Draft Minutes of the 48th meeting of
ISO TC 130/WG 3
PROCESS CONTROL AND RELATED METROLOGY
Beijing, China, 2014-11-16/17

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

2 Roll call of experts and observers
A roll call of experts was held. The scanned attendance list (for each of the two days) can be found under document N 1650.

3 Approval of agenda
Mr. Kraushaar discussed the agenda (N 1612). Mr. Cheydleur objected to the inclusion of ISO 15339 on the agenda. Mr. Kraushaar explained that this was an update only. We agreed to discuss during the convenor update (TOP 6), delete TOP 8.09 and 8.10 and see if more discussion was necessary. Otherwise the agenda was unanimously approved.

4 Review and approval of minutes from the prior London meeting
Mr. Kraushaar introduced the previous minutes (N 1585). The minutes were unanimously approved.

5 Identification of new documents

<table>
<thead>
<tr>
<th>Source</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>N 1645, Smiley</td>
<td>Spot colour tone value</td>
</tr>
<tr>
<td>N 1646, Revie</td>
<td>PTRU, CTV and STR Spot colour halftone metric</td>
</tr>
<tr>
<td>N 1647, Green</td>
<td>Substrate adjustment</td>
</tr>
<tr>
<td>N 1648, Revie</td>
<td>PTRU, CTV and STR Spot colour halftone metric v2</td>
</tr>
<tr>
<td>N 1649, Kraushaar</td>
<td>WG3 status report Beijing</td>
</tr>
</tbody>
</table>

6 Report of the convenor on the status of standards and advanced work items
Mr. Kraushaar reviewed the various documents (N 1610). At the end he mentioned the status of ISO 15339-1 & -2. Mr. Lamm summarized the status and the options according to the ISO rules. Since the document had been voted negatively, there are three options: “go back to CD or DIS or FDIS”, “go to TS” or “cancel the project”. The editor, the TC chairman and the secretariat shall negotiate and agree about the way forward.
Mr. McDowell (editor) pointed out that these persons had made the decision to prepare a resolution for the plenary to publish both documents as a technical specification (TS). Mr. Berthold reviewed the resolution. The committee discussed the aspect that the original version of the ballot was incomplete and that had resulted in some countries voting no. Mr. Khoury questioned the status of the vote due to the incomplete documents. Mr. Lamm responded that ISO fixed that problem and it is up to the national bodies (NB) to recirculate the fixed documents.
Mr. Revie expressed his concerns (see Annex) that the document should continue along the IS track and the historical implications behind his concern. The convenor recommended honouring the recommendation to draft a plenary resolution. The committee agreed to proceed with the plenary resolutions for Technical Specification.

* Documents marked "N xx" will be distributed later or will be tabled at the meeting.
ISO 15339-1:
ISO/TC130 resolves, based on the results of the DIS and FDIS ballots and the recommendation of the document editor, TC130 secretary and TC130 Chair, to forward the FDIS manuscript of ISO 15339-1 (Graphic technology — Printing from digital data across multiple technologies — Part 1: Principles) to ISOCS for publication as a Technical Specification."

ISO 15339-2:
"ISO/TC130 resolves, based on the results of the DIS and FDIS ballots and the recommendation of the document editor, TC130 secretary and TC130 Chair, to forward the FDIS manuscript of ISO 15339-2 (Graphic technology — Printing from digital data across multiple technologies — Part 2: Characterized reference printing conditions, CRPC1 - CRPC7) to ISOCS for publication as a Technical Specification."

Note: Since proper process was not followed, the results of the resolutions are not counted and CIB ballots will be launched to vote for both resolutions.

