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Graphic technology — Exchange format for color and process control data using XML or ASCII text

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Foreword

This standard was prepared in an effort to consolidate the common format requirements for the exchange of spectral measurement data, colorimetric data, and densitometric data in electronic form. These requirements presently appear in a number of CGATS and IT8 standards such as CGATS.5, IT8.7/1, IT8.7/2, and IT8.7/3. It is the intent that each of these individual standards will continue to identify required data. The basic data format, keywords and data identifiers will be defined in this standard for consistent use across all applicable standards.

The Committee for Graphic Arts Technologies Standards (CGATS) was accredited by the American National Standards Institute in 1989 to serve as the coordinator of graphic arts standards activities. CGATS identifies areas in which standards are needed and desired, while respecting the established activities of existing accredited standards committees and industry standards developers.

CGATS recommends the adoption and use of this standard by the graphic arts industry and its suppliers at their earliest convenience.

Requests for interpretation must be sent in writing to the CGATS Secretariat. This request will be forwarded to the appropriate committee, which will review the request in accordance with the CGATS procedures for interpretations, and will provide a written response. A statement, written or oral, that is not processed in accordance with the procedures noted above will not be considered the official position of CGATS, and should not be relied upon as a formal interpretation.

Suggestions for improving this standard are welcomed. They should be sent to the CGATS Secretariat, NPES The Association for Suppliers of Printing, Publishing and Converting Technologies, 1899 Preston White Drive, Reston, Virginia 20191-4367, USA; Fax: 703-620-0994; E-mail: standards@npes.org.

This standard was prepared by CGATS Subcommittee 3, which had the following membership:

Chair: Lawrence Steele, RGB Metrology
Vice Chairman: Raymond Cheydleur, X-Rite Inc.
Secretary: Mary Abbott, NPES

Subcommittee members:

<u>Organization</u>	<u>Representative</u>	<u>Organization</u>	<u>Representative</u>
Alliance Group	Tom Cooper	NPES The Association for and Suppliers of Printing, Publishing and Converting Technologies	David McDowell
Arizona State University	Lawrence Steele		
Computer Integrated Color	Roger Siljander		
Enovation Graphic Systems	Lawrence Warter	Quad Tech	John Seymour
Flexographic Technical Association	Steve Smiley	RGB Metrology	Lawrence Steele
Global Graphics Software	Kenneth Elsman	RIT/College of Imaging Arts & Sciences	Robert Chung
Graphics Microsystems	Steven Headley	R.R. Donnelley & Sons	Michael Rodriguez
Gretag Macbeth	David Bowden		Gary Witt
Hewlett Packard	Charles Jia	Society for Imaging Science & Technology	David McDowell
IDEAlliance	David Steinhardt	Sun Chemical	Danny Rich
Kodak Polychrome Graphics	Richard Goodman	Technical Expert	Walter Zawacki
Latran Technologies	Andy DiDonato	Time Inc.	Heath Luetkens
National Printing Ink Manufacturers Association	Danny Rich	Vertis	Steve Smiley
Newspaper Association of America	John Iobst	X-Rite	Raymond Cheydleur
		Zwang & Company	David Zwang

This standard was processed and approved for submission to ANSI by Accredited Standards Committee CGATS. Committee approval of the standard does not imply that all committee members voted for its approval. At the time this standard was approved CGATS had the following members:

Chairman: Lawrence Steele
Vice Chairman: Michael Rodriguez
Secretary: Mary Abbott

<u>Organization</u>	<u>Representative</u>	<u>Organization</u>	<u>Representative</u>
Adobe Systems Incorporated	Macduff Hughes	International Prepress Association	Lee Webster
Arizona Statue University	Lawrence Steele		Scott Tully (Alt.)
	Penny Dolin (Alt.)	Kodak Polychrome Graphics	Chris Goldsmith
City University of New York – College of Technology	Lloyd Carr	Kodak Versamark	Terry Wozniak
			John Desautels
Creo	David Kauffman	Latran Technologies	Andy DiDonato
Dainippon Screen Engineering of America	Setsuo Ohara	Mitsubishi Imaging (MPM), Inc.	Catherine Cartolano
	Tom Yang (Alt.)	National Association of Printing Ink Manufacturers	Danny Rich
Eastman Kodak Graphic Communications Group	Nader Anvari	National Association of Litho Clubs	James Coleman (Alt.)
Electronics for Imaging	Margaret Motamed	Newspaper Association of America	Richard Worthington
	Richard Falk (Alt.)		John Iobst
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Enovation Graphics Systems	Lawrence Warter		David McDowell
Esko-Graphics	Hans De Stecker		
	Hans Dewitte (Alt.)	Oceana	Mark Rand
Flexographic Technical Association	Rick Mix	Quebecor World, Inc.	Johnny Sutton
	Mark Cisternino (Alt.)		Jean-Francois Cuillerier (Alt.)
Global Graphics Software, Inc.	Martin Bailey	Research & Engineering Council of the Graphic Arts	Lawrence Warter
	Kenneth Elsman (Alt.)	RGB Metrology	Ronald Mihills (Alt.)
Graphics Microsystems Inc.	Steve Headley	RIT/College of Imaging Arts & Sciences	Lawrence Steele
	Mark O'Connell (Alt.)		Robert Chung
Gravure Association of America	Rudy Wiesemann		Frank Cost (Alt.)
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GTI Graphic Technology Inc.	Frederic McCurdy	Society for Imaging Science & Technology	David McDowell
	Robert McCurdy (Alt.)		
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	Kevin Currans (Alt.)	X-Rite, Inc.	Iain Pike
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	Lawrence Warter (Alt.)	Xerox Corporation	Brian Rooney
Individual	Walter Zawacki	Zwang & Company	David Zwang
Integrated Color Solutions	Jo Kirkenaer		
International Association of Diecutting & Diemaking	Cynthia Crouse		

