INTERNATIONAL STANDARD

ISO 4241

Fifth edition
2019-07

Cinematography — Projection film leader (time-based), trailer and cue marks — Specifications

Cinématographie — Amorce de début et fin et repère de synchronisation pour la projection — Spécifications

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Reference number
ISO 4241:2019(E)

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Contents

Page

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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

This fifth edition cancels and replaces the fourth edition (ISO 4241:2013), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

— change of the title;

— editorial revision of the structure of the document.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Cinematography — Projection film leader (time-based), trailer and cue marks — Specifications

1 Scope

This document specifies the makeup or assembly of time-based leaders and cue marks for 70 mm, 35 mm, and 16 mm motion-picture release prints.

NOTE Extraneous materials are dealt with in Annex A.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4238:1976, *Cinematography — Optical printing ratios for enlargement and reduction of motion-picture film images — Specifications*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Reduction ratio

The reduction ratio in the production of the head and foot leaders from 35 mm motion-picture film to 16 mm motion-picture film shall be in accordance with ISO 4238.

5 General specifications

5.1 Orientation and dimensions of letters and numerals in this document are with respect to 35 mm motion picture films and are modified proportionally in accordance with ISO 4238 for 70 mm and 16 mm prints.

5.2 Information appearing in the leader which is printed lengthwise (in the direction of film travel) shall read from left to right when viewed from the projection lens towards the projector light source with the head end of the film at the right. Information appearing in the leader which is printed upright shall read normally when the reel is uppermost and the head of the film hangs down ready for threading (see Figures 1 and 5 for orientation of information).

5.3 All frames in the head-leader and trailer-leader identification sections (see 6.3 and 8.3) and in frames 1 through 171 of the head-leader synchronizing section (see 6.4) shall be masked to the nominal anamorphic projection aperture [20,95 mm (0,825 in) × 17,53 mm (0,690 in)] with clear framelines nominally the height of anamorphic projection aperture framelines [1,55 mm (0,061 in)]. Frames 172 through 218 of the head-leader synchronizing section and frames 1 through 87 of the

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trailer-leader runout section shall be masked to the nominal anamorphic camera aperture [21,95 mm (0,864 in) × 18,59 mm (0,732 in)] with clear framelines nominally the height of anamorphic camera-aperture framelines [0,41 mm (0,016 in)].

5.4 Because many types of film may be used for leaders, exact neutral densities have not been specified. For the purpose of this document, the following approximate neutral densities are referred to:

