
International Standard



2939

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Cinematography — Picture image area and photographic sound record on 35 mm motion-picture release prints — Position and dimensions

Cinématographie — Champ d'image et piste sonore photographique sur les copies d'exploitation de 35 mm — Position et dimensions

Second edition — 1986-10-15

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Descriptors : cinematography, motion-picture films, motion-picture film — 35 mm, prints, photographic images, sound track, dimensions, layout, position (location).

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 2939 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

This second edition cancels and replaces the first edition (ISO 2939:1975), clauses 2 and 3 of which have been technically revised.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Cinematography — Picture image area and photographic sound record on 35 mm motion-picture release prints — Position and dimensions

1 Scope and field of application

This International Standard specifies the dimensions and location of image and photographic sound record on 35 mm release prints with non-anamorphic picture and on release prints with anamorphic picture having a lateral compression ratio of 2 : 1 and screen image aspect-ratio of 2,35 : 1, as well as the width and location of the scanning beam.

2 Dimensions

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

2.2 Dimensions are given relative to unshrunk film.

2.3 The sound record shall be displaced from the centre of the corresponding picture by a distance of $21 \pm 1/2$ frames in the direction of film travel during normal projection.

NOTE — While picture and sound are correctly synchronized with a displacement of $21 \pm 1/2$ frames on the film, normal playback of motion pictures occurs in theatres where the relatively slow speed of sound means that the audio should precede the picture at the screen if subjectively correct synchronism is to be achieved in the middle of the theatre. An average seat location has been determined to be approximately 15 m from the screen, representing a displacement of one

frame. For this reason, ISO 4241, intended to assist in the threading of film in reproducers, defines the position of sound synchronization marks as being displaced 20 frames from the picture, i.e., 21 frames minus 1 frame.

3 Technical characteristics

Spaces between image frames, the image and the sound record and between the sound record and perforations should be substantially opaque.

4 Bibliography

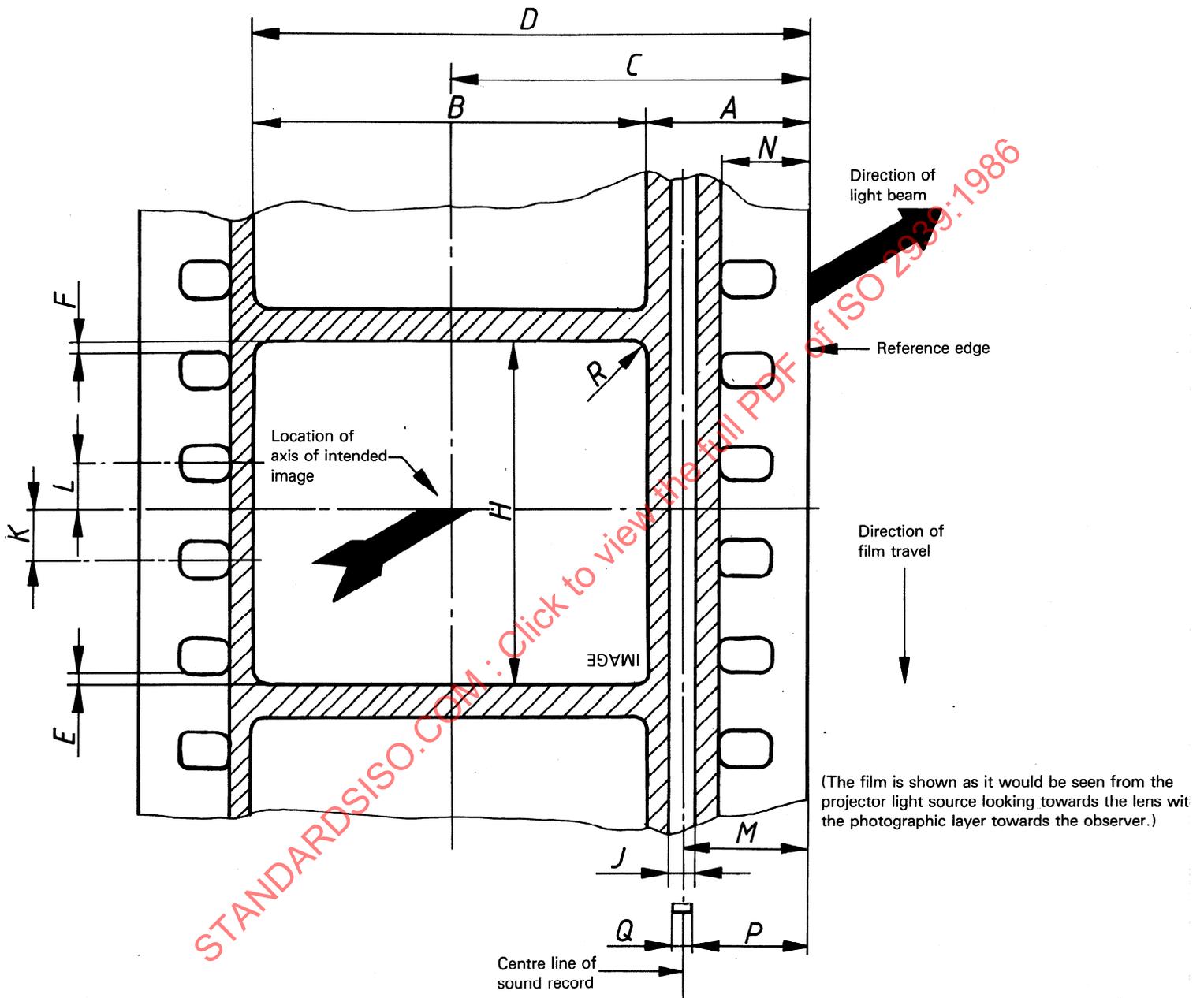
ISO 70, *Cinematography — Monophonic 35 mm negative photographic sound record on 35 mm motion-picture film — Position and maximum width dimensions.*