7 Review of open London action items
(N 1611)

<table>
<thead>
<tr>
<th>Document</th>
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<th>What?</th>
<th>C (closed), o (open)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14/1</td>
<td>Smiley</td>
<td>To edit paragraph one of 4.3.4 in 12647-6 to remove the reference to 2846-5 and simply show the tables below. Also delete the normative reference in the document. Prepare the document for ballot as a minor revision.</td>
<td>C</td>
</tr>
<tr>
<td>14/2</td>
<td>Revie, Carl, Carnelli, Mortara and Rich</td>
<td>To insert a note in 12647-7 4.2.1 giving perspective to gloss and colour measurement of stock and specifying the use of either proper gloss measurement from ISO 15397 or the manufacturer's reported gloss to categorize the stock surface.</td>
<td>C</td>
</tr>
<tr>
<td>14/3</td>
<td>Lamm</td>
<td>To draft a TC 130 resolution for the revision of ISO 12647-7 and send it to TC 130 for a one month ballot by May 2014.</td>
<td>C</td>
</tr>
<tr>
<td>14/4</td>
<td>Revie</td>
<td>To complete 12647-7 and circulate to the Committee for CD ballot by July 2014.</td>
<td>C</td>
</tr>
<tr>
<td>14/5</td>
<td>Kraushaar</td>
<td>To share FOGRA measurements with Ito who will test of the use of delta H versus delta C&lt;sub&gt;c&lt;/sub&gt; in conformance tolerances for 12647-7.</td>
<td>C</td>
</tr>
<tr>
<td>14/6</td>
<td>Smiley and Revie</td>
<td>To draft a note to clarify the technical meaning and use of &quot;printing condition in the margin information of 12647-7&quot;</td>
<td>C</td>
</tr>
<tr>
<td>14/7</td>
<td>McDowell, Lindstrom, Khoury, Chung</td>
<td>To revise the diagram in 15339-1 Annex C.</td>
<td>C</td>
</tr>
<tr>
<td>14/8</td>
<td>McDowell, Lamm and Revie</td>
<td>To contact ISO and determine the proper status of 15339-2 in terms of consensus and the proper path forward</td>
<td>C</td>
</tr>
<tr>
<td>14/9</td>
<td>Revie, Chung, Ito, Kraushaar, Warter, Pitigoi</td>
<td>To develop a reporting procedure for sampling sheets in 15311-1</td>
<td>C</td>
</tr>
<tr>
<td>14/10</td>
<td>Kraushaar, Pitigoi, Revie, Warter, Smiley, Li and Pfeifer</td>
<td>To draft a paragraph for 15311-1 to define the colour accuracy reporting criterion.</td>
<td>C</td>
</tr>
</tbody>
</table>

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8  Review and discussion of standards and current work items

8.01  ISO/FDIS 12647-5:2001
  Graphic technology -- Process control for the manufacture of half-tone colour separations, proof and production prints -- Part 5: Screen printing

Mr. Warter reported that the ISO editors had made some adjustments to the final draft (N 1606) all of which turned out to misconceptions of the intended verbiage. Mr. Lamm helped to resolve the problems and return to the original status of the document. It is now being published.

8.02  ISO 12647-6:2012
  Graphic technology - Process control for the production of half-tone colour separations, proofs and production prints - Part 6: Flexographic printing

Mr. Smiley summarized that they have identified all references to ISO 2846-5 per action item 14/01 and the resulting document has been updated (N 1607). The updated document should be published by means of a minor revision. The following action item was drafted.

**Action item 14/11:** Lamm to draft a plenary resolution to incorporate the ink-set changes in 12647-6 by means of a minor revision.

*Note: TC 130 decided to go for an amendment, because ISO/CS did not allow having a minor revision for the deletion of a normative reference.*

8.03  ISO/CD 12647-7
  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 reviewed the CD ballot comments (N 1621). He addressed the major issues. First was the question of the use of ΔE*ab as normative and ΔE00 as informative. He would expect the users to anticipate the transition in their workflow. Mr. Warter reported that the U.S. has already decided to adopt the proposed ΔE00 numbers. Mr. Smiley questioned as to whether the numbers in the standard should be adopted. Mr. Revie suggested that, since the ΔE00 were not a direct transition, we needed some time to verify the proposed equivalent numbers.

