



## ISO/TC 130/WG 3 N 1014

### [ISO/TC 130/WG 3](#)

Process control and related metrology

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Secretariat: DIN

### **WG3 Minutes Sao Paulo 2010-10-11\_13**

Date of document	2010-10-22
Expected action	Comment
Due Date	2010-11-19
Source	ISO/TC 130/WG 3

#### **Background**

The attached Draft Meeting Report is for review

**by 19 November 2010.**

If there are no comments by the date indicated the meeting report will be designated as final report.

**NOTES FROM THE 40<sup>th</sup> MEETING OF  
ISO TC 130 WG 3  
PROCESS CONTROL AND RELATED METROLOGY  
SAO PAULO, BRASIL 2010-10-11/13**

**1 Opening of the meeting**

The meeting was called to order at 09:00 h by Mr. Andreas Kraushaar, convenor. He thanked the sponsors (ABTG, SINDIGRAF and ABIGRAF) for hosting the meetings and providing the facilities. Mr. Warter was thanked for taking the minutes.

**2 Roll call of experts and observers (ISO/TC130/WG3 N 1013)**

A roll call of experts was held. The scanned attendance list (for each of the three days) can be found under document N 1013.

**3 Review and approval of agenda (N 986)**

Mr. Kraushaar discussed the agenda. With some re-arrangement as represented in these minutes, it was unanimously approved.

**4 Review and approval of the notes from the prior St. Gallen meeting (N 938)**

Mr. Kraushaar introduced the previous minutes. They were unanimously approved.

**5 Identification of new Documents**

During the meeting the following new documents were identified:

<i>Nr.</i>	<i>Source</i>	<i>Title</i>
987	Italy	Italian_Comments_to_ISOCD12647-6
988	Italy	Italian_Comments_to_ISODIS12647-8
989	Japan	ISO13656_Japan_modifications_required
990	Roland Thees	12647-3_Review_RTh_101010_-_Presentation
991	Robert Chung	Chung_PSA_Update_v3a
992	Robert Chung	Chung_ISO_12647-2_SubstrateCorrec (replaces N962)
993	Steve Smiley	Combined-preComments-CD-12647-6_SteveSmily
994	Danny Rich	White_Paper_on_ISO-12647_Tolerances
995	Luc Lanat	LL_15397_Paperdam_Sao_Paulo_2010_10_10_v2
996	Larry Warter	NP_WD_ISO_15311-2_digitalprintingcertification
997	Bruno Mortara	Cert_presentation_v2_P
998	Beltrami	ISO15311_UseCases_ITA_r1_TAGA

<b>Nr.</b>	<b>Source</b>	<b>Title</b>
999	Kraushaar	Presentation_12647-_8_paper_selection
1000	McDowell	Presentation_15339_Background_information
1001	Gerd Carl	Printing_conditions_created_from_Matrix
1002	Eli Khoury	ISO12647_Standardization_dot_com_initiative
1003	Roland Thees	Presentation_12647-3_Review_101013 (replaces N 990)
1004	Karl M. Meinecke	Meinecke_Mediastandard_MSD_EN_S10_12
1005	Kraushaar	Results on CIEDE2000
1006	Matsubara	Introduction of a new M1 capable 45:0 measurement device

Table 1: Newly identified documents

## 6 Report of the convenor on the status of advanced work items

Mr. Kraushaar reviewed the states of various documents as indicated in N973.

## 7 Review of St. Gallen action items

<b>No.</b>	<b>Document</b>	<b>Who?</b>	<b>What?</b>	<b>c, o</b>
09/09	ISO 12647-7	Bohan	Compare the 12647-7 rub test to other tests available in the U.S.	O, Dave McDowell will follow up on that
09/16	ISO12647-7&8	McDowell, Cheydeur	Develop a method by which tolerances could be specified that minimized the contribution of inter-instrument agreement in colour measurements to allow tighter tolerances for 12647-7 and 8.	Closed see N 915 and 925 as a Starting point
09/17	ISO 12647-7&8	Warter, Revie	Develop a proposal for changes to 12647-7 based on McDowell's	Closed
09/22	ISO 12647-1/2/3	Green, Revie Transferred to Meinecke	Coordinate and collect information from the committee as to input toward the Technical Report describing the status of 12647-1/2/3. Changed to read: Provide a summary of the contents of the <PSO document> to the committee so that this can be considered as the basis for a technical report that describes how to address the areas not covered by ISO 12647.	Closed Document will be provided by Meinecke.