ISO 491, *Cinematography — 35 mm motion-picture film and magnetic film — Cutting and perforating dimensions.*

ISO 2906, *Cinematography — Image area produced by camera aperture on 35 mm motion-picture film — Position and dimensions.*

ISO 2907, *Cinematography — Maximum projectable image area on 35 mm motion-picture film — Position and dimensions.*

ISO 4241, *Cinematography — Leaders and run-out trailers for 35 mm and 16 mm release prints — Specifications.*



Figure

Table

| Dimension | mm | in |
|------------------------------------|---|--|
| <i>A</i> | $7,80 \begin{smallmatrix} +0,08 \\ -0,15 \end{smallmatrix}$ | $0.307 \begin{smallmatrix} +0.003 \\ -0.006 \end{smallmatrix}$ |
| <i>B</i> ref. | 21,77 | 0.857 |
| <i>C</i> nom. | 18,75 | 0.738 |
| <i>D</i> min. | 29,65 | 1.167 |
| <i>H</i> ₁ (see note 1) | $18,60 \begin{smallmatrix} +0,20 \\ 0 \end{smallmatrix}$ | $0.732 \begin{smallmatrix} +0.008 \\ 0 \end{smallmatrix}$ |
| <i>H</i> ₂ (see note 2) | $16,00 \begin{smallmatrix} +0,50 \\ 0 \end{smallmatrix}$ | $0.630 \begin{smallmatrix} +0.020 \\ 0 \end{smallmatrix}$ |
| <i>H</i> ₃ (see note 3) | 16,50 max. 12,80 min. | 0.650 max. 0.504 min. |
| <i>J</i> ₁ (see note 4) | $1,93 \begin{smallmatrix} +0,03 \\ -0,08 \end{smallmatrix}$ | $0.076 \begin{smallmatrix} +0.001 \\ -0.003 \end{smallmatrix}$ |
| <i>J</i> ₂ (see note 5) | $2,54 \begin{smallmatrix} 0 \\ -0,20 \end{smallmatrix}$ | $0.100 \begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$ |
| <i>M</i> | $6,17 \pm 0,08$ | 0.243 ± 0.003 |
| <i>N</i> max. | 4,90 | 0.193 |
| <i>P</i> | $5,10 \pm 0,03$ | 0.201 ± 0.001 |
| <i>Q</i> | $2,13 \begin{smallmatrix} +0,03 \\ 0 \end{smallmatrix}$ | $0.084 \begin{smallmatrix} +0.001 \\ 0 \end{smallmatrix}$ |
| <i>R</i> max. | 0,8 | 0.03 |

$E = F \pm 0,25 \text{ mm (0.010 in)}$

K and *L* shall be approximately equal

NOTES

- 1 For wide-screen films with anamorphic picture and aspect-ratio 2,35 : 1.
- 2 For films with non-anamorphic picture and aspect-ratio 1,37 : 1.
- 3 For film with non-anamorphic picture intended for projection with the picture masking and aspect-ratio up to 1,85 : 1.
- 4 For variable area sound records.
- 5 For variable density sound records.

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