

**NOTES FROM THE MEETING OF
ISO TC/130/WG 3
PROCESS CONTROL AND RELATED METROLOGY
BERLIN, GERMANY 2006-09-27+28**

1 Opening of the meeting

The meeting was called to order at 9:00 h by Dr. Friedrich Dolezalek, convenor. The host, DIN, was thanked for the hospitality.

2 Roll call of experts and observers

The following were in attendance (A sign-in list is attached to this document)

Akihiro Ito	Fuji Xerox	Japan
Andreas Kraushaar	fogra	Germany
Aran Hansuebsai	Chulolongkorn University	Thailand
Astrid Weber	DIN	Germany
Beatrix Beckmann	IFRA	Germany
Brenda Pang	APTEC	HK/China
Bruno Mortara	ABTG/ABNT	Brazil
Bryan Sunderland	BSI	UK
Craig Revie	FFEi	UK
Danny Rich	NAPIM	USA
Dave McDowell	NPES	USA
Dave Prouty	Xerox	USA
Dianne Kennedy	IDEAlliance	USA
Dong Zhengping	Shanghai Guanghua Ptg Mach	CH
Elie Khoury	AFNOR, ECI-WOWG	France
Erwin Widmer	Ugra	Switzerland
Eudes Scarpeta	ABTG	Brazil
Fang An Guo	Shanghai Peony Ptg Ink	CN
Florian Suessl	MetaDesign	Germany
Frank Dieckhoff	bvdm	Germany
Fred Dolezalek	ex-fogra	Germany
Genji Tao		Japan
George Battrick	ERA	Germany
Hitoshi Urabe	Fuji Photo Film	Japan
Jan-Peter Homann	Homann Colormanagement	Germany
Jesper Bringström	TetraPak	Sweden
Karl Meinecke	bvdm	Germany
Larry Warter	Fuji Photo Film	US
Makoto Takahashi	Dainippon Ink	Japan
Marc Maky	Agfa Gaveart	Belgium
Mary Abbott	NPES	USA
Mary Lou Pelaprat	ISO CS	Switzerland
Olaf Drümmer	ECI	Germany

Phil Green	London College of Printing	UK
Racky Chan	Vocational Training Council	HK/China
Ray Cheydleur	X-Rite	USA
Richard Goodman	Kodak Polychrome Graphics	USA
Ronald Schaul	Hochschule der Medien	Germany
Santi Songsermsawas	Aksornsobhon Co.	Thailand
Steve Smiley	Vertis/FTA	USA
Supree Thongpaetch	Colour Doctor Co.	Thailand
Takashi Yamazaki	Fuji Film	Japan
Tomonori Yuasa	Muroran Inst.	Japan
Uwe Bertholdt	fogra	Germany
Wilco de Groot	IGT	Netherlands
William Birkett	Dopplganger	US
Wynnie Man	APTEC	HK/China
Yuji Egawa	Dai Nippon Printing	Japan

A list of contact details for the experts of TC 130/WG 3 was reviewed and corrected. The secretariat reminds all WG3 participants that their wish to attend a certain meeting must be expressed to their respective national standards body. The latter will then inform the ISO/TC 130 secretariat in due course. Although a large attendance is a good thing in principle, unregistered surprise attendances may cause unnecessary hardships to the host, as conference facilities like rooms, luncheon snacks etc. often cannot be rearranged in the last minute.

3 Election of new convenor

Ms. Weber reported that Germany has nominated Andreas Kraushaar (fogra) as the new WG 3 convenor. All nations present approved the nomination. A resolution will be prepared for the ISO/TC 130 Plenary so that it may cast its vote on the subject.

4 Approval of agenda

(Doc. N 596 (Superceded), N 597)

Dr. Dolezalek discussed the agenda. Two items, "Press digital calibration procedure" from the US and a "Japanese proposal for different conformance levels for digital proofing" were added to the agenda as points 9.3 and 9.4, respectively. With this revision, the agenda was approved.

5 Review and approval of the notes from the last meeting

(Doc. ISO/TC 130/WG 3 N 592)

Dr. Dolezalek thanked Mr. Warter for his help in preparing the notes of this meeting. The notes of the previous meeting in San Diego, prepared by Larry Warter and Fred Dolezalek, were unanimously approved.

6 Identification of new documents

An up-to-date document list and current documents can be downloaded from the DIN-Livelihood server at any time. The following new documents were identified.

- N 598** USTAG N 2420 PDTs Digital press calibration
- N 599** Japanese Comments for Proofing
- N 600** WG3 convenor's report to the TC 130 plenary in Berlin

7 Report of the convenor on the status of advanced work items

(Doc. ISO/TC 130/WG 3 N 600)

Dr. Dolezalek presented a reference document with the status of all current work items and standards.

