

München, November 2016

International standardization for the printing industry

ISO TC 130

ISO TC 130 represents the international standardization body for the printing industry. International experts, active in terminology, prepress, printing, post press, climate neutrality, materials and certification, met in San José (United States of America) in September 2016.

A summary from Dr Andreas Kraushaar and Dr Uwe Bertholdt.

The following project descriptions cover the current status of the pertinent ISO standards. Please also consult earlier issues of ISO News, in particular ISO News 13, for an explanation of the abbreviations such as WD, CD, DIS, etc.

Prepress (WG 2)

PDF for variable data printing

Live variable data printing refers to industrial printing use cases, e.g. label printing, where a variable data record is available only immediately before it is printed. It is required e.g. for security printing or for cases requiring spontaneous changes



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NEXT MEETING

5 to 11 June 2017
in Toronto (Canada)

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of print order. PDF/VCR-1 defines a template file format including placeholders and a variable data format that allow live replacement by a merge/render engine. Christoph Oeters from SOFHA and Paul Jones from Teclyn proposed a document (ISO 16613-1 – Graphic Technology – Variable content replacement – Use of PDF/X for variable content replacement (PDF/VCR-1)). Task force 3 “TF3 – Variable data printing” did not meet since DIS ballot was under way.

Sometimes these are even used as process colours to allow for intermediate colours in a print product for which no CMYK colorants are used. It is currently not possible to cover such use cases in PDF/X or even PDF and an Ad Hoc group has been established that will work on this.

Into the same direction goes the ability to have different output intents on different pages in the same PDF file. That allows for print files that consist of parts that are

embossing or simply varnishing, in most cases spot colour channels are used to put related information (e.g. a cut line) into the PDF. Problems are that the spot colour names are not standardized and that it is not always easily possible to separate those spot colours from the PDF. The Processing Steps standard ISO 19593-1 will address this and will define how optional content groups (layers) can be used for that and will define standard metadata labels that will be used to allow for interoperability in the exchange of such data. It has been discussed to what degree the standard should contain additional requirements to make sure that content on processing steps layers does not interfere with print content. Since this topic is complex, an ad hoc committee has been founded that will further discuss this, come to conclusions and prepare a second DIS.

Colour data exchange using XML (ISO 17972)

ISO 17972 is a new standard that extends the storage of characterization data by providing a flexible schema to facilitate colour and process data exchange with the additional resources based on X-Rites CxF3 Standard (Colour Exchange Format – www.colorexchangeformat.com). Part 1 was published in 2015. Part 2, covering scanner input target data, was published and will be referenced in the new standard ISO 12641-2. Part 3 covers output target data and is intended to replace all the existing formats (e.g. 12642 or 28178) to save characterization data sets. Part 4 provides means to communicate spot colour characterisation data and a number of groups are starting to test it. Due to an error in the distribution of the electronic inserts, a revision was started and is ex-

Committee work and Standardization		
Standardization efforts of Fogra		
DIN NA 017 (NDR)	ISO TC 130 Graphic Technology	
NA 017-00-02 AA Prepress and data exchange Convenor: Dr Andreas Kraushaar (Fogra)	WG 2 Digital prepress data exchange Fogra participation: Dr Andreas Kraushaar	
NA 017-00-03 AA Process control and related metrology Convenor: Dr Andreas Kraushaar (Fogra)	WG 3 Process control and related metrology Convenor: Dr Andreas Kraushaar (Fogra)	
NA 017-00-04 AA Media and materials Convenor: Dr Uwe Bertholdt (Fogra)	WG 4 Media and materials Convenor: Dr Uwe Bertholdt (Fogra)	
	WG 12 Print finishing Fogra participation: Florian Hirschhalmer	
Other Standardization Committees		
DIN NA 043-01-17-01 Test processes for identity cards Fogra participation: Arne Müller	DIN NA 043-01-17-03 Machine readable travel documents Fogra participation: Arne Müller	DIN NA 115-01-03-02 AK Features for tamper evidence medicine packaging Fogra participation: Arne Müller

Overview of those committees, in which Fogra personell is currently active.

“PDF/X-6” is coming closer

The current title of the document is: “Complete exchange of printing data (PDF/X-6) and partial exchange of printing data with external profile reference (PDF/X-6p and PDF/X-6n) using PDF 2.0”. The new PDF/X-6 standard will update the current PDF/X-4 and PDF/X-5 standard parts, keeping only those parts that are widely used: PDF/X-6 itself, PDF/X-6p (for externally referenced ICC profiles in the output intent) and PDF/X-6n (for n-channel colour spaces e.g. CMYK Orange, Green, Violet). The latter does currently getting more important due to the many ink jet presses that are using this or other n-channel colour spaces. N-channel colour is at the same time heavily used in packaging, where several spot colours in the same print product are common.

produced on different machines, e.g. cover and content for a book. In addition to that, PDF/X-6 will allow for annotations or form fields in the printed page area, as long as they have a defined appearance to which the same requirements as for all other page content will apply. The somewhat artificial and superfluous prohibition of such page content will go away. PDF/X-6 will most probably be published shortly after PDF 2.0 (ISO 32000-2) in 2017. It is planned to also create Application Notes for PDF/X-6, especially to support vendors who develop applications for PDF/X-6.