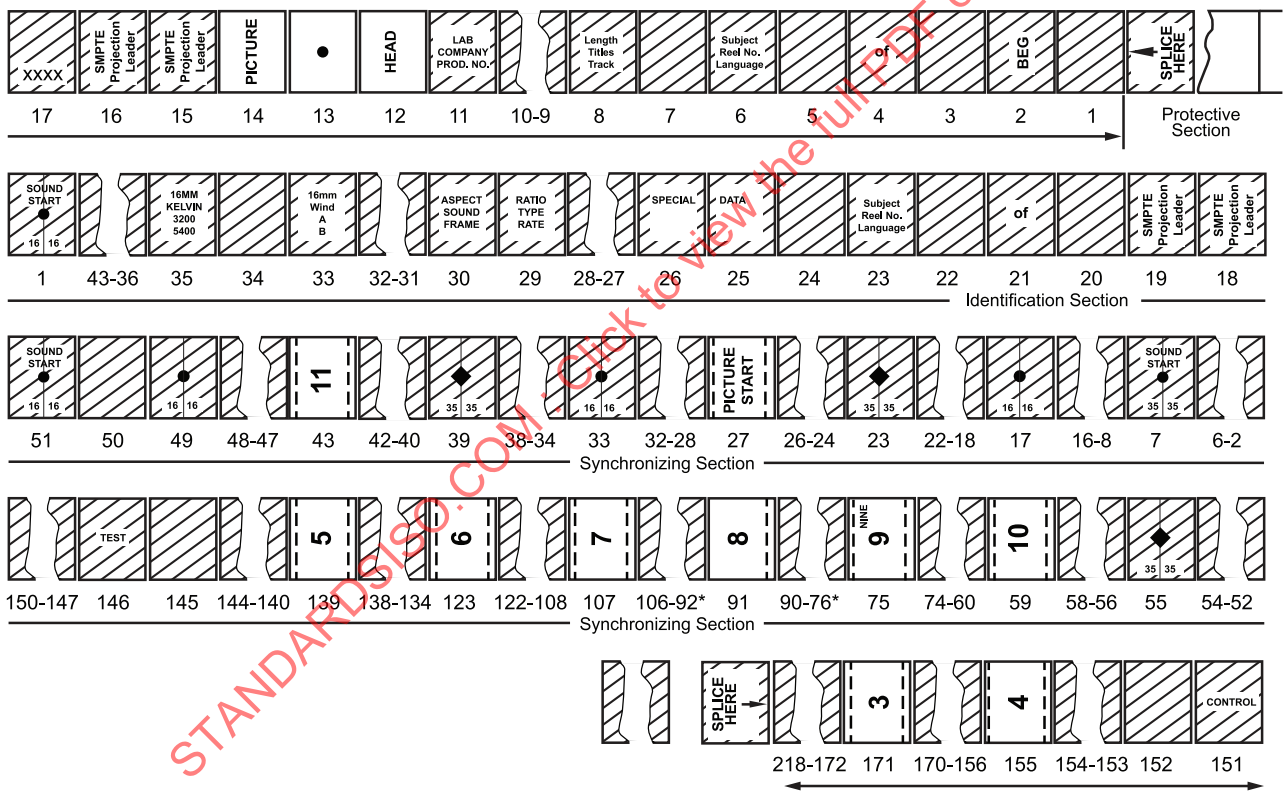
— clear (neutral density less than 0,35);

— black (neutral density greater than 1,95).

6 Head leader (see Figure 1)

6.1 Protective section

The protective section of the leader shall consist of a minimum of 2,44 m (8 linear feet) of transparent or raw stock. When the protective leader has been reduced to a length of 1,83 m (6 linear feet), it shall be restored to its original length. Logos, trademarks, part titles, or other extraneous materials, if absolutely necessary, should be placed in this section.



NOTE 1 Repeats frames 44 through 58 of synchronizing section.

NOTE 2 Film shown as viewed from projection lens towards projector light source.

NOTE 3 Cross-hatched frames represent a black background with clear images; non-cross-hatched frames represent a clear background with black images.

Figure 1 — Head leader

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6.2 Splicing frame

A single frame with the upright words “SPLICE HERE” and an arrow pointing to the frameline between this frame and frame 1 of the identification section to indicate where the protective section joins the identification section. The clear letters should be at least 3,2 mm (1/8 in) high on a black background.

6.3 Identification section

The identification section of the leader shall be 43 frames in length. The identification section of the head leader, when viewed as specified in 5.2, shall be made up as follows:

— Frame 1 — Black.

— Frame 2 — The word “BEG” in clear letters 11,1 mm (7/16 in) high printed upright in the centre of the frame, on a black background.

— Frame 3 — Black.

— Frame 4 — The word “of” in clear letters 2,4 mm (3/32 in) high printed lengthwise in the centre of the frame, on a black background.

— Frame 5 — Black.

— Frame 6 — The words “Subject”, “Reel No.”, and “Language” in clear letters 2,4 mm (3/32 in) high printed lengthwise, on a black background.

— Frame 7 — Black.

— Frame 8 — The words “Length”, “Titles”, and “Track” with clear letters 2,4 mm (3/32 in) high printed lengthwise, on a black background.

— Frames 9-10 — Black.