- ISO 12647-2/Damd 1, Doc. ISO/TC130 N1063 was approved with comments from 2 national bodies, including a technical comment that desires to upgrade a note concerning CIELAB measurement procedure (backing) for higher mass per area stock to a requirement. The committee reviewed this comment, classed the change as technical, but of very minor significance, and approved all suggestions for change. The French comment concerning unified characterization data was noted as proving the importance of that matter which does not touch upon the contents of the Amendment, but as it did not contain a suggestion for change it had to be rejected.

Action item 06-05: The convenor will revise the document accordingly.

8 Review and discussion of current work items

8.1 Review of San Diego action items

(Doc. ISO/TC 130/WG 3 N 592)

Action Items from the previous meeting, part of doc. WG 3 N 592, were reviewed. Status is as follows:

No.	Docum.	Who?	What?	c, o
05-16	Exchange colour space	Craig Revie, pab, ECI, SWOP, GraCol	to investigate the possibilities for exchange colour spaces	O
05-17	Profiles	McDowell	McDowell to investigate possibilities for registration of profiles	C
06-01	12647-2	Kraushaar	Will try to develop the proposed characterizations with assistance from Mr. Hutcheson and Mr. Khoury	O
06-02	12647-7	McDowell	Rephrases 4.2.4	C
06-03	12647-8	Mr. ITO	To develop recommendations for a draft document to be appended to the proposal for a new work item (for ISO 12647-8)	C
06-04	12647-7	McDowell and Rich	To develop a better description of "rub test"	C

0X-0Y: X is the year, Y the number; O means "open", C means "closed"

Action item 06-06: Mr. Smiley to comment and make recommendations on "N 584 Suggestions for introducing spot colours into ISO 12647-2"

To item 06-01 (closed): Mr. Kraushaar reported on his action item to develop universal characterization data. With present constraints, it was not possible to fulfil all requirements for both sides in one data set. He did note that he had confirmed Don Hutcheson's findings for the TVI curve that results from a 1:1 tone value transfer during CTP platemaking. If that curve is used as a starting point, it might be adjusted to meet ISO requirements for an individual print, but not for an up-to-date replica of a curve of the present standard, as is the case for well-established char.-data sets that are in use. Kraushaar concluded that the present ISO curves must be considered sufficient until a general industry direction has been established. This means that despite the fact that the data points' deltaE difference is less than 3, we will have two data sets till a new standard is accepted.

Dr. Dolezalek appealed to the audience to better understand the reasons why an exact modelling of a printing process by characterization data is so important to many experts east of the Atlantic. The technique for producing digital contract proofs has advanced to a stage where characterization data can be realized very accurately, other proofs are not being accepted in this market. There have been various stages of improvement for the generation of characterization data. Whereas some years ago, even with a very careful selection of materials, settings and procedures, it was not possible to come reasonably close to a pre-established goal. Recently, however, a number of software tools have become available that, starting from a good press run (or averages thereof), permit to slightly adjust the TVI curves and the primary and secondary solids to exactly match given aim values. These stages can be followed, for instance, by comparing the fogra char. data fogra1, fogra27 and fogra39.

Mr. Smiley discussed his needs to simulate images across different media including flexo and noted that the lower TVI curves greatly limited this effort. Mr. Warter made a strong plea for one universal characterization data set (for paper types 1 and 2). Mr. Druemmer suggested that we agree first on the ultimate goal and then determine a slower reasoned path forward ("hurry is a bad companion"). Mr. Revie referred to the 3 generations of fogra char. data sets and reported that printers want a process that won't change. Dr. Dolezalek said that he could well understand such wishes by the printers and that is why the fogra data always tried to reflect the current standard as well as technically possible at the time of issue.

Mr. McDowell discussed the role of characterization data sets as a means of transferring image data and suggested to select the most flexible data that still reflects the general printed results. He noted that there is presently no direct correlation between TVI and colorimetric data as TVI data is normally calculated from densitometric values. Dr. Dolezalek responded that future specifications could require only colorimetric TVI data to be used. Mr. Homan noted that two different sets of characterization data can be transformed into each other with device link profiles, and our goal should be to have

uniform data for all paper types. Mr. Suesl noted that we need to develop the new standard first before we produce the characterization data set associated with it to avoid confusion in the industry. Mr. McDowell pointed out that the present curve shape in the standard is informative (exception: for continuous forms printing the TVI in the shadow is referred to the curve's value at that point) and the secondaries are only "shoulds" so that the standard is very flexible. Mr. Homan proposed that the committee support a standard device link profile between the two sets of characterization data, namely GRACoL 7 and fogra39. Mr. Revie proposed an exact average of the two processes. Mr. Khoury suggested that we redefine the ultimate goals of the process.

