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SMPTE STANDARD

SMPTE 59-1998Revision of
ANSI/SMPTE 59-1997

for Motion-Picture Film (35-mm) — Camera Aperture Images and Usage



Page 1 of 5 pages

1 Scope

1.1 This standard specifies the dimensions of the camera aperture images and the relative positions of the vertical and horizontal centerlines of the intended image area with respect to the reference edge and the perforations of the camera negative film for 35-mm motion-picture cameras.

1.2 Motion-picture cameras used for different purposes require different aperture sizes. This standard specifies the image dimensions resulting from four styles of apertures used for the following purposes:

Style A: Four perforations per frame nonanamorphic sound motion pictures

Style B: Four perforations per frame anamorphic sound motion pictures

Style C: Four perforations per frame instrumentation photography and full-frame motion pictures

Style D: Three perforations per frame motion pictures

1.3 This standard also specifies the position of the photographic emulsion and the frame rate for 35-mm motion-picture cameras.

2 Dimensions

The dimensions shall be as specified in figures 1, 2, and 3 and the tables. They shall apply to measurements of the images formed on fresh film, properly exposed and processed.

3 Emulsion position

The emulsion shall be toward the camera lens, as shown in figure 4.

4 Frame rate

The standard frame rate for motion-picture photography is 24 frames per second. However, it is recognized that nonstandard frame rates are sometimes used for specific applications. For example, 24, 25, or 30 frames per second may be used for motion pictures intended for television; higher or lower frame rates may be used for special motion-picture effects and analysis. The use of nonstandard frame rates requires notification and agreement of all parties concerned with the use of the particular film.

NOTE - The displacement of 0.050 in (1.27 mm), dimension G, of the vertical centerline of the image area for styles A and B is in accord with current usage of low-shrinkage film base. However, there are in use many cameras in which the vertical centerline is displaced by 0.055 in (1.40 mm), which dimension was used prior to the development of low-shrinkage film base.

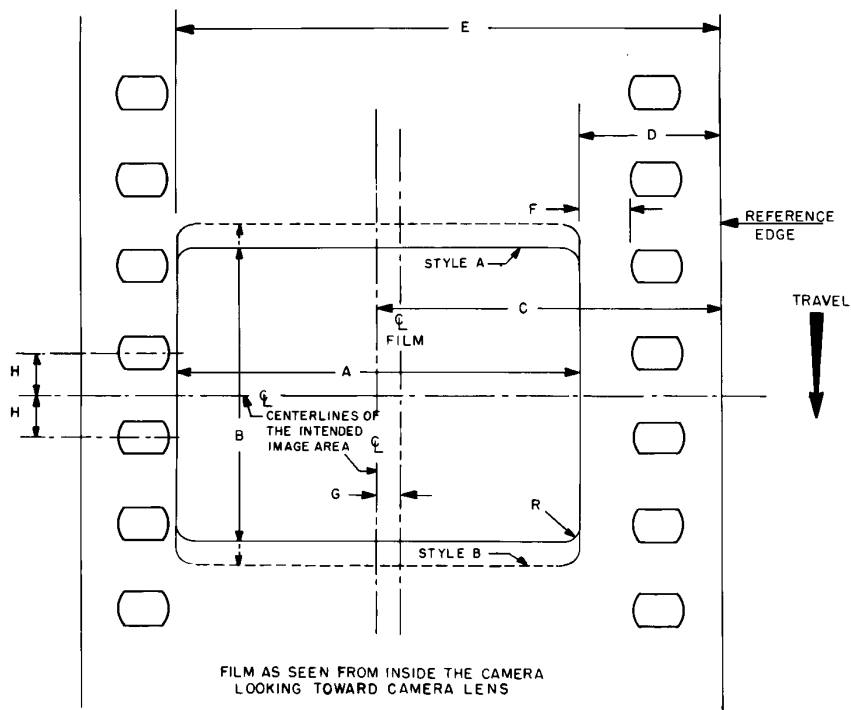


Figure 1 – Styles A and B camera aperture image area

Table 1 – Style A specifications

Dimensions	Inches	Millimeters
A	0.866 nom	22.0 nom
B	0.63 $+ 0.02$ $- 0.00$	16.0 $+ 0.5$ $- 0.0$
C	0.738 ± 0.002	18.75 ± 0.05
D	0.305 max	7.75 max
E	1.171 min	29.74 min
F	0.116 nom	2.95 nom
G	0.050 nom	1.27 nom
H	0.093 ± 0.002	2.36 ± 0.05
R	0.03 max	0.8 max

