
**Cinematography — Maximum projectable
image area on 35 mm motion-picture film —
Position and dimensions**

*Cinématographie — Surface maximale projetable pour une image sur film
cinématographique 35 mm — Position et dimensions*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 2907 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

This third edition cancels and replaces the second edition (ISO 2907:1984), which has been technically revised.

Cinematography — Maximum projectable image area on 35 mm motion-picture film — Position and dimensions

1 Scope

This International Standard specifies the maximum dimensions of the film image area intended for projection from a 35 mm motion-picture film and the position of this area relative to the perforations and the reference edge of the film.

This International Standard specifies three types of image areas intended for theatrical projection (see A.4 in informative annex A):

- Style A: general theatrical release prints commonly referred to as non-anamorphic or wide screen;
- Style B: theatrical release prints with an anamorphic image;
- Style C: classic theatrical prints.

2 Position and dimensions of image area

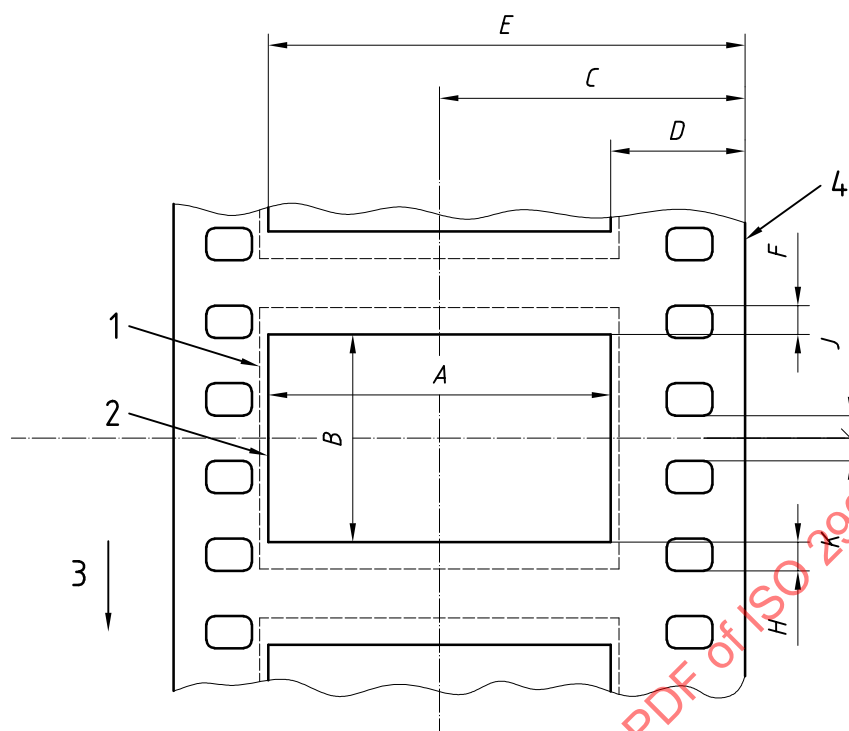
The dimensions shall be positioned as shown in Figure 1, and as specified in Table 1.

NOTE 1 Dimensions B , D , and E define the image area on the film that is available for projection. They do not define the opening in the projection-aperture plate. The size of this opening may differ from dimensions A and B , for example, because of the physical separation necessary between the aperture plate and the film to avoid scratching the film, the slant of the marginal rays accepted by the projection lens, etc.

NOTE 2 It is recognized that, in many cases, the actual film image area that is projected may be smaller than the projectable maximum and, in some cases, may be non-rectangular (for example, an irregular four-sided figure bound by either straight or curved lines). Such departures may result from the following:

- equipment considerations, such as slight inconsistencies among lenses, screen sizes, etc.;
- geometric limitations, such as the screen surface being at an angle other than 90° from the projection axis, or being non-planar or both;
- aesthetic considerations, such as pictorial composition within more restrictive image limits.

In the absence of specific instructions to the contrary, it is intended that the actual projected film image area be the largest appropriately shaped figure that can be inscribed within the specified dimensions.



