

# COMMITTEE FOR GRAPHIC ARTS TECHNOLOGIES STANDARDS

## Secretariat:

NPES The Association for Suppliers of  
Printing, Publishing and Converting Technologies  
1899 Preston White Drive  
Reston, Virginia 20191  
Telephone: 703/264-7200  
Fax: 703/620-0994  
Email: standards@npes.org  
<http://www.npes.org/standards/workroom.html>



CGATS/SC3 1146  
CGATS/SC4 N 1070  
USTAG/TC130 N 3583

## Minutes JOINT MEETING CGATS SC3 / SC4 / USTAG WG3 and WG4

Arizona State University  
7001 E. Williams Field Road  
Student Union Building, Ballroom A  
Mesa, Arizona 85212

Monday, Nov. 2 9:00 am – 5:00 pm  
Tuesday, Nov. 3 9:00 am – 12 noon

### 1. Call to Order

The meeting was called to order at 9:00 a.m. by Ray Cheydleur, SC3 Chair. The following were in attendance and introduced themselves:

Ray Cheydleur, Chair SC3	X-Rite, Incorporated
Dave McDowell, Chair USTAG	NPES
Mary Abbott, Secretary	NPES
Debbie Orf, Secretary	NPES
Bill Birkett	Doppelganger, LCC
Joe Fazzi	IDEAlliance
Richard Goodman	RMGC LLC
Steven Headley	Graphics Microsystems
Fred Hsu	RIT
John Iobst	NAA
Heath Luetkens	CGS
Howard Nelson	ASU
David Niles	Sappi Fine Paper
Bill Pope	FTA
Don Schroeder	Fuji Film
Chuck Spontelli	Bowling Green State University
Larry Steele	RGB Metrology LLC
Hal Stratton	manRoland
Larry Warter	Fujifilm Graphic Systems USA

The following joined via teleconference:

Dick Presley	Kodak
Danny Rich	Sun Chemical
Steve Smiley	Vertis Communications
Steve Suffoletto	RIT

## 2. Review and approve Agenda

The committee reviewed the agenda (SC3 N 1141), which had been distributed prior to the meeting. There being no changes, the agenda was approved as distributed.

## 3. Review and approve Minutes of the July 29-30, 2009 meeting

The committee reviewed the minutes of the July 29-30, 2009 meeting (SC3 N 1136) which had been distributed prior to the meeting. The minutes were approved as distributed.

## 4. Review status of action items from the July 2009 meeting

AI #	Action Item	Status
SC3/SC4-09-11	<b>Orf</b> will provide an area where documents that are needed for upcoming meetings can be made accessible to meeting participants, either as a protected area on the NPES website, as a zip file, or as a document repository online such as Google docs or Office Live.	Completed. Documents for meetings are now available on Office Live. The web address is <a href="http://www.office.live.com">www.office.live.com</a>
SC3-09-12	<b>Abbott</b> will request an extension for one year from ANSI on CGATS.5 to allow the US time to review any changes that may have been made prior to publication and ensure no technical changes have been made that would interfere with the US adoption.	Completed. Extension granted. National adoption of CGATS.5 was balloted to SC3. Ballot closed October 7.
TAG-09-13	<b>Smiley</b> and <b>Fazzi</b> will gather an assortment of substrates to be used.	Completed. Paper samples were provided to Kodak. They included board for packaging and newsprint, and kromcoat that is a synthetic bright Dupont material.
TAG-09-14	<b>Presley</b> will create Approval images on these substrates.	Completed. Proofs were made on the paper samples provided and were sent to Cheydleur for measurement.
TAG-09-15	<b>Cheydleur</b> will measure the printed samples using the available instrument that most closely matches M1.	Completed. Cheydleur forwarded files for M0, M1 and M2 conditions to McDowell, Birkett and Spontelli.
TAG-09-16	<b>McDowell</b> will analyze the data resulting from these measurements. <b>Final Due Date: October 16.</b>	Completed. (USTAG N 3541)
SC3-09-17	<b>McDowell</b> and <b>Smiley</b> will provide a letter requesting formal FTA endorsement of this data set to allow CGATS to proceed with the preparation of a Technical Report. <b>Due Date: August 17.</b>	Closed – FTA will come back in the future when they have a proposed characterization data set.
SC4-09-18	<b>Abbott</b> to find additional people interested in the CTP work using SC4 N 1032 as a rationale document.	Completed (SC4 N 1055). Presstek has indicated their interest in participating.
SC4-09-19	<b>Goodman</b> will draft an initial document addressing the CTP work for use in a new work item proposal.	Completed (SC4 N 1057)
TAG-09-20	<b>Warter</b> will prepare a new set of specific numbers addressing the concerns addressed in the US comments for proposal in Beijing.	Completed (USTAG N 3534)
TAG-09-21	<b>Warter</b> will provide initial draft of a digital printing standard to be used as part of a NWI proposal.	Completed; submitted in Beijing

