

Second DFZ-BAM-Workshop: Digital and analog ISO/IEC-test charts for multimedia devices in offices

Definition, production, application and colour management of ISO/IEC-test charts for image reproduction on copiers, printers, scanners, photo-CD-systems, monitors and displays in offices

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Background:

Four ISO/IEC- and DIN-test charts have been defined in ISO/IEC 15775:1999-12, DIS ISO/IEC 19839-1 to -4:2000-04, and DIN 33866-1 to 5:2000-08 to specify image reproduction of colour copiers, printers, scanners and monitors. The committees ISO/IEC JTC1/SC28 „Information technique, Office equipment“ and the corresponding German committee have developed these key standards of information technology during the last four years.

New colorimetric technologies of BAM have been used to produce the first set of four DIN-test charts in offset printing (3600 dpi) which are in application for colour devices (for example copiers, printers, scanners and monitors). The first production of (Asian) ISO/IEC-test charts according to ISO/IEC 15775 have been produced in Japan by JBMA (Japan Business Machines Makers Association). In applications the devices including software are used for ISO/IEC-test chart input and output in the three different combinations **analog - analog** (copiers), **digital - analog** (printers, monitors) and **analog - digital** (scanners, Photo-CD-systems).

Input	Output	Input and output media and applications			Standard or Draft
		Input media	Output media	Application	
-	-	-	-	Basis	ISO/IEC 19839-1
analog	analog	ISO/IEC-test chart (hardcopy)	Hardcopy	Copier	ISO/IEC 15775
analog	digital	ISO/IEC-test chart (hardcopy)	File	Scanner	ISO/IEC 19839-3
digital	analog	ISO/IEC-test chart (file)	{ Hardcopy Softcopy	Printer Monitor	ISO/IEC 19839-2 ISO/IEC 19839-4

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Figure 1: Figure 1 shows the use of analog and digital ISO/IEC-test charts according to ISO/IEC 15775 and DIS ISO/IEC 19839-1 to -4.

Input	Output	Input and output media and applications			Standard
		Input media	Output media	Application	
-	-	-	-	Basis	DIN 33866-1
analog	analog	DIN-test chart (hardcopy)	Hardcopy	Copier	DIN 33866-2
analog	digital	DIN-test chart (hardcopy)	File	Scanner	DIN 33866-4
digital	analog	DIN-test chart (file)	{ Hardcopy Softcopy	Printer Monitor	DIN 33866-3 DIN 33866-5

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Figure 2: Figure 2 shows the use of analog and digital DIN-test charts according to DIN 33866-1 to -5

The method of specifying image reproduction for colour copiers uses the device as a black box and compares mainly visually the input and output (reproduction) of the ISO/IEC-test charts by filling out ISO/IEC-forms depending on the ISO/IEC-test chart number. Transparent ISO/IEC-test charts on a flat area lamp serve as reference monitor. There is no way to calculate in advance this visual assessment for Siemens-stars, Landolt-rings, characters, line screens and other ISO/IEC-test chart elements in different sizes and colours. Using ISO/IEC-test charts for input and output is the only very practical way to specify image reproduction within the office environment.

Digital ISO/IEC-test charts and production technologies

Now ISO/IEC and DIN are looking for the most promising technologies to produce new ISO/IEC- and DIN-test charts in different modes (reflectance and transmission), on different materials (offset, photographic paper and film) and with different resolution. For the production the digital ISO/IEC-test charts are defined in the formats *PostScript (PS)*, *Portable Document File (PDF)* and *equivalent*.

Only small colour differences of **analog** test charts compared to the colorimetric definitions in the International Standard ISO/IEC 15775 are intended. The **digital** ISO/IEC- and DIN-test charts for production and applications are available in Internet and will produce for example an output on any printer or monitor. The digital ISO/IEC-test charts can be used by any manufacturer who decides to produce analog ISO/IEC-test charts. The different requirements of produced ISO/IEC-test charts are defined in ISO/IEC 15775.

International exchange of knowledge of production methods and applications

The first DFZ-BAM-workshop in Nov. 1999 on this topic has brought together the experts of ISO/IEC, DIN and BAM and manufacturers of the new ISO/IEC-test charts to look at the first production results. The specification of image reproduction both by visual assessment and measurement in comparison with the colorimetric definition within the International Standard ISO/IEC 15775 has allowed to discuss and to choose the most promising (and stable and reproducible) methods for the next ISO/IEC-DIN-BAM-test chart productions in different modes, on different materials and in different resolutions

General meeting and paper information for the second DFZ-BAM-Workshop

Date: June 14-15, 2001 (Thursday 10 h to Friday 17 h).

Place: Federal Institute for Materials Research and Testing (BAM), Unter den Eichen 87, D-12200 Berlin, Germany

Remark: This place is in the south west of Berlin, see the URL:

www.bam.de

All program informations and registration:

Deutsches Farbenzentrum (DFZ), Bozener Strasse 11-12

D-10825 Berlin, Germany

Fon and Fax +49-30-854 63 61 (same number, see the URL:)

www.farbenzentrum.net

For registration and more information use DFZ-BAM-Workshop and mail to:

Farbenzentrum@aol.com

Organisation: Deutsches Farbenzentrum (DFZ) and Federal Institute for Materials Research and Testing (BAM)

Workshop fee: DM 300 (approx. 140 US \$, approx. 150 EURO)

NOTE 1 This fee includes a welcome reception, June 14, 17-19 h at BAM

Papers: Only papers in english and **related to test charts** will be accepted.

Please send abstracts of about 20 lines before April 1, 2001 by email to:

Klaus.Richter@bam.de

A international jury will decide about the acceptance and the final workshop program before May 1, 2001. Publication of abstracts at May 1, 2001 by the URL:

www.ps.bam.de/NEWSE.html

(see also forms for workshop registration, maps, and recommended hotels)

For further information see the following web addresses (click to go!)

www.ps.bam.de

(Technical information for image reproduction of DIN- and ISO/IEC-test charts)

www.ps.bam.de/INFIE13/INFIE13.HTM

(Digital ISO/IEC-test charts in three resolutions)

www.ps.bam.de/INFDE13/INFDE13.HTM

(Digital DIN-test charts in three resolutions)

<http://www.jbma.or.jp/~isoiec/sc28/testchart/index.html>

(Digital ISO/IEC-test charts of JBMA (Japan Business Makers Association))

www.ps.bam.de/INFBE04/INFBE04.HTM

(Digital test picture B1 of ISO/IEC-test chart produced for 7 steps of exposure on slide and negative material)

www.ps.bam.de/INFVM03/INFVM03.HTM

(500 digital colour images for colour education purposes in different languages