Report of ASA Committee on Standards for Motion Pictures, Z22

DURING THE YEAR 1947, fourteen American Standards on motion pictures were approved. Of these, the following three were reaffirmed from previous Z22 standards with only editorial changes:

Z22.10-1947 Emulsion Position in Projector for Direct Front Projection of 16-Millimeter Silent Motion Picture Film

Z22.16-1947 Emulsion and Sound-Record Positions in Projector for Direct Front Projection of 16-Millimeter Sound Motion Picture Film

Z22.22-1947 Emulsion Position in Projector for Direct Front Projection of 8-Millimeter Silent Motion Picture Film

Although the two 16-millimeter emulsion-position standards (Z22.10 and Z22.16) were unanimously reaffirmed with only editorial changes, reconsideration was subsequently requested by Mr. K. F. Abeel, representing the General Electric Company. Since several other members who had voted for reaffirmation joined Mr. Abeel in asking for reconsideration, the chairman appointed the following subcommittee to prepare a further analysis of 16-millimeter photographing and printing practices for consideration of the entire Committee: A. W. Cook, *chairman*, K. F. Abeel, M. C. Batsel, O. Sandvik, and E. Schmidt.

The four following standards were reconsidered and modified in their methods of dimensioning, to be more useful in actual practice:

Z22.5 Cutting and Perforating Dimensions for 16-Millimeter Silent Motion Picture Negative and Positive Raw Stock

Z22.12 Cutting and Perforating Dimensions for 16-Millimeter Sound Motion Picture Negative and Positive Raw Stock

Z22.17 Cutting and Perforating Dimensions for 8-Millimeter Motion Picture Negative and Positive Raw Stock

Z22.36 Cutting and Perforating Dimensions for 35-Millimeter Motion Picture Positive Raw Stock

The principal changes in the above standards consisted in showing dimensions as measured from the edges of sprocket holes rather than from center lines.

In reviewing the 35-Millimeter Projector-Sprocket Specification, it was found desirable to make a further study of the sprocket diameter, which had been standard since 1930. In the reapproved edition, Z22.35-1947, 16-Tooth 35-Millimeter Motion Picture Projector

Sprockets, this dimension has been changed to 0.943 inch (from 0.945 inch) to reduce film wear.

The Standard for Photographic Density Z22.27 was revised to take advantage of the more detailed standard developed for Still Photography Z38.2.5-1946.

Two new standards on camera and projector apertures were based on corresponding Z52 War Standards:

Z22.59-1947 Photographing Aperture of 35-Millimeter Sound Motion Picture Cameras

Z22.58-1947 Picture-Projection Aperture of 35-Millimeter Sound Motion Picture Projectors

Film-Nomenclature Standard Z22.56-1947 and 16-Millimeter Buzz-Track Test Film Z22.57-1947 were also taken from Z52 War Standards without change. The new standard Z22.55-1947, 35-Millimeter Sound Motion Picture Release Prints, is essentially a statement of current American practice in the preparation of 35-millimeter motion picture film in 2000-foot lengths for distribution to theaters.

Shortly after the Screen-Size Standard Z22.29-1946 was adopted, the objection was raised that it was not clear as to whether or not the dimensions included the entire screen or only the useful area. Consequently the Chairman asked the Motion Picture Research Council to make a proposal for revision which would clarify this point.

The following nine proposed standards on 35-millimeter test films were prepared by the Motion Picture Research Council and submitted by letter ballot to members of the Z22 Committee:

Z22.60 Theater Sound Test Film for 35-Millimeter Motion Picture Sound-Reproducing Systems

Z22.61 Service-Type Sound-Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers

Z22.62 Laboratory-Type Sound-Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers

Z22.63 Service-Type Multifrequency Test Film for 35-Millimeter Motion Picture Sound Reproducers

Z22.64 Laboratory-Type Multifrequency Test Film for 35-Millimeter Motion Picture Sound Reproducers

Z22.65 Service-Type Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers

Z22.66 Laboratory-Type Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers

Z22.67 1000-Cycle Balancing Test Film for 35-Millimeter Motion Picture Sound Reproducers

Z22.68 Buzz-Track Test Film for 35-Millimeter Motion Picture Sound Reproducers

Each of these proposals covers a test film which is now in general use.