AI #	Action Item	Status
TAG-09-22	McDowell will draw together justification for a NWI proposal for a digital printing document – possibly as a part of ISO 12647.	No longer needed; NWI initiated via resolution at TC 130 Plenary
TAG-09-23	McDowell will provide a report detailing the responses received from outreach to the domestic media relating to ISO 5776.	Completed (USTAG N 3539)
TAG-09-24	Cheydleur will go through the ISO 17972 data and create a mapping of existing elements and requirements.	Completed. (TC130WG2 N 1358)

### 5. Status of national adoption of ISO 13655 as the revision of CGATS.5

The CGATS.5 ballot for approval as a national adoption of ISO 13655 was approved and is now closed. We are awaiting publication of 13655. Once it has been published, NPES will get the word file from ISO and then prepare and publish the revision of CGATS.5.

### 6. Status of CGATS/FTA TR 007

The characterization data set for flexographic wide web printing is on hold until additional press runs are completed and more samples can be obtained and tested. The FTA representatives feel that the present data set is not a valid set. It was noted that the TR must contain information on how the data set was obtained and the data processed. Pope noted that this work may result in more than one data set, depending upon the results of these press runs, to include a variety of substrates and inks. Tests being done include an effort to determine if printing on a specific substrate is already covered by an existing data set or if it requires a unique data set for those specific printing conditions.

### 7. Report from Cheydleur on white paper re characterization of printing devices

The document (SC4 N 1058) was discussed and edited during the meeting. It was noted that based on comments from the last meeting minor changes have been made to the Scope. A definitions section was requested with the specific request that a definition of "fingerprint" be added. Several edits were made to the document in the following sections:

- Introduction – refined the meaning of color characterization for the layman
- 2 Process Setup – cleaned up and generalized for additional print processes
- 2.2 Material Selection – words on incoming inspection should be added
- 2.X Production Settings - was added as it was felt that a nominal procedure for setup was required regardless of the equipment that is being set up
- 2.4 Output Settings – All output settings should be recorded for use in future

**Action Item SC4-09-25:** Nelson will revise the language on section 2 of this document and transmit to Cheydleur for discussion and approval.

- 3 Printing Specifications, Aims and Tolerances  
 CGATS Technical Reports for common printing conditions (TR002, TR003, TR005 and TR006) were added. It was noted that we must differentiate between reference printing conditions, specifications and industry practices. Specifically the difference between international standards and industry specifications and the characterization data that is associated with these.

- 3.5 Manufacturer Specifications – changed from Vendor specifications
- 3.4 Customer Specifications – This section was added including the following examples: CPCs, brand owners, GPO
- 4.2 Full characterization targets – the following was added: When using standard targets the user must include all values of the data set and not selectively remove or alter values. Resizing of a target to fit the output device is not recommended, without consideration of the measuring instrument.

## **8. Review work related to "modifying data to accommodate a change in substrate"**

Four action items from the last meeting (TAG 09-13 through TAG-09-16) were involved in this activity. Fazzi reported that he received little response to the request for paper but that 13 papers were obtained. Presley noted they tried for consistency in making the Approval proofs. They checked the first and last proof to see that they were as close as possible and laminated a group from the center of the run. It was felt the result was fairly consistent. The proofs were sent to Cheydleur who measured them under simulated M1, M0 and M2 conditions. He forwarded the data to both McDowell and Spontelli/Birkett.

