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Reaffirmed 2009 REAFFIRMED 2003

SMPTE STANDARD

ANSI/SMPTE 201M-1996
Revision of
ANSI/SMPTE 201M-1992

for Motion-Picture Film (16-mm)—
Type W Camera Aperture Image

1 Scope

1.1 This standard specifies the dimensions of the image area produced by type W camera aperture on 16-mm motion-picture film intended for enlargement to nonanamorphic 35-mm motion-picture film with an aspect ratio of 1.66:1 or greater. It also specifies the position of the image relative to the reference edge of the film and to the perforations.

1.2 This standard further specifies the dimensions and location of the enlarged image area on 35-mm internegatives or duplicate negatives and the enlargement ratio in optical printing from 16-mm type W originals.

2 Dimensions

2.1 The dimensions of the 16-mm type W aperture image shall be as given in figure 1 and table 1, and shall apply to the measurements of the aperture image as formed on freshly exposed and processed film.

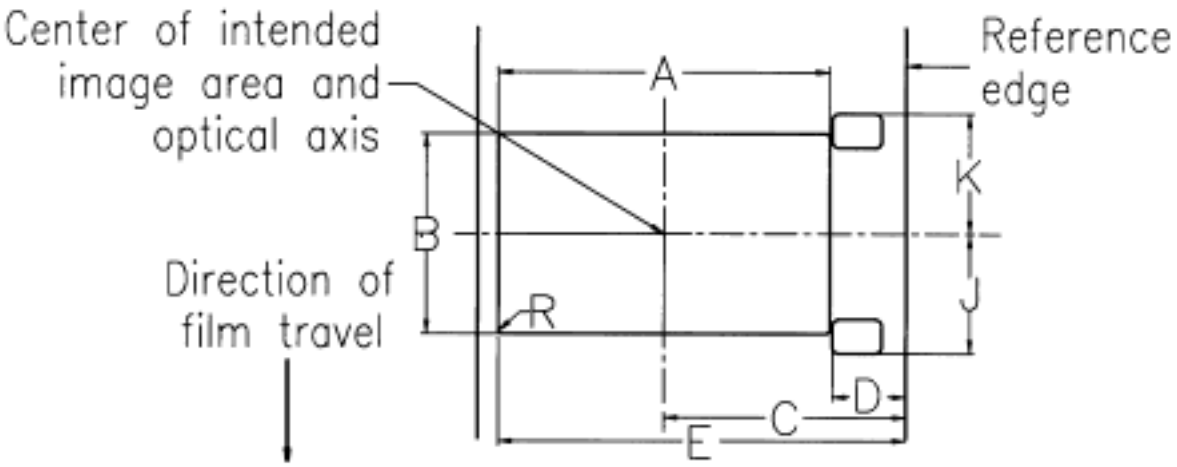
2.2 The angle between the vertical edges of the aperture image and the reference edge of the film shall be $0^\circ \pm \frac{1}{2}^\circ$.

3 35-mm internegatives and duplicate negatives

The enlargement ratio for printing 35-mm internegatives and duplicate negatives shall be 1.778:1. The dimensions and location of the image area on 35-mm internegatives and 35-mm duplicate negatives shall be as shown in figure 2 and table 2.

