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**Photography — Photographic materials —
Determination of ISO resolving power**

*Photographie — Surfaces sensibles — Détermination du pouvoir résolvant
ISO*

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Reference number
ISO 6328:2000(E)

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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.

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.

International Standard ISO 6328 was prepared by Technical Committee ISO/TC 42, *Photography*.

This second edition cancels and replaces the first edition (ISO 6328:1982), which has been technically revised.

In this revision, the description of the process of evaluating images has been expanded. The specifications of the resolving power camera's objectives have been altered slightly, and the illustration of a resolving-power camera has been moved to informative annex A. The text describing qualification of the camera has been expanded to include the target.

This second edition also contains many other changes, most of which were made for the sake of clarity of understanding. Among these changes is a clarification of part of the scope. The definitions have also been expanded; some terms have been substituted for others in order for their usage to be more consistent and their meaning to be clearer. The term "element" has been introduced in place of "test pattern" and "tribar resolving-power target" replaces "test chart". Other terms introduced or clearly defined include "target polarity", "limiting element" and "ISO resolving power".

Annex A of this International Standard is for information only.

Introduction

The resolving power of a photographic material is used to estimate the smallest detail that may be visually observable when recorded on the material. It combines the effects of modulation transfer function, graininess and contrast, all of which contribute to overall image quality, and human observers, each of whom may differ in their assessment of quality. The method is particularly useful for appraising materials that will be viewed at high magnification such as microfilm, 8 mm and 16 mm motion picture film, etc. However, resolving power should not be expected to predict overall image quality in every situation, because image quality is too complex to be described by a single factor. This is particularly the case for low-contrast continuous-tone products.

Resolving power as measured by photographing suitable tribar resolving-power targets is very dependent on conditions of measurement, and the structure of the target element. It depends markedly on the photographic conditions employed and on the presence of background glare from the illuminated target. It is affected by such factors as the spectral content of the light used, the exposure level, the focus, processing procedures, the lens aperture at which the test is made, the contrast of the target and the magnification of the camera lens and the microscope through which the images are observed, etc.

The judgment exercised by the human observer in determining resolving power can be a source of significant experimental error. The criterion of resolution given in this International Standard was selected because it appeared to admit less latitude in interpretation than others. The description of the process of evaluating images has been expanded in this revision.

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Photography — Photographic materials — Determination of ISO resolving power

1 Scope

This International Standard specifies a method for determining the resolving power of photographic films, plates and papers, including black-and-white films, black-and-white printing papers, colour-reversal films, colour-negative films, and colour-printing papers.

Materials designed for X-ray and other high-energy radiation are excluded, as are photographic materials used in medical radiography where the exposure source is an intensifying screen in contact with the film (sensitized on one or two sides). Also excluded are materials having photo-polymer, diazo, etc. light-sensitive layers.

2 Normative references

The following normative documents contain 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 editions of the normative documents 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 497:1973, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*.

ISO 554:1976, *Standard atmospheres for conditioning and/or testing — Specifications*.

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

3.1

element

three parallel bars and two spaces of equal width and separation

3.2

group number

number of square dots preceding the array of elements which is used to locate a position on the tribar resolving-power target

3.3

tribar resolving-power target

array of identical elements that decrease in size (geometrically), and typically spirals towards the centre of the target format

3.4

spatial period

within an element of a tribar target, the distance between the leading edges of two consecutive bars

NOTE The spatial period is usually expressed in millimetres (mm).