After a break and much discussion, Dr. Dolezalek reminded the committee that he had proposed a sizeable number revisions to 12647-2 in San Diego that had not been discussed then. As a follow up, he proposed that the committee immediately write an amendment to the standard that changed the TVI curves to now reflect the shape produced by a 1:1 mapping (often referred as "natural behaviour") at the platemaking stage, reported by Hutcheson and Kraushaar. He believed that one single curve with tolerances could meet all the committee requirements and be rapidly implementable. Based on that curve characterization data sets could then be developed for the individual paper types. After some discussion on the number of curves required, the committee accepted the proposal.

Action Item 06-07: Kraushaar, McDowell, Egawa and Warter to immediately develop an amendment for ISO12647-2 to replace the family of curves with either a single curve (or a curve each for coated and uncoated paper types) with a shape representative of 1:1 mapping at the platemaking stage.

Mr. McDowell suggested that we develop a plenary resolution that would include both the NWI and CD for the proposal. The committee agreed.

8.2 ISO/CD 12647-7, Graphic technology – Process control for the manufacture of half-tone colour separation, proofs and production prints – Part 7: Off-press proofing processes working directly from digital data
(Doc. ISO/TC 130 N 1017, ISO/TC 130/WG 3 N 570*, N 581, N 582)

Dr. Dolezalek reported that the document was amended and sent to ISO for publication as a DIS. Mr. Kraushaar and Mr. Warter announced that fogra, SWOP and GRACOL certifications are already based on the document.

8.3 ISO/DIS 12646, Graphic technology – Displays for colour proofing – Characteristics and viewing conditions
(Doc. ISO/TC 130 N 1028, ISO/TC 130/WG 3 N 571*).

Andreas Kraushaar reported that the DIS is out for ballot till about Dec. 2006.

9 New Projects

9.1 Categorization of papers

(Doc. ISO/TC 130/WG 3 N 554, N 594)

Ms Weber reported that a request has been sent to TC 6 to form a Joint Working group with ISO/TC 130. No answer has been received so far. Mr. de Groot reported that TC 6 has not had time to address the request because a new Chairperson had been installed. Informal discussions indicated interest. The request will be resubmitted by the secretariat.

Action Item 06-08: Dr. Bertholdt will head a new Task Force TF01 on the subject.

Action Item 06-09: The Secretariat will resubmit the request to ISO/TC 6.

Dr. Dolezalek reported on the Leeds meeting, see N594. Dr. Bertholdt reported on the meeting and actions in WG 4. Mr. Warter reported on the efforts of IDEAlliance in support of this effort. Dr. Rich reported that there is an effort in STFI, Sweden, along the same lines.

9.2 Further development of the ISO 12647-2 process standard

(Doc. ISO/TC 130/WG 3 N 584-N 586, N 588-N591, N594, see paper by Wales/Gombart)

Dr. Dolezalek stated that we need to begin a systematic plan to completely revise the standard to reflect the changing industry and verifications of the new process proposals. He raised questions about the definitions and tolerances of grey and the use of GCR. We need better definitions for coming to colour and maintaining printing conditions than the present standard gives. Dr. Dolezalek reviewed N589 which was his presentation in San Diego. He proposed that we begin a revision of the standard in all aspects except paper colour and curve shape which should be addressed immediately. Mr. McDowell suggested that the process needs a champion to drive it to conclusion. The committee discussed the relative aspects of process control and image management and how this would affect a rewrite of 12647-1. Mr. Kraushaar outlined several of the possible goals of this effort and the relative time frames. (revise part 1, basic analysis and research, "Umbrella approach", parallel development of paper aspects, cross process implementation of the same characterization data). Mr. McDowell suggested that the differences in today's world are more involved with digital workflow than the specific printing types. He suggested separating process control of these processes and workflow management. Mr. Druemmer discussed the difference between maintenance work and revision.

Action Item 06-10: Mr. Smiley and Mr. Scarpeta will make an effort to rewrite 12647-6 in the way that fits with new techniques.

Action Item 06-11: Mr. Kraushaar will head a new Task Force TF02 to plan on rewriting 12647-2.

