

Standards Update

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This issue of the Reporter provides an update on the recent meetings of ISO/TC 130 (Graphic technology), the ICC (International Color Consortium), and ISO/TC42 Photography.

TC130 Graphic technology

The working groups of TC130 met May 19-23 in Vancouver BC. Items of interest to the imaging community include the following.

Standards completed The following imaging related standards have been recently approved and/or published.

- ISO 15930-1:2003, *Graphic technology — Prepress digital data exchange — Use of PDF — Part 1: Complete exchange using CMYK and spot colour data (PDF/X-1a)*
- ISO 15930-2:2003, *Graphic technology — Prepress digital data exchange — Use of PDF — Part 2: Partial exchange of printing data (PDF/X-2)*
- ISO 15930-3:2003, *Graphic technology — Prepress digital data exchange — Use of PDF — Part 3: Complete exchange suitable for colour-managed workflows (PDF/X-3)*

These standards represent an update of the very successful PDF/X-1 and PDF/X-3 standards to add compatibility with Adobe PDF version 1.4. PDF/X-2 is new, is compatible with Adobe PDF version 1.4, builds on both PDF/X-1a and PDF/X-3, but enables use of the PDF/X file formats in situations where selected data objects are transferred separately from the main data file.

One important aspect of these standards is the requirement that an ICC output profile (or pointer to characterization data) must be included. This inter-dependancy between the work of these groups is again demonstrating that the whole is greater than the sum of the parts.

- ISO 12639:2003, *Graphic technology — Prepress digital data exchange — Tag image file format for image technology (TIFF/IT)*.

This is an update of the 1998 version and 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: an expanded LW palette to support up to 65535 colors; support for up to 32 separations; new file format "SD" for copydot data with CCITT G4 compression; new compression schemes: Flate and JPEG; and a change in designation of the FP format from informative to normative. Although not required, TIFF/IT also makes provision for inclusion of an ICC profile.

- ISO 12640-2:2003 *Graphic technology — Prepress digital data exchange — Standard colour image data — Part 2: XYZ/sRGB encoded image data (XYZ/SCID)*

This standard complements the earlier CMYK SCID images that were initially issued simply as ISO 12640 but will be renumbered as ISO 12640-1.

- ISO TR 16066:2003, *Graphic technology — Standard object colour spectra database for colour reproduction evaluation (SOCS)*

This technical report includes a collection of more than 50,000 spectral data items (in electronic form) representing the colours of existing objects. It also details the extraction from the data of 365 colour samples and their classification into sets, of which there are two types, "typical sets" and "difference sets". "Typical sets" refers to sets of typical spectral reflectances and transmittances of objects as classified into a number of different categories. "Difference sets" refers to sets of metamers whose tristimulus values are roughly typical but whose spectral values are significantly non-typical.

New work started Three new work items directly impacting the imaging community have been initiated within TC130. These are:

New standard ISO 17972, *Graphic technology — Prepress data exchange — Colour information data exchange format* (title tentative). The goal of this new work is "To develop an XML based file format, and associated document type definition (DTD) and schema which will enable the unambiguous exchange of information about colour characteristics of reflection or transmission materials used in the graphic arts industry."

Revision of ISO 13655:1996, *Graphic technology — Spectral measurement and colorimetric computation for graphic arts images*. A key aspect of this revision will be the consideration of backing materials other than black during measurement. This is being driven largely by the color management community, which prefers to use white or self-backing when making colorimetric measurements for use in building profiles. The current revision of CGATS.5, the parent document of ISO 13655, will also be used as input to this work.

Revision of ISO 12642:1996, *Graphic technology — Prepress digital data exchange — Input data for characterization of 4-colour process printing* (commonly know as an IT8.7/3 target). Recent work in Europe, by the European Colour Initiative (ECI), and in the United States, by CGATS, point to the need for a CMYK output characterization target with more patches than the current target. In addition, the Japanese delegation has proposed some specific flesh-tone, neutral, and saturated color combinations that they would like to see included in any target revision. At this point it is not clear whether the existing target will be a subset of any new target or will be retained as an independent standard.

Future Meetings TC130 will be meeting next in Kyoto Japan on October 6-11, 2003. Meetings scheduled for 2004 include April 28 - May 4 in St Gallen, Switzerland, and September 27 - October 2 in Vienna, Austria.

International Color Consortium (ICC)

The ICC met June 4 - 6, 2003 in Vancouver BC. Items of particular interest include the following.

Annual Report The ICC has published their Progress Report for 2002-2003 that includes summaries of the activities of the ICC and all of its working groups. Copies are available in both softcopy (PDF) from www.color.org and hardcopy by contacting kscopythe@nps.org.

Version 4.1 of ICC.1 The ICC is the final approval stage for Version 4.1 (a minor revision) of ICC.1, *File Format for Color Profiles*. The committee review period ends June 23 with a public review period to follow.

ISO Version The work to prepare an ISO compatible version of ICC.1 is nearing completion. The goal of this project is to produce a version of ICC.1 that both meets all of the documentation and formatting requirements of the ISO, and is technically equivalent to the current draft of ICC.1. That document will begin ICC balloting as soon as the committee review of Version 4.1 is completed.