Table 2 – Style B specifications

B	$0.732 + 0.008$ $- 0.000$	$18.59 + 0.20$ $- 0.00$
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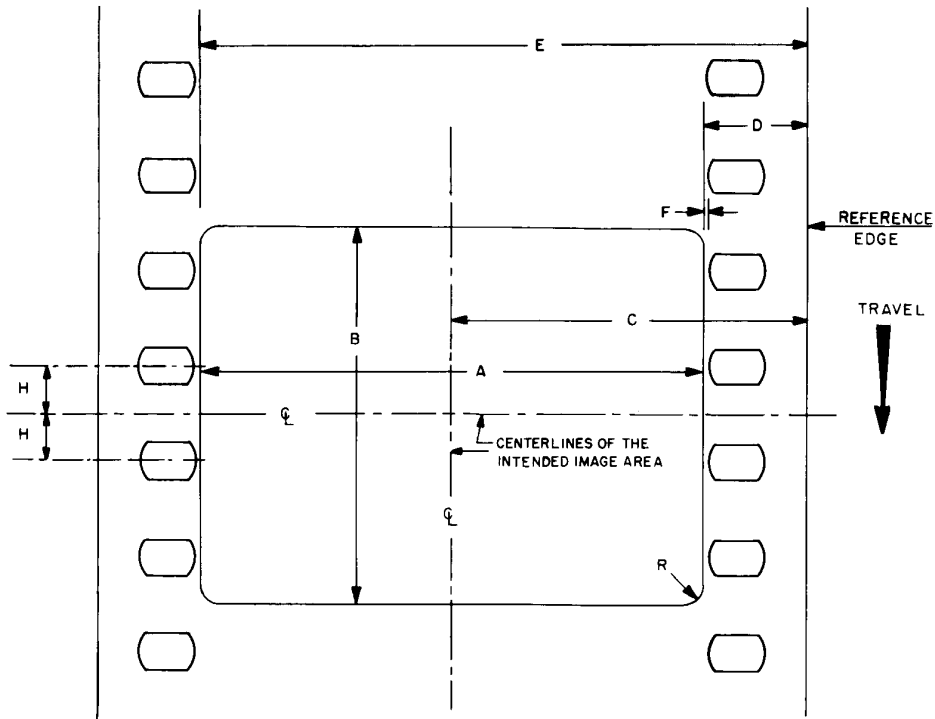


Figure 2 – Style C camera aperture image area

Table 3 – Style C specifications

Dimensions	Inches		Millimeters	
A	0.981	nom	24.92	nom
B	0.735 ± 0.002		18.67 ± 0.05	
C	0.688 ± 0.002		17.48 ± 0.05	
D	0.198	max	5.03	max
E	1.179	min	29.95	min
F	0.009	nom	0.23	nom
H	0.093 ± 0.002		2.36 ± 0.05	
R	0.03	max	0.8	max

