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Graphic technology — Prepress data exchange — Tone adjustment curves exchange

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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.

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 18620 was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

Introduction

The aim of this standard is to define a simple format to exchange data of Tone Adjustment Curves (also called transfer functions and plate curves) between applications including but not limited to colour management, calibration and raster image processor systems.

In many cases it is useful to be able to provide calibration data for printing plates in a standard form to ensure easy and accurate exchange of data. Graphic arts raster image processor vendors all provide support for printing plate calibration and adjustment of tone curves for digital presses using essentially the same data, however each uses a proprietary format. One consequence of this is that companies providing tools to support print certification must provide support for many different file formats. Increasingly the importance of calibration is being recognised by printers who wish to provide a single, often centralised, solution for calibration and in this context it is becoming increasingly difficult to keep up with the many different formats in use.

TC130 experts know of no commercial reason for each vendor to adopt a different standard and believe that if there was an ISO standard format this would be likely to be adopted by the industry. This standard aims to define the minimum set of data required by all of today's applications and provide a format that is easily extensible so that additional metadata can be included when agreed on between the parties.

Graphic technology — Prepress data exchange — Tone adjustment curves exchange

1 Scope

This International Standard specifies a simple extensible format for the exchange of tone adjustment curves between applications including but not limited to colour management, calibration and raster image processor systems.

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.

Namespaces in XML 1.0 (Third Edition), W3C Recommendation 8 December 2009, available from http://www.w3.org/TR/REC-xml-names/.

XML Schema Part 2: Datatypes Second Edition, W3C Recommendation 28 October 2004, Produced by: World Wide Web Consortium (W3C), Available at http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/.

3 Terms and definitions

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

3.1
transfer curve
a curve that defines the relationship between input code values and output values, imaged or printed

3.2
transfer curve set
a set of transfer curves

4 Symbols and abbreviated terms

4.1 Text styles

The following documentation conventions are used.

Names of XML elements are shown in bold type, for example **TransferCurve**.

Names of XML attributes are shown in italics, for example *SpotColorName*.

4.2 Data types

All datatypes used in this International Standard are as defined by XML Schema Part 2: Datatypes.

5 Requirements

5.1 XML Namespace

This International Standard relies on XML to ensure clear communication of metadata. It is very likely that different systems will want to add elements and attributes whose intended use falls outside of this specification.

Extension of this sort is well supported by XML and the following rules apply:

- All elements and attributes defined by this International Standard shall use the namespace 'http://www.npes.org/schema/ISO18620/'.
- Vendor specific attributes and elements may be included and when included shall be defined in a vendor-specific namespace as described in "Namespaces in XML 1.0".
- Compliant reader applications may safely ignore vendor specific attributes and elements. These attributes and elements may enable additional functionality in closed environments but shall not change the base functionality as defined in elements and attributes defined in this standard.

Such proprietary elements and attributes are out of the scope of this International Standard.

5.2 File structure

5.2.1 General

The file is intended to contain a single transfer curve set comprising one or more transfer curves. A schema is provided in Annex A for information.

The first line of the file shall be:

<?xml version="1.0" encoding="UTF-8"?>

5.2.2 TransferCurveSet

A single **TransferCurveSet** element shall be included and shall be as shown in Table 1.

Table 1 — TransferCurveSet element

Name	Cardinality[1]	Data Type	Description
xmlns	Required	anyURI	The namespace shall be declared in accordance with *Clause 3 of Namespaces in XML1.0 (Third Edition)* and shall be 'http://www.npes.org/schema/ISO18620/'.
Creator	Optional	string	Describes the creator of the document. This is usually the name and version of the authoring application used.

CreationDate	Optional	dateTime	The date and time when the file was created.
OperatorName	Optional	string	Describes the operator who created the file.
PressName	Optional	string	The name used to describe the press for which the data has been created.
MediaName	Optional	string	The name used to describe the media for which the data has been created
Side	Optional	enumeration	The side of the sheet for which the data has been created. One of Front or Back. Note that this attribute should be omitted if the data applies to both sides of the sheet.
MeasurementFile	Optional (more than one may be provided)	anyURI	URI providing the location of one or more measurement file(s) from which the data has been derived. Note that there is no convention specified for the URI or for the content of the files.
TransferCurveSetID	Optional	NMTOKEN	TransferCurveSet identifier. The value selected for this ID should be agreed between stakeholders.
FormPreparationDetails	Optional	element	Provides details of any specific form preparation configuration, for example the screening family, gravure engraving parameters, flexo anilox lpi etc to which the data relates. This information is likely to be vendor-specific.
PrintingCondition	Optional (unless match a standard printing condition)	element	Metadata describing the printing condition that this adjustment applies to. This shall be included when the TransferCurveSet is being used to match a standard printing condition.
TransferCurve	Required (more than one may be provided)	element	Transfer curve element for a single colorant.
[1] Cardinality: unless otherwise specified only a single instance of each element or attribute may be included.			

5.2.3 FormPreparationDetails

The **FormPreparationDetails** element may be included and when included shall be as shown in Table 2. When included, it provides details of any specific form preparation configuration, for example the screening family, gravure engraving parameters, flexo anilox lpi etc to which the data relates. This information is likely to be vendor-specific.