



# SLOVENSKI STANDARD SIST ISO 12639:2004

01-december-2004

; fU bUH bc`c[ ]U!`na Yb`Uj UX[ ]Hb] `dcXUh\_cj `j [ fU b]`df]dfUj ]!`G`\_cj bU  
H bc`c[ ]U`g`\_cj b]Zfa UH : #H

Graphic technology -- Prepress digital data exchange -- Tag image file format for image technology (TIFF/IT)

## iTeh STANDARD PREVIEW

Technologie graphique -- Échange de données numériques de préimpression -- Format de fichier d'image d'étiquette pour la technologie d'image

[SIST ISO 12639:2004](https://standards.iteh.ai/catalog/standards/sist/aa698131-e0ea-441e-bdb8-7c2a885be618/sist-iso-12639-2004)

Ta slovenski standard je istoveten z: **ISO 12639:2004**

### ICS:

35.240.30	Uporabniške rešitve IT v informatiki, dokumentiranju in založništvu	IT applications in information, documentation and publishing
37.100.99	Öi` * ä cæ åæääçÁç^: ä *!æã } [ Å @ [ [ * æ	Other standards related to graphic technology

**SIST ISO 12639:2004**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST ISO 12639:2004

<https://standards.iteh.ai/catalog/standards/sist/aa698131-e0ea-441e-bdb8-7e2a685be618/sist-iso-12639-2004>

INTERNATIONAL  
STANDARD

ISO  
12639

Second edition  
2004-05-15

---

---

**Graphic technology — Prepress digital  
data exchange — Tag image file format  
for image technology (TIFF/IT)**

*Technologie graphique — Échange de données numériques de  
préimpression — Format de fichier d'image d'étiquette pour la  
technologie d'image*

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST ISO 12639:2004](https://standards.iteh.ai/catalog/standards/sist/aa698131-e0ea-441e-bdb8-7e2a685be618/sist-iso-12639-2004)

<https://standards.iteh.ai/catalog/standards/sist/aa698131-e0ea-441e-bdb8-7e2a685be618/sist-iso-12639-2004>



Reference number  
ISO 12639:2004(E)

© ISO 2004

**ISO 12639:2004(E)****PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

## **iTeh STANDARD PREVIEW (standards.iteh.ai)**

[SIST ISO 12639:2004](https://standards.iteh.ai/catalog/standards/sist/aa698131-e0ea-441e-bdb8-7e2a685be618/sist-iso-12639-2004)

<https://standards.iteh.ai/catalog/standards/sist/aa698131-e0ea-441e-bdb8-7e2a685be618/sist-iso-12639-2004>

© ISO 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword.....	v
Introduction .....	vi
<b>1 Scope.....</b>	<b>1</b>
<b>2 Compliance levels and identification.....</b>	<b>1</b>
2.1 General.....	1
2.2 Image file type identification.....	1
2.3 TIFF/IT conformance.....	2
2.4 TIFF/IT-P1 conformance .....	2
2.5 TIFF/IT-P2 conformance .....	2
2.6 Conformance identification.....	2
<b>3 Normative references .....</b>	<b>2</b>
<b>4 Terms, definitions and abbreviated terms.....</b>	<b>3</b>
4.1 Terms and definitions.....	3
4.2 Abbreviated terms.....	5
<b>5 Notations and field types.....</b>	<b>5</b>
5.1 Notations.....	5
5.2 Field types.....	6
<b>6 Image data type description.....</b>	<b>7</b>
6.1 Colour continuous-tone picture image (CT) data .....	7
6.2 Colour line-art (LW) image data.....	7
6.3 High-resolution continuous-tone (HC) image data.....	7
6.4 Monochrome and binary images.....	7
6.5 Final page (FP) data .....	8
<b>7 Requirements for TIFF/IT, TIFF/IT-P1 and TIFF/IT-P2 image data files.....</b>	<b>8</b>
7.1 Structure of TIFF/IT file.....	8
7.2 General parameters .....	10
7.3 Colour continuous-tone picture (CT) file.....	22
7.4 Colour line-art (LW) file .....	25
7.5 High-resolution continuous-tone (HC) file .....	32
7.6 Monochrome continuous-tone picture (MP) file .....	35
7.7 Binary picture (BP) file .....	38
7.8 Binary line-art (BL) file.....	40
7.9 Screened data image (SD) file.....	42
7.10 Final page (FP) file .....	44
<b>Annex A (informative) Background of conformity levels .....</b>	<b>50</b>
<b>Annex B (informative) Identification and determination procedures for TIFF/IT file type .....</b>	<b>52</b>
<b>Annex C (informative) Relationship between image types on a colour page .....</b>	<b>54</b>
<b>Annex D (informative) Alphabetical list of TIFF/IT field names.....</b>	<b>55</b>
<b>Annex E (normative) Incorporating JPEG compressed data into TIFF/IT .....</b>	<b>57</b>
<b>Annex F (normative) Incorporating Flate compressed data into TIFF/IT.....</b>	<b>59</b>
<b>Annex G (normative) RGB colour-space data in TIFF/IT-CT .....</b>	<b>61</b>
<b>Annex H (normative) LAB colour space data in TIFF/IT CT .....</b>	<b>65</b>
<b>Annex I (informative) Colour values .....</b>	<b>68</b>