— Frame 11 — The words “Lab”, “Company”, and “Prod No.” with clear letters 2,4 mm (3/32 in) high printed lengthwise, on a black background.

— Frame 12 — The word “HEAD” in black letters nominally 9,5 mm (3/8 in) high printed upright in the centre of the frame, on clear background.

— Frame 13 — A 1/8 in (3,2 mm) diameter black dot in the centre of the frame on a clear background.

— Frame 14 — The word “PICTURE” in black letters nominally 9,5 mm (3/8 in) high printed upright in the centre of the frame, on a clear background.

— Frames 15-16 — Two frames in which the words “SMPTE Projection Leader” in clear letters are printed upright on a black background. The letters shall not be less than 3,2 mm (1/8 in) high.

— Frame 17 — Four letter “X”s, printed in a lengthwise line adjacent to the 35 mm analogue photographic audio record, approximately 7,9 mm (5/16 in) from the 35 mm camera aperture centreline towards the 35 mm analogue photographic audio record. Letters shall be clear, 3,2 mm (1/8 in) high and 3,2 mm (1/8 in) wide, on a black background.

— Frames 18-19 — Same as frames 15-16.

— Frames 20-23 — Same as frames 3-6.

— Frame 24 — Black.

— Frames 25-26 — The words “Special Data” with clear letters 2,4 mm (3/32 in) high printed lengthwise along the edge of the frame opposite the sound track area, on a black background, starting in the 26th frame.

— Frames 27-28 — Black.

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— Frames 29-30 — The words “Aspect Ratio”, “Sound Type”, and “Frame Rate” with clear letters 2,4 mm (3/32 in) high printed lengthwise, on a black background, starting in the 30th frame and in three separate lengthwise lines.

— Frames 31-32 — Black.

— Frame 33 — The words “16 mm”, “Wind”, “A”, and “B” with clear letters 2,4 mm (3/32 in) high printed lengthwise, on a black background.

— Frame 34 — Black.

— Frame 35 — The words “16 mm”, “Kelvin”, “3200”, and “5400” with clear letters 2,4 mm (3/32 in) high printed lengthwise, on a black background.

— Frames 36-43 — Black.

6.4 Synchronizing section

6.4.1 The synchronizing section of the leader shall be 218 frames in length.

6.4.2 The words and numerals indicating 16-frame units in the synchronizing section shall have the vertical dimension of the 1,85:1 projection aperture [11,3 mm (0,446 in)]. The orientation of the words and numerals shall be upright. These frames (27, 43, 59, 75, 91, 107, 123, 139, 155, and 171) shall have dashed lines to indicate the 1,37:1 projection aperture height [15,29 mm (0,602 in)].

6.4.3 The synchronizing section, when viewed as specified in 5.2, shall be made up as follows:

— Frame 1 — The 16 mm sound indication; the numeral “16” printed lengthwise in clear letters on a black background on both sides of a clear horizontal line with a clear dot of 3,2 mm (1/8 in) diameter in the centre of the frame (as shown in Figure 2). The line shall extend to the edges of the frame. This frame is repeated every 16 frames to frame 129. Frame 1 shall also contain the words “SOUND START” printed lengthwise in clear letters 3,2 mm (1/8 in) high on a black background (see Figure 2).

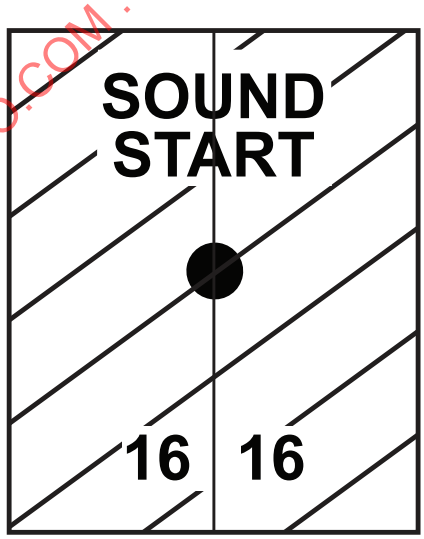

Figure 2 — 16 mm sound-start identification frame

— Frames 2-6 — Black.

