

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 December 2020. Due to the Corona restrictions, the meeting could not be held in Sydney (Australia) but was organized in web conferences.

Minutes from Dr Uwe Bertholdt and Dr Andreas Kraushaar

The following project descriptions cover the current status of the pertinent ISO standards. Further details such as the explanation of the different development stages and previous activities can be found in the previous issues of ISO News.

Prepress (WG 2) & ICC Colour Management (JWG7)

PDF/X-6 released (ISO 15930-9)

The new PDF/X-6 standard will benefit in particular from the modern functions that PDF 2.0 (ISO 32000-2) brings with it. For the first time, it will be possible to define several output intents on different pages within a document. For example, when producing a book in which the cover is to be printed on coated paper but the rest of the content on uncoated paper, one and the same PDF document can now be used.

Print Requirements and 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

(POX: ISO 20616-2). These new standards 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. Since the DIS ballot of ISO 20616-1 closed at the day of the meeting there was no further discussion. This ballot was positive and a publication can be expected for mid 2021. Part 2, also considered to be very controversial, was published early 2020.

The discussion in general revealed that the current document is not really machine-readable and that it is missing more semantic (explicit) explanation and requirements. For instance a clear relation between the standard and the associated schema should be clarified. An Ad hoc group was formed to resolve this and submit the result for a further CD ballot. This did not happen. The group agreed to proceed with a DIS ballot after the online meeting. It can be expected that this standard will be published without resolving the before mentioned issues. German experts therefore started an alternative approach under the XJDF umbrella, which finished their work "Quality Control" to be found here: <https://confluence.cip4.org/display/PUB/Quality+Control+-MIS+ICS>.



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NEXT MEETING

May 25 - 28, 2021 in Berlin (Germany) or within the framework of web conferences

DOWNLOAD

www.fogra.org/en/downloads/iso-news

ECI 2002 (IT.8/7-4) will be extended (IT.8/7-5)

You might all know the IT.8 7/4 chart with 1617 charts (defined in ISO 12642-2, which also covers ECI2002). One problem (for the near neutral calibration based targets, aka P2P51) is that their tone value combinations are not a 100% subset of that 1617 tone value combinations. For instance, the 72 patches of the Fogra Media Wedge are 100% covered within IT.8 7/4. In that light the US delegation started ISO 12642-3 (“TC1617”). IT.8.7/5 is a new CMYK printer characterization target combining the unique patch values in the standard IT.8.7/4 target with all the patch values in columns 4 and 5 of the P2P51 target. The “TC1617” chart maintains the same patch count as the IT.8.7/4 (1617 hence the name) by removing 29 duplicate patches from the IT.8.7/4 and replacing them with the 29 patches in columns 4 and 5 of the P2P51 that were absent in the IT.8.7/4. At Fogra we are using these “doublets” to evaluate uniformity and better understand how good the chart was actually printed, so “TC1617” provides no benefits for the current Fogra services.

The DIS ballot was positive and the document should be sent out for publication after the coming meeting.

Exchange format for colour and process control data (ISO 28178)

A revision of ISO 28178 (Graphic technology - Exchange format for colour and process control data via XML or ASCII text) was discussed, as the work on the Extended Colour Gamut (ECG) including the findings of the Fogra Multicolour Forum revealed some missing tags such as the print sequence tag. A concrete proposal from the project advisory board (Multicolor, ECG) was presented. This identifies which changes need to be made or new tags to be added. There is a desire to clearly separate and tag the logical order of data entries and the printing order. The revision will start after the upcoming Berlin meeting with Andreas Kraushaar becoming the editor.

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

Digital Printing Standard (ISO/TS 15311)

Part 1 of that multipart standard termed Print quality requirements for printed matter defines metrics to measure important print image quality attributes. Whilst the second edition with additional image quality criteria was published at the beginning of 2019, the third “edition” was published recently. It covers now additional metrics such as the gamut size (ISO/TS 18621-11), contouring, macroscopic uniformity (M-Score defined in ISO/TS 18621-21), or indoor light stability with respect to home display uses.

Anyone is invited to propose additional metrics for the development version, which is maintained in parallel to prepare the fourth version of this important document.