<b>No.</b>	<b>Document</b>	<b>Who?</b>	<b>What?</b>	<b>c, o</b>
10/01	ISO 12647-7	Revie, Warter	To publish a hit list of (areas of) potential changes of ISO 12647-7 including McDowell's suggestion to make the black match the three color and others with proposed solutions	O, See N 954 for first aspects. To be continued until part 7 is revised
10/02	ISO 14861 ISO 12646	Luetkens, McDowell	Luetkens to prepare a NWI and a revision of ISO 12646 incorporating the changes identified in N 909 and the content described in ISO/NWIP/WD 14861 (N836). This new draft of ISO 12646 is intended to be submitted for vote as a CD	Closed
10/03	ISO14861	Luetkens, Thees	To collect information about the delivery of data (4.4) and provide a proposed wording (TIFF-IT & PDF/X)	Closed, Resolved during the meeting.
10/04	ISO 14861	Luetkens Winkelmann	Luetkens to provide a draft for ISO 14861 for CD ballot before June 15th 2010 and to provide a draft of ISO 12646 to accompany it (for information only - to see that the comments on WD 14861 referring to ISO 12646 have been addressed). Winkelmann will send the appropriate word documents of ISO 12646 to the editor.	Closed
10/05	ISO/NWIP 15339	McDowell	McDowell, to submit a document containing (among others) "type 1" char.-data to be balloted as a NWIP and CD 15339 (to be used as a candidate for unified char.- data set) by end of May 2010.	Closed, Document submitted
10/06	ISO 12647-8	Kraushaar	To propose a rub resistance proposal (in case no consensus will be found 4.2.8 (rub resistance) to be dropped at the next meeting)	Closed No definitive test was determined and it will be kept as an informative report.
10/07	ISO 12647-8	Lanat	To review point 4.2.1. wording on OBA, UV and light fastness related	Closed ISO/NWI 15397 submitted (WG4)
10/08	ISO 12647-8	McDowell, Mahy, Kraushaar	Provide substantiation and a proposal for the tone value difference calculation. (clause 4.2.x)	Closed A new non colorimetric proposal will be introduced in DE comments.

<b>No.</b>	<b>Document</b>	<b>Who?</b>	<b>What?</b>	<b>c, o</b>
10/09	ISO15311	Kraushaar, Warter, Urabe, Beltrami, Lindström, Smiley, Revie, Asseiceiro, Thees, Kassorla, Mortara	To collect a list of potential uses cases (for all kind of printing) and to provide a more concrete set of documents for ISO 15311. The first should be done by means of a matrix.	Closed, presentations to be given.  More work is needed, see 10/22
10/10	ISO 12647-6	Rich	To provide aim values for the secondary's for the light fastness ink set	Open
10/11	ISO 12647-6	Rich, Carnelli	To provide colour difference information for the deviation tolerance	Closed, Rich has submitted a document (N 994)
10/12	ISO 12647-6	Smiley	To provide a document to be balloted as a CD (before 15th June)	Closed, Document provided

**Table 2: Action items St. Gallen**

## **8 Review and discussion of standards and current work items**

### **8.1 ISO 12646:2008-06 + Amd 1:2010-08, Graphic technology – Displays for colour proofing – Characteristics and viewing conditions**

The editor of that standard, Heath Luetkens, was unable to attend due to Visa problems. Mr. McDowell, together with Mr. Smiley and Mr. Cheydeur led the discussion (also for ISO 14861). Since the CD ballot is still open the immediate comments by means of the proposed resolution of comments (compiled by the editor) have been discussed and resolved. It has been agreed upon to ask the editor to circulate a proposed resolution of comments including both the coming comments and the comments resolved at this meeting. That document will be discussed at the next meeting aiming for starting the DIS ballot right after the meeting. The following action item has been created:

**Action Item 10/13:** Kraushaar will provide a description of a contrast inversion procedure for 12646

### **8.2 ISO/CD 14861, Graphic technology – Colour Proofing using electronic displays**

The CD ballot has been positive but due to the technical nature of the comments it was agreed to go for another CD ballot. The comments have been discussed and resolved although there were substantial changes in paragraph 4.5.1. The discussion included the requirements for life size visualization, the contrast ratio tolerances, the

use of telespectroradiometers, the need of objective evaluation of banding and other visual defects as well as the use of a correction factor (facilitating measurement difference by having a good visual match). A heated debate followed as to what is the right term or symbol for the total colour difference ignoring the lightness difference (wrongly called chromaticness difference). While there is the symbol  $\Delta E_c$  defined in ISO 12646 there were objections to that. Other proposals have been  $\Delta F$  or  $\Delta ab$ . It was agreed to start an action item to agree on one symbol.

