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

Part 5:

**Colour targets including saturated
colours for colour characteristic
evaluation test for colorimetric
image capture**

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

*Partie 5: Cibles de couleurs incluant des couleurs saturées pour l'essai
d'évaluation des caractéristiques chromatiques pour la capture
d'images en mode colorimétrique*



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Foreword

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Introduction

There are many application areas such as medical imaging, cosmetics, e-commerce, sales catalogue, fine art reproduction, art archive etc. where colorimetric image capture and colorimetric image reproduction are desired. When precise colorimetric reproduction is required for the subjects that include highly-saturated colours, it is desirable that overall sensor spectral sensitivities are close to linear combinations of CIE 1931 colour matching functions.

On the other hand, real DSCs have overall sensor spectral sensitivities that deviates from linear combination of CIE 1931 colour matching functions, and yet reproduces reasonable colours for general low-saturated colour objects. This is because most of spectral distribution of real-existing objects are well self-correlated in the wavelength direction. This is also true for the frequently-used colour target such as X-rite colour checker classic.

Therefore, when the precise colour reproduction is required for highly-saturated colour objects, it is important to use spectral distribution that are less self-correlated in the wavelength direction, for the evaluation of overall sensor spectral sensitivities.

For this purpose, [Clause 3](#) proposes two methods for generating highly-saturated colour targets. The first method is statistical extension of existing objects spectra, and the second one is selection from artificial (LED-based) spectra.

[Clause 4](#) then describes how these highly-saturated colour targets can be used for goodness evaluation of overall sensor spectral sensitivities. Applicability of several existing evaluation metrics (such as Vora's μ -factor and Sharma's FOM) are compared, using highly-saturated targets generated by the methods proposed in [Clause 4](#).

[Annex B](#) gives details on colour gamut of boundary colour and [Annex F](#) gives more information on colour differences of patches of CDSW target.

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