Two proposed standards for dimensions of 200-mil push-pull sound tracks were also submitted by the Motion Picture Research Council. Since these proposals did not include tolerances, the Chairman appointed the following Committee to prepare revised proposals conforming to other sound track standards: G. R. Crane, *chairman*, M. C. Batsel, W. F. Kelly, L. L. Ryder, and W. C. Miller.

The following 15 standards were referred to the Society of Motion Picture Engineers for revision on November 5, 1945:

Z22.7-1941	Camera Aperture for 16-Millimeter Silent Motion Picture Film
Z22.8-1941	Projector Aperture for 16-Millimeter Silent Motion Picture Film
Z22.13-1941	Camera Aperture for 16-Millimeter Sound Motion Picture Film
Z22.14-1941	Projector Aperture for 16-Millimeter Sound Motion Picture Film
Z22.19-1941	Camera Aperture for 8-Millimeter Silent Motion Picture Film
Z22.20-1941	Projector Aperture for 8-Millimeter Silent Motion Picture Film
Z22.34-1930	Cutting and Perforating Negative and Positive Raw Stock for 35-Millimeter Motion Picture Film
Z22.4-1941	Projection Reels for 35-Millimeter Motion Picture Film
Z22.11-1941	Projection Reels for 16-Millimeter Motion Picture Film
Z22.23-1941	Projection Reels for 8-Millimeter Silent Motion Picture Film
Z22.26-1941	Sensitometry for Motion Picture Film
Z22.24-1941	Film Splices Negative and Positive for 16-Millimeter Silent Motion Picture Film
Z22.25-1941	Film Splices Negative and Positive for 16-Millimeter Sound Motion Picture Film
Z22.6-1941	Projector Sprockets for 16-Millimeter Motion Picture Film
Z22.18-1941	8-Tooth Projector Sprockets for 8-Millimeter Motion Picture Film

It is hoped that the Society will submit recommendations for revision of these standards at an early date.

At the request of Eastman Kodak Company, War Standards Z52.51-1946 Base Point for Distance Scales 16-Millimeter Cameras and Z52.50-1946 Lens-Registration Distance 16-Millimeter Cameras were referred to the Society of Motion Picture Engineers on February 4, 1947, for recommendations for American Standards.

Fader Setting Instructions Z22.32-1941 was unanimously withdrawn since the practice described is no longer followed.

The attention of the Committee was drawn to the apparent omission of silent pictures from the Scope as originally adopted. Since this was, of course, unintentional the following revision of the Scope was proposed and adopted:

The formulation of definitions, dimensional standards, methods of test and rating, and performance characteristics of materials and devices used in silent and sound motion picture photography and in sound recording, processing, and reproduction in connection therewith.

The revised Scope has been submitted to the International Standards Organization for its approval as the Scope for the international project. In this connection it will be recalled that the American Standards Association has been designated as the Secretariat of Motion Picture Standards for the ISO. All ASA standards on motion pictures will be submitted to the ISO for consideration.

The chairman wishes to express his appreciation for the active cooperation of the Society of Motion Picture Engineers, Motion Picture Research Council, and members of the Z22 Committee.

C. R. KEITH
Chairman

ALFRED N. GOLDSMITH, *Honorary Chairman*
W. H. DEACY, JR., *Secretary*

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American Society of Cinematographers	JOSEPH RUTTENBERG
Ansco Division of General Aniline and Film Corporation	ALAN W. COOK
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The Calvin Company	LLOYD THOMPSON
(Alternate)	F. O. CALVIN
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(Alternate)	F. G. GRIGNON
E. I. du Pont de Nemours and Company	J. E. SCHMIDT
Eastman Kodak Company	O. SANDVIK
(Alternate)	M. E. RUSSELL
Illuminating Engineering Society	RALPH E. FARNHAM
International Projector Corporation	H. BARNETT
J. A. Maurer, Inc.	J. A. MAURER
(Alternate)	R. C. HOLSLAG
Mitchell Camera Corporation	G. A. MITCHELL
Motion Picture Association of America	J. B. McCULLOUGH
	F. W. DUVALL
	DAVID PALFREYMAN