One new idea to add in the future was a metric to combine different metrics to one general (overall) quality number. This was discussed at the last DPWG meeting (see recording for more details: <https://fogra.org/en/downloads/technical-committees/digital-printing>). Login before (since only DPWG members have access). So if you want to participate in that research project please let us know.

Part 2 (print applications utilizing digital printing technologies) has been completed and published. It fully reflects the PSD-2018 tolerances and won't be changed for the coming years.

The specification for part 3 (large format signage printing) also 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 Spec LFP at <https://fogra.org/en/certification/digital-printing/psd> 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 online and discussed the further development of four ongoing projects of family termed “quality evaluation methods for printed matter”. Part 11 (Colour gamut analysis), covering the computation of gamut volume, was published. A few technical issues have been found afterwards. They have been resolved at the meeting. The same applies for the Fogra L-Score, which is now termed “Evaluation of the perceived resolution of printing systems with the contrast-resolution chart” and M-Score in part 21, termed “Measurement of 1D distortions of macroscopic uniformity utilizing scanning spectrophotometers”. Both were published recently. The Fogra graininess method will become part 22, but there was some reluctance from other experts asking for more substantiation. Though that project might need 2 or 3 more years.

Offset printing (ISO 12647-2)

The Ad hoc group, which is about implementing the resolution to integrate NNC, near neutral calibration (“G7”), reported about their progress. It was agreed to use only CIELAB based aim values for both calibration approaches which means that for existing TVI based approach one can also use SCTV based tone values (the tone values measured like this will be called CTV in the future – Colour Tone Value).

It remains clear that for a given printing substrate the “NNC” and the “Equal-TVI” is not equivalent in particular for stochastic screens (aka as FM, frequency modulation). However, for the most important printing condition on coated stock (reflected by FOGRA51 and CRPC6/GRACoL 2013) slightly changed aim values were identified by which both calibration methods come to the same result! That would mean that for this paramount printing condition the “slightly new” TVI and NPDC press aims are interchangeable as well as the solid coloration and

the profiles. It remains to be seen if the current ICC profiles need to be updated also or if the slight changes don't justify such a huge change. Furthermore it was discussed to stay with dE76 (instead of dE00), since this correlates better to ink film thickness variations (which are important for a process control standard). With respect to substrate classification, the proposal by the "Paperdam" group was approved to be used. This is mainly based on the surface properties and results in 13 different categories.

The Ad hoc group is asked to integrate the discussed changes and work on the missing annexes. They will provide a new document, which is subject for discussion at the coming (hopefully post-corona Berlin meeting in May 2021). After agreement with WG3 the project should be restarted and the document will be ballot-ed for CD.

Newspaper printing (ISO 12647-3)

There was no further discussion as to how to revise this standard.

Flexo-printing (ISO 12647-6)

Due to the lack of German flexo experts the discussion will only be observed. The DIS ballot was positive and the standard was published in September 2020.

Validation Printing (ISO 12647-8)

First, the last comments of the DIS ballot on the update of the validation printing standard ISO 12647-8 were discussed. All comments were resolved and another FDIS vote was scheduled before a publication is expected in 2021. The "new" tolerances already shared within Digital Printing Working Group (DPWG) will also soon be implemented in the well-known Excel tool (MKCheck) to be found here: <https://fogra.org/en/downloads/work-tools/processstandard-digital-psd>.

The main change was to make the documentation suitable for multicolour reference printing conditions and also to refine the colorimetric accuracy to apply the tol-

erances to the inner border patches of the Fogra MediaWedge (as it was felt that the many border patches unduly challenge the validation printing systems).

Offset printing for metal decoration (ISO 12647-9)

The document was approved as DIS and the comments were resolved. Since there were also technical comments, the document will be balloted for FDIS before a final publication can be expected early next year. Based on the available aims (CIELAB and TVI) and related printing samples (e.g. provided by Pirlo and modelled by GMG) characterization data have been developed. In that process some issues in the actual aims were identified for MPC1 ("White coated"), hence we proposed to refine some of the colour aims. These changes were unfortunately not accepted. Another challenge are the very dark aim values CIEL (lightness) of the black primary being CIEL*_a=5 (for Metal Printing Condition, MPC 2) and CIEL*_a=8 (MPC 3 & 4) respectively. For that reasons none of the present four metal printing conditions are considered to be relevant from Fogra point of view for the time being.

