standards and recommended practices

Proposed USA Standard and SMPTE Recommended Practices

A Proposed USA Standard and three Proposed Recommended Practices are published here for a trial period and public review. Comments should be addressed to Alex E. Alden, Staff Engineer, at Society Headquarters prior to July 27. The Proposed Standard will be submitted to USA Standards Committee PH22 for approval, whereas, the Proposed Recommended Practices will be submitted to the SMPTE Board of Governors. If any adverse criticism resulting from this publication is received prior to the date given, it will be taken into consideration before action on the documents is concluded.

Proposed USA Standard Dimensions for Projection Reels for Super 8 Motion-Picture Film, PH22.160; Proposed SMPTE Recommended Practice, RP 25, Sound and Picture Synchronization on Motion-Picture Film Relative to the Universal Leader for Magnetic and Photographic Tracks; and Proposed SMPTE Recommended Practice, RP 26, Label Specifications for 2-In. Quadruplex Video Magnetic Tape Recordings, are all new proposals and should be reviewed carefully.

Proposed SMPTE Recommended Practice, RP 8, Safe Action and Safe Title Areas for TV Transmission, is a combination of two previous issues, RP 8-1961 and RP 13-1963. The technical content has not been altered. However, it should be pointed out that the percentages given are now expressed in terms of picture height to conform with established practices in the television field.

Proposed Withdrawal of USA Standards

The Sound and Standards Committees have recommended withdrawal of two USA Standards: Sound Records and Scanning Area of 35mm Double-Width Push-Pull Sound Prints, Normal Center-Line Type, PH22.69-1960, and Sound Records and Scanning Area of 35mm Double-Width Push-Pull Sound Prints, Offset Center-Line Type, PH22.70-1960. The Standards were published in the November, 1948, issue of the *Journal*.

Withdrawal action has been initiated because push-pull soundtracks are no longer being recorded and used in production, having been replaced by magnetic records.

If no objections are received, USA Standards Committee PH22 will be requested to approve termination of these outdated documents.—*A.E.A.*

Proposed USA Standard Dimensions for

Projection Reels for Super 8 Motion-Picture Film

PH22.160

1. Scope

This standard specifies the dimensions for super 8 motion-picture reels used for projection having film capacities of 50, 100, 200, 400, 600, 800, and 1,200 ft.

2. Dimensions

2.1 The dimensions shall be as given in the figure and tables.

2.2 Dimensions C and K apply from the core to the periphery of the reel except for the area of Dimension J. All points of the outside surface of the flanges, including the rim, lettering, lugs, and other protrusions, will fall between the planes as defined by Dimension K.

2.3 Dimension J shall apply within a circle of 1.0 in. (25mm) diameter or more, centered on the spindle hole axis. However, this area may contain cutouts or depressions.

2.4 Lateral runout, Dimension L in Table 1, is the total excursion of all points at a radius on the flange of the reel when the reel is rotated about Datum axis Y while being held against a 1.0 in. (25mm) diameter circular reference support or flange of a horizontal spindle. The value applies to all radii on the flange. (See Appendix A2.)

2.5 The surface of the core and the periphery of the flanges shall be concentric with the spindle holes to within 0.020 in. (0.51mm) total indicator reading.

2.6 For reels of 100-ft (30-meter) capacity or less, the tolerance for Dimension D shall be +0.010 — 0.00 in. (+0.25 — 0.0mm).

2.7 Dimensions M and N provide for a minimum rectangular clearance of a film-retention clip cutout in the core of the reel at the film attachment slot. Dimension M is perpendicular to and centered on the radius passing through the center of the film attachment slot. Dimension N is measured along this radius, and a nominal value of 0.25 in. (6.4mm) is suggested. These dimensions apply to reels of 400-ft capacity or smaller and are optional for larger reels.

2.8 Dimensions P and P' have been established to ensure symmetry of the recess area represented by Dimension J. They apply only when Dimension K exceeds Dimension J. They shall be measured at the point of departure of Dimension J to the larger Dimension K. The difference between Dimension P and Dimension P' shall not exceed +0.020 in. (0.51mm).