**ISO 12639:2004(E)**

<b>Annex J (normative) ICC Profile tag in TIFF/IT image.....</b>	<b>69</b>
<b>Annex K (informative) Monochrome continuous-tone picture colour-value calculation .....</b>	<b>70</b>
<b>Bibliography.....</b>	<b>74</b>

**iTeh STANDARD PREVIEW  
(standards.iteh.ai)**

[SIST ISO 12639:2004](https://standards.iteh.ai/catalog/standards/sist/aa698131-e0ea-441e-bdb8-7e2a685be618/sist-iso-12639-2004)

<https://standards.iteh.ai/catalog/standards/sist/aa698131-e0ea-441e-bdb8-7e2a685be618/sist-iso-12639-2004>

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 12639 was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

This second edition cancels and replaces the first edition (ISO 12639:1998), which has been technically revised to add new capabilities, as well as a new constrained conformity level call Profile 2 (P2) to supplement the previously defined Profile 1 (P1), which is unchanged.

New capabilities include the following:

- expanded LW palette to support up to 65 535 colours;
- support for up to 32 separations;
- new file format “SD” for copydot data with CCITT G4 compression;
- new compression schemes: Flate and JPEG;
- “FP” file format is now defined as normative.

**ISO 12639:2004(E)****Introduction**

The goal of ISO/TC 130 in developing the initial version of ISO 12639 was to enable the interchange of various types of rasterized colour and monochrome image data among electronic digital systems used in prepress image processing, graphic arts design and related document creation and production operations. It was, and is, intended for use as a media-independent means for such interchange, and therefore is applicable to facilitate interchange through a variety of mechanisms such as, but not limited to, network, magnetic and optical media. Both ISO 12639:1998 and this second edition are based on the Adobe TIFF, Version 6.0 file format, and both extend and restrict the technical features of that format.

This second edition of ISO 12639, though based on ISO 12639:1998, specifies new capabilities, as well as a new constrained conformity level called Profile 2 (P2) to supplement the previously defined Profile 1 (P1), which is unchanged. The key added capabilities include a normative final page (FP) format; a new SD file format with optional G4 compression for copydot data; definitive ways to use RGB and CIELAB colour spaces in CT, as well as 16-bit-per-channel data in CT; JPEG compression in CT and MP; Flate compression in all formats except LW, HC and BL; spot colours (colours other than cyan, magenta, yellow and black) in LW, CT, HC, MP, BP, BL, and SD; and support for up to 65 535 colours in LW colour palettes. The new P2 compliance level incorporates all features of P1 and defines a constrained compliance level for these new capabilities.