Communication non printing elements (ISO 19593) – Processing steps

If a PDF file has information about additional processing steps such as cutting,

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pected to complete soon. The only substantial change is a correction to the electronic inserts. This standard “Spot colour characterisation data (CxF/X-4)” defines an exchange format for spectral measurement data of inks to provide means to characterize spot colour inks and is expected to be supported by many PDF/X workflows.

Historical IT.8-7/1 target confirmed – Advanced IT.8 targets on its way

More than 1,000,000 targets, both light-transmissive and reflective, have been produced and used in the past decades for calibrating scanners. However that last revision dates back to 1997 and for instance requires the storage on a floppy disk in MS-DOS format. The standard was revised and has been published.

Based on the input from LaserSoft Imaging (Germany) the second part was continued. It is termed: “Advanced colour targets for input scanner calibration” and is based on the higher demands from scientific institutions, like museums, art and cultural heritage archives, special public administration applications for ID-documents that require more patches to achieve a better scanner colour characterization. The new work item ballot was positive and the document achieved WD status. With the comments discussed in San José, the next stage (CD) will be started.

Print Requirements and ISO 20616-2 Print Quality eXchange (ISO 20616-1/2)

Brand owners and print buyers commissioning physical printing require two things: 1) print requirements describing the intended printing (PRX: ISO 20616-1) and 2) the results of the printing itself (PQX: ISO 20616-2). These new standards, initiated by TC130 liaison member IDEAlliance, are intended to facilitate the one-way transmission of performance data from print service providers to relevant stakeholders and brand owners for one or more printed samples from a single press run. PQX is structured as an XML message, which communicates colour, registration, and observed defects. PQX takes advantage of the standard CxF for-

mat (ISO 17972-2) in order to communicate colour. The communication from the brand owner toward the print shop by means of print requirements exchange, which is termed PRX, and will be covered in part 1 of this multi-part standard. The following two standards have been initiated (Stage 0). ISO 20616-1, Graphic technology – File format for quality control software and metadata – Part 1: Print requirements exchange (PRX) and Part 2: Print quality exchange (PQX). The preliminary drafts for ISO 20616-2 were discussed in San José and it was agreed to start a new work item ballot, where ISO 20616-2 will be balloted as CD.

ICC V5 becomes iccMAX (ISO 20677)

iccMAX is a new colour management system developed in ICC Labs, primarily by members of the Architecture Working Group under the lead of Max Derhak from Onyx Graphics. The IccMAX specification, submitted via ISO TC130 as ISO 20677 (Image technology colour management -- Expansion of architecture, profile format, and data structure to enable development of advanced colour management systems), has progressed to the next stage (WD) on its way to international standardization. It is next going to be balloted as CD. iccMax implementation will be presented at the next ICC DevCon taking place November 7, 2016, in San Diego. Please find more information online here: <http://www.iccmax.org>.

Process control and related metrology (WG 3, JWG 8, JWG 14):

Colour measurement standard (ISO 13655)

The standard has been published in 2009. For surface colours it comprises 4 different measurement modes namely “M0”, “M1”, “M2” and “M3”. The on-going revision has almost been finished. The main change was the modification of the white backing. The DIS ballot comments have been resolved and a second DIS was initiated and is under way, hence no discussion took place in San José. However, comments from Fogra were presented with respect to the usage of CIEDE2000 and issues related the conformance assessment of white backer.

Certification of Contract Proofing systems and proofing sites (ISO 12647-7)

The revision has been finished and after resolving final comments in Berlin the document will be sent to ISO CS for final publication. The main change were the update of the proofing paper permanence definition, the checking of spot colours and the transition from CIEDE1976 (ΔE^*_{ab}) values to CIEDE2000 tolerance values accompanied by a tightening of the tolerances. It was also decided to include the requirements for the so-called third level, i.e. contract proofs on a job by job level (termed “field proof”). In other words: a proof print of a typical job with a Fogra MediaWedge and the correct status line but without a large ECI2002 test chart. The standard is published and FograCert Contract Proof Creation (CPC) and Contract Proofing System (CPS) are reflecting this as of October 2016.

The digital production printing standard (ISO 15311)

Part 1 of that multipart standard defines metrics to measure important print image quality attributes. This technical specification was published and in San José the development version was further discussed. Here further image quality aspects will be added such as media relative colour accuracy with black point compensation, metamerism, water resistance, scratch resistance or multiple aspects of mis-registration.

