INTERNATIONAL STANDARD

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Cinematography — Picture areas for motion-picture films for television — Position and dimensions

Cinématographie — Champs d'image pour films destinés à la télévision — Emplacements 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 2.

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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 1223 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

This fourth edition cancels and replaces the third edition (ISO 1223:1993), which has been technically revised.

Introduction

The use of film in television has evolved over many years, from being a source of programmes for transmission to becoming an integral part of the programme production. Thus, there is a need for a complete review of all existing standards and recommendations to ensure that they conform with how film is used today in television. The International Telecommunication Union Radiocommunication Sector (ITU-R), The European Broadcasting Union (EBU) and the Society of Motion Picture and Television Engineers (SMPTE) have worked independently, each endeavouring to harmonize all known recommendations on this subject and aiming at International Standards that will be references for worldwide performance and production practice. The results of these independent programmes demonstrate a remarkable consensus of opinion and it has therefore been possible to combine the products of all of these bodies of work in this International Standard.

This International Standard specifies the dimensions of area to be scanned from 16 mm and 35 mm motion-picture films. Its purpose is to be a reference document for harmonizing the areas used in film cameras, film projectors, telecines and test films for television purposes. The dimensions of the recommended areas are based on how film material and film technology are actually used for television production and reproduction. The technical properties of film and television techniques are taken into account, as well as the artistic criteria for format harmonization from shooting to presentation. The listed dimensions are based on key values taken from film-industry standards and practices for exposure, printing and projection as well as past and present technology of television reproduction.

Cinematography — Picture areas for motion-picture films for television — Position and dimensions

1 Scope

This International Standard defines the position and dimensions of maximum safe areas of the images on 16 mm and 35 mm motion-picture film, which are transmitted or transferred by television. It applies to all formats which are intended for use with either or both of 4:3 and 16:9 aspect ratios.

2 Normative references

The following referenced documents are indispensable for the application 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 359:1983, *Cinematography — Projectable image area on 16 mm motion-picture prints — Dimensions and location*

ISO 2906:2002, *Cinematography — Image area produced by camera aperture on 35 mm motion-picture film — Position and dimensions*

ISO 2907:2002, *Cinematography — Maximum projectable image area on 35 mm motion-picture film — Position and dimensions*

ISO 5768:1998, *Cinematography — Image produced by camera aperture Type W on 16 mm motion-picture film — Position and dimensions*

3 Scanning requirements

3.1 Images for optical projection

Images on film which have been shot and framed for optical projection shall be scanned, based on the requirements of ISO 359 and of ISO 2907 as appropriate.

3.2 Images for television

Images on film which have been shot and framed for television shall be scanned, based on the requirements of ISO 2906 and ISO 5768 as appropriate.

3.3 Non-standard areas

Where image areas other than those specified in ISO 2906 and ISO 2907 for 35 mm film and ISO 359 and ISO 5768 for 16 mm film are used with the active support of the industry, these shall be specified in documentation available at the time of transmission transfer.

4 Requirements for scanned areas

4.1 Projection film intended for 4:3 television

For film originally shot and framed for projection but required for transmission/transfer via 4:3 television, the scanned areas shall be as defined in Table 1[1)].

4.2 Projection film intended for 16:9 television

For film originally shot and framed for projection but required for transmission/transfer via 16:9 television, the scanned areas shall be as defined in Table 2.

4.3 Film specially prepared for 4:3 television

For film specially shot and framed for 4:3 television, the scanned areas shall be as defined in Table 3.

4.4 Film specially prepared for 16:9 television

For film specially shot and framed for 16:9 television, the scanned areas shall be as defined in Table 4.

NOTE Annex A provides illustrations of the application of those scanned areas.

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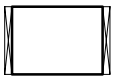
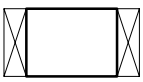
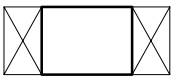
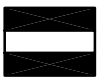
Table 1 — Film shot and framed for projection — Scanned for 4:3 television

(Scanned area dimensions from images on film intended for contact printing and projection. The film material may be a print, an intermediate or camera original.)

Reference number	Image aspect ratio		Display [a]	Scanned area dimension mm			Notes
	framed for	displayed on TV		width	height	centre	
1.1	16 mm: Standard aperture						
1.1.1	1,33:1	4:3 full screen		9,65	7,24	7,98	1
1.1.2	1,33:1	4:3 full screen		9,35	7,01	7,98	2
1.2	35 mm: Academy aperture						
1.2.1	1,37:1	4:3 full screen		20,39	15,29	18,75	3,4
1.2.2	1,37:1	4:3 full screen		20,12	15,09	18,75	2,4
1.2.3	1,66:1	4:3 full screen		16,83	12,62	18,75	3,4
1.2.4	1,66:1	1,66:1 letter-box		20,95	12,62	18,75	3,5
1.2.5	16:9	4:3 full screen		15,71	11,78	18,75	3,4
1.2.6	16:9	16:9 letter-box		20,95	11,78	18,75	3,5
1.2.7	1,85:1	4:3 full screen		15,09	11,32	18,75	3,4
1.2.8	1,85:1	1,85:1 letter-box		20,95	11,32	18,75	3,5
1.2.9	2,39:1	4:3 full screen		11,69	17,53	18,75	3,4
1.2.10	2,39:1	2,39:1 letter-box		20,95	17,53	18,75	3,5

NOTE 1 These dimensions are based on the “projected area” dimensions given in ISO 35.

NOTE 2 These dimensions are related to the historic concept of scanning film for television specified as “transmitted area” dimensions in ISO 1223:1993, Annex A.

NOTE 3 These dimensions are based on the “projected area” dimensions in ISO 2907.

NOTE 4 The television display will show the film image with areas on each side cropped (see Figure A.1).

NOTE 5 The television display will show black areas at the top and bottom of the film image (see Figure A.2).

a  Cropped area on the film image  Black area on the television display