All of the features of ISO 12639:1998, including the constrained level of conformity called Profile 1 (P1), have been retained. It should be noted that the P1 formats for CT (Colour Picture), MP (Monochrome Picture), and BP (Binary Picture) files are compatible with the popular TIFF 6.0 files for CMYK (Separated) Images, Monochrome Images and Bilevel Images respectively. The P1 formats for HC (High-Resolution Continuous-Tone), LW (Line-Art) and BL (Binary Line-Art), though not compatible with TIFF 6.0, are designed to be easier to implement within desktop systems by limiting the range of options and selections. The Profile 1 and 2 formats allow for a broader usage of this International Standard by allowing conformance to simplified, restricted subsets of functionality supported by many popular application software systems used in the prepress, graphic arts document processing and computer graphics and imaging industries. A P2-compliant reader will also read all P1-compliant files.

As a historical note, ISO 12639:1998 was based on the American National Standard ANSI IT8.8, *Graphic technology — Prepress digital data exchange — Tag image file format for image technology (TIFF/IT)*.



# Graphic technology — Prepress digital data exchange — Tag image file format for image technology (TIFF/IT)

## 1 Scope

This International Standard specifies a media-independent means for prepress electronic data exchange using a tag image file format. This International Standard defines image file formats for encoding colour continuous-tone picture images, colour line-art images, high-resolution continuous-tone images, monochrome continuous-tone picture images, binary picture images, binary line-art images, screened data, and images of composite final pages.

## 2 Compliance levels and identification

### 2.1 General

This International Standard has three levels of conformance: TIFF/IT (also referred to as full TIFF/IT), TIFF/IT-P1 and TIFF/IT-P2. All conformance levels are intended to support a media-independent means for the exchange of various images used in the prepress, printing, graphic arts, and information processing fields.

TIFF/IT-P1 conformance provides a minimized set of options to permit simpler implementation and compatibility, where possible (for CT, BP, and MP files), with commonly available TIFF 6.0 readers and writers. TIFF/IT-P1 is intended for use where the full set of TIFF/IT options is not required.

TIFF/IT-P2 is also a subset of the TIFF/IT specification. TIFF/IT-P2 incorporates all of the options defined for TIFF/IT-P1 and, in addition, provides support for spot colours, a larger LW colour palette, the SD file format for screened data, and additional compression methods.

Only those TIFF/IT fields defined in this International Standard are required to be written, recognized and interpreted by conforming implementations. TIFF fields that are unclassified or not referred to in this International Standard are not required to be supported for an implementation to conform to this International Standard. If an unsupported field is read, processing of that field is at the discretion of the reader. The reader shall follow the strategy described in TIFF and attempt to process the file while ignoring unsupported fields (see Annex A).

This International Standard specifies the requirements for conforming TIFF/IT, TIFF/IT-P1 and/or TIFF/IT-P2 files for specific image data types. Files for each specific image data type that conform to the requirements of this International Standard shall be considered conforming TIFF/IT, TIFF/IT-P1 and/or TIFF/IT-P2 files for the specific image data type. Readers that accept and process these files shall be considered conforming TIFF/IT, TIFF/IT-P1 or TIFF/IT-P2 readers for the specific image data types. Writers that generate and output these files shall be considered conforming TIFF/IT, TIFF/IT-P1 or TIFF/IT-P2 writers for the specific image data types. Where requirements of this International Standard and TIFF 6.0 are in conflict, this International Standard shall take precedence.

### 2.2 Image file type identification

TIFF/IT provides the ability to represent the data structure of a wide range of printing and graphic arts images. The identification of the individual image file types is as follows (see Annex B):

- TIFF/IT-CT colour continuous-tone picture image data;
- TIFF/IT-LW colour line-art image data;

**ISO 12639:2004(E)**

- TIFF/IT-HC high-resolution continuous-tone image data;
- TIFF/IT-MP monochrome continuous-tone picture image data;
- TIFF/IT-BP binary picture image data;
- TIFF/IT-BL binary line-art image data;
- TIFF/IT-SD screened data image data;
- TIFF/IT-FP final page data.

**2.3 TIFF/IT conformance**

For conformance to this International Standard, all image file types do not have to be implemented. Each image file type described in Clause 7 may be individually implemented. Files, readers or writers may be identified as conforming for either all image file types or specifically identified image file types.

Conformance with TIFF/IT requires implementation of the requirements for all image file types as described in Clause 7. Conformance with a specific image file type or types requires identification of the specific image file type using the identification defined in 2.2 (e.g. TIFF/IT-CT).

