



BSI Standards Publication

Graphic technology and photography — Colour characterization of digital still cameras (DSCs)

Part 4: Programmable light emission system

National foreword

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The UK participation in its preparation was entrusted to Technical Committee CPW/42, Photography.

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Graphic technology and photography — Colour characterization of digital still cameras (DSCs) —

Part 4: Programmable light emission system

*Technologie graphique et photographie — Caractérisation de la
couleur des appareils photonumériques —*

Partie 4: Système d'émission de lumière programmable



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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Description	2
4.1 General	2
4.2 Operating condition	3
4.3 Description of the system	3
4.3.1 General	3
4.3.2 Wavelength	4
4.3.3 Resolution of digital-analogue conversion for light emitting devices	4
4.3.4 Output window size	4
4.3.5 Luminance	4
4.3.6 Uniformity	4
4.3.7 Angular characteristics	5
4.3.8 Repeatability	5
4.4 Reporting form	6
5 Generation and evaluation of a spectral match	7
5.1 Generation of a spectral match	7
5.2 Evaluation of a spectral match	8
Annex A (informative) Spectral match generation, scaling, and evaluation examples	9
Annex B (informative) Several guideline information to design the PLES	11
Annex C (informative) An example for the PLES required and recommended conditions	12
Bibliography	13

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).

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

This second edition cancels and replaces the first edition ([ISO/TS 17321-4:2016](http://www.iso.org/iso/17321-4:2016)), which has been technically revised.

The main changes are as follows:

- reorganized introduction and [Clause 4](#);
- [Clause 4](#) is concentrated on the hardware evaluation of programmable light emission system (PLES). New [Annexes B](#) and [C](#) were added to the second edition;
- a new [Clause 5](#) and a new [Annex A](#) using VSA (Vector Space Arithmetic) formulation for simpler-conceptual explanation of spectral match for PLES were added;
- removed unnecessary explanations on spectral generation ([Annexes A, B, C, D, E, F](#) and explanation of spectral match in [Clause 4](#)), accordingly.

A list of all parts in the ISO 17321 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document describes a programmable light emission system. This system may be used to create spectra that are arbitrary combinations of the lights contained within or may be used to create a spectral match to a target reference spectrum. Unless the lights are of high dimensionality (ideal spectral shape at each wavelength) such a match will generally be only approximate. Therefore, evaluation methods for the spectra generated by the system are also described.

An example hardware description of a programmable light emission system is presented in [Clause 4](#). While any programmable light emission system that meets the tolerances specified may be utilized, this document considers systems comprised of light emitting devices such as inorganic or organic LEDs, quantum dots, and laser diodes (if equipped with suitable spatial filtering).