National Bureau of Standards.....RAYMOND DAVIS
National Carbon Company.....D. B. JOY
(Alternate).....F. T. BOWDITCH
General Electric Company.....K. F. ABEEL
Optical Society of America.....A. C. HARDY
Photographic Society of America.....ALLEN STIMSON
(Alternate).....WILLIAM YALE
Radio Corporation of America, RCA Victor Division.....M. C. BATSEL
(Alternate).....R. O. DREW
Motion Picture Research Council.....FARCIOT EDOUART
W. F. KELLEY
WESLEY C. MILLER
Society of Motion Picture Engineers.....F. T. BOWDITCH
E. K. CARVER
C. R. KEITH
(Alternate).....D. F. LYMAN
Technicolor Motion Picture Corporation.....JOHN R. CLARK, JR.
United States Navy Department.....E. S. COBB
LT. J. HENRY MCMURRAY
United States War Department, Army Air Forces.....C. B. KRUMM
(Alternate).....R. D. FULLERTON
United States War Department, Medical Corps.....CAPTAIN J. Q. CONROY
United States War Department, Signal Corps.....BERNARD S. LEE
(Alternate).....E. P. SUTHERLAND
Western Electric Company.....G. R. CRANE
Member-at-Large.....ALFRED N. GOLDSMITH

SMPE—American Standards Binder

American Standards on Motion Pictures

This is a review of all current American Standards in the Z22 series and others of interest to the motion picture industry that have been approved and published by the American Standards Association.

SINCE THE SMPE, the Motion Picture Research Council, and the American Standards Association began active work on their enlarged motion picture standards program in January, 1946, 40 pertinent motion picture standards have been approved and published. They have all been considered by engineering committees of the Society at some time in the history of their development, and were recommended for adoption by the SMPE Standards Committee. Some are revisions of previous issues that were recently brought up to date, others are modifications of Z52 War Standards that the motion picture industry requested be carried over in permanent form, while one is a Z38 Photography Standard that is referred to here because it is of importance to motion pictures.

All 40 standards are available in $8^1/_2$- × 11-inch format, punched to fit the standard three-ring binder. These standards are published also in the JOURNAL for the information of members, as soon after ASA approval as possible. Usually a report accompanies the new standard giving the history of its development, with a statement of the reasons for adopting certain dimensions or methods of presentation where these things might not be readily apparent.

The issues of the JOURNAL for April and September, 1946, August and December, 1947, and the current issue carry 39 of the 40 standards listed below, the other being the Z38 Standard that is described but will not be published.

All persons who purchased the SMPE American Standards Binder shown on page 278, from the Society, are notified each time new standards are approved so that they may keep their records always up to date. The name and address of the original purchaser are kept on a stencil by the Society, making notification automatic, where the original purchaser still has his binder. However, many binders have since changed hands without a change of stencil, so undoubtedly a number of incomplete records are now in use. If you are not certain that you have all 40, be sure to check what you do have against this list.

The last of these notices, which was mailed out in October, 1947, listed the 14 standards in the following list that are followed by an asterisk. If they are missing from your set, please notify Boyce Nemec, *Executive Secretary*, so that your name and correct address can be placed on the list for future notices. There is no charge for this service, but there is a charge for the standards, which are available in sets only from the Society, or as individual copies from the American Standards Association, 70 East 45th Street, New York 17, N. Y. The last group of 14 standards may be purchased from the Society for $2.30, representing a substantial saving over the single copy price.

The Society also has a small stock of complete sets of 40 standards with binders available for $7.40, when mailed to an address in the United States, or for $7.90 when mailed to a foreign country. Your order automatically will put your name on the mailing list, so be certain to show the correct name and address of the person who will use the standards, and not just the name of your company or purchasing agent.

