PD ISO/TS 15311-2:2018

BSI Standards Publication

Graphic technology — Print quality requirements for printed matter

Part 2: Commercial print applications utilizing digital printing technologies

bsi.

National foreword

This Published Document is the UK implementation of ISO/TS 15311-2:2018.

The UK participation in its preparation was entrusted to Technical Committee PAI/43, Graphic technology.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2018

ISBN 978 0 539 02519 4

ICS 37.100.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 October 2018.

Amendments/corrigenda issued since publication

Date	Text affected

PD ISO/TS 15311-2:2018

TECHNICAL SPECIFICATION

ISO/TS 15311-2

First edition
2018-10-19

Graphic technology — Print quality requirements for printed matter —

Part 2: Commercial print applications utilizing digital printing technologies

Reference number
ISO/TS 15311-2:2018(E)

COPYRIGHT PROTECTED DOCUMENT

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

Contents

Page

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).

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 www.iso.org/iso/foreword.html.

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

A list of all parts in the ISO/TS 15311 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

0.1 General

When producing a colour reproduction, it is important that the persons responsible for data creation, colour separation, proofing and printing operations have previously agreed to a set of parameters that define the visual characteristics and other technical properties of the planned print product. It is equally important that they have agreed to the method that will be used to verify that the printed output meets these aims and tolerances. This document identifies the minimum essential metrics and optional metrics for analysing printing output produced for the general commercial print marketplace.

This marketplace has evolved in recent years from using classical reproduction processes such as offset, letterpress, gravure, screen printing and flexography to include the many varied digital printing systems that are being developed to meet a wide range of potential needs depending on how the user chooses to prioritize speed, quality and cost. Along with and commensurate with this change has been a shift in technical emphasis from using quality control of the printing process and expecting statistically based predictable printing results to using colour management and other inherent measures of print quality directly on the printed page. ISO/TS 15311-1 helps identify these metrics.

This document deals with the assessment of printed sheets and does not consider how the process of printing the sheets is controlled. For reference, those methods for process control for conventional print processes are described in ISO 12647-2 to ISO 12647-6. Additionally, ISO/PAS ISO 15339 establishes principles for the use of colour characterization data as the definition of the intended relationship between input data and printed colour in all printing applications. There is no ISO standard for process control for digital printing; the inherent process control method is generally specified by the digital printing system manufacturer. No matter what method is used for process control, this document may be used to assess the printed results.

With this in mind, this document is intended to aid the printer and their customer, the print buyer, to define the inherent quality of the sheet using targets that can be included directly on the sheet (including the margin trim waste) or at least implied by the content of the images on the sheet itself. It is intended to be a more direct approach to relate digital printing to visual results while achieving the same quality levels of consistency that the industry has come to know and trust in their process controlled printed sheet. While this document is necessary for any digital printing system output due to the lack of a process control standard for digital printing, it could also be used to assess the resultant quality of any printed sheet that had been printed using process control methods from any of the classical printing processes if the printer and print buyer have previously agreed.

More importantly, because of the wide range of digital printing devices in terms of speed, quality, run length and sheet or board size, and the equally wide range of quality needs in the various printing market places, there presently is no cross-market agreement as to what constitutes “acceptable” quality. This document gives guidance in applying the appropriate metrics to develop custom tolerances for assessing printing system output, but it does not suggest specific acceptable quality levels. While it has many of the same metrics as ISO 12647-7 and ISO 12647-8, those standards include aims and tolerances limited to specified proofing application which are generally much tighter quality levels than normal digital printing.

The metrics involved in this document have been selected from ISO/TS 15311-1. In a few cases if representative metrics, for necessary aspects of judging quality such as legibility, are not included in ISO/TS 15311-1, **suggested** metrics have been drawn from other sources. All **specified** metrics are directly measureable on the printed sheet. Some **suggested** metrics, including more comprehensive targets, which are at least indirectly measureable on another sheet printed on the same unit at approximately the same time as the subject sheet, indicate the state that the process was in at the time of printing. This document also includes other **optional** metrics for anyone who desires to analyse other aspects of the printed sheet that are not essential to everyday transactions and which may require special tests conducted in sophisticated laboratories. These will probably be used only to compare the capabilities of various digital printing systems.

Since the role and the process of digital printing are both rapidly evolving, as indicated above, the printer and print buyer must jointly agree on the expected quality range for each of the required tests in advance of their printed job. Because there are many different types of digital printing equipment, specific machine expectations must come from the manufacturers of each piece of equipment.

0.2 Identification of suitable colour metrics

When selecting the set of metrics to be included in this document, only those metrics that have a clear definition and that correlate well with human perception are used. Since this is an area of significant research activity we expect many new metrics to emerge in the next few years. For this reason we anticipate the need to revise this document within a very short time scale as new metrics are tested and found to be reliable.

In many cases the existing standards use CIE dEab rather than CIEDE2000. Although these are not interchangeable quantities, dEab has been superseded by CIEDE2000 in ISO TC 130 standards and in this document. Similarly, printing density is seldom used to measure colour and where the referenced standards specify printing density we have used CIELab colour measurement.

0.3 Reporting schema

As with any parameter that is used as part of a product specification it is important for readers to understand clearly what the metric means. For this reason ISO/TS 15311-1 includes a reporting schema that should be followed when reporting measurements in conformance with this document. This document includes optional reporting forms.

TECHNICAL SPECIFICATION **ISO/TS 15311-2:2018**

Graphic technology — Print quality requirements for printed matter —

Part 2: Commercial print applications utilizing digital printing technologies

1 Scope

This document gives guidance to print buyers and other users of print for assessing printed products on isotropic substrates that are typically held at a viewing distance of 30 to 50 cm. It specifies the proper application of required, recommended and optional metrics, measurement methods and, where appropriate, reporting requirements in the general commercial market.

Although this document is expected to be used primarily to measure prints from digital printing systems the metrics are general and may be applied to other kinds of print.

This document does not provide process control aims or tolerances as these differ widely for different types of commercial applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13655, *Graphic technology — Spectral measurement and colorimetric computation for graphic arts images*

ISO/TS 15311-1, *Graphic Technology — Requirements for printed matter for commercial and industrial production —Part 1: Measurement methods and reporting schema*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 15311-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
digital printing system
system that prints one unique iteration at a time for either variable data or classical printing applications, including but not limited to electrophotographic and ink-jet marking engines