**2.4 TIFF/IT-P1 conformance**

TIFF/IT-P1 conformance provides the ability to represent the data structure of various images in as simple and straightforward a way as possible in order to support image-file exchange with prepress, printing, graphic arts, and information processing systems and applications. TIFF/IT-P1 is a subset of TIFF/IT.

Conformance with TIFF/IT-P1 requires implementation of the requirements for all image file types as described in Clause 7. Conformance with a specific image file type or types requires identification of the specific image file type using the identification defined in 2.2 with the designation "/P1" appended (e.g. TIFF/IT-CT/P1).

**2.5 TIFF/IT-P2 conformance**

TIFF/IT-P2 conformance provides the ability to represent the data structure of various images in as simple and straightforward a way as possible in order to support image file exchange with prepress, printing, graphic arts, and information processing systems and applications. TIFF/IT-P2 is a subset of TIFF/IT and forms an intermediate conformance level between TIFF/IT and TIFF/IT-P1.

Conformance with TIFF/IT-P2 requires implementation of the requirements for all image file types as described in Clause 7. Conformance with a specific image-file type or types requires identification of the specific image file type using the identification defined in 2.2 with the designation "/P2" appended (e.g. TIFF/IT-CT/P2).

**2.6 Conformance identification**

Conformance with the provisions of this International Standard shall be identified individually for files, readers, and writers. The accepted terminology shall be the image-file type followed by the designation "file", "reader" or "writer" (e.g. TIFF/IT writer, TIFF/IT-CT/P1 reader, TIFF/IT-LW file).

**3 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 3166 (all parts), *Codes for the representation of names of countries and their subdivisions*
- ISO 12641:1997, *Graphic technology — Prepress digital data exchange — Colour targets for input scanner calibration*
- ISO 12642:1996, *Graphic technology — Prepress digital data exchange — Input data for characterization of 4-colour process printing*
- ISO 13655:1996, *Graphic technology — Spectral measurement and colorimetric computation for graphic arts images*
- ISO/IEC 646:1991, *Information technology — ISO 7-bit coded character set for information interchange*
- ISO/IEC 10918-1:1994, *Information Technology — Digital compression and coding of continuous-tone still images: Requirements and guidelines.*
- IEC 61966-2-1:1999, *Multimedia Systems and Equipment — Colour Measurement and Management — Part 2-1: Colour management — Default RGB Colour Space — sRGB*
- ICC.1:2001-12, *File Format for Color Profiles*, International Color Consortium
- TIFF, Revision 6.0 Final*, Aldus Corporation (now Adobe Systems Incorporated), June 3, 1992
- RFC:1950, *ZLIB Compressed Data Format Specification version 3.3*, RFC, 1950: DEUTSCH, P., and J-L. GAILLY, Aladdin Enterprises, May 1996
- RFC:1951, *DEFLATE Compressed Data Format Specification version 1.3*, RFC, 1951: DEUTSCH, P., Aladdin Enterprises, May 1996

iteh STANDARD PREVIEW  
(standards.iteh.ai)

SIST ISO 12639:2004

## 4 Terms, definitions and abbreviated terms

### 4.1 Terms and definitions

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

#### 4.1.1

##### **big-endian**

⟨byte-ordering⟩ method for arranging the sequence of the bytes within a SHORT or LONG from the most significant to the least significant byte as the byte address increases

#### 4.1.2

##### **little-endian**

⟨byte-ordering⟩ method for arranging the sequence of the bytes within a SHORT or LONG from the least significant to the most significant byte as the byte address increases

#### 4.1.3

##### **offset**

address within a TIFF/IT file relative to byte zero of the file

#### 4.1.4

##### **offset value**

SHORT or LONG value containing the offset of a data element

#### 4.1.5

##### **pixel**

picture element, or the smallest single building block of a picture containing colour identification and size (when used to describe dimensions relating to the picture resolution, as in pixels per unit length)

**ISO 12639:2004(E)****4.1.6****printing dot value  
printing tone value**

⟨of a data set⟩ number, recorded as data in the computer, corresponding to the percentage area on a printing forme that is intended to accept ink for transfer to the final sheet

NOTE This corresponds to the tone value of a half-tone film. The light end of the final reproduction scale (highlights) has values approaching 0 % (or often in computer files, 0) and the dark end of the scale (shadows) has values approaching 100 % (or often in computer files, 255).