9.3 NWI Proposal - Method for Calibration of a Printing System with Digital Input (Doc. ISO/TC 130/WG 3 N 598)

Mr. Smiley reviewed the press calibration process based on near neutral scales saying that he was able to produce similar results across different presses and different types of printing, he produced samples. Mr. Revie proposed a threefold technical specification (Tone Value Increase Method, Near Neutral Scale Method, ICC Device Link Profile Method). Mr. Supree reviewed the tests of the three processes in Thailand.

Mr. Kraushaar asked who the audience for the TS would be. Mr. McDowell explained that this was for conformance between trainers and practitioners. This would be the one place that all options were represented in a authorized version. Dr. Dolezalek reviewed his list of recommended changes to the proposed draft of the second method, N 598. The Committee agreed that we need a Plenary Resolution for development of the Technical Specification starting with a New work Item Proposal. Kraushaar will be the Project Leader and draft part one, McDowell and Smiley will draft part two and Revie and Khoury will draft part three.

Action Item 06-12: Kraushaar will be Project Leader and provide scope (“umbrella”) and section 1 (TVI). McDowell and Smiley to provide section 2 (near neutral scale), Revie and Khoury to provide section 3 (device link).

9.4 ISO 12647-8 Japanese proposal for lesser quality proofing systems (Doc. ISO/TC 130/WG 3 N 599)

Dr Dolezalek said that the part-7 document is in the process of being issued as DIS for a 5 months ballot. The following discussion was meant to help understand the issues forwarded by the Japanese document N 599, remove areas of misunderstanding and to provide assistance in the formulation of comments that contain the Japanese standpoint in a way that best fits into an ISO standard.

Mr. Ito reviewed his proposal, N 599. He distributed samples as examples meant to define the level of colour accuracy in his proposal. He stressed that since the San Diego meeting he has come to the conclusion that there are few differences between Part 7 and a proposed Part 8, therefore he proposed an amendment to Part 7. He also felt that there were several areas of concern in 12647-7 including: the tight tolerances in the average delta E requirements compounded by the requirement for multiple measurements, the tight tolerances for secondary colours, and lack of clarity in the use of the control strip. Mr. Fang suggested that the name of doc. N 599 be changed to reflect the fact that this was a separate type of proofing system. Dr. Dolezalek noted the complexity of changing the document at this stage in the process.

The committee reviewed the points in detail. We clarified that the document already distinguishes between halftone and none halftone proofs and the Japanese proposal just adds a third category. We discussed the terminology for this level. Mr. Khoury suggested naming it a draft or design proof. Dr. Dolezalek and A. Kraushaar expressed concern that the public would still confuse the quality levels of the two categories. The committee

discussed whether users would pay for certification of a design proof since this standard is basically meant for certification. Mr. Mahy was concerned that without a in-dept discussion on how the “second level” would be used, it will be difficult to standardize the required measures and criteria in a correct way.

There were some voices that advocated the need for certification. Mr. Kraushaar noted that a certification procedure for such proofing devices would be extremely complex in order to unambiguously document the way the certification was carried out. Further Mr. Kraushaar questioned the value of such a certification for the vendor because it can only be valid for the tested configuration (set of settings of all involved programs such as RIPs and drivers).

Mr. Revie suggested that a second certification level for design proofing be added to the document. The original certification level would be for contract proofing only.

The committee reviewed the proposals to give the Japanese guidance on how to revise their proposal to speed acceptance. The Japanese proposal for only average delta E of 4 and 95% max delta E of 6 were acceptable. Dr. Dolezalek recommended that the Japanese change their proposal on variation to simply increase the standard deviation of 0.5 to 1.2 along with the maximum colour difference of 2. He suggested that the proposal for repeatability over time be changed to a wider tolerance on the solids. Mr. Revie pointed out that the Japanese proposal accounts for problems with colours such as light magenta. The proposal for image register was acceptable.

Dr. Dolezalek explained the use of the control strip. Mr. Prouty explained that there were somewhat different needs to control high volume draft proofing systems versus contract proofs. The Japanese delegation will attempt to determine the proper use and tolerances for a control strip on the high volume systems.

Action Item 06-13: Mr. Kraushaar will offer guidance as to the proposed changes to the Japanese, to be used for their comments to the DIS.

