# INTERNATIONAL STANDARD

# ISO
# 4241

Third edition
2001-11-15

# Cinematography — Theatre projection leader, trailer and cue marks — Specifications

*Cinématrographie — Amorces, «trailer» et «cue marks» pour projection en salles — Spécifications*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

© ISO 2001

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 4241:2001
https://standards.iteh.ai/catalog/standards/sist/3eefb7f1-6541-4606-bb10-
6d355fd54adb/iso-4241-2001

# Contents

Page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 4241:2001
https://standards.iteh.ai/catalog/standards/sist/3eefb7f1-6541-4606-bb10-
6d355fd54adb/iso-4241-2001

# 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 4241 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

This third edition cancels and replaces the second edition (ISO 4241:1987), which has been technically revised.

Annex A of this International Standard is for information only.

# Cinematography — Theatre projection leader, trailer and cue marks — Specifications

## 1   Scope

This International Standard specifies the make-up or assembly of leaders and cue marks for 70 mm, 35 mm and 16 mm motion-picture release prints for use in motion-picture theatres and screening rooms.

NOTE      Extraneous materials are dealt with in informative annex A.

## 2   Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

## 3   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.

## 4   General specifications

**4.1**     Orientation and dimensions of letters and numerals in this International Standard are with respect to 35 mm motion-picture film and are modified proportionally in accordance with ISO 4238 for 70 mm and 16 mm prints.

**4.2**     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).

**4.3**     All frames in the head-leader and trailer-leader identification sections (see 5.3 and 7.3) and in frames 1 through 171 of the head-leader synchronizing section (see 5.4) 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 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)].
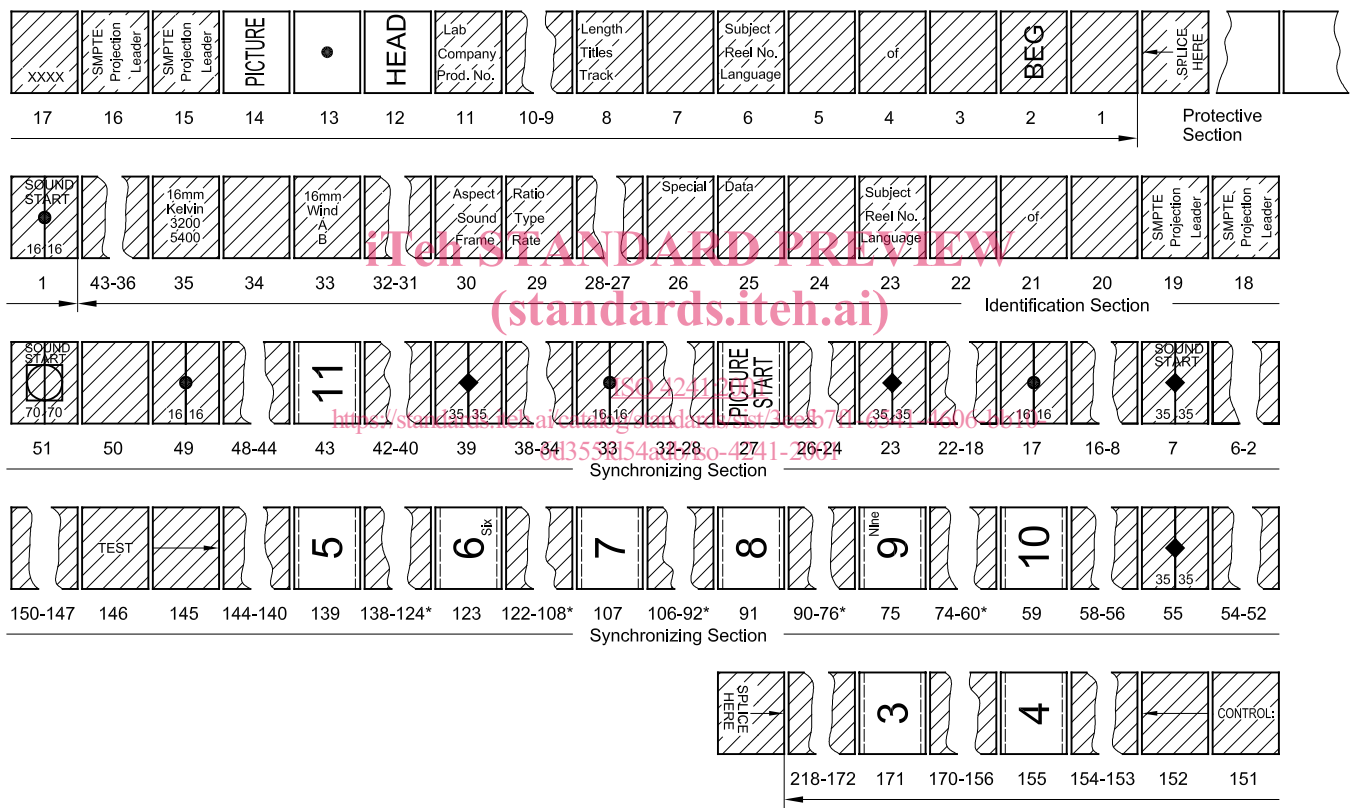
**4.4** Since many types of film may be used for leaders, exact neutral densities have not been specified. For the purpose of this International Standard, the following approximate neutral densities are referred to:

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

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

# 5 Head leader (see Figure 1)

## 5.1 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.



Repeats frames 44 through 58 of Synchronizing Section.

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

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**

## 5.2 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.

## 5.3   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 4.2, 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 35 mm analog photographic audio record, approximately 7,9 mm (5/16 in) from the 35 mm camera aperture centreline towards 35 mm analog 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.

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.

## 5.4   Synchronizing section

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

**5.4.2**    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)].

**5.4.3**    The synchronizing section, when viewed as specified in 4.2, 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).
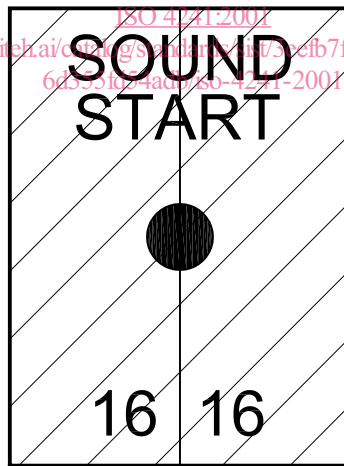


**Figure 2 — 16 mm sound-start identification frame**

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 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).
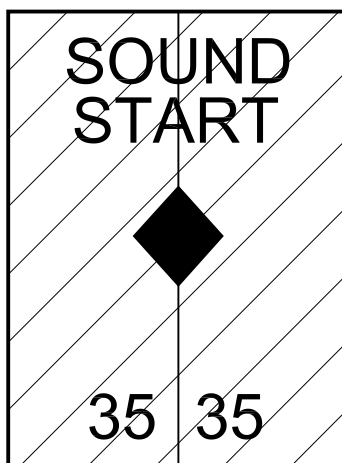
**Figure 3 — 35 mm sound-start identification frame**

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 5.4.2. 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 5.4.2.

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).