McDowell reviewed his data analysis summary (USTAG N 3541). This was based on the tristimulus backing correction technique with the minimum set to zero. (Birkett suggested that this was the same as the "substrate relative" technique that they used and later analysis by McDowell confirmed that upon rearrangement the two equations matched when the minimum was set to zero.)

McDowell reported on three observations.

1. Comparing the measured reflectance data for the 13 paper samples under the M0, M1 and M2 measurement conditions showed that the M0 results were surprisingly close to the M1 results indicating that the particular instrument used had a significant UV content. Comparing the M1 and M2 data showed a wide range of optical brighteners.
2. Comparing the M1 measurement data of the 29 duplicate patches in each data set and plotting the cumulative distribution of the differences indicated a DE of about 0.28 at the 50 percentile point and about 0.6 at the 90 percentile point. These represent the combination of variations in the proofing and in the measuring.
3. McDowell suggested that if a user was given a data set for a paper with a different white point than the paper they were using they would have two choices – use the data set as is or attempt to correct the data based on the differences between the paper white points. Using data for a sample that had a paper L\* near the middle of the range (Fortune Gloss), data for each of the other the papers was computed using the tristimulus backing correction technique. Data for the full IT8.7/4 target data sets were computed. Differences between the measured paper data and the computed data were plotted along with differences between the measured paper data and the data for Fortune Gloss. In all cases the computed data showed a smaller difference than would have been the case if the Fortune Gloss data had been used – in some cases more than a factor of 2 better.

A second presentation by Spontelli and Birkett titled “Effect of Paper Color on Print Characterization Data Sets” is SC3 N 1145.

A series of regressions were completed to show the relationship between the X, Y and Z values of all possible combinations of the various papers. These results are shown graphically in SC4 N 1060 through SC4 N 1063.

Their conclusions were:

1. Test results with M0 and D50 illuminants are qualitatively the same as M2; however, the ratio is different, especially in the z-values; and
2. For similar paper types the effect of paper color on a print characterization data set may be accurately

predicted using ICC media relative paper corrections.

They also referred to their April 17, 2007 position paper "On Proposed Revisions to ISO 12647-2:2004, A Move to Colorimetry and Matching a Reference Printing Standard" which is available at [http://doplganger.com/resources/CGATS/PositionPaperISO12647\\_Final.pdf](http://doplganger.com/resources/CGATS/PositionPaperISO12647_Final.pdf).

It was suggested that if the final goal is to have input into the ISO process that it might be best to submit this to TC130 as part of the input on the process agnostic document. It was agreed a possible combination of the McDowell and Spontelli/Birkett presentations should be forwarded to TC130 WG3 in support of paper correction.

**Action item TAG-09-26: McDowell, Birkett and Spontelli** will work on a document to forward to TC130 WG3 in support of paper correction showing that both correction techniques produce similar results and describing the tools used.

Birkett reported that using ICC colorimetry would be a good way to define grey in comparison to other items presented. The basic premise is ICC colorimetry would be a good definition, especially since it is already widely used and accepted, and also works for all of the other colors in the data set. He noted that it would be a good way to isolate the effects of paper color without getting into other paper and printing issues.

**Action Item TAG 09-27: Cheydleur and Presley** to create and measure blank media to see in sheet variability.

## **9. Status of proposal to develop a CGATS TR to address CTP plates**

Goodman presented a document (SC4 N 1057) for review by the group. He reported that the document was very rough and that more input is required at this time. The document, as presented, follows the format of ISO 10128 and the original printing plate standard.

The document was viewed by the group and several edits were discussed.

It was agreed that this document should be a process control document for CtP users and that further, at this time, it should be a Technical Report and not a standard.

**Action Item SC4-09-28:** By January 10, Goodman will incorporate suggestions from today's meeting. With help from **Pope, Birkett, Presley, Suffoletto, Goodman, Schroeder, and Sigg**, Goodman will prepare a new draft for circulation to the committee for additional input.