NOTE 1: The flanges of the reel shall have three radial driving slots spaced approximately 120° and conforming to Dimensions E and F. The drive slots of the two flanges shall be aligned. If properly aligned, the reel will fit on a test spindle (gauge) of 0.50-in. (12.7mm) diameter with a radial spindle drive key having: a length from the spindle shoulder greater than the reel width, Dimension J; a thickness of 0.058 in. (1.47mm); and a height, measured as a radius from the spindle axis, of 0.36 in. (9.1mm).

NOTE 2: To facilitate flexibility in design of plastic snap-on containers for 50- and 100-ft reels, which use one flange of the reel as a cover, the reels shall be made with one solid flange. This flange shall contain no interruptions to the periphery such as slots to facilitate threading. (See Appendix A3.)

NOT APPROVED

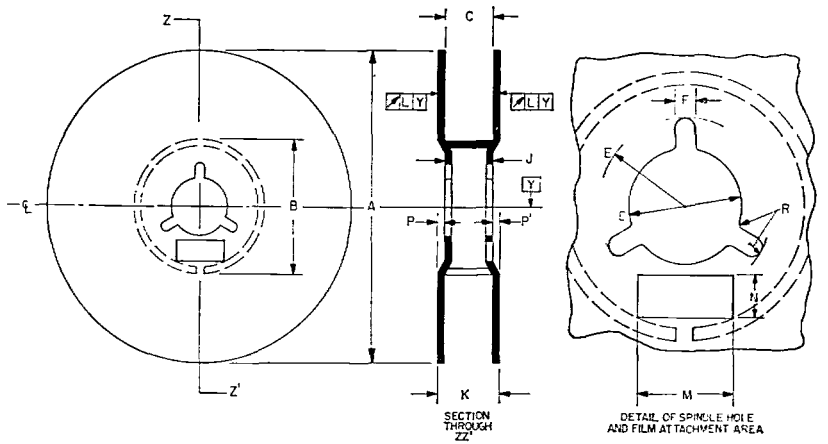


Table 1

Nominal Reel Capacity Feet	Nominal Reel Capacity Meters	Dimensions	Inches Min	Inches Max	Millimeters Min	Millimeters Max
50	15	A	2.91	2.95	74.0	75.0
		B	1.25	1.30	31.8	33.0
		L		0.04		1.0
100	30	A	3.90	3.94	99.1	100.0
		B	1.77	1.81	45.0	46.0
		L		0.04		1.0
200	60	A	5.00	5.04	127.0	128.0
		B	1.77	2.00	45.0	50.8
		L		0.06		1.5
400	120	A	7.00	7.09	177.8	180.1
		B	2.36	2.50	59.9	63.5
		L		0.08		2.0
600	180	A	9.25	9.31	235.0	236.5
		B	4.85	4.91	123.2	124.7
		L		0.10		2.5
800	240	A	10.47	10.55	265.9	268.0
		B	4.85	4.91	123.2	124.7
		L		0.12		3.0
1,200	360	A	12.23	12.27	310.6	311.7
		B	4.85	4.91	123.2	124.7
		L		0.12		3.0

Table 2

Dimensions	Inches	Millimeters
C	0.33 $^{+0.06}_{-0.00}$	8.4 $^{+1.5}_{-0.0}$
D*	0.502 $^{+0.006}_{-0.000}$	12.75 $^{+0.15}_{-0.00}$
E	0.406 ± 0.005	10.31 ± 0.13
F	0.06 $^{+0.01}_{-0.00}$	1.5 $^{+0.3}_{-0.0}$
J	0.45 $^{+0.00}_{-0.05}$	11.4 $^{+0.0}_{-1.2}$
K	0.56 max	14.2 max
M	0.47 min	12.0 min
N	0.22 min	5.6 min
P	See 2.8	
R	Maximum is ½ value used for Dimension F	

*See 2.6.