— Frame 7 — The 35 mm sound indication; the numeral “35” printed lengthwise in clear letters on a black background on both sides of a clear horizontal line with a clear diamond at least 4,76 mm × 4,76 mm (3/16 in) in the centre of the frame (as shown in Figure 3). The line shall extend to the edges of the

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frame. This frame is repeated every 16 frames to frame 135. Frame 7 shall also contain the words "SOUND START" printed lengthwise in clear letters 3,2 mm (1/8 in) high on a black background (see Figure 3).

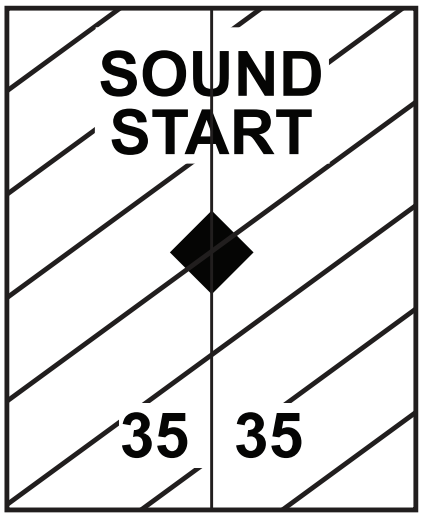

Figure 3 — 35 mm sound-start identification frame

— Frames 8-16 — Black.

— Frame 17 — Same as frame 1. Frames 18-22 — Black.

— Frame 23 — Same as frame 7.

— Frames 24-26 — Black.

— Frame 27 — The words "PICTURE START" printed upright in black on a clear background. The letters shall be 4,8 mm (3/16 in) high. The total vertical dimensions of the words shall be as described in 6.4.2. Visual countdown begins with this frame.

— Frames 28-32 — Black.

— Frame 33 — Same as frame 1. Frames 34-38 — Black.

— Frame 39 — Same as frame 7. Frames 40-42 — Black.

— Frame 43 — The numeral "11" printed upright in black on a clear background, with dimensions as described in 6.4.2.

— Frames 44-48 — Black.

— Frame 49 — Same as frame 1. Frame 50 — Black.

— Frame 51 — The 70 mm sound indication; the numeral "70" printed lengthwise in clear letters on a black background on both sides of a clear horizontal line with a clear circle of 9,5 mm (3/8 in) diameter within a clear square 9,5 mm × 9,5 mm (3/8 in) in the centre of the frame (as shown in Figure 4). This frame is repeated every 16 frames to frame 131. Frame 51 shall also contain the words "SOUND START" printed lengthwise in clear letters 3,2 mm (1/8 in) high on a black background (see Figure 4).

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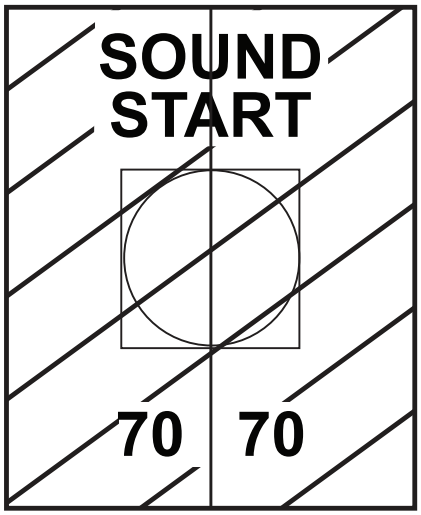

Figure 4 — 70 mm sound-start identification frame

— Frames 52-54 — Black.

— Frame 55 — Same as frame 7. Frames 56-58 — Black.

— Frame 59 — The numeral “10” printed upright in black on a clear background, with dimensions as described in 6.4.2.