**Action Item 10/14:** Leutkens will begin to develop the final resolution of comments for ISO 14861.

**Action item 10/15:** Rich, Cheydleur, Green, Carnelli, Kraushaar to develop a proposed name/symbol for the total colour difference ignoring the lightness difference (current candidates are delta ab/ F/s/ $\Delta E_c$ /etc)

The document will now go to an email review by a selected group of experts (Rich, Green, McDowell, Venkataramana, Cheydleur, Smiley, Kraushaar, Leutkens, Checroun) to modify and agree on the proposed resolution of comments (outcome of Action Item 10/14). This document will be then send to ISOCS to be balloted for a second CD.

### **8.3 ISO 12647-1/2/3, Graphic technology – Process control for the manufacture of half-tone colour separation, proofs and production prints**

#### **Part 1: Parameters and measurement methods (N 967)**

#### **Part 2: Offset lithographic processes (N 968)**

#### **Part 3: Coldset offset lithography on newsprint (N 969)**

At the beginning presentations have been presented by Dr. Bestmann, Prof. Chung and Mr. Carl. The presentations by Mr. Bestmann basically reflects the input from the German delegation, centred about proposed printing conditions (N 983), new tone value increase curves (N 984) and a concept of separating grey balance from grey reproduction (N 985). He showed press samples indicating the differences between a TVI-based and a grey based process calibration. It should be noted that by starting with a “G7 data set” such as GRACOL2006 the grey based process calibration is identical to the G7 method.

The presentation by Mr. Chung (N 992) deals about the positive finding on substrate correction techniques (by taking the XYZ-scaling stipulated in ISO 13655).

Mr. Carl gave a presentation about a new clustering of typical paper categories (N 1001). He first expressed concerns about the proposed method of using simply the coating and the grammage of the paper (N 983). The proposed metric basically uses a CIE whiteness (D65) as the first dimension and a so-called surface index (to be deduced from the gloss and the roughness) as a second. The latter nicely correlates to the ink holdout, said Mr. Carl. Using those two axes he identified 6 new categories while pointing to corresponding characterization data.

Mr. Kraushaar led the discussion about a path forward. The committee discussed whether this effort was contradictory to the Beijing discussion to create a technical report to sort out the differences. After much discussion, it was determined that a

revision of the 12647-1/2/3 was the best way to move forward. It was agreed on the following course of action:

1. Revise ISO 12647-1/2/3 (by basically using the documents N 967, 968, 969)
2. Use to ballot comments to include proposals that address the open/unsolved aspects (Scope addressing all papers for CMYK colour communication – ISO/CD 15339), traceability, certification precautions, grey balance handling, reference to paper requirements ISO 15397, optional input for part 1 revision from the US, reference proofing, white point adaptation, etc)
3. Discuss the NWIP & WD ballot results in Berlin to check how far those aims have been achieved.

**Resolution:** ISO/TC 130 resolves to initiate a new work item proposal to revise ISO 12647-1, ISO12647-2, and ISO12647-3.

At the next day Mr. Thees gave a presentation (N 1003) for changes being part of the German proposal to part 3 (N 969). These included changes to the tone value increase, the target solid color value, register, total tone value sum and others. We discussed whether to add a characterization data set, but could not agree on the use.

#### **8.4 ISO 12647-4:2005-11, Graphic technology -- Process control for the production of half-tone colour separations, proofs and production prints -- Part 4: Publication gravure printing**

Mr. Meinecke led the discussion. He presented the characterization data being established in the gravure industry by the ECI Gravure working group called PSR V2. He showed exemplary pages from the new Media Standard Print (N 1004) outlining the underlying solid coloration of the new printing conditions. Mr. Meinecke will provide a document for the coming NWIP & WD ballot. Based on a question from Dr. Green the following action item has been created.