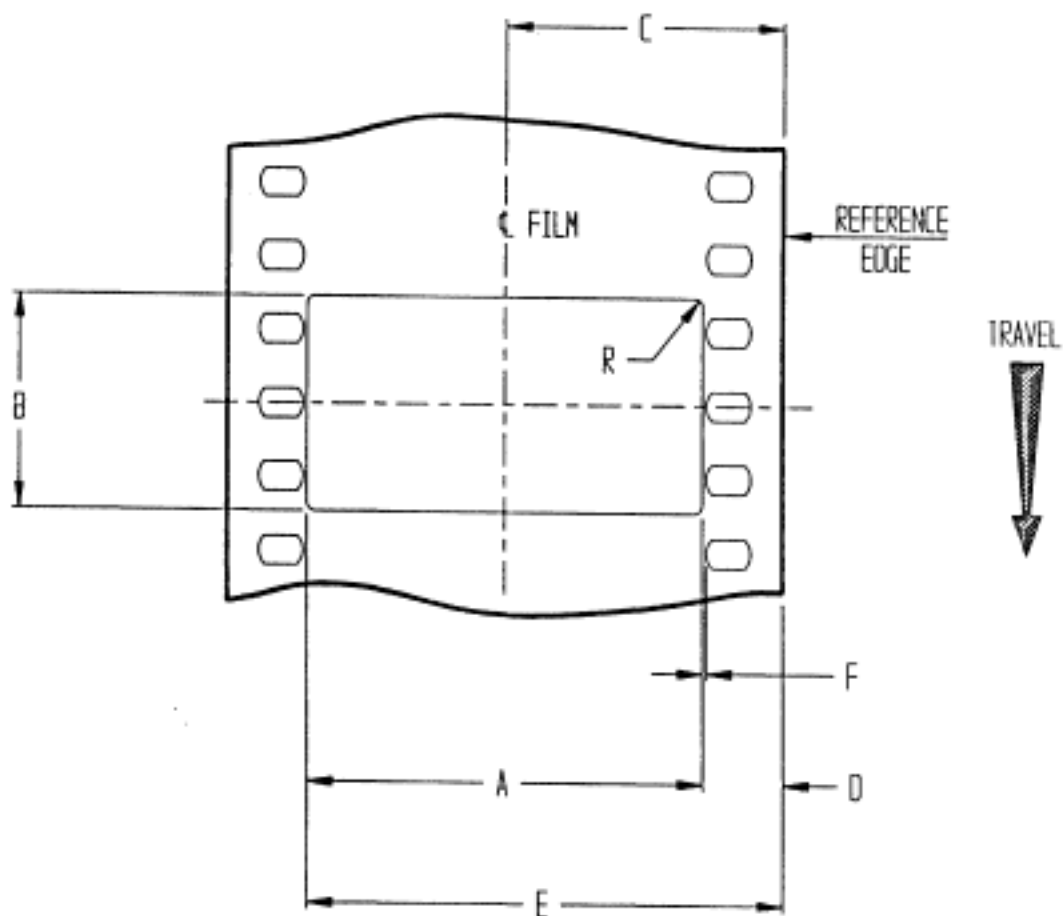


Figure 3 – Style D camera aperture image area

Table 4 – Style D specifications

Dimensions	Inches	Millimeters
A	0.981 nom	24.92 nom
B	0.546 ± 0.002	13.87 ± 0.05
C	0.688 ± 0.002	17.48 ± 0.05
D	0.198 max	5.03 max
E	1.179 min	29.95 min
F	0.009 nom	0.23 nom
R	0.020 max	0.51 max

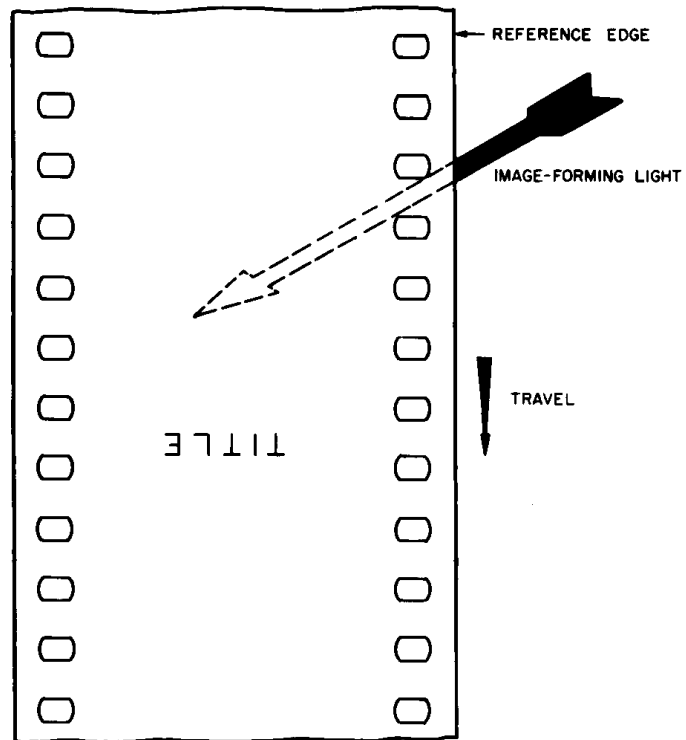


Figure 4 – Film viewed from inside camera looking toward camera lens

Annex A (informative)
Bibliography

ANSI/SMPTE 93-1998, Motion-Picture Film (35-mm) —
 Perforated BH