Mr. de Groot pointed out that transitions between the two different standards will cause more problems and he proposed “universal conversion”. Mr. Revie reviewed the difficulties. Mr. Revie pointed out that one problem of such a transition is the different evaluation of chromatic yellow colours, which complicates a transition from a requirement that addresses CMYK process colours at once. Mr. Warter pointed out that the U.S. certification process will use ΔE00 and only review the ΔE*ab if some systems fail certification. It is expected that with the perceptual more uniform CIEDE2000, tolerances will be improved in the future. Mr. Cheydleur and Mr. Mortara called the question of whether the 2013 plenary resolution would force the group to convert.

Mr. Kraushaar reported on Fogra’s history of transitions from process control based evaluations to image based evaluation as defined in the Fogra ProcessStandard Digital Handbook (PSD). Mr. Revie pointed out that a full conversion might take longer than this interim solution, hence mentioning both in the same document for be preferable. Mr. Kraushaar recommended using the 2nd CD ballot for gathering and soliciting experience with the new CIEDE2000 tolerances. In that respect the following action item was drafted.

**Action item 14/12:** Revie, Schroeder, Rich, Pfeifer, Luetkens, Seitz, and Smiley to review and qualify the proposed ΔE00 tolerance conversions in 12647-7 and propose (if deemed necessary) new tolerances in light of practical experience and market needs.

Mr. Revie addressed the issue of gloss/colour as the only reference to the proofing substrate. Mr. Lanat commented that for any extra requirements (e.g. OBA components) the reference to 15397 is necessary to specify the substrate. Mr. Revie rejected concrete gloss numbers as too
specific and will leave the categories (matte, semi matte, etc.) as sufficient for visual match.

**Action item 14/13:** Kraushaar, Ito and Lanat to investigate the proper reference and usage for gloss measurement of stock in 12647-7 (ISO 15397 methods).

Mr. Kraushaar reported that CIEDE2000 tolerances for the permanence requirement should not be confused with the “ΔE76 to ΔE00 conversion” for colour accuracy. In that respect two action items were drafted.

**Action Item 14/14:** Kraushaar to redraft the colour tolerances (CIEDE2000) for the light fastness per the German comment.

**Action item 14/15:** Lanat to check and report the correlation between ISO 12040 (as referenced in 12647-7) with latest findings for accelerated aging (TC 6).

Regarding the tonality assessment Ito-san raised the question as to whether the measured single colour ramps should be revised from the original 10-100% range and be limited to 30-70%, consistent with ISO 12647-8. This was accepted.

The committee discussed the requirement to use the same measurement condition as the reference printing condition. Mr. McDowell pointed out that when similar level of OBA’s are used both for production and proofing substrates the measurement condition is of secondary concern. However Mr. Seitz recommended to change the “shall” to a “should” since the current definition would require proof creators to maintain four different substrates (and that only for the ones aimed for simulation uncoated stock). This was accepted. In addition it was agreed to add a paragraph in the introduction that proofs always are expected to be viewed under ISO 3664 P1 or P2. After much discussion, it was accepted to use the measurement condition as defined in the reference printing condition.

The committee discussed whether the margin information needed to be inherent in the proof or could be added by a sticker (label). It was agreed that the information “should” be produced by the proofing system.

With respect to uncertainty budget the committee discussed the best way to handle inter instrument comparison and how best to alert users as to the potential problems. Mr. Kraushaar reported from the Fogra webinar that reports about the drift analysis and the assessment of inter-model-agreement or disagreement (IMA) performance. It is intended that the manufacturer of the proofing system or proof conformance software should provide information that helps the user to better interpret practical occurrences of inter instrument/model disagreement.

Mr. Revie will incorporate all changes and prepare the document for ballot as a second CD.