## **10. Presentation by Smiley on "Near-Neutral Calibration using G7 Neutral Print Density Curve"**

Smiley presented a first draft of a Technical Report (SC4 N 1059) on near neutral calibration. There was considerable discussion on the intended scope and application of this document. As written it is a general methodology that suggests that it will "retain a common appearance" across changes in substrate color and printing gamuts. Its use in creating the proposed data sets for TR 007 was described and it was suggested that the scope should be restricted to such applications and that an introduction was needed that sets the stage for this methodology.

**Action Item SC4-09-29: Smiley and Warter** will write an introduction and create a modified scope for the Near Neutral Calibration Methodology using G7 Neutral Print Density Curve document.

## **11. Review of TC 130 work that may impact CGATS SC3 and SC4**

### **11a Status of ISO 15076-1 Rev (ICC Spec)**

ISO 15076-1 – *Image technology colour management – Architecture, profile format and data structure – Part 1: Based on ICC.1:2004-10* is currently out for DIS ballot which closes officially on 12/24/09. The ICC specification editing group has gone through the document and made the vocabulary and terminology more

consistent and understandable; at the same time making it more consistent with ISO requirements. ICC approved minor revisions to the specification that have been incorporated into this document.

**11b Status of ISO/DIS 12640-4 (Adobe RGB SCID)**

The final publication draft of ISO/DIS 12640-4 – *Graphic technology – Prepress digital data exchange – Part 4: wide-gamut display-referred standard colour image data [Adobe RGB(1998)/SCID]* has been submitted to ISO/CS. Minor details are being worked out with ISO editors to get the final document published.

**11c Status of ISO 17972 and CxF tools and results of action item TAG-09-24 (TC130/WG2 N 1358)**

Cheydleur reported that ISO 17972 will be a multi-part document where part 1 is a description of the standardized use of CxF3, and the other parts will address custom resource requirements for various graphic arts applications. The first two will be scanner targets and printer targets. He will work on a draft of part 1 and on examples for parts 2 and 3. Revie and Smiley are working on a custom resource specification for spot colour.

**11d Status of ISO 12646 AMD1 (soft proofing)**

The DIS ballot of ISO 12646 AMD1 – *Graphic technology – Displays for colour proofing – Characteristics and viewing conditions* closes 1/21/09. This is an amendment that implements several US requested minor changes in the specification of the uniformity and consistency requirements.

**11e Status of ISO 13655**

ISO 13655 – *Graphic technology – Spectral measurement and colorimetric computation for graphic arts images* has been submitted to ISO/CS for publication; the draft that was submitted is available if needed.

**11f Status of ISO 14861 NWI proposal on requirements for colour proofing systems using electronic displays**

It was noted that the document is part of a NWI ballot and as such is intended to allow experts to understand the concepts associated with the proposed standard.

Rich reported that he felt the issue was with the title and that he saw no difference between this and ISO 12646. Therefore, he did not see a justification for the NWIP. After some discussion of the scope of the system he decided there should be some extensions from 12646 although the question remains does this justify a new work item duplicating what is in 12646, or should a new part of 12646 be created that includes all of the attributes needed to be characterized. It was noted that caution must be exercised when getting too specific because in many countries an ISO standard carries the weight of law. It was suggested that information be added to the introduction to define more clearly a system oriented specification for soft proofing.

It was agreed that the US vote will be to approve the NWI with the following comments on the WD.

- The title should be changed to *Graphic technology – Colour soft proofing systems* to differentiate it from ISO 12646.
- The introduction needs to be expanded to clearly describe the role of this document relative to the area of proofing and display requirements in 12646 and 2846.
- The systems aspect of this document needs to be emphasized.

### **11g Status of ISO 12647-4 following Systematic Review**

The results of the Systematic Review of ISO 12647-4 *Graphic technology – Process control for the production of half-tone colour separations, proof and production prints: Part 4: Publication gravure printing* indicated that the document should be reaffirmed. However, based on US comments, it was agreed to start a revision, with a 48 month cycle, and the secretariat is now looking for a project editor. One issue is a set of gamut data (solids and 2-color overprints) for which there are no inks specified. The US position is to either take out the 2<sup>nd</sup> gamut or provide ink data to define it.