ISO-ICC JWG With the approval by ISO Council of the ICC-ISO contractual agreement, the ISO draft will also be circulated to members of ISO/TC130/JWG7 for review and comment. This new Joint Working Group (TC130/JWG7) is being created to facilitate the joint development of the ICC profile format specification as ISO 15076, *Image Technology - ICC Colour Management - Architecture, profile format, and data structure*.

It is expected that this new JWG will meet in conjunction with the fall 2003 meeting of the ICC in Scottsdale AZ. Other standards groups interested in participating in this work are urged to contact the chair of TC130/WG2 (mcdowell@npes.org).

Characterization Data The ICC RGB and CMYK characterization data registries are in the final stages of refinement. These registries, available at www.color.org, provide a listing of characterization data-set names, pointers to sources of the characterization data itself, definitions of the printing conditions or primaries associated with these data, and available profiles based on these data. As mentioned in the earlier discussion of the ISO/TC130 PDF/X file formats, these registries are critical to successful implementation of PDF/X.

GASIG and WWG The ICC Graphic Arts Special Interest Group (GASIG) and Workflow Working Group (WWG) have been focusing on understanding the workflow associated with practical applications. This understanding is critical to ensuring that the ICC profile format and CMM requirements will enable vendors to provide robust color management solutions to meet their customer's needs for open exchange of color data.

PAWG The newest ICC Working Group is the Profile Assessment Working Group (PAWG). Its mission is to "seek methods to assess profile

quality (assumes valid, conforming ICC profile)". This group is dealing with the related problems of defining profile quality attributes, identifying analytical methods to assess attributes, and developing metrics to quantify or qualify such attributes. This is a difficult task, but one that is desperately needed by users as they attempt to evaluate the rapidly expanding profile choices available.

Future Meetings The next meeting of the ICC will be in Scottsdale AZ on October 31 to November 3, 2003, in conjunction with the IS&T Color Imaging Conference. Meetings for 2004 have been scheduled for February 18-21 in Florida, May 19-21 in Lyon, France, and November in Scottsdale in conjunction with the Color Imaging Conference.

TC42 Photography

TC 42 has scheduled both Working Group meetings and a Plenary during the period of June 16 - 20 in San Diego CA. (Unfortunately, after this report was submitted but before it was printed.)

The Working Groups meeting include: WG3, Image Evaluation; WG5, Image Permanence; WG18, Electronic Still Picture Imaging; JWG20, Digital Camera Color Characterization; JWG21, Densitometry; JWG22, Color Measurement & Management; and JWG23, Extended Color Encoding.

Key Topics Some of the key topics, of interest to the imaging community, are:

WG18, Electronic Still Picture Imaging, will be reviewing the result of a new work ballot to initiate work on ISO 12234-4, *Photography - Electronic still-picture imaging - Part 4: Exchangeable image file format (Exif 2.2)*, will be reported.

Although currently in CD ballot, extensive discussion is expected of all three parts of ISO 20462-1 *Photography - Psychophysical experimental method to estimate image quality - Part 1: Overview of psychophysical elements, Part 2: Triplet comparison method and Part 3: Quality ruler method*. Although ISO 15740, *Photography - Electronic still picture imaging - Picture Transfer Protocol (PTP) for Digital Still Photography Devices*, is also in CD ballot it will be the focus of work.

JWG20, Digital Camera Color

Characterization, will continue work on the two parts of ISO 17321-1 *Graphic technology and photography - Colour characterisation of digital still cameras (DSCs) - Part 1: Stimuli, metrology, and test procedures and Part 2: Methods for determining transforms from raw DSC to scene-referred image data*.

JWG21, Densitometry, will be reviewing a proposed CD draft of ISO 5-2, *Photography - Density measurements - Part 2: Geometric conditions for transmission density*.

In addition 2nd CD drafts of *Part 3: Spectral conditions and Part 4: Geometric conditions for reflection density* will be reviewed.

JWG22, Color Measurement & Management, will be celebrating the approval of ISO 22028-1:2003, *Photography and graphic technology - Extended colour encodings for digital image storage, manipulation and interchange - Part 1: Architecture and requirements*. It will also be struggling with the definition and scheduling of additional parts of this standard.

Future Meetings WG 18 and JWGs 20, 22, and 23 have scheduled meetings October 14-17, 2003 in Tokyo, Japan, to coordinate with the meeting of TC130 the previous week in Kyoto.

CIE (International Commission on Illumination)

The CIE is holding its 25th Quadrennium Session in San Diego, California from 25 June to 2 July 2003. This is the 90th year since the formation of the CIE.

The 25th Session is divided into two parts, a main Conference Session and Divisional meetings. The Conference Session, from 26 to 28 June 2003, consists of invited papers, presented papers and posters. The Technical Committees, an essential part of the CIE Divisions, will meet throughout the seven days of the Session.

A future issue of the Standards Update will report on the CIE meetings.

For suggestions for future updates, or standards questions in general, please contact the author at mcdowell@npes.org or mcdowell@kodak.com