular sound characteristic demonstrated by that portion of the film.

2.5 The length of the film shall be approximately 500 feet.

3. Method of Use

3.1 From a typical location in the auditorium the observer should determine whether or not the frequency-response characteristics of the complete reproducing system are normal by listening to the sound reproduced from the test film at normal sound level.

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

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THEATER PROJECTION SCREENS, Z22.29-1948

This 1948 revision of the theater-screen standard establishes overall screen dimensions in addition to minimum effective picture size and includes border dimensions with more specific location of grommets. Screens wider than thirty feet have not been included since they are made to order, and because of keystoning do not usually have the standard height-to-width ratio of 3 to 4.

16-MM BUZZ-TRACK TEST FILM, Z22.57-1947

Critical dimensions of this new standard remain exactly the same as the previous American War Standard Z52.10-1944. Performance of the film has been improved by making both the 1000-cycle and 300-cycle buzz signals an integral part of the center opaque strip. They had each been separated from the center strip by a clear area 0.002 inch wide, but films made that way give a somewhat less critical indication of lateral placement of the reproducer scanning slit.

35-MM THEATER SOUND TEST FILM, Z22.60-1948

The familiar Academy Test Reel is described in a general way without specifying detailed requirements, either qualitative or quantitative. This is an apparent departure from accepted standardization practice but is very practical because it includes a statement of this film's purpose and a description of the several types of typical release-print sound samples that are included.

35-MM SOUND FOCUSING TEST FILM (9000-CYCLE), Z22.62-1948

This 9000-cycle film is an original recording intended for use by 35-mm reproducer manufacturers or theater equipment maintenance shops for focusing sound optical systems. It provides a critical test in these applications but is not recommended for use in theaters because theater amplifiers normally have low-pass filters that cut off somewhat below 9000 cycles.

35-MM SCANNING-BEAM TEST FILM (SERVICE TYPE), Z22.65-1948

The familiar continuous "snake track" used in the theater for checking the uniformity of illumination across the width of the 35-mm reproducer scanning beam is described. In service it is used as a loop, joined preferably with a butt splice held together with scotch

(*continued on page 546*)

American Standard

Sound Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type)

ASA
Reg. U. S. Pat. Off.
Z22.62-1948
*UDC 778.5

1. Scope and Purpose

1.1 This standard describes a film which may be used for precise focusing of the optical systems in 35-millimeter motion picture sound reproducers. The recorded frequency shall be suitable for use in laboratories and factories.

2. Test Film

2.1 The film shall be a print from an original negative and shall contain a 9000-cycle, sinusoidal, variable-area track recorded at 1 decibel below 100-percent modulation. The variation in power output level from the film shall be not more than $\pm$ 0.25 decibel.

2.2 The sound track shall comply with American Standard Sound Record and Scanned Area, Z22.40-1946, and the film stock used shall be cut and perforated in accordance with American Standard Cutting and Perforating Dimensions for 35-Millimeter Motion Picture Positive Raw Stock, Z22.36-1947, or any subsequent revisions thereof.

NOTE 1: This test film is not recommended for theater use because the reproducing amplifiers ordinarily installed in theaters normally have low-pass filters which cut off below 9000 cycles.

NOTE 2: A test film in accordance with this standard is available from the Motion Picture Research Council or the Society of Motion Picture Engineers.

American Standard

Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Service Type)

ASA
Reg. U. S. Pat. Off.
Z22.65-1948
*UDC 778.5

1. Scope and Purpose

1.1 This standard describes a film which may be used for determining the uniformity of scanning-beam illumination in 35-millimeter motion picture sound reproducers. The recorded sound track shall be suitable for use in the routine maintenance and servicing of the equipment.

2. Test Film

2.1 The film shall be a print from an original negative. It shall consist of a 1000-cycle, variable-area recording at full modulation of the 0.007-inch width and shall be approximately sinusoidal. The track shall move uniformly 0.077 inch from one edge of the scanned area to the other as shown in Fig. 1.