**Action item 10/16:** Meinecke to send the resulting part 4 data sets derived from the revised printing conditions to the ICC registry (ISO 12647-4).

Mr. Checroun asked about the inclusion of provisions for the packaging industry e.g. by means of providing spectral data. He was invited to provide concrete input for such an extension in the coming ballot.

#### **8.5 ISO 12647-5, Graphic technology -- Process control for the production of half-tone colour separations, proofs and production prints -- Part 5: Screen Printing**

Mr. McDowell introduced the problem, which is basically poor correspondence between the defined inks and the inks used in real world. It was determined that any revision of part 5 should be delayed until Working Group 4 resolves the ink issues.

#### **8.6 ISO/CD 12647-6, Flexographic printing**

Mr. Smiley led the discussion. Since the ballot closes on 2010-11-12 only the intermediate comments (N 987 and N 993) have been discussed. Among others the following topics have been discussed: changing the scope, the definition of a spot

colour and how it differs from a brand colour and how it is generated, handling of compensated and uncompensated process control targets and the handling (special treatment) of colours that fall outside the suggested limits. Since the total colour difference ignoring the lightness difference is also being used the outcome of action item 10/15 has to be considered. The following action items have been created:

**Action item 10/17:** Smiley, Rich, Barros, Carnelli work with global ink manufacturers to determine the best hue and tolerances for ink for part 6 of ISO 12647

**Action Item 10/18:** Smiley to resubmit the resolution of comments by December 12 2010 of ISO 12647-6 for a 4 week review. Based on the results the DIS ballot should be initiated.

### **8.7 ISO 12647-7:2007-12, Graphic technology – Process control for the manufacture of half-tone colour separation, proofs and production prints – Part 7: Proofing processes working directly from digital data**

Mr. Revie led the discussion of what needs to be modified. Based on the existing document (N 954) additional aspects have been addressed. Those are mainly the issues, which have been clarified in ISO 12647-8. It was agreed that those aspects would be incorporated, as soon as a revision of ISO 12647-7 will be started.

### **8.8 ISO/DIS 12647-8, Graphic technology – Process control for the manufacture of half-tone colour separation, proofs and production prints – Part 8: Validation print processes working directly from digital data**

Mr. Warter, editor of this standard, led the discussion. He reviewed the comments alongside the proposed resolution of the intermediate comments (the ballot closes in November 2010). Basically editorial aspects as well as additional clarification have been discussed. With respect to the light fastness test (ISO 12040) Mr. Kraushaar explained the consequences for validation printing substrates having a high amount of optical brightener agents. In case the same substrate is used for production printing there are no permanence requirements. While in cases where the production substrate is unknown the validation printing substrate to be used is subject for a permanence test, see N 999.

The main discussion points included: the statistical relevance of the homogeneity assessment, the correct interpretation of the print stabilization section, the replacement of the tone reproduction evaluation method (from a colorimetric TVI based evaluation to a colorimetric evolution). It was stressed again that the standard is intended for the certification of validation printing systems as well as the certification of validation printing sites. The so-called third level, the certification of daily prints with just a control wedge, is not subject to this standard. (There are schemas and code of practices such as the Media standard print from bvdM which facilitate this standard for that purpose by simply taking all requirements, which are applicable to such a wedge.) Until there is no agreement of the symbol to use for the total colour difference (ignoring the lightness difference) the current symbol  $\Delta F$  will be used (see action item 10/15).

**Action Item 10/19:** Kraushaar to provide documentation supporting the German tonality comment in part 8 of ISO 12647.

**Action Item 10/20:** Warter to submit the resolution of comments of ISO 12647-8 (and the accompanied document) to be balloted as FDIS.

### **8.9 ISO 13656:2000, Graphic technology - Application of reflection densitometry and colorimetry to process control or evaluation of prints and proofs**

Mr. Kraushaar started the discussion by asking who would support maintaining and revising the document. A document provided by the Japanese delegation (N 989) showed a detailed comparison of the usage of the pertinent entities being defined in ISO 13656. The systematic review ballot showed that 7 countries listed it as being used by their national bodies. We queried the countries as to whether they would object to it being withdrawn. In that light the following resolution has been drafted.