**4.1.7****reader**

application, system or subsystem that accepts a file as its input and performs a level of processing on that file that, at the minimum, accepts or rejects the file based on predetermined criteria and, if accepted, passes the file to the next stage of processing

**4.1.8****run length encoding**

data encoding method in which a sequence of data items, which may include many adjacent repetitions of the same value, is represented by a sequence of ordered pairs, each consisting of a value and a repeat count

NOTE Run length encoding can result in data compression.

**4.1.9****separations**

individual planes of data that correspond to the colours to be used in the rendering process

NOTE For “process” colours these are cyan (C), magenta (M), yellow (Y), and black (K). Additional separations are often required for spot or speciality colours or for image-wise finishing treatments such as varnish.

**4.1.10****spot colour**

single colorant, identified by name, whose printing tone values are specified independently from colour values specified in a colour co-ordinate system

**4.1.11****string**

serial sequence of characters, bytes, integers, etc.

**4.1.12****TIFF/IT field****TIFF field**

one-dimensional array of values (though most are a single-entry array) having an associated count

NOTE An array is identified by a Field name, a Tag number, and a Field type.

**4.1.13****TIFF/IT tag**

unique numeric identifier for each entry in the TIFF/IT file

**4.1.14****transparent colour**

attribute that signifies that the underlying image (if any) shows through

NOTE A clear run is where no colour is present and the underlying image (if any) shows through. The colour “white” signifies that no underlying image will show through, only the underlying substrate (paper). The “transparent” attribute can be applied to any or all separations of a pixel run or a palette colour in a LW, HC, BL or BP file.

**4.1.15****trapping**

technique of modifying colour separations to account for dimensional variations in the printing process by overprinting in selected colours at the boundaries between colours which otherwise might inadvertently be left uncoloured by normal errors in printing press registration

**4.1.16****word-aligned**

sequence of bytes beginning at an even offset

**4.1.17****writer**

application, system or subsystem that generates a file based on predetermined criteria and prepares the file for output

**4.2 Abbreviated terms**

BL Binary Line-art (or run length encoded bitmap) image or file

BP Binary Picture (or byte-packed bitmap) image or file

CEPS Colour Electronic Prepress System

CT colour Continuous-Tone picture image or file

DTP Desktop Publishing

FP Final Page file

HC High-resolution Continuous-tone (colour) image or file

IFD Image File Directory

LW colour line-art (or Line-Work) image or file

MP Monochrome continuous-tone Picture image or file

P1 Profile 1

P2 Profile 2

TIFF TIFF, Revision 6.0 Final: Aldus Corporation

SD Screened Data image or file

**5 Notations and field types****5.1 Notations**

All numeric values in this International Standard are expressed in decimal notation, unless otherwise indicated. A letter "h" is suffixed to indicate a hexadecimal value. Literal strings are denoted by enclosing them in single quotation marks.

For character strings, only character values 32 through 126 should be used and letters A through Z and a through z, respectively, should have the same significance.

Preferred values in TIFF/IT fields are preceded by "=" and enclosed in parentheses, for example "(=5)". Preferred values are those values that are required to be accepted and recognized by a compliant application

**ISO 12639:2004(E)**

or reader. A compliant application or writer may write values other than preferred values but the reader is not required to accept or recognize the value. It is left to the discretion of the reader.

Required values in TIFF/IT fields are preceded by “=” but not enclosed in parentheses, for example “=5”. Required values are those values that are required to be written by a compliant application or writer and are required to be accepted and recognized by a compliant application or reader.

Default values, if specified, are preceded by “Default =” or “d=”, for example “Default = 0,255”. In some tables, default values are indicated in a “default value” column. The reader shall assume the default value if no value is written by the writer in the default-specified field. Because the default values shown for all “TIFF” tag numbers are those specified for TIFF files, they might not be valid for the particular TIFF/IT file type. In all such cases, a mandatory field value or values is specified.