**8.04 ISO/TS 15311-1, Graphic Technology - Requirements for printed matter utilizing printing technologies for the commercial and industrial production - Part 1: Parameters and Measurement measures**

Mr. Revie reviewed the background. These are metrics for digital prints but they can apply to printed matter in general. The committee discussed what to do with metrics that have not been fully vetted. What method of place holding, if any, should be done to address defects that are known but have not been fully defined for these testing applications? Mr. Kraushaar suggested that these can be addressed with a visual assessment. The proper disclaimers should be used and these should not be regarded as “metrics” but they are aspects that need to be addressed in some form. Mr. Revie suggested “additional metrics may be required to fully assess print quality in the subsequent parts of this standard.” The committee agreed as long as the “visual metric” analysis was clearly documented, to achieve repeatable figures.

He then addressed the proposed resolution of comments (N 1638). Along those lines the following action item was drafted.

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**Action item 14/16:** Kraushaar and Revie to clarify the proper testing of show through and shine through for 15311-1.

The committee discussed many further aspects including principles and fundamental points related to missing clarity and confusion about the scope and the title. Mr. Revie questioned the different directions the group seems to pursue that make it hard to move forward.

Ito-san gave a presentation on multiple sheet assessment (N 1637). He reviewed the problems with statistical variation in $\Delta E$. The committee discussed the subject. Mr. McDowell suggested the Dolezalek Chi squared method as the best alternative. With respect to the variation the following action item was drafted.

**Action item 14/17:** McDowell, Cheydler to provide the “Dolezalek Chi squared” TAGA paper to WG3.

Ito-san gave a second presentation on use cases for IEC 24790 (N 1638). Mr. Li questioned whether this is a proper reference for minimum line width testing. He will review the document.

Mr. Lamm responded that he contacted ISO to get the document to share it within the group. Mr. Revie summarized that ISO/TS 15311-1 is intended to be a toolbox standard with clear definitions of the metrics to be used alongside the information under which circumstances the tests were tested and validated.

It was agreed that Mr. Revie will prepare a document incorporating these changes to 15311-1, which will be the input for Action Item 14/18.

### 8.03 ISO/TS 15311-2, Graphic Technology - Requirements for printed matter utilizing printing technologies for the commercial and industrial production - Part 2: Commercial Production Printing

Mr. Warter led the discussion. He gave a presentation (N 1506). After 4 years he questioned what are we trying to do with this standard. He reviewed the scope of part 2: It has three quality levels: proofing levels, commercial quality, mass application, and tests are either semi-direct check (included on the printed sheet) or indirect check (implied from previous testing). The scope makes the standard applicable to all types of printing.

He next questioned the use of an IS versus a TS in terms of verifiability and referenceability. He made the point that this situation needs a flexible format but should be treated as thoroughly as an IS because the users will view it as the ISO position. Finally he questioned how to address issues that do not yet have formal tests. They cannot be ignored, because that would allow a press sheet with defects, for which the proper test has not yet been defined. He then opened the floor to discussion.

Mr Cheydleur pointed out that, if there are system issues, the vendor is also affected especially if the tests are sophisticated. Mr. McDowell insisted that printing is a system and cannot be treated as a product. Mr. Kraushaar responded that the standard can contain both process-like and product-like requirements whilst there is no clear difference between them. Mr. Mortara gave an impassioned plea for simple end user tests (preferably visual) that do not require expensive labs.

Mr. Smiley indicated that the brand owners insist on comparing different process results and will develop their own test if ISO does not provide a standard. Mr. Khoury addressed the product versus process aspect. The press sheet as a product is what the printer’s customer buys.

Ms. Brunner appealed for some marketing direction in completing the 15311 family (who will use this standard? What is the value? Why?) Then the Introduction needs to be re-written as to who is the target audience and define what it is important. Mr. Li added that the scope should likewise be updated. Ms. Qiao stressed that the intention to compare digital to offset is a worthwhile objective and should be continued. Mr. Lindstrom said that sophisticated tests were good if they provided necessary information. Mr. Warter mentioned that part 1 was targeted at all inclusive testing options and the best model for the other parts was to do basic comparisons. Linked together this could send wrong signals to the users. We must work to make sure that the complexity of the tool-box (15311-1) does not undermine the objective of the analysis of digital printing options in the other parts. Mr. Meinecke pointed out that these standards could be related to other printing...