Standardisation in packaging gravure printing (ISO 12647-10)

On the initiative of Italian Rotogravure Group, a new part of the ISO 12647 family of standards has been discussed that describes standardization in packaging gravure. This new section 10 of the ISO 12647 documentation was tentatively termed "Part 10: Packaging Rotogravure printing". It should specify the requirements for the exchange of data and information necessary for the definition of the aims for process and spot colour gravure printing of packaging materials. It is based on the use of colour characterization data to define the colorimetric printing aims and includes appropriate assignment of responsibility and recommended tolerances on critical parameters of the Rotogravure printing process. This part of the documentation is applicable to packaging gravure, halftone and continuous proofing processes that predict the

colorimetric results of packaging gravure. Whereas it is not applicable to inks and transparent inks printed directly onto a metallized substrate and all gravure applications that are different from packaging. It was agreed to start a new Work Item Proposal (Ballot) with Carlo Carnelli as editor.

Multicolor process printing (ISO/TS 21328)

The DTS vote was positive, but there are still many points to be clarified. It was agreed to incorporate the discussed decisions and compromises and to check for consensus in an email review within WG3. After a successful feedback, the document will be published.

Multispectral measurements (ISO 24585)

With respect to WG3 (Task Force 1 – an informal subgroup of WG3 focusing only on spatially resolved (=2D) spectral measurements and associated calculations), it was agreed to present ISO 24585 as a multi-part technical specification. Part 1 should define the framework for core requirements that compile the following parts, namely the metrics for specifying the inflow (1), the sample preparation (2), the detection of the outflow including the spectral match quality (3), the multispectral storage format (4), as well as the calculation of CIELAB images (5) and finally metrics for the comparison of multispectral images (6). Based on this framework, similar to ISO/TS 15311-1, the following parts should define clear use cases and specify the target values and tolerances for the corresponding parts. Part 2, for example, should reflect the measurement and evaluation of image inspection in the laminate and flooring printing market. Andreas Presterl (IPAC) has agreed to take over the project management. Of course, it is still possible to expand the previously described area with further parts. Such as inline colour measurements for printing presses or the requirements for hyperspectral imaging devices for the registration of cultural assets. This is of course a question of expert presence in

these fields. The current working title is: “Spatially resolved spectral measurement and colorimetric calculation for graphic and industrial applications”.

Media and materials (WG 4)

Preparation of test prints for lithography (ISO 2834-1 revision)

ISO 2834-1 is in use since several years. Now it turned out it is not only used for sample preparation for colour measurement and resistance testing but also for subsequent printability testing. This however requires additional specifications for these applications. The revised document will also be applicable for plastic and metallic films. The work is finished now and the new edition of the standard is published.

Resistance of prints and inks (ISO 2836 revision)

The test methods for the resistance of inks and prints against various chemicals (e.g. alkali and solvents) is defined in ISO 2836. The USA and The Netherlands suggested a revision of this Standard during the systematic review. This is also supported by Germany. During several voting periods, more than expected comments were delivered and resolved at meetings. The final FDIS ballot is prepared.

Communication of ink properties (future ISO 22934)

This new project results from the extension of DIN 16526 into an International Standard and was proposed from Fogra. It was initiated by the occurrence of foreign sheet fed offset ink cans lacking property information typically given in Germany. Relevant ink properties should be given in future. This includes usability, drying mechanism, light and chemicals fastness, among others. The draft meanwhile has been accepted as a Draft International Standard with the application for offset inks only. The DIS-ballot was positive but resulted – at this late stage – in the French desire to add the mineral oil content as

five single fractions. This aspect had been discussed in the national mirror committees separately was rejected despite some mitigation from France. The final FDIS ballot is prepared.

Ink opacity (future ISO 23498)

This new project aims to a new measurement method to determine the opacity of inks. The initiative was started with psychophysical experiments using test prints. During the development the extension of the scope of the document to also cope opacity of white inks on coloured substrates was agreed upon. Metallic substrates are excluded for the moment. The FDIS-ballot was positive, the Standard has been published.

