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Graphic technology — Measurement and calculation of spot colour tone value

Technologie graphique — Mesurage et calcul de la valeur de tons des couleurs d'accompagnement

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

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This document was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

This corrected version of ISO 20654:2017 incorporates the following corrections:

— Introduction: final paragraph removed;

— Formula (6) revised.

Introduction

This document defines a new metric Spot Colour Tone Value (SCTV) for the determination of the tone value of a spot colour ink. Spot colours in this document are defined as non-process colours (process colours being the CMYK 4-colour primary inks). This method produces approximately uniform visual spacing of the tones between the unprinted substrate and the 100% coverage, known as the solid ink. This metric is calculated from either the measured spectral reflectance factors or from colorimetric values computed from the same spectral data.

Historically, spot colours have been managed by measuring the solid ink value only, with no clear guidelines or methodology for measuring intermediate halftones. For artwork that only incorporates the spot ink at full coverage, this can be a reasonable practice; however, for artwork that includes gradations of the spot colour, which can print alone or in combination with the other inks, a formal strategy for managing the spot colour tone is required. This solution has been to print linear scales and use those values as a reference tone for alignment. This practice renders different results from each print supplier.

In the past, spot colour tones have been measured using the standard process colour tones methodology based on ISO status density measurement using a set of spectral products optimised for cyan, magenta and yellow inks. This method does not work well with intermediate tones of spot colours and in many cases produced a tone scale far from being perceptually uniform. Hence, there is a need for a new metric that will quantify the intermediate tones of spot colours in a more perceptually uniform way.