**Resolution:** ISO/TC 130 resolves to initiate a 3-Month Committee Internal Ballot to confirm National Body agreement with the WG3 proposed withdrawal of ISO 13656. ISO 13656 is technically outdated in many areas and no group or individual has indicated an interest in or willingness to revise this document. A review of the current TC130 International Standards indicates that all references to ISO 13656 are either in informative notes or in Bibliographies. However, the Systematic Review result shows that 7 National Bodies indicated that they have adopted this standard at some level.

### **8.10 ISO/PWI 15311, Graphic Technology - Requirements for printed matter utilizing digital printing technologies for the commercial and industrial production (N963)**

Mr. Kraushaar led the discussion. He introduced the concept established in St. Gallen of a multipart family of standards with N963 as the basic part. It was agreed to use that document as the candidate for a NWIP & WD ballot to be started right after this meeting. While there is a good consensus to use part 2 of the standard to specify requirements for production commercial and part 3 for large format signage printing there was a lot of discussion about the structuring of the following parts. It was agreed to use the document provided from the US (996) as a candidate for a NWIP & WD ballot for part 2 of ISO 15311.

In light of a potential structuring of the other parts a presentation was given by Mr. Beltrami (N 998) and one by Mr. Urabe (N 965). Mr. Beltrami described the rapidly changing marketplace and resulting needs. He listed seven use cases (commercial, publication/editorial photography, visual communications/signage, labels, flatbed, industrial/textiles/ceramics), and gave explanations and examples in each case that affect quality requirements. He stressed the need to differentiate between the use cases. Mr. Urabe focused on technology and application while he was explicitly excluding aspects such as post production, non paper substrates and patterning technologies. He suggested three markets (commercial, signage/large format and packaging) with appropriate sub groups. It was agreed to work more on that matter to reach consensus and to provide a proposal at the coming Berlin meeting.

With respect to textile application he recommended to contact and liaise with TC 38. He further encouraged all experts to work more closely with the “image quality working group” (JTC1 SC28 WG4). In that light the following action items have been created.

**Action item 10/21:** Kraushaar to distribute the parts 1 and 2 at a stage 0 level for comment and WD ballot by the individual experts.

**Action item 10/22:** Kraushaar to add Chung, Brunner and Meinecke to the digital printing use case group and continuing work defined in 10/09.

**Action item 10/23:** McDowell, Kraushaar and Urabe to initiate a close relationship between TC130 and JTC1 SC28, WG4 with respect to the relevant image quality standards such as ISO 13660 or 24790.

The following resolution has been drafted:

**Resolution:** TC130 resolves to divide ISO 15311 (Graphic Technology -Requirements for printed matter utilizing digital printing technologies for the commercial and industrial production), presently at Stage 0, into multiple parts. The currently identified parts are as follows:

- Part 1: Parameters and Measurement Methods
- Part 2: Commercial Production Printing
- Part 3: Large Format Signage Printing

The Secretariat is requested to transmit these name changes to ISOCS

### **8.11 ISO/NP 15339-1, Graphic technology — Printing of digital data — Part 1: Basic principles**

Mr. McDowell led the discussion. The new work item passed but the CD ballot did not so the document stays at the WD stage. He gave an explanatory presentation about the underlying concept (N 1000) and then reviewed the comments and objections to the CD ballot. There was a heated debate about many issues such as:

- The number, the origin and the substantiation of different gamuts and how they fit together. Mr. McDowell explained that they are based on existing data sets, adjusted for uniform tonal curves from highlight to midtones and then slow transitions to the various solids plus gray balance that transitions from paper to 3 colour solids. These two constraints give the results a uniform visual appearance that is essential for future use. Dr. Bestmann suggested first agreeing on the process standard and then using the resulting fully characterized printing conciliations.
- The usage of CIEDE2000 versus CIELAB. See TOP 10.1 for more information.
- The appropriateness of the CIEa\*b\* projection to be named a gamut. Here it was stress by many experts (Mr. Kraushaar, Dr. Green, Dr. Qiao) that the 8 vertices or only appropriate for a very abridged evaluation of the gamut.

In light of that discussion the comments have been mostly resolved and the document including those changes will be subject for a 4 week email review followed by another CD ballot. The following action items have been created.

**Action Item 10/24:** McDowell to provide a use case slide/explanation for 15339 as to where it fits with other standards such as ISO 12647, ISO 15311 and ISO/TC 10128.

