
This is a preview of "ISO 3028:1984". [Click here to purchase the full version from the ANSI store.](#)

International Standard 3028

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

Photography — Camera flash illuminants — Determination of ISO spectral distribution index (ISO/SDI)

Photographie — Illuminant type «lampe éclair» pour photographie — Détermination de l'indice de distribution spectrale ISO (ISO/SDI)

Second edition — 1984-10-15

UDC 771.448

Ref. No. ISO 3028-1984 (E)

Descriptors : photography, photographic equipment, light sources, flash lamps, electronic flash tubes, illuminants, tests, optical tests, spectrum analysis, spectral distribution.

This is a preview of "ISO 3028:1984". [Click here to purchase the full version from the ANSI store.](#)

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 3028 was prepared by Technical Committee ISO/TC 42, *Photography*.

ISO 3028 was first published in 1974. This second edition cancels and replaces the first edition, of which it constitutes a fundamental revision.

Photography — Camera flash illuminants — Determination of ISO spectral distribution index (ISO/SDI)

0 Introduction

This International Standard specifies a method for evaluating the colour quality of flash illuminants used in photography. This revision of ISO 3028 was considered necessary in order to recognize the spectral sensitivity of colour films as they are presently manufactured. It also utilizes the recently approved spectral transmittance values of the ISO standard camera lens (see ISO 6728). For these reasons, spectral distribution indexes (SDI) determined according to this edition of ISO 3028 shall not be compared with those of the previous edition.

Camera flash units are generally used indoors for exposing film which has been specifically designed to provide optimum results outdoors in daylight. Therefore, flash units should give results with an overall colour balance equivalent to that obtained in daylight (see ISO 7589). The ISO/SDI of a flash source, determined according to this International Standard, is a numerical expression of the colour balance shift expected in flash pictures compared with those taken in natural daylight. It is expected that this International Standard will be used by manufacturers in the design and control of photographic light illuminants.

This International Standard is intended primarily to evaluate electronic flash units and expendable sources such as flash bulbs. However, it may also be used to evaluate any illuminant under which daylight-type colour films are exposed.

1 Scope and field of application

This International Standard specifies a method for calculating a spectral distribution index (SDI) to evaluate the ability of expendable flash and electronic flash units to produce photographic colour results comparable to those obtained with daylight-type films exposed to daylight illumination.

2 References

ISO 5/1, *Photography — Density measurements — Part 1: Terms, symbols, and notations.*

ISO 6728, *Photography — Camera lenses — Determination of ISO colour contribution index (ISO/CCI).*

ISO 7589, *Photography, — Illuminants for sensitometry — Specifications for daylight and incandescent tungsten.*

CIE Publication No. 15, *Colorimetry, Official Recommendations of the International Commission on Illumination.*

3 Definitions

For the purpose of this International Standard, the terms listed in ISO 5/1 and the following apply:

3.1 source: A physical emitter of energy.

3.2 illuminant: Light having a specific spectral power distribution not necessarily provided directly by a source and not necessarily realizable by a source.

3.3 relative spectral power distribution: A description of the spectral character of radiation by the relative distribution of some radiometric quantity (radiant flux, radiant intensity).

3.4 photographic response R : The effective response of a sensitized photographic material to radiant flux.

This can be represented by the equation

$$R = \int_{\lambda_1}^{\lambda_2} S_{\lambda} s(\lambda) \tau(\lambda) d\lambda \quad \dots (1)$$

where

R is the photographic response;

S_{λ} is the relative spectral power distribution of the radiant flux;

$s(\lambda)$ is the relative spectral sensitivity of the camera film or paper;

$\tau(\lambda)$ is the axial relative spectral transmittance of the camera lens (or optical system);

λ is the wavelength;

λ_1 to λ_2 is the range of wavelengths over which the photographic material is sensitive.

3.5 spectral sensitivity of film: The reciprocal of the amount of power required at each wavelength to produce a specified density in the final image.

3.6 weighted spectral sensitivity values: Obtained by combining the relative spectral sensitivity of the material and relative spectral transmittance values for the ISO standard camera lens to simplify the determination of spectral distribution index values.