### **11h Status of NWI ballot for ISO 12647-6 (flexographic printing)**

ISO 12647-6 – *Graphic technology – Process control for the production of half-tone colour separations, proofs and production prints – Part 6: Flexographic printing*. The ballot closes 11/14/09. Regarding the US response it was noted that from the ink standpoint it is impossible to provide both light-fast inks and standard inks at the same hue angles. It was agreed that characterization data will be the reference for flexographic data exchange and printing in the future. However, it was suggested that an informative annex be added to describe a reference tone curve and procedures associated with the use of such a curve. It was felt that such an annex would help provide a transition from the current procedures (many and varying) to a world of characterization data. Both these issues will be included in the US response.

### **11i Status of ISO/WD 12647-8**

The NWI for ISO/WD 12647-8 – *Graphic technology – Process control for the production of half-tone colour separations, proof and production prints – Part 8: Validation print processes working directly from digital data* was approved at the Plenary and the associated draft approved as a WD. Warter, as the ISO document editor, is cleaning up past comments for part 8 and updating the document in preparation for distribution as a CD ballot.

### **11j Report on addition of PWI (ISO 15311)**

ISO 15311 *Graphic technology – Requirements for printed matter utilizing digital printing technologies for the commercial and industrial production* has been approved at Stage 0; an editor has not yet been appointed.

### **11k Report on addition of PWI (ISO 15339)**

ISO 15339 *Graphic technology – Process agnostic creation of printed material originating as digital data* was approved by the Plenary as a preliminary work item. McDowell is the editor of this document, which specifies a limited number of color gamuts and associated characterization data that are the basic reference printing conditions for the production of printed material from digital data. Feedback on the document is welcome.

### **11l Report on addition of PWI (ISO 15341)**

ISO 15341 *Graphic technology – Measurement systems for radii of printing cylinders* is a draft NWIP that establishes a test method for measuring the external radius of a flexographic printing sleeve and specifies critical parameters, design and instructions necessary for the construction of the required measurement device. This is a method that is being pushed by Sweden to measure the radii of cylinders in a consistent way. The Swedish presentation (TC130/WG4 N 0532) describes the intent of the document.

### **11m Report on addition of PWI (ISO 15397)**

ISO 15397 *Graphic technology -- Communication of optical and surface properties of printing substrates (e.g. fluorescence, gloss and colour)* was approved at the Plenary. The presentation of the NWIP (TC130/WG4 N 0533) given by Luc Lanat, the liaison to TC 130 from TC6 explains the background and content of the proposal. Lanat was appointed document editor.

### **11n Report on withdrawal of ISO 14981**

There was a plenary resolution to withdraw ISO 14981, *Graphic technology -- Process control -- Optical, geometrical and metrological requirements for reflection densitometers for graphic arts use*, based on the publication of ISO 5.

### **11o Report on change of status of ISO 12705**

The development track of ISO 12705, *Graphic technology -- Laboratory test method for chemical ghosting in lithography* has been changed from an International Standard to a Technical Report.

### **11p Report on discussions of possible new work in the area of carbon footprint issues in printing**

There were two presentations on carbon footprint issues: Measuring Carbon Footprints (TC130 N 1558) and How to Calculate a Carbon Footprint of a Print Product (TC130 N 1559). A TC130 task force was created (TC130 TF1) to investigate the appropriateness and extent of a possible new work item in the area of carbon footprint issues in printing.

### **11q Report on formation of a new WG on “Management of Security Printing Processes”**

A NWI had been previously distributed and subsequently withdrawn to complete additional ISO TMB requirements. It is anticipated that this NWI will be distributed again in the near future. At the request of the Netherlands a WG was provisionally established pending the approval of the re-circulated NWI. There was some debate as to whether this work should be in TC 130 or in the newly created TC 247, Fraud countermeasures and controls.

### **11r Report on formation of new ISO TC 130 WG on “Post-Press Requirements”**

A new WG was established to address post-press requirements including how to exchange information relating to binding and trimming. China has agreed to administer the WG as well as provide a convener. Presentations on the need for post-press standards were given by China and Switzerland (TC130 N 1551 and TC130 N 1552).