— Frames 60-139 — Continuation of the sequence described from frame 44 to frame 59, inclusive, with the 16-frame units counting down. The numeral “9” shall be superscripted with the word “Nine”. The numeral “6” shall be subscripted with the word “Six”.

— Frames 140-144 — Black.

— Frames 145-152 — Eight frames labelled with clear arrows in frames 145 and 152 and the words “Control Test” printed lengthwise in clear letters on a black background to indicate the position in the leader where one to eight frames may be removed and a similar number of control frames spliced in.

— Frames 153-154 — Black.

— Frame 155 — The numeral “4” printed upright in black on a clear background, with dimensions as described in 6.4.2.

— Frames 156-170 — Black.

— Frame 171 — The numeral “3” printed in black on a clear background, with dimensions as described in 6.4.2.

— Frames 172-218 — Black.

6.5 Splicing frame

One additional frame shall follow with the inverted upright words “SPLICE HERE” as shown in Figure 1, and an arrow pointing to a clear frameline between frame 218 and this frame to indicate where the synchronizing section joins the picture section. The clear letters should be at least 3,2 mm (1/8 in) high printed on a black background.

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7 Picture section (see Figure 5)

7.1 Picture

It is recommended that picture action start and finish on fades wherever possible. Otherwise, significant audio should be kept at least 80 frames from the start and finish of the picture.

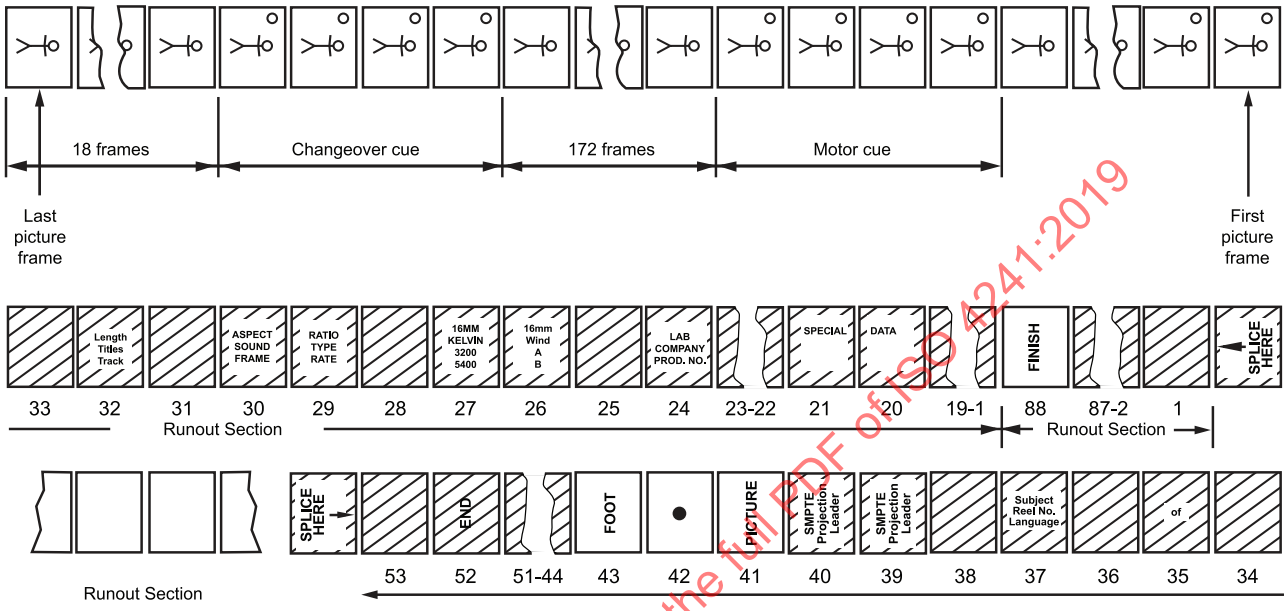

Figure 5 — Picture and trailer leader

7.2 Motor cue

The motor cue shall consist of black circles or clear circles, printed from a negative, which has had four consecutive frames marked as shown in Figures 6, 7, and 8 for 16 mm, 35 mm, and 70 mm films, respectively. The position and dimensions of this mark shall be as given in Table 1. Following the four frames containing the motor cue, there shall be 172 frames to the beginning of the changeover cue.