Key

- 1 Film image area
- 2 Projectable image area
- 3 Direction of film travel
- 4 Reference edge

View as seen through film towards lens.

Figure 1 — Projectable image area

Table 1 — Dimensions of projectable image area

| Dimensions | mm | in |
|-----------------------|------------------------|------------------------|
| <i>A</i> | 20,95 | 0,825 |
| <i>B</i> (style A) | 11,32 min.; 12,70 max. | 0,446 min.; 0,500 max. |
| <i>B</i> (style B) | 17,53 max. | 0,690 max. |
| <i>B</i> (style C) | 15,29 nom. | 0,602 nom. |
| <i>C</i> ^a | 18,75 ref. | 0,738 ref. |
| <i>D</i> | 8,23 min. | 0,324 min. |
| <i>E</i> | 29,24 max. | 1,151 max. |
| <i>F = H</i> | within 0,30 | within 0,012 |
| <i>J = K</i> | approximately equal | approximately equal |
| ^a See A.1. | | |

Annex A (informative)

General Information

A.1 Centrelines

The centrelines of the image area are given for convenience in interpreting this International Standard, facilitating such applications as the optical design of equipment, and assisting in the understanding of suitable mechanical embodiments related to the projectable image area. Note that the centreline of the projectable image area is displaced from the centreline of the film by 1,27 mm (0,050 in) nominal.

A.2 Related International Standards

ISO 23 and ISO 2906 define image areas for other important phases of motion-picture operations and are consistent with this International Standard and with one another under currently acceptable commercial practices.

A.3 Image area for television

It is recognized that home television receivers are adjusted to show a distribution of picture sizes ranging downward from the maximum. Guides to picture composition, based upon a statistical survey of receivers in use, are presented in SMPTE RP 27.3. Note that a certain portion of the audience will see the entire transmitted area, but for certainty in presentation of critical information over broadcast television, such information should be confined to a smaller, central area.

A.4 Typical aspect ratios for non-anamorphic theatrical projection

For aesthetic and practical reasons, theatrical projection may present 35 mm images in such a manner that the full width of the projectable area is shown but the projected height is less than maximum. Photography designed primarily for theatrical exhibition recognizes this and is composed for the more elongated rectangles. Several aspect ratios for the final projected picture are recognized through usage.

To help ensure correct vertical centring (framing) of the projected image, hard-matte printing may be used in producing the duplicate negative used for release printing of theatrical prints. A hard matte with an image height of at least 12,83 mm (0,505 in) may be used for all style A aspect ratios (1,66:1 or greater). Note that prints intended for a style C aspect ratio (1,37:1) will normally have an image height of at least 16,00 mm (0,630 in) as specified in ISO 2906. In all cases, the frame lines on the print shall essentially be opaque.

It is recommended that pictures designed to be shown at aspect ratios other than those specified in this International Standard be so marked in a conspicuous manner. The leader (described in ISO 4241) provides for aspect-ratio identification on frames 29-30.

Table A.1 — Non-anamorphic aspect ratios

| Style | Aspect ratio | Projectable image height | |
|---|---------------|--------------------------|------------|
| | | mm | in |
| A | 1,85:1 | 11,32 min. | 0,446 min. |
| A | 1,66:1 | 12,62 ref. | 0,497 ref. |
| A | 16:9 (1,78:1) | 11,78 nom. | 0,464 nom. |
| C | 1,37:1 | 15,29 nom. | 0,602 nom. |
| NOTE Based on common image width $A = 20,95$ mm (0,825 in). | | | |

A.5 Image area on original negative

The use of camera-aperture dimensions other than those stated in ISO 2906 is discouraged. Film users are reminded that many features composed for wide-screen aspect ratio will be shown later on television. Use of a hard matte in the camera will require substantial cropping of the film horizontally when the film is transferred to television, and severely limits the use of a print made from the negative.

Good practice dictates using the 1,37:1 style A camera aperture given in ISO 2906, while composing for the desired theatrical-projection aspect ratio. Care should be taken to exclude extraneous items or action from the photographed image area which may show in the television scanned area.

A.6 Image steadiness

The image steadiness can be improved if the reference edge is also the guided edge.