**Action Item 10/25:** McDowell to submit the proposed resolution of comment for a 4 week review period. After that the resulting document to be than balloted as CD.

## **9 Supporting Activities (Task Force, Study Groups)**

### **9.1 Certification Study Group (ISO 12647)**

Mr. Kraushaar explained briefly the history of the study group. Three presentations by the members of the study group were presented.

First Mr. Lindstrom updated the committee on the findings of a survey conducted by the group (N 997). Then Mr. Khoury gave a presentation on French efforts to use ISO 12647 (N 1002). The final presentation was given by Prof. Chung, who gave a presentation about the U.S. certification program called process standard audit (N. 991). The members of the study group discussed initiating a project aiming at a print quality management standard. However there is no concrete document available and the future course of action was not clearly identified. The group was asked to request TC130 for further actions such as initiating a new project and creating a new working group (in case the project will be accepted) etc.

Mr. Kraushaar expressed his concerns about including that project into WG3 since it already covers a great number of projects what makes it harder to predict the needed time for appropriate discussion. He also noted that an ISO working group normally covers only one specific project.

**Action Item 10/26:** Lindstrom, Khoury, Chung, McDowell, Beltrami to work with the study group to make a resolution proposal to the Plenary to develop an international Print quality management standard.

### **9.2 TC 130/WG 3/TF 1 Paper Categorization**

This matter has not been discussed.

## **10 Liaison matters**

### **10.1 ISO/TC42/JWG 24 (ISO 3664:2009) and JWG 8 (ISO 13655:2009)**

Mr. Kraushaar led the discussion. Backing affects the measurement of non opaque samples and there is a problem that most backings are not as matt as ISO13655 (and ISO 5-4) requires. This applies to black backings and to a less extend to white backings. The question was raised whether integrating sphere unit gives better correlation to the final readings of the substrates. After a heated discussion there was no viable alternative to recommending that users constantly replace backing agents to maintain results. The magnitude of this error is unknown but assumed to be significant. In that light the following action item has been created.

**Action Item 10/27:** Kraushaar to develop a list of problems/observations that affect measured results (backing, uncertainty, OBA etc.) relating to ISO 13655.

Another issues has been address by Dr. Rich. He pointed out that ISO 23603 (replacing CIE S012) has no references to radiance measurements anymore. There is no longer any reference spectral radiometry available for standards like 3664 to reference. Since ISO 3664 defines the radiometical requirements separately so the current standard is not affected. Anyhow the absence of such references in ISO 23603 poses issues for upcoming standards. In that light the following action item has been created.

**Action item 10/28:** Rich, Berthold, McDowell to develop a note for TC 130 to send to CIE explaining the problems with ISO 23603 encountered in developing 3664.

Based on a US comment somewhat related to that topic and addressing a potential future scope of ISO 13655 the following action item was created.

**Action Item 10/29:** Kraushaar, Smiley, Rich, Carnelli to provide a list of potential aspects on the use of dedicated instruments to measure metallics and specular surfaces for packaging.

After that Dr. Rich gave a presentation on observations Sun Chemical made when using CIEDE2000 (N 994). In his white paper he plotted the cumulative distribution of a 5 unit shift when converting from CIELAB to CIEDE2000. Results are much more in compliance with the visual results. He recommended that a rough conversion from CIELAB to DE2000 could be accomplished by dividing it by 2.5. However he reported some problems with dark black colours. Mr. Kraushaar reported from a Fogra research project (N 1005) and suggested that we consider DE2000 for any project commencing in the future. In that light the following resolution has been drafted.

**Resolution:** TC 130 resolves to use CIEDE2000, where appropriate, for all new TC130 standards and revisions of existing standards.

At the end Mr. Matsubara gave a presentation on upcoming measurement devices from Konica Minolta facilitating ISO 13655 M1 measurements by using a so-called VFS (Virtual Fluorescent Standard) method (N 1006). The system measures with an UV-LED, a violet LED and annular white LEDs. Based on that measurements the results for the measurement modes M0, M1 and M2 can be generated computationally. Tests show that it significantly reduces measurement error compared to existing 2MM methods.