7.3 Changeover cue

The changeover cue shall consist of four frames containing circles of the same dimensions and position on the frame as those in the motor cue. Following the four frames of the changeover cue, there shall be 18 frames to the beginning of the runout section of the trailer.

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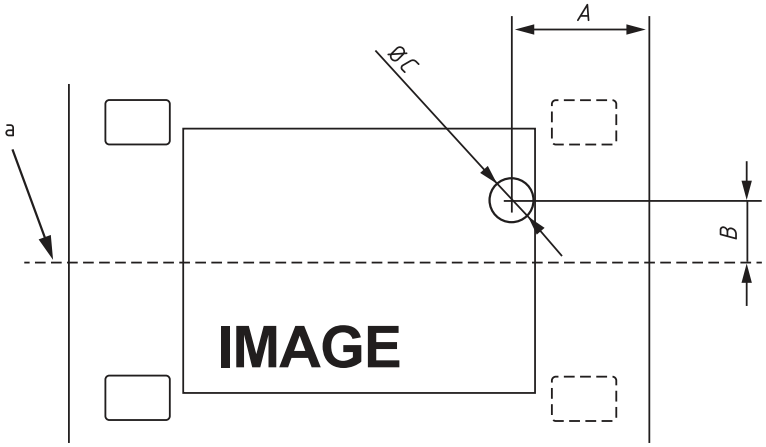
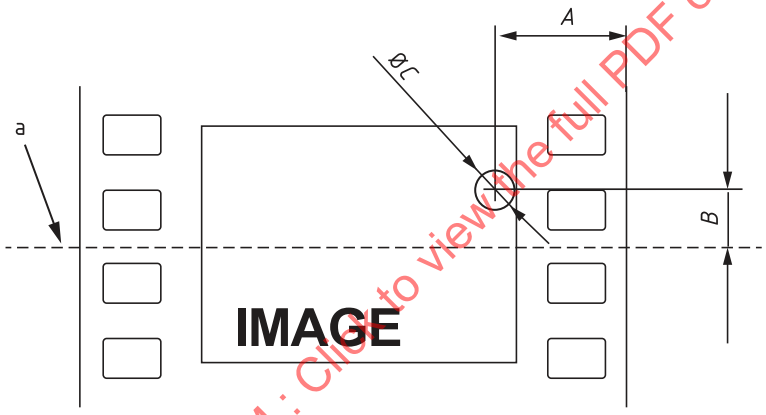


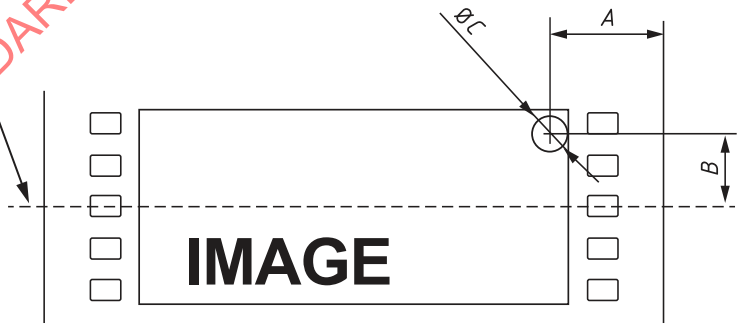
a Centreline of projectable image area.

Figure 6 — 16 mm cue marks



a Centreline of projectable image area.

Figure 7 — 35 mm cue marks



a Centreline of projectable image area.

Figure 8 — 70 mm cue marks

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