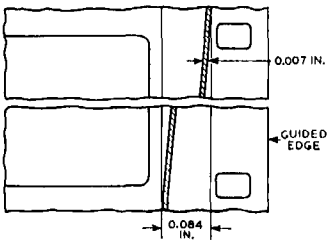

FIG. 1

2.2 The scanned area shall comply with American Standard Sound Record and Scanned Area, Z22.40-1946, and the film stock used shall be cut and perforated in accordance wtih American Standard Cutting and Perforating Dimensions for 35-Millimeter Motion Picture Positive Raw Stock, Z22.36-1947, or any subsequent revisions thereof.

2.3 The length of this film shall be approximately 8 feet.

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

American Standard

Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type)

ASA
Reg. U. S. Pat. Off.
Z22.66-1948
*UDC 778.5

1. Scope and Purpose

1.1 This standard describes a test film which may be used for determining the uniformity of scanning-beam illumination in 35-millimeter motion picture sound reproducers. The recorded sound tracks shall be suitable for use in laboratories and factories.

2. Test Film

2.1 The test film shall contain a number of 1000-cycle, variable-area tracks of narrow width, recorded at 100-percent modulation.

2.2 The test film shall contain 17 individual sound tracks, each with the same amplitude of approximately 0.007 inch. These tracks shall appear on the film in succession, the first so placed that its center line shall be not more than 0.197 inch from the guided edge of the film, and the seventeenth so placed that its center line shall be not less than 0.292 inch from the guided edge of the film. The intermediate tracks shall be spaced at equal intervals between the first and seventeenth tracks, similar to that shown in Fig. 1.

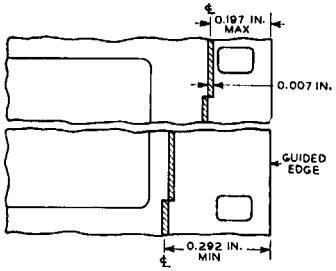

FIG. 1

2.3 The film stock used shall be cut and perforated in accordance with American Standard Cutting and Perforating Dimensions for 35-Millimeter Motion Picture Positive Raw Stock, Z22.36-1947, or any subsequent revisions thereof.

2.4 Each test film shall be provided with a suitable head leader identifying the film.

• American Standard

Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type)

ASA
Reg. U. S. Pat. Off.
Z22.66-1948
UDC 778.5

2.5 The length of this test film shall be approximately 230 feet.

2.6 Each of the 17 tracks shall be identified by an appropriate spoken announcement. The track modulated by the voice shall be limited to the same track width as a single 1000-cycle test signal.

2.7 Each film shall be accompanied by a calibration sheet showing the center-line position of each of the 17 tracks measured from the guided edge. The accuracy of these dimensions shall be within 0.002 inch.

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

American Standard

1000-Cycle Balancing Test Film for 35-Millimeter Motion Picture Sound Reproducers

ASA
Reg. U. S. Pat. Off.
Z22.67-1948
*UDC 778.5

1. Scope and Purpose

1.1 This standard describes a film which may be used for balancing the respective power-level output from two or more 35-millimeter motion picture sound reproducers.

2. Test Film

2.1 The film shall be a print from an original negative containing a 1000-cycle, variable-area track recorded at 50-percent modulation. It shall be accompanied by a statement of the percent modulation of the incident light in the reproducer. The accuracy of calibration shall be within ± 1 decibel.

2.2 The harmonic distortion of the recorded 1000-cycle note shall not exceed 2 percent.

2.3 The sound track shall comply with American Standard Sound Record and Scanned Area, Z22.40-1946, and the film stock used shall be cut and perforated in accordance with American Standard Cutting and Perforating Dimensions for 35-Millimeter Motion Picture Positive Raw Stock, Z22.36-1947, or any subsequent revisions thereof.

3. Instructions

3.1 An instruction sheet, describing the manner in which this film is to be used in various types of reproducing equipment, shall be provided with each film.

