

CGATS/ISO 12642-2(IT8.7/4):2015

Reaffirmed 2020

(Identical to ISO 12642-2:2007)

AMERICAN NATIONAL STANDARD

Graphic technology — Input data for characterization of 4-colour process printing — Part 2: Expanded data set

SECRETARIAT
APTech THE ASSOCIATION FOR PRINT TECHNOLOGIES

APPROVED AUGUST 31, 2015
AMERICAN NATIONAL STANDARDS INSTITUTE

CGATS



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Foreword

ANSI CGATS/ISO 12642-2(IT8.7/4) is an identical adoption of ISO 12642-2:2007. ISO 12642-1:2007 was prepared by ISO Technical Committee 130, Graphic technology, with the support of the ANSI Committee for Graphic Arts Technologies Standards (CGATS).

Minor edits have been made to this standard to prepare it as an ANSI CGATS standard. No technical changes have been made.

The CGATS consensus body approved the national adoption of ISO 12642-2 for issuance as CGATS/ISO 12642-2(IT8.7/4) in accordance with the ANSI Procedures for the National Adoption of ISO and IEC Standards as American National Standards and the CGATS Operating Procedures.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. Neither ISO, ANSI nor CGATS shall not be held responsible for identifying any or all such patent rights.

Introduction

The existing characterization data set defined in ISO 12642-1 has proven very effective for use in characterizing various printing processes. Two concerns have been raised with respect to the ISO 12642-1 data set. First, many of those developing characterization data for colour management systems feel that additional data points are needed to provide better sampling of the data space. The second concern comes from the packaging industry which would like to see both more data points in general but also more data at the highlight end of the scale and in particular more 4-colour data with low levels of black.

Several drafts of a data set optimized for package printing (referred to as IT8.7/4) have been prepared by ANSI Committee for Graphic Arts Technologies Standards (CGATS). In addition, the European Colour Initiative (ECI) took an early draft and combined parts of it with the ISO 12642-1 data set and developed a data set known as ECI 2002 that has 1 485 data set elements. ECI 2002 has since been approved as DIN 16614:2004. The data set contained in this part of ISO 12642 adds a series of 4-colour overprints at the 10 % black level to the data set elements in the current ECI 2002 data set. It is believed that this combined data set can fill the general colour characterization needs of all segments of the industry.

During development of this part of ISO 12642, concerns were raised by the Japanese delegates concerning adequate representation of flesh tones. While additional flesh tones were not included in the standard data set, a 112-element flesh tone data set has been included in Annex B.

It is important to note that there will always be special applications where additional or special data will be needed because of the peculiarities of a process or critical colour needs in certain parts of the tone scale or colour space.

There is no required layout or patch size defined for the data set defined in this part of ISO 12642. Users are free to randomize the layout and/or "fit" it to the space available. However, the members of TC 130/WG 2 strongly believe that default layouts need to be defined so that electronic versions of the target can be made readily available. This will facilitate the use of this new data set by both users and colour management vendors. Accordingly, two default layouts are described in Annex A, i.e. one optimized for visual inspection, and the other randomized with the goal of uniform ink loading in each colour across the target area to minimize interaction between patch areas.

In addition, the reference files that are included in this part of ISO 12642 clearly identify the elements that represent the data set defined as ISO 12642-1:1996 (often referred to as IT8.7/3) and the data set defined in ECI 2002. These can both be easily extracted from and/or related to the larger data set where appropriate.

The International Organization for Standardization (ISO) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent (Japanese Patent No. 2554366) held by Konica Minolta.

ISO takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured ISO that he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO. Information may be obtained from:

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Expanded data set

1 Scope

This part of ISO 12642 defines a data set of ink value combinations that are intended to be used to characterize 4-colour process printing. This data set is not optimized for any printing process or application area but is robust enough for all general applications. The needs of publication, commercial, and package printing with offset, gravure, flexography, and other printing processes have been considered. While it is primarily aimed at process colour printing with CMYK inks, it can also be used with any combination of three chromatic coloured inks and a dark ink. It is an alternate to the ISO 12642-1 data set where more robust data is required.

2 Normative references

The following referenced documents are indispensable for the application 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 12642-1:1996, *Graphic technology — Input data for characterization of 4-colour process printing — Part 1: Initial data set*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

data set

total collection of independently identified ink value sets that are defined by this part of ISO 12642

NOTE The terms patch and target are deliberately avoided because they imply a physical object or layout. This part of ISO 12642 only defines the data values which the user is free to arrange in any target layout that meets their needs using patches of any size compatible with their measuring equipment.

3.2

ink values

digital value that represents the amount of a colourant required in a rendering process

NOTE For the half-tone printing process this is equivalent to the tone value/dot area of the half-tone film expressed as a percentage.

3.3

ink value set

set of four ink values representing the amount of the four colours to be used in a process colour area