**NOTE** When an entry is made in a “default value” column, it might reference a TIFF 6.0 default value that is not a valid value for the particular TIFF/IT file type. This is usually indicated by entry of a mandatory field value or values in the tables.

Classification marks used in this International Standard are defined as follows:

— m Mandatory (absolute requirement) field

The writer is required to include mandatory fields. The reader is required to read and process the field. The reader is allowed to reject those files where mandatory fields are omitted.

— opt Optional field

The writer may include or omit optional fields. The reader is not required to read or process optional fields.

— d Default field

The writer may include or omit default fields. The reader shall assume the default value for the field if the field is omitted. The reader is required to read and process the field when it contains any required or preferred values.

These classifications may vary by file type, and are discussed further in Clause 7.

Image File Directory (IFD) entries are identified by a field name of one or more words, written with initial capital letters, and no internal spaces (e.g. “PageName”).

## 5.2 Field types

The field types used in this International Standard are as follows:

- ASCII a field type consisting of a byte containing a graphic character code from ISO/IEC 646; the last character in an ASCII string shall be a “null” (character 0/0);
- BYTE a field type consisting of an 8-bit unsigned binary integer;
- LONG a field type consisting of a 32-bit unsigned binary integer;
- RATIONAL a field type consisting of two LONGs, the first representing the numerator of a fraction and the second its denominator;
- SHORT a field type consisting of a 16-bit unsigned binary integer;
- UNDEFINED a field type consisting of an array of 8-bit unsigned binary data.

## 6 Image data type description

### 6.1 Colour continuous-tone picture image (CT) data

A colour continuous-tone picture image (CT) is a rectangular array of pixels (picture elements). A pixel is represented by a set of values corresponding to its colour components.

NOTE In graphic technology applications, pixels typically consist of four bytes, representing cyan (C), magenta (M), yellow (Y), and black (K) process colours.

### 6.2 Colour line-art (LW) image data

A colour line-art or line-work (LW) image is a rectangular array of pixels. Each pixel is one of a limited number of colours. The colours are defined in a palette table that specifies the values of the colour-separation components for each entry in the palette. Line-work images have areas of many pixels of the same palette entry. Run-length encoding techniques are used. Underlying images may be made visible by the use of a transparent colour capability. Colour line-art images are normally of higher resolution than colour continuous-tone picture images (CT).

### 6.3 High-resolution continuous-tone (HC) image data

A high-resolution continuous-tone (HC) image is a rectangular array of pixels. A pixel is represented by a set of values corresponding to its colour components. It is typically at the higher resolution of colour line-art. It is also characterized by a transparent colour capability and run length encoded similar to colour line-art. An HC image does not use a palette table and as such does not have the same limited colour representation as colour line-art. High-resolution continuous-tone images are typically used to define the edges between merged colour continuous-tone picture images, and between colour line-art and colour continuous-tone picture images.

NOTE Annex C describes the relationship between CT, LW, and HC images.

### 6.4 Monochrome and binary images

#### 6.4.1 General

In addition to the colour formats specified in 6.1, 6.2, and 6.3, monochrome continuous-tone and binary images are also supported. These images are similar to their colour counterparts, except that their formats take advantage of the reduced amount of data associated with monochrome (single-colour) and binary images.

An additional colour format based on binary image data is supported for screened (copydot) images. Each separation is based on binary image data which, when combined, represent a screened colour image.

#### 6.4.2 Monochrome continuous tone picture image (MP) data

A monochrome continuous-tone picture image (MP) consists of a rectangular array of pixels. Each pixel is represented by a single byte value indicating the varying intensity of the single image colour at that pixel location. The intended effect is to reproduce the monochrome continuous-tone picture using various levels of the specified image colour.

The monochrome continuous-tone picture format is similar to, though not identical to, a monochrome version of the colour continuous-tone picture format with a single colour per pixel and is therefore not interleaved.

#### 6.4.3 Binary picture image (BP) data

A binary picture image (BP) consists of a rectangular array of pixels. Each pixel is represented by a single bit value indicating that the pixel location is to be part of the background (bit value of 0) or part of the image (bit value of 1) for that pixel location. The bits are ordered left to right within the byte; i.e., the most significant bit first. A background and a foreground colour may each be specified.