Introduction

A number of the CGATS and IT8 standards require the reporting of measured and/or computed data. Several of these standards, e.g. the IT8.7 series and CGATS.5, contain suggested formats for the data to be exchanged. These have used the ASCII keyword-value pair approach and have been widely used by some industry segments. However, there has never been a consolidated definition of the various formats.

This standard is intended to support all existing and future graphic arts standards that exchange measured, computed, or process control data and the associated metadata necessary for its proper interpretation. It specifically is not intended for graphic arts content data, which are covered by ISO 15930 and ISO 12639.

In reviewing the needs of such a format the following requirements were identified:

- applications based on the existing ASCII formats should not be made obsolete;
- data should be in a form that is both human-readable (once the digital file has been displayed using standard editors, or file readers) and machine-readable;
- data should be readable by automated programs to extract the necessary information;
- data files should be extensible by end users in such a way as to allow additional information to be included without breaking automated readers of the file;
- data files should be capable of being created by automated programs;
- the format should allow multiple language representation of data.

The file formats chosen to accomplish this task are a combination of XML and extensions of the existing ASCII keyword-value file format coupled with the necessary tools to allow appropriate conversions to and from XML from ASCII keyword-value files. However, either the XML file format or the ASCII keyword-value file format may be used independently.

These formats make use of predefined XML tags and ASCII keywords. Values are associated with the tags and keywords and remain in effect until another instance of the tag or keyword. Provision is made to allow the use of data tables and to separately define the format within data tables. Multiple occurrences of such data tables within a single file are also permitted. User-defined tags and keywords are also allowed.

See Annex A for a discussion of the advantages of an XML data reporting format and references to a demonstration suite.

ASTM E 1708-95(01), Standard Practice for Electronic Interchange of Color and Appearance Data, references CGATS.5 and uses many of the CGATS.5 keywords either by reference or by parallel definition. The file identifier used by ASTM E 1708-95(01) is "E1708YY" where "YY" is the numeric value of the last two digits of the year of revision of the ASTM practice. Because their file identifier is unique, changes to the CGATS.5 format and incorporation of the CGATS requirements into this standard should not present a problem to users of the ASTM practice.

A CGATS.17 demonstration suite has been made available for use as part of a testing and development program. It is available from NPES The Association for Suppliers of Printing, Publishing and Converting Technologies at <http://www.npes.org/standards/tools.html>. See A.5 for more information.

Graphic technology — Exchange format for color and process control data using XML or ASCII text

1 Scope

This standard defines an exchange format for color and process control data (and the associated metadata necessary for its proper interpretation) in electronic form using either XML or ASCII formatted data files. It maintains human readability of the data as well as enabling machine readability. It includes a series of predefined tags and keywords and provides extensibility through provision for the dynamic definition of additional tags and keywords as necessary. It is focused primarily on spectral measurement data, colorimetric data, and densitometric data.

This standard is intended to be used in conjunction with other CGATS and IT8 standards that will define the required data, and tags or keywords for specific data exchange applications.

2 Normative references

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

ISO/IEC 646 *Information technology — ISO 7-bit coded character set for information interchange*

Extensible Markup Language (XML) 1.0 (Second Edition), World Wide Web Consortium (W3C), W3C Recommendation 6 October 2000. Available from Internet <<http://www.w3.org>>

XSL Transformations (XSLT) Version 1.0, World Wide Web Consortium (W3C), W3C Recommendation 16 November 1999. Available from Internet <<http://www.w3.org>>

3 Definitions

3.1

data format identifier

a predefined set of characters, without intervening spaces, forming a unique word that is used to identify the presence of a defined item of data in a subsequent data table

3.2

dtd

document type definition

schema specification method for SGML and XML documents

3.3

keyword

a predefined set of characters, without intervening spaces, forming a unique word that is used to identify the presence of a defined item of information