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process standards with similar scopes. Mr. Revie read a memo (N 1628) from the UK that indicated that a change in direction for parts 2 and 3 was essential to maintain their support. An action item was discussed but in light of the discussion in TOP 8.05 combined to 14/18.

8.05 ISO/TS 15311-3, Graphic Technology - Requirements for printed matter utilizing digital printing technologies for the commercial and industrial production - Part 3: Large Format Signage Printing

Mr. Pitigoi led the discussion from the internet, but due to technical troubles, Mr. Kraushaar continued the moderation. Based on the experience from 8.04 Mr. Kraushaar asked for fundamental concerns before discussion the proposed resolution of comments (N 1609). Nobody expressed a concern so the comments were presented. Mr. de Groot suggested that for each metric, the test should indicate the printing applications for which that specific test has been validated. Mr. Li suggested that this should be inherent in part 1. Mr. Pfeifer raised a fundamental issue and the group then revisited the discussion of part 2 and revised a previous started action item.

Action item 14/18: Warter, Pitigoi, Revie, Cheydleur, Li, Pfeiffer, Mortara, Schroeder, Qiao, Ito, Deeming, Kraushaar, Beltrami to rewrite (based on the resolved document, see 8.03) the scopes of 15311-1, 15311-2, 15311-3 and especially their relation to each other also the introductions to explain the scopes and then the resulting titles of the documents. The scopes and introductions should define the intended users, how and for what commercial benefits the TS’s should be used.

8.06 ISO/DIS 12646, Graphic technology - Displays for colour proofing - Characteristics and viewing conditions

Mr. Kraushaar introduced the topic since the editor Heath Luetkens was not able to join. He reviewed the proposed resolution of comments (N 1622, 1623). One US comment based on the 4 week review (after the DIS ballot) could not be resolved and was addressed by the following action item.

Action item 14/19: Cheydleur and Kraushaar to resolve the US comment (12646) before proceeding to publication.

Mr. Kraushaar pointed out that in case of a negative outcome of Action Item 14/19 a FDIS ballot will be initiated.

8.07 ISO/DIS 14861 Graphic technology - Colour Proofing using electronic displays

Mr. Kraushaar introduced the topic since the editor Heath Luetkens was not able to join. He reviewed the proposed resolution of comments (N 1624, 1625). One US comment regarding the inclusion of conformance again a dataset could not be resolved and was addressed by the following action item.

Action item 14/20: Li and Kraushaar to resolve the US comment (ISO 14861) before proceeding to publication.

Mr. Kraushaar pointed out that in case of a negative outcome of Action Item 14/20 a FDIS ballot of ISO 14861 will be initiated.

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8.08 Further focus points

Mr. Smiley gave a presentation on “Schmo” for measuring tint values in spot colours to match the visual appearance (N 1645). Mr. Revie described the proposed standard approach for this process (N 1648). Aiming for a preliminary work item the group agreed to the following resolution:

ISO/TC 130 resolves to initiate work at stage 0 to develop an International Standard to define a procedure for spot colour tone value under the working title "Spot colour tone value". This work is assigned to TC 130/WG 3. The proposed project leader is Steve Smiley. ISO/TC 130 requests its secretariat to undertake the steps necessary to implement this resolution.

Mr. Lamm reviewed the periodic review results of ISO 12218 (N 1591) and ISO 12645 (N 1592). Mr. Lindstrom reported that Sweden questioned the reproduction accuracy in the standard and he would volunteer to become editor for a proposed revision of ISO 12218 (Graphic technology - Process control - Offset platemaking).

Action item 14/21: Lindstrom, Mortara, Pang to review 12218 and provide a document that explains the parts to be revised.

The group agreed to re-confirm ISO 12645.