NOTE 3: Provision shall be made for securing the end of the film so as to accept the full width of the film, and so that the film will be freely released at the end of its run. If film attachment is provided by a slot in the core, there shall be a suitable cutout in the core (see 2.7) to allow free access to the film end and to provide for attachment of a film end retention clip or plug when the reel is used on automatic rewind equipment. The cutout area for the film-retention clip shall be in both flanges.

NOTE 4: The dimensions were determined for reels made from a dimensionally-stable material such as metal. If the reel or reel hub is made from plastic or other dimensionally-unstable material, the spindle hole diameter, D, should be so adjusted that at least the minimum dimension (0.502 in. or 12.75mm) is maintained throughout the normal use range of temperature and relative humidity.

NOTE 5: The spindle hole may be a sleeve or there may be an air space between the spindle holes in the flanges, depending upon the type of construction. Because of this, the means of retaining the reel on the projector spindle should be outboard of the reel as defined by Dimension J.

Appendix

(This Appendix is not a part of Proposed USA Standard Dimensions for Projection Reels for Super 8 Motion-Picture Film, PH22.160, but is included to facilitate its use.)

A1. Although the reel specifies three drive slots on each flange, only one is generally used to drive the reel. Three slots are specified in the standard to facilitate easy loading of the reel on the drive spindle.

A2. As noted, a spindle shoulder of 1.0 in. (25mm) in diameter is required for the measurement of lateral runout. The wobble of the reel on the projector will be lessened if a shoulder of this diameter is also incorporated on the projector spindle and provision made to fit the reel tightly to this shoulder. In any case, it is expected that projector manufacturers will incorporate a spindle shoulder of at least 0.63 in. (16mm) in diameter. The symbol for runout, ⌰ | L | Y | , shown in the figure is in accordance with drafting practices specified in USA Standard Dimensioning and Tolerancing for Engineering Drawings, Y14.5-1966. The arrow indicates runout of the referenced surface with respect to Datum axis Y and to the limits listed for Dimension L in Table 1.

A3. This standard applies to reels used for projection which are considered to be interchangeable on all types of projection equipment. Take-up reels, which may be considered an integral part of the manufacturer's projection equipment, may deviate from the provisions of this standard. As an example, it may be desirable to taper the flanges from the core to the periphery or to provide for special film attachment mechanisms.

A4. The nominal reel capacity specified in Table 1 is based on a total film thickness (including any magnetic striping or winding allowance) not exceeding 0.0065 in. (0.165mm).

A5. The usual winding of film on a reel with a solid flange will be with the film perforations closest to the nonsolid flange.

PROPOSED

SMPTE RECOMMENDED PRACTICE — RP 8

(Revision of RP 8–1961 and RP 13–1963)

Safe Action and Safe Title Areas for TV Transmission

1. *Scope*

1.1 This recommended practice defines for TV transmission the safe action image area within which all significant action must take place to ensure visibility of the action on the average home receiver.

1.2 The practice also defines the safe title image area within which the more important information must be confined to ensure visibility of the information on the majority of home receivers.

2. *Dimensions*

2.1 The dimensions shall be as given in the figure and table.

2.2 The dimensions are given in terms of the percentage of the nominal height of the scanned area transmitted by the television system. (See Appendix.)

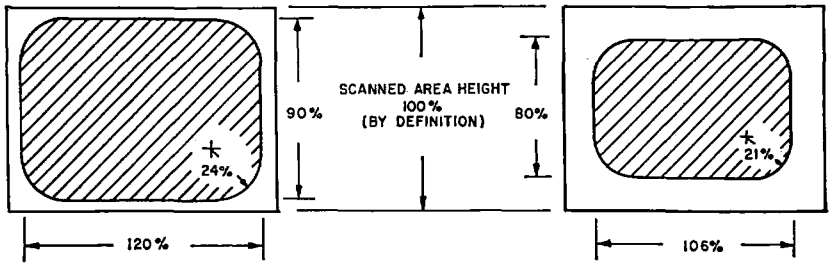
2.3 The height of the scanned area shall be as specified in USA Standards:

Dimensions of Television Image Area on 16mm Motion-Picture Film, PH22.96-1963

Dimensions of Television Image Area on 35mm Motion-Picture Film, PH22.95-1963

Slides and Opaques for Television Film Camera Chains, PH22.94-1954

2.4 Significant action shall be kept within the safe action area defined by the 90 x 120 percent guidelines.



Dimensions of Safe Action Area				Scanned	Dimensions of Safe Title Area		
Width (120%)	Height (90%)	Radius (24%)	Medium	Height (100%)	Width (106%)	Height (80%)	Radius (21%)
0.531 in.	0.248 in.	0.066 in.	16mm Film	0.276 in.	0.294 in.	0.221 in.	0.059 in.
0.713 in.	0.535 in.	0.143 in.	35mm Film	0.594 in.	0.634 in.	0.475 in.	0.127 in.
1.013 in.	0.759 in.	0.203 in.	2" x 2" Slide	0.844 in.	0.900 in.	0.675 in.	0.180 in.

2.5 Essential information shall be kept within the safe title area defined by the 80 x 106 percent guidelines.

3. *Operating Procedures*

3.1 It is recommended that the appropriate area be outlined in camera viewfinders.

3.2 Projectors used for production evaluation of prints intended for television transmission should be equipped with apertures in accordance with Proposed USA Standard Specifications for Film Image Area Used for Review Room Viewing of 35mm and 16mm Motion-Picture Prints Intended for Television Transmission, PH22.148.

3.3 The safe title area should be indicated on the review room screen.

Note: Projectors used for print inspection should have apertures at least as large as the scanned area. The dimensions of the safe action area and safe title area should be indicated on the projection screen.

Appendix

(This Appendix is not a part of Proposed SMPTE Recommended Practice RP 8, Safe Action and Safe Title Areas for TV Transmission, but is included to facilitate its use.)

It should be pointed out that the dimensions of the two safe areas remain as established in earlier issues. The method of specifying the dimensions in terms of the image height has been adopted to conform with current practices.

PROPOSED

SMPTE RECOMMENDED PRACTICE — RP 25

Sound and Picture Synchronization on Motion-Picture Film Relative to the Universal Leader for Magnetic and Photographic Tracks

1. *Scope*

It is the purpose of this recommended practice to standardize the photographic and magnetic synchronizing signals and their position relative to the Universal Leader, as specified in USA Standard Specifications for Leaders and Cue Marks for 35mm and 16mm Sound Motion-Picture Release Prints, PH22.55-1966.

2. *Usage*

Two major areas of usage for this synchronizing information are (a) in editing and re-recording operations and (b) in preparing printing materials in the laboratory. During the latter, the signal position may be used for visual and aural checking of synchronization of release prints. The synchronizing information, therefore, applies to both magnetic and photographic sound tracks.

3. *Synchronizing Signal*

The synchronizing signal shall consist of a length equivalent to one picture frame of 1,000 Hz sine wave ± 10 percent. Modulation shall be at least 80 percent.

4. *Location*

The signal shall be so located on the sound track as to coincide with the single No. 2 (2-second) frame of the Universal Leader, when sound track and picture are aligned in editorial (parallel) sync. (This is the same distance from the first frame of the picture as the center 3-foot frame of the Academy and Society Leaders.)

PROPOSED

SMPTE RECOMMENDED PRACTICE — RP 26

Label Specifications for 2-In. Quadruplex Video Magnetic Tape Recordings

1. *Scope*

This recommended practice specifies the minimum information required on labels attached to reels and reel containers of 2-in. quadruplex video magnetic tape recordings.

2. *Specifications*

The following represents the minimum information required on a video tape label. The label shall be affixed to both the reel and container:

(1) Name of company or studio
(2) Name of program or commercial
(3) Number of program or commercial
(4) Modulation practice—high band or low band
(5) Color or black and white
(6) Original or copy