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

(*continued from page 540*)

tape. An 0.007-inch wide, 1000-cycle track moves across the 0.084-inch standard scanned area in 8 feet of film or approximately $5^1/_2$ seconds. Any nonuniformity of illumination will appear as cyclic variations of output power level.

35-MM SCANNING-BEAM TEST FILM (LABORATORY TYPE) Z22.66-1948

This laboratory type of scanning-beam film is a more precise measuring tool than the "snake track" and is used by manufacturers of theater and studio sound reproducers for adjusting new equipment or as a final check of new sound installations. It has seventeen successive individual 1000-cycle sound tracks each 0.007 inch wide and about 12 feet long, equally spaced across an area slightly wider than the standard sound-track scanned area covered in American Standard Z22.40-1946, SMPE JOURNAL for April, 1946, page 292.

35-MM BALANCING FILM (1000-CYCLE), Z22.67-1948

The output power level from all soundheads in any theater must be balanced so that normal release prints will reproduce at proper volume with a single fader setting. This film provides a standard reference signal required for balancing power-level output from standard sound reproducers but is not intended for use in balancing the outputs from the two halves of push-pull reproducer systems.

DOUBLE-WIDTH PUSH-PULL SOUND TRACK, Z22.69-1948 AND Z22.70-1948

Double-width push-pull sound tracks, sometimes called "200-mil push-pull," that are now in commercial use follow two "standards." One is the Normal Centerline Type, Z22.69, wherein the half of the track nearest the perforations will play back on a reproducer intended for track in the normal 35-mm release-print position (American Standard Z22.40-1946, SMPE JOURNAL for April, 1946, page 292). The other is the Offset Centerline Type, Z22.70, which has its centerline 0.021 inch nearer the center of the film and will not play back on conventional theater equipment. These double-width tracks are now used only in studio production prior to re-recording the final release negative.

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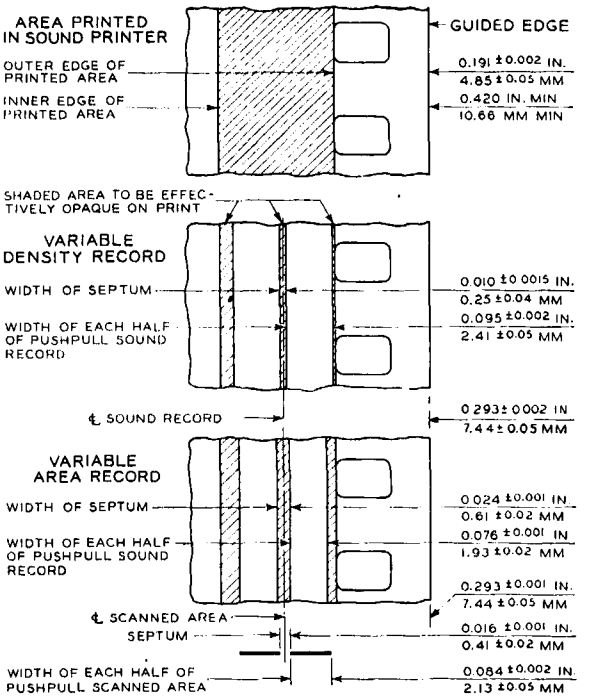
Motion Picture engineers who have been following the standards programs of the Society, the Motion Picture Research Council, and the American Standards Association will be interested in the reference to the Universal Decimal Classification System recently adopted by the ASA, which appears on page 552 of this issue.—Editor

American Standard

Sound Records and Scanning Area of Double Width Push-Pull Sound Prints

Normal Centerline Type

ASA
Reg. U. S. Pat. Off
Z22.69-1948
*UDC 778.534.4



American Standard

Sound Records and Scanning Area of Double Width Push-Pull Sound Prints

Offset Centerline Type

ASA
Reg. U. S. Pat. Off.
Z22.70-1948
*UDC 778.534.4