### **11s Review of Resolutions from 23rd Plenary**

#### **Additional items not on agenda:**

- TC130 WG2/TF2 agreed on an Immediate Revision of ISO 15930-7 and ISO 15930-8 to provide the packaging community the ability to address individual layers in a PDF/X file containing Optional Content. The issue of spot color definition is not part of this Immediate Revision.

It was noted that Revie and Smiley are creating the requirements for a CxF3 custom resource that will facilitate the exchange of spot color data. This could be used to create a metadata definition for 32000-2 or to develop a method of including CxF3 data in PDF/X. The Ghent Working Group is providing input.

- TC130 JWG9 met in China and is going forward with work on ISO 12640-5.
- There were presentations on "certification" methods and issues from the Netherlands, Japan, Sweden and the UK. M. L. Pelaprat, the ISO technical manager for TC 130, cautioned that any management system around certification had to be approved by the TMB and ISO Guide 72 must be followed. ISO guide 72 will be circulated for review within TC 130 and will be passed along through the USTAG.

## **12. Activity status reports**

### **a. SWOP**

No report

### **b. SNAP**

No report

### **c. GRACoL**

GRACoL is working on a tolerance project that is adopting concepts from the process agnostic work being done in TC130/WG3. Three levels of tolerances are envisioned that can be used to define how close a printing job (test, sample) matches the intended characterization data.

### **d. FTA**

Pope reported on the FTA's recent release of their best practices methodology book, FIRST 4.0 (Flexographic Image Reproduction Specifications and Tolerances) which references many standards. The book is targeted at all those in the extended flexographic printing and reproduction process with the goal of repeatable and predictable color.

The FTA has a group focused on research known as the FQC (Flexographic Quality Consortium) that sponsors and supports a variety of projects. Current projects include:

- Flexographic reference characterization data set(s) - this project focused initially on wide web flexible packaging (presses with solvent-based inks on poly substrates). A data set has been developed, but it needs to be validated. A total of 10 press runs are being pursued to validate the data set. Work is also underway with narrow-web flexographic printing with water-based inks on coated paper and poly substrates.
- Anilox Volume Benchmarking – there are multiple ways of measuring/calculating the volume of an anilox roll. Unfortunately, each method yields different results. This project aims to conduct Gauge R&R studies on the available methods and technologies, then pursue some sort of correlation matrix so values can be converted from one method to another.
- Expanded Color Gamut – this project aims to explore and evaluate various expanded color gamut ink colors along with impacts on gamut volume. It also aims to develop a workflow for working with n-color ink systems in terms of color management, proofing, and workflow dynamics.
- UV Ink Spitting – narrow-web in-line presses that run UV inks sometimes have problems at higher speeds with “ink spitting”, a condition where streaks of excess ink make their way to the plate and substrate leading to print defects. This project aims to explore the causes and dynamics associated with this condition and develop corrective actions to minimize and/or eliminate the problem.

### **e. IDEAlliance Print Properties Committee**

Fazzi reported on work being done in Print Properties including the following:

- G7 system certification is on target to launch in Jan 2010
- The Print tolerance sub-committee of PPC is continuing to have meetings to set the requirements for providing tolerances for GRACoL conformance

- A new digital print working group has been launched
- A screen print working group in participation with SGIA has been formed that is working on color management for screen printing
- Progress has been made on paper supply capturing web-enabled live data on rail cars arriving in the station
- A paper supply agreement has been reached relating to materials being supplied to plants and how paper is made, distributed, etc.
- Educational peer program supporting educational institutions
- Proposal on a new Application Data Sheet for hard copy and monitor proofing
- Digital press certification program and work on beta data sets is ongoing

### **13. Date and location of next joint meeting**

The next IDEAlliance Print Properties Committee meeting will be held March 24-25, 2010 at Kodak in St. Paul, Minnesota. The next joint meeting of CGATS SC3, SC4 and USTAG WG3 and WG4 will be held March 25-26, 2010 at the same facility.

### **14. Adjournment**

There being no further business, the meeting was adjourned. The committee expressed their appreciation to Arizona State University and Howard Nelson for providing meeting space for the meetings and Joe Fazzi for providing WebEx capability for those who were not able to attend.