CGATS/ISO 12639:2004
(Identical to ISO 12639:2004)

AMERICAN NATIONAL STANDARD

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

SECRETARIAT
NPES THE ASSOCIATION FOR SUPPLIERS OF PRINTING, PUBLISHING
AND CONVERTING TECHNOLOGIES

CGATS

NPES

1899 PRESTON WHITE DRIVE ● RESTON, VIRGINIA 20191-4367 ● TEL: 703/264-7200 ● FAX: 703/620-0994 ● www.npes.org

AMERICAN NATIONAL STANDARD

This standard is an identical adoption of ISO 12639:2004, an International Standard that was developed under ISO Technical Committee 130, Graphic Technology.

Approval of this American National Standard as a national adoption was done in accordance with the *ANSI Procedures for the National Adoption of ISO and IEC Standards as American National Standards*.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be submitted in writing to the secretariat whose name appears on the title page of this standard, who will forward such requests to the responsible ISO committee.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time, following the procedures set forth in the *ANSI Procedures for the National Adoption of ISO and IEC Standards as American National Standards*. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

American National Standards Institute
25 West 43rd Street, 4th Floor, New York, New York 10036
Tel: 212-642-4900
Internet: http://www.ansi.org

Contents

Page

CGATS/ISO 12639:2004

Foreword

ANSI CGATS/ISO 12639 is an identical adoption of ISO 12639:2004. ISO 12639 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 12639 for issuance as CGATS/ISO 12639 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 be held responsible for identifying any or all such patent rights.

This 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.

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 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 standard specifies a media-independent means for prepress electronic data exchange using a tag image file format. This 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 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 standard are required to be written, recognized and interpreted by conforming implementations. TIFF fields that are unclassified or not referred to in this standard are not required to be supported for an implementation to conform to this 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 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 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 standard and TIFF 6.0 are in conflict, this 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;

— TIFF/IT-HC   high-resolution continuous-tone image data;