## 11 Summary of Sao Paulo action items

<i>No.</i>	<i>Document</i>	<i>Who?</i>	<i>What?</i>	<i>c, o</i>
10/13	ISO 12646	Kraushaar	will provide a description of a contrast inversion procedure for 12646	
10/14	ISO 14861	Leutkens	will begin to develop the final resolution of comments for ISO 14861.	
10/15	General (specific to ISO 12647-6, ISO 12647-8)	Rich, Cheydleur, Green, Carnelli, Kraushaar	to develop a proposed name/symbol for total colour difference ignoring the lightness difference (current candidates are $\Delta ab$ , $\Delta F$ , $\Delta s$ , $\Delta Ec$ )	
10/16	ISO 12647-4	Meinecke	to send the resulting part 4 data sets derived from the revised printing conditions to the ICC registry	
10/17	ISO 12647-6	Smiley, Rich, Barros, Carnelli	To work with global ink manufacturers to determine the best hue and tolerances for ink	
10/18	ISO 12647-6	Smiley	To resubmit the resolution of comments by December 12 2010 of ISO 12647-6 for a 4 week review. Based on the results the DIS ballot should be initiated.	
10/19	ISO 12647-8	Kraushaar	To provide documentation supporting the German comment to change the tonal reproduction by means of a colorimetric evaluation	
10/20	ISO 12647-8	Warter	To submit the resolution of comments of ISO 12647-8 after the ballot has closed (and the accompanied document) to be balloted as FDIS.	

<b>No.</b>	<b>Document</b>	<b>Who?</b>	<b>What?</b>	<b>c, o</b>
10/21	ISO 15311	Kraushaar	To distribute the parts 1 and 2 at a stage 0 level for comment and WD ballot by the individual experts.	
10/22	ISO 15311	Kraushaar, Warter, Urabe, Beltrami, Lindström, Smiley, Revie, Asseiceiro, Thees, Kassorla, Mortara + Chung, Brunner, and Meinecke	To collect a list of potential uses cases serving as a framework for the structure of the multipart standard ISO 15311.	
10/23 (updated 10/09)	ISO 15311	McDowell, Kraushaar, Urabe	To initiate a close relationship between TC130 and JTC1 SC28, WG4 with respect to the relevant image quality standards such as ISO 13660, 24790.	
10/24	ISO 15339	McDowell	To provide a use case slide/explanation for 15339 as to where it fits with other standards.	
10/25	ISO 15339	McDowell	To submit the proposed resolution of comment for a 4 week review period. After that the resulting document to be than balloted as CD.	
10/26	TC130 Certification Study Group	Lindstrom, Khoury, Chung, McDowell, Beltrami	To work with the study group to make a resolution proposal to the Plenary to develop an international certification standard.	
10/27	ISO 13655	Kraushaar	To develop a list of problems/observation that affect measured results (backing, uncertainty, OBA etc.) relating to ISO 13655.	

<i>No.</i>	<i>Document</i>	<i>Who?</i>	<i>What?</i>	<i>c, o</i>
10/29	ISO 13655	Kraushaar, Smiley, Rich, Carnelli	to provide a list of potential aspects on the use of dedicated instruments to measure Metallics and specular surfaces for packaging.	
10/28	ISO 3664	Rich, Berthold, McDowell	To develop a note for TC 130 to send to CIE explaining the problems with ISO 23603 encountered in developing 3664.	

**Table 3: Summary of Sao Paulo Action Items**

## **12 Requirements concerning the future meeting**

For the coming Berlin meeting 3 days will be required. They split as follows: ISO 12647-1/2/3 -> 0,5 day, ISO 12647-4-8 -> 0,5 day, ISO 15311 -> 1 day, ISO 14861(softproofing), ISO 12646 -> ¼ day, ISO 15339 -> ¼ day and 0,5 days for the remaining topics.

## **13 Any other business**

### **13.1 ISO/NP 15397, Graphic technology – Communication of optical and surface properties of printing substrates – Graphic papers for proofing, rotogravure, heat-set web-offset, offset sheets**

Mr. Lanat reviewed the status of optical and surface properties of paper (ISO 15397), currently being in NWIP/WD ballot and assigned to WG 4 (N 961, N 960, N 995).

## **14 Closing of the meeting**

Mr. Kraushaar thanked Larry Warter for taking the minutes and the sponsors for providing the excellent facilities. He further thanked Mr. Mortara for his excellent organisation. He wished everyone a save trip home.