10 Liaison matters

10.1 ISO/TC42/JWG 21 (ISO 5 series)
Nothing to report

10.2 ISO/TC6
Nothing to report

11 Summary of Berlin action items

No.	Docum.	Who?	What?	c, o
05-16	Exchange colour space	Craig Revie, Pab, ECI, SWOP, GraCol	to investigate the possibilities for exchange colour spaces	O
06-05	ISO 12647-2/Damd 1	WG 3 convenor	Will revise doc accordingly and process for ISO CS publ.	
06-06	12647-2	Mr. Smiley	to comment and make recommendations on "N584 Suggestions for introducing spot colours into ISO 12647-2"	
06-07	12647-2	Kraushaar, Egawa, McDowell, Warter	to immediately develop an amendment for ISO12647-2 to replace the family of curves with either a single curve (or a curve each for the pertinent paper stocks) with a shape representative of 1:1 mapping at the platemaking stage	
06-08	Paper categor	Dr Bertholdt	To head work in TF1 on paper categorisation	
06-09	Paper categor	Secretariat DIN	To resubmit proposal to ISO TC 6	
06-10	12647-6	Smiley and Mr. Scarpeta	will rewrite doc. in the way that fits with other techniques	
06-11	12647-2	Kraushaar	head a new Task Force TF02 to plan on rewriting standard together with Mr. Warter, McDowell	
06-12	TS	Kraushaar, Smiley, McDowell, Revie, Khoury	Kraushaar will be Project Leader and provide umbrella and section 1 (TVI). McDowell and Smiley to provide section 2 (near neutral scale), Revie and Khoury to provide section 3 (device link).	
06-13	12647-7; 12647-8	Kraushaar,	help to incorporate the proposed changes to the Japanese to be used for their comments to the DIS	
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12 Requirements concerning a future meeting

Next meeting will require two days at the spring meeting to be held in Thailand. The first day will contain the TF 1 and TF 2 work, the second the WG 3 proper.

14 Any other business

Mary Lou Pelaprat gave a presentation on ISO.

15 Adjourn

Dr. Dolezalek adjourned the meeting, thanked DIN for hosting the meeting and all the delegates for their valuable input. He wished everybody a safe trip home.



ISO/TC 130/WG 3 Process control and related metrology

Attendance List

Meeting of ISO/TC 130/WG 3 on 2006-09-27/28, Berlin

Name	Country	Signature
Weber, Astrid	DE	
Anderson, John	US	
Bailey, Martin	GB	
Batrick, George	DE	
Beckmann, Beatrix	DE	
Bertholdt, Uwe Dr.	DE	
Birkett, William B	US	
Bohan, Mark	US	
Cheydleur, Raymond	US	
Cialone, Bruno	BR	
Claypole, Tim C. Dr.	GB	
Davison, J. W.	GB	
Dolezalek, Friedrich Dr.	DE	
Drehle, Dutch	US	
Drümmer, Olaf	DE	



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Name	Country	Signature
Egawa, Yuji	JP	
Goodman, Richard M. Dr.	US	
de Groot, W.	NL	
Iobst, John W.	US	
Khoury, Elie	FR	
Kleeber, Norbert Dipl.-Ing	AT	
Kraushaar, Andreas	DE	
McDowell, David Q.	US	
Meinecke, Karl M.	DE	
Priest, Mark	GB	
Revie, Craig	GB	
Rich, Danny Dr.	US	
Scarpeta, Eudes	BR	
Schaul, Ronald Professor	DE	
Schwalter, Chris	US	



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Name	Country	Signature
Smiley, Steve	US	
Songsermsawas, Santi	TH	
Steiger, Walter F. X.	CH	
Sunderland, Bryan	GB	
Takahashi, Yasuo Makoto	JP	
Tangvichachan, Theera Prof.	TH	
Tao, Genji	JP	
Thongpetch, Supree	TH	
Wales, Patricia	US	
Warter, Lawrence C.	US	
Widmer, Erwin	CH	
Zawacki, Walter F.	US	
Zhiyong, Ma	CN	
Abbott, Mary	US	
Coleman, James E.	US	



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Name	Country	Signature
Jordan, Byron Dr.	CA	
Meuro, Vanessa MORTANA, BRUNO	BR	
Kennedy, Yvonne	USA	
Florian Snessl	DE	
Takashi Yamazaki	JP	
Tomonori Yuasa	JP	
Akihiko Ito	JP	
Hitoshi Urabe	JP	
Jesper Bringström	SWE	
DONG ZHENGPING	CN	
FANG AN GUO	CN	
CHAN KIT MAN	HK, CN	
Brenda Pang Pang	HK, China	
Wynnie Wynnie Man	HK, China	
Aran Hansuebsai	TH	
Phil d'Almeida	UK	
Marc Maluy	Belgium	
PELAPRAT, MARY Lou	ISO/TC	

Jan-Peter Houdak

DE

Houdak

DAVE PROUTY

USA



Frank Dieckhoff

Germany (buden)



[Faint, illegible handwritten notes or signatures]