Part 2 (commercial printing applications) now has the chance for final publishing. The break-through, 6 years after its presentation by Fogra Digital Printing Working Group (DPWG), was achieved by removing any normative tolerances and pointing to the agreement between the buyer and user of the machine. However the originally proposed three quality levels (commercial (A), semi-commercial (B) and newspaper-like printing (C) will be added as examples in an informative annex. The IDEAlliance digital print certification program will also be added in the same fashion for suggestion. A third DTS-ballot will reveal if the publication of the Technical Specification can be issued after the news from the Toronto meeting.

The specification for part 3 (large format signage printing) originates from work of the Fogra Digital Printing Working Group (DPWG). The status is unchanged. So interested persons can access the free of charge Fogra specification and report their feedback in the DPWG (Digital Printing Working Group).

Measurement of image quality attributes (ISO/TS 18621 family)

The joint working group (JWG 14) between TC130, JTC1 SC28 WG 4 and WG 42 met in San José and discussed the further development of four on-going projects. These are the computation of gamut volumes (-11), the evaluation of graininess (-12), of macroscopic uniformity – M-Score (-22) and perceptual resolution – L-Score (-31). The new work item ballot for the L-Score was positive. However due to rigorous scientific demands on the test including many test prints, psychophysical tests and corresponding round robin tests from some members and little contribution from other parties than Fogra the development might go on for some more years.

The definition of permanence requirements will be discussed in a separate working group JWG 27. Here an update was provided. The main work of this JWG is a multipart standard ISO 21139-x, whereas different use profiles are drafted. A use profile can be used to estimate the impact of different stress factors in most actual situations. For instance for the display of prints in many show windows only two stress factors are significant, namely exposure to light and ozone.

Defining meaningful dot gain curves for spot colours (ISO 20654)

Based on the work by the so-called "SCHMO" group, the document was positively balloted to initiate a DIS ballot. It covers a perceptual uniform way to calculate tone values for spot colours (between substrate and colour) where the Murray Davies formula is known not to work correctly. The title is "Management and calculation of spot colour tone value (SCTV)". Intermediate results show that SCTV might be the first method to allow for an unambiguous plate calibration and

hence spot colour process control. The DIS ballot was under way; hence no discussion took place in San José.

Offset standard will be amended (ISO 12647-2)

The Fred15 project revealed that the paper white points for the sheet feed conditions PC1 and PC5 did not fully represent the marked place. Since also small changes might result in practical discrepancies a resolution was started. It was agreed to start this amendment at CD stage. Since this ballot was underway, only the result of action items from Japan and the USA have been presented. They revealed the known dispersion of CIEb*-values from CIEb*=-2.5 (M1, wb) as the mean values over 38 tested woodfree coated substrate typical in Japan and CIEb*=-8 (M1, wb) for the US marketplace. It remains to be seen how the group will resolve the upcoming ballot comments as well as these findings.

New project – Multicolor printing

Elie Khoury (Alwan) is leading a group focussed on multicolour printing. An update was provided. Inks for CMYK+Orange+Green+Violet have been analysed and it is planned to conduct further test printings in offset, flexo and digital. The aim will be 5-, 6- and 7-channel characterization data sets. Input is welcomed and more information will be presented at the next Toronto meeting.

New project – Modelling wet-dry print behaviour (dry back)

Elie Khoury (Alwan) was also proposing a new project dealing with modelling of the effect of wet-dry-prints. Different manufacturers volunteered to provide their data and formula. An update will be presented at the next meeting. Input is as always welcomed.

Media and materials (WG 4)

WG 4 did not meet in San José since the vote planned was not finished in September.

Environmental aspects of graphic technology (WG 11)

Guideline for the measurement of energy efficiency of digital printing presses (ISO 20690)

Based on the findings of the Fogra research project 35.006, the standard was balloted for CD stage the second time. The results have been incorporated and thanks to the enormous contribution from co-editor Tim Deeming (Ricoh) the DIS candidate is already ready to be initiated. That means that anyone can (buy and) review the standard soon.

Guidelines for calculating the transitional and related mode energy consumption of short run digital printing devices (ISO 21632)

Based on the discussion of ISO 20690 it was agreed by a committee internal ballot to separate TEC (total energy consumption) out and to start an all new project that covers all operational modes that are required to calculate TEC. This work started in Berlin and the editor is Mr. Tanigawa from Japan Business Machine and Information System Industries (JBMA). This document will be balloted for WD.

Evaluation of deinkability potential of printed products (ISO 21331)

During the meeting additions to the terms and definitions were considered and the scope discussed. TC6 members participating in the meeting continue to challenge the scope, failing however to suggest alternative wordings. The sustained opposition of a particular cohort within TC6 to ISO 21331 has been escalated to TC level. TC6 and TC130 have been agreed to form a JWG 12 with the lead of TC6 but under the convenorship of Laurel Brunner and Luc Lanat. Since the document is under ballot only informal discussions took place. The chances of this document to be published soon are not particularly high since arguments seemed to be motivated by personal sensibilities.