Rub tests (ISO 18947 revision as part 1 of a multipart Standard)

This standard of the photographic industry aims on the permanence of photographic prints (conventional and inkjet) and therefore may also be relevant for the graphic industry. Based on a Fogra research project a revision proposal was prepared aiming to a broader and more practical application. In the future not just a single US device (besides two Japanese) but also English and a German device might be used. A joint revision including photography, graphic technology, and office equipment has been started. Fogra has prepared an updated proposal for a general applicable future first part of a series of rub test documents. A positive DIS-ballot resulted in additional comments of all three committees which were resolved during joint teleconferences. The final FDIS ballot is prepared.

Printing plates (ISO 12635 revision)

Nowadays a wide variety of plate dimensions exists fitting the different printing systems. Therefore warehousing for plate manufacturers and vendors are challenging. In addition, cutting to size results in large amounts of waste. To overcome these problems Fuji proposes to favour preferred plate sizes for future developments. Fuji has prepared an Annex with

these preferred plate being the basis for the revision of ISO 12635. The DIS-ballot is still running.

Paper wetting index

The German Printing and Media Industries Federation together with Swiss Ugra – sourcing a Swiss national standard – intend to develop either a Technical Report or a Technical Specification to allow for statements regarding the batch to batch consistency of paper using contact angle measurements with water. A French expert once more claimed this initiative needs to be developed within TC 6 (Paper). A first unofficial draft was commented very intensively and only parts of them could be dealt with during the meeting. The actual document lacks any correlation between the paper wetting index and any printing problem. It was suggested to identify at least one correlation prior to a formal project start. At the moment, no new activities are to be expected.

Process control for the development of processless offset printing plates (future ISO 24487-1)

Fuji has proposed the development of a new standard. A first ballot resulted in the acceptance of this new project as a working draft. An additional working group consultation resulted in several valuable comments to be added to the document. A DIS ballot is prepared.

Preparation of test prints using liquid inks (ISO 2834-2 revision)

During the regular review the USA proposed a revision of this Standard with particular changes. The experts of the Working Group and also the Technical Committee agreed.

Post print (WG 12)

Adhesive tape test (future ISO 23395)

Fogra has developed a test device for objective adhesive tape tests several years ago and sells these devices as “LHT”. The

proposal to standardize both the device and the method was accepted by the experts. The USA and Japan however require a more generic description of the working principles combined with an independency from the specific Fogra design. This should have been realized within the next document. The Netherlands wanted to contribute to improved tape requirements. During the work on these action items Fogra proposed to break and to answer open issues during a research project. A project proposal was prepared. The group agreed to pause the project meanwhile.

Dye cutting

The Chinese convenor proposed to prepare a new project proposal on dye cut-

ting already last year. A very first document was presented and accepted by the experts of the group and during the plenary meeting.

Plenary meeting

Due to the Corona restrictions, the plenary meeting as well as its preparation were organized to take place in web conferences.

Ms. Yuanchao Cui left the committee due to private reasons as did her chairperson Mr Prof Dr Jialing Pu on a regular basis. Both received a fitting farewell. Ms Meifang Li (China) was appointed new committee manager and Mr Pengfei Zhao

(China) was appointed new chairperson. Both were warmly welcomed. All convenors were reconfirmed. Working Group 13 is now dormant since all projects were completed.

If possible (subject to COVID-19 restrictions) next meetings will be held in Berlin, Germany (spring 2021), Sydney, Australia (autumn 2021), Telford, UK (spring 2022) und Tokyo (autumn 2022).

Committee work & Standardization

Fogra activities and employee commitment

DIN NA 017 (NDR)

NA 017-00-02 AA

Prepress & data exchange

Convenor: Dr Andreas Kraushaar

NA 017-00-03 AA

Process control & related metrology

Convenor: Dr Andreas Kraushaar

NA 017-00-04 AA

Media & materials

Convenor: Dr Uwe Bertholdt

ISO TC 130 Graphic Technology

WG 2

Digital prepress data exchange

Participation: Dr Andreas Kraushaar

WG 3

Process control & related metrology

Convenor: Dr Andreas Kraushaar

WG 4

Media & materials

Convenor: Dr Uwe Bertholdt

WG 12

Print finishing

Participation: Florian Hirschhalmer

Other Standardization Committees

DIN NA 043-01-17-01

Test processes for identity cards

Participation: Arne Müller

DIN NA 043-01-17-03

Machine readable travel documents

Participation: Arne Müller

DIN NA 115-01-03-02 AK

Features for tamper evidence medicine packaging

Participation: Arne Müller

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