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## **Optics and photonics — Camera lenses — Measurement of ISO spectral transmittance**

*Optique et photonique — Objectifs photographiques — Mesurage du facteur spectral de transmission ISO*



Reference number  
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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 172, *Optics and photonics*, Subcommittee SC 1, *Fundamental standards*.

This second edition cancels and replaces the first edition (ISO 8478:1996), of which it constitutes a minor revision.

The main changes compared to the previous edition are as follows:

- the document has been updated to current drafting rules;
- [A.2](#) b) has been adjusted.

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## Introduction

This document describes a preferred method for the measurement of spectral transmittance. Alternative methods may be used, provided that the method gives the same result as that obtained according to this document within the tolerances allowed by it. In the case of lenses with very long or short focal lengths and in large aperture lenses, care should be taken to maintain the ideal integration properties of the integrating sphere.

Spectral transmittance of the lens under test may vary with the diameter of the incident beam and with the angle of incidence of the beam. In order to obtain uniform results, this document specifies that the measurement is to be made with a collimated beam incident upon the lens along its optical axis, and filling the central half diameter of its entrance pupil at its minimum  $f$ -number.

In the case of lenses with very long or short focal lengths, the measuring method specified in this document may not be applicable due to the difficulty in preparing a very big or very small integrating sphere. In such a case, an alternative method may be used, provided that it gives the same result as that obtained according to this document within the tolerances allowed by this document.

[Annex A](#), which forms an integral part of this document, is provided to give a particular method for measuring the spectral transmittance of mirror lenses.