



BSI Standards Publication

## Photography — Photographic reflection prints

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Part 1: Evaluation methods of image quality

## National foreword

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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# TECHNICAL REPORT

# ISO/TR 20791-1

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## Photography — Photographic reflection prints —

### Part 1: Evaluation methods of image quality

*Photographie — Tirages photographiques par réflexion —  
Partie 1: Méthodes d'évaluation de la qualité de l'image*



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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.

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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

A list of all parts in the ISO 20791 series can be found on the ISO website.

## Introduction

Image quality of photographic prints is not based on any single feature but instead involves several factors. There are so-called “five major properties” for representing photographic image quality, and each one is essential: (1) density; (2) colour; (3) uniformity; (4) tone and (5) detail reproduction. Glossiness represents another important factor. It affects the observer’s perception since it relates to the light specularly reflected from prints. Though the specularly reflected light contains no information from the printed image, it affects the observer’s perception. Furthermore, sharpness of the shape of reflected light sources also affects the perception.

Several standards for image quality measurement have been documented by ISO/TC 42. Standards intended for analogue prints fail to properly address the effect of half tone dots, which required to produce inkjet and electrophotographic prints.

In recent years, the field of imaging science and technology has witnessed the investigation of measurement methods for digital prints. In addition, standards have been developed by ISO/IEC JTC 1/SC 28 and ISO/TC 130. Some of these standards cannot be applied broadly to photographic prints because they focus on a specific technical or industrial field. However, the rest of these standards handle common aspects and can be applied to photographic prints with or without modifying the standard. This document provides information about the measurement methods for image quality that are applicable to photographic prints, including digital prints produced using a range of printing technologies.

ISO/TC 42 plans to develop test targets for image quality measurements on small size photographic prints. This document provides methods which can be applied for the measurements.

# Photography — Photographic reflection prints —

## Part 1: Evaluation methods of image quality

### 1 Scope

This document provides information and examples of measurement methods for evaluating the image quality of digital photographic reflection prints, including prints produced by ink jet, thermal dye transfer, electrophotography and silver halide (chromogenic) technologies. These measurement methods are intended especially to be applicable to small prints with a size of available picture area ranging from 35 mm × 45 mm to 360 mm × 450 mm, a popular and basic application of photographic print technology.

NOTE The definition of “digital print” here is print made directly from digital data when there is no intermediate image carrier, or when the image carrier is refreshed for each impression, and thus each impression can be different in content if desired.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

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

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/>

#### 3.1 Terms

##### 3.1.1

##### **reflectance factor**

ratio of the reflected flux as measured to the reflected flux under the same geometrical and spectral conditions for an ideal 100 % diffuse reflecting surface

[SOURCE: ISO/IEC 24790:2017, 3.30]

##### 3.1.2

##### **spots per inch**

##### **spi**

spots per 25,4 mm

[SOURCE: ISO/IEC 24790:2017, 3.34]

##### 3.1.3

##### **visual transfer function**

##### **VTF**

function used to represent human visual characteristics when dividing the system into parts and evaluating it as a superposition of transfer functions in the spatial frequency domain