9 Supporting Activities (Task Force, Study Groups, Working Groups, etc)

9.1 Printing Certification Requirements - Working Group 13
Mr. Chung reviewed the agenda for the upcoming meeting.

9.2 Environmental Impact of graphics technology - Working Group 11
Ms. Brunner summarized the meeting.

9.3 Postpress Processes - Working Group 12
No report

9.4 TF3-Workflows Standards Roadmap
Mr. Beltrami summarized the meeting.

9.5 WG 2
Mr. Smiley reviewed the status of projects.

9.6 JWG 7
Mr. Li reviewed the status.

10 Liaison matters

10.1 JWG 8 (ISO 13655:2009)
Mr. Kraushaar reviewed the progress. Project editor is Mr. Rich.

10.2 ISO/JTC1 SC28 WG4 / JWG 14 "Print quality measurement methods"
Ito-san summarized the meeting.

10.3 ISO TC42 Liaison report
No report

10.4 WAN-IFRA
A document was circulated (N 1488).

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## 11 Summary of Beijing action items and review of drafted resolutions

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<td>to rewrite (based on the resolved document, see 8.03) the scopes of 15311-1,15311-2, 15311-3 and especially their relation to each other also the introductions to explain the scopes and then the resulting titles of the documents. The scopes and introductions should define the intended users, how and for what commercial benefits the TS’s should be used.</td>
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## 12 Requirements concerning the future meeting

The group discussed to request 2 days. Depending on the outcome of action item 14/18 one day less might be needed.

## 13 Any other business

Mr. Green reported on the ICC status on substrate correction method (N 1646). Mr. Kraushaar reported that ISO 3664 had confirmed a systematic revision without informing TC 130. He informed that group to report any needs for future revisions.

## 14 Closing of the meeting

Dr. Kraushaar thanked the host for providing the facilities, Mr. Larry Warter for taking the minutes and closed the meeting.

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Annex – Statement from Craig Revie

Dear Working Group 3 experts,

I understand that the US delegation has decided to publish ISO 15339 as a Technical Specification without further modification. The rules within ISO allow them to do so, but as a member of this working group and an advocate for the principles behind the development of ISO 15339 I would like to express my disappointment with this action and to ask whether the US delegation can be persuaded to change their mind in this regard and continue with its development as an International Standard.

First of all a brief history. During 2005 a number of experts from within the printing industry formed an initiative which they named ‘Printing across borders’. This initiative recognised that printing was becoming a worldwide activity and often print buyers in one region buy print from another region. Their aim was to address a number of difficulties in achieving such a worldwide market for print the most significant of which was the use of different characterisation data and different press calibration methods in each region.

ISO 15339 was in part TC130’s response to this initiative and the group’s original aim was to develop a set of universal characterisation data sets which would be a compromise between the data sets in common use. Indeed the names of the characterisation data sets in the recent FDIS reflect this in their naming. This objective was always going to be hard and was going to need compromise on the part of all involved. Unfortunately the publication of the data sets in their current form does not represent a fair compromise as was first pointed out in the Sao Paulo meeting in 2010 by Professor Song of Korea, again in the 2012 meeting in Indonesia by a number of experts and most recently by Akiihiro Ito of Japan in the meeting held in London earlier this year who also worked with Mike Rodriguez to show how a better compromise data set could be created.

It is not clear to me why a compromise along the lines suggested by Ito-san (updated to reflect the latest revision of ISO 12647-2) cannot be adopted by the group so that ISO 15339 can be published as an international standard with truly universal characterisation data sets and I would therefore ask the US delegation to reconsider this decision. The alternative, I am afraid, is to add seven more regional characterisation data sets which doesn’t seem to solve any problem and indeed may cause further confusion.

It seems that the data sets currently proposed are the same as data sets published by CGATS and by IDEAlliance and if the direction of publication as a TS is chosen I would ask that the names used for the data sets be made consistent with the names used by CGATS and IDEAlliance to avoid confusion. For example, it seems that the same data set is currently known by the name ‘GRACoL 2013’, ‘CGATS 21 RPC-6’ and ‘Universal PremCoated’.

W Craig Revie
ISO TC130 member