Z22.2-1946	Emulsion and Sound-Record Positions in Camera for 35-Millimeter Sound Film
Z22.3-1946	Emulsion and Sound-Record Positions in Projector for 35-Millimeter Sound Film
Z22.5-1947*	Cutting and Perforating Dimensions for 16-Millimeter Silent Negative and Positive Raw Stock
Z22.9-1946	Emulsion Position in Camera for 16-Millimeter Silent Film
Z22.10-1947*	Emulsion Position in Projector for 16-Millimeter Silent Film
Z22.12-1947*	Cutting and Perforating Dimensions for 16-Millimeter Sound Negative and Positive Raw Stock
Z22.15-1946	Emulsion and Sound-Record Positions in Camera for 16-Millimeter Sound Film
Z22.16-1947*	Emulsion and Sound-Record Positions in Projector for 16-Millimeter Sound Film
Z22.17-1947*	Cutting and Perforating Dimensions for 8-Millimeter Negative and Positive Raw Stock
Z22.21-1946	Emulsion Position in Camera for 8-Millimeter Silent Film
Z22.22-1947*	Emulsion Position in Projector for 8-Millimeter Silent Film
Z22.27-1947*	Method of Determining Transmission Density of Films (includes Z38.2.5-1946 Diffuse Transmission Density)
Z22.28-1946	Dimensions for Projection Rooms and Lenses for Theaters
Z22.29-1946	Dimensions for Theater Projection Screens
Z22.31-1946	Definition for Safety Film
Z22.35-1947*	Dimensions for 16-Tooth 35-Millimeter Projector Sprockets
Z22.36-1947*	Cutting and Perforating Dimensions for 35-Millimeter Positive Raw Stock
Z22.37-1944	Raw-Stock Cores for 35-Millimeter Film

Z22.38-1944	Raw-Stock Cores for 16-Millimeter Film
Z22.39-1944	Screen Brightness for 35-Millimeter Motion Pictures
Z22.40-1946	Sound Records and Scanning Area of 35-Millimeter Sound Prints
Z22.41-1946	Sound Records and Scanning Area of 16-Millimeter Sound Prints
Z22.42-1946	Specifications for Sound-Focusing Test Films for 16-Millimeter Sound-Projection Equipment
Z22.43-1946	Specifications for 3000-Cycle Flutter Test Film for 16-Millimeter Sound Projectors
Z22.44-1946	Specifications for Multifrequency Test Film for Field-Testing 16-Millimeter Sound-Projection Equipment
Z22.45-1946	Specifications for 400-Cycle Signal-Level Test Film for 16-Millimeter Sound-Projection Equipment
Z22.46-1946	16-Millimeter Positive Aperture Dimensions and Image Size for Positive Prints Made from 35-Millimeter Negatives
Z22.47-1946	Negative Aperture Dimensions and Image Size for 16-Millimeter Duplicate Negatives Made from 35-Millimeter Positive Prints
Z22.48-1946	Printer-Aperture Dimensions for Contact Printing 16-Millimeter Positive Prints from 16-Millimeter Negatives
Z22.49-1946	Printer-Aperture Dimensions for Contact-Printing 16-Millimeter Reversal and Color-Reversal Duplicate Prints
Z22.50-1946	Reel Spindles for 16-Millimeter Projectors
Z22.51-1946	Method of Making Intermodulation Tests on Variable-Density 16-Millimeter Sound Prints
Z22.52-1946	Method of Making Cross-Modulation Tests on Variable-Area 16-Millimeter Sound Prints
Z22.53-1946	Method of Determining Resolving Power of 16-Millimeter Projector Lenses
Z22.54-1946	Method of Determining Freedom from Travel Ghost in 16-Millimeter Sound Projectors
Z22.55-1947*	35-Millimeter Sound Motion Picture Release Prints in Standard 2000-Foot Lengths
Z22.56-1947*	Nomenclature for Motion Picture Film Used in Studios and Processing Laboratories
Z22.58-1947*	Picture-Projection Aperture of 35-Millimeter Sound Projectors
Z22.59-1947*	Photographing Aperture of 35-Millimeter Sound Cameras
Z38.3.1-1943*	Definition of Safety Photographic Film

There is no standard numbered Z22.1, and Z22.32 has been canceled, leaving eighteen intervening yet to come and of these,

Z22.57-1947 Specifications for 16-Millimeter Buzz Track Test Film

will appear in a later issue of the JOURNAL with a review of its recent past history.

The remaining seventeen standards are in various stages of development, in Committees of the Society, the Motion Picture Research Council, or in Subcommittees of Z22, the ASA Committee on Motion Pictures.