American National Standard

Approved
April 8, 1996

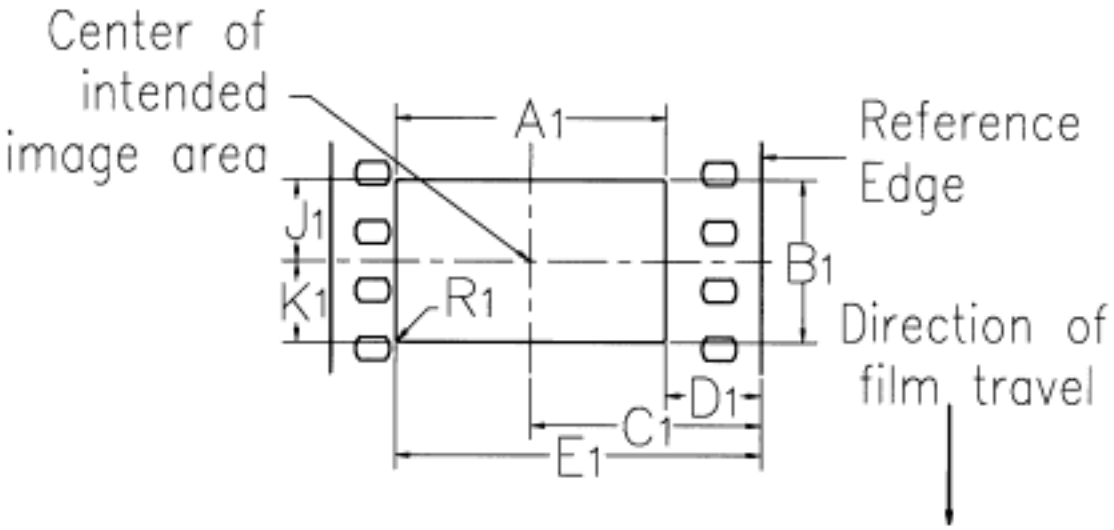


FILM AS SEEN FROM INSIDE CAMERA LOOKING TOWARD CAMERA LENS; EMULSION AWAY FROM OBSERVER

Figure 1 – Image area on 16-mm type W negative or original

Table 1 – Specifications

Dimensions	Millimeters		Inches	
A	12.35	nom	0.486	nom
B	7.42	+ 0.15 – 0	0.292	+ 0.006 – 0
C	9.00	± 0.05	0.354	± 0.002
D	2.825	max	0.111	max
E	15.175	min	0.597	min
J=K				
R	0.15	max	0.006	max



FILM AS SEEN FROM INSIDE CAMERA LOOKING TOWARD CAMERA LENS; EMULSION AWAY FROM OBSERVER

Figure 2 – Image area on 35-mm internegative or duplicate negative

Table 2 – Specifications

Dimensions	Millimeters		Inches	
A_1	21.95	nom	0.864	nom
B_1	13.19	$^{+\ 0.27}_{-\ 0}$	0.519	$^{+\ 0.010}_{-\ 0}$
C_1	18.75	ref	0.738	ref
D_1	7.80	max	0.307	max
E_1	29.74	min	1.171	min
$J_1 = K_1$				
R_1	0.25	max	0.010	max

Annex A (informative)
General information

A.1 If the aperture plate is not in the plane of the emulsion, the physical dimensions of the aperture in the camera will be slightly different from the dimensions given in the figures. The exact amount of this difference will depend upon the *f* value and the focal length of the camera lens used, and upon the distance between the emulsion and the physical aperture. This separation should be no greater than is necessary to prevent scratching of the film.

A.2 It is the intent of this standard to provide a camera image such that the exposed area will always be larger than the area of the printer aperture.

A.3 The centerline of the intended type W camera image is given for convenience in interpreting the standard, facilitating such applications as the optical design of equipment and assisting in the understanding of suitable mechanical embodiments related to the camera aperture image area. Note that the nominal centerline of the 16-mm image area is displaced from the centerline of the film by 1.025 mm (0.0404 in).

Annex B (informative)
Equivalent projectable image areas

While it is clearly understood that type W 16-mm camera images are not intended for release print projection, it is often necessary to determine the area of the type W 16-mm image which is equivalent to the area that will be used for release print projection after enlargement of the image. Such uses might be for screening of dailies or for viewing on editing equipment, etc. Table B.1 lists these equivalent areas. The center of these areas is coincident with the center of the aperture image area given in figure 1 and table 1.

Table B.1 – Equivalent projection areas of type W 16-mm camera image

Intended release projection format	Millimeters		Inches	
	Width	Height	Width	Height
1.66:1	11.80	7.10	0.464	0.280
1.85:1	11.80	6.38	0.464	0.251