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Analytical colorimetry —

Part 4: Metamerism index for pairs of samples for change of illuminant

Analyse colorimétrique —

Partie 4: Indice de métamérisme de paires d'échantillons pour changement d'illuminant

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Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Symbols **2**
5 Reference illuminant **3**
6 Test illuminant **3**
7 CIELAB coordinates *L**, *a**, *b** **3**
8 Metamerism index for change in illuminant **4**
8.1 General calculation methods 4
8.2 Basic calculation of the metamerism index from colour differences 5
8.3 Correction methods 5
8.3.1 Additive correction 5
8.3.2 Multiplicative correction 5
8.3.3 Spectral correction 6
8.4 Test report 10
Annex A (informative) **Calculation examples** **11**
Bibliography **24**

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Foreword

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This second edition cancels and replaces the first edition (ISO 18314-4:2020), which has been technically revised.

The main changes are as follows:

— a brief introduction about differentiation between metamerism and paramerism has been added in 8.1;

— Formula (1) has been updated to align with Formulae (2) and (4) to (24);

— the key of Figure A.1 has been updated.

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Introduction

This document distinguishes three kinds of metamerism of pairs of samples:

a) Illuminant metamerism occurs if both of the object colours of a pair of samples are perceived as being the same only under a specific illuminant (e.g. under illuminant D65), while they differ under a different illuminant (e.g. illuminant A).

b) Observer metamerism occurs if the object colours of a pair of samples are perceived as being the same by one observer, while a different observer perceives a colour difference under the same illuminant and the same reference conditions.

NOTE 1 The observer metamerism is caused by differences between the distributions of spectral colour matching functions of different observers.

c) Field-size metamerism occurs if both of the object colours of a pair of samples are perceived as being the same on the retina for a size of an observation field (e.g. determined by the 2° standard observer), while they differ for a different observation field on the retina (e.g. 10°).

NOTE 2 The reason for field-size metamerism is based on the existent colour matching functions of an observer during an observation situation. The colour matching functions change with the size of the observation field on the retina. Such change of the observation field can also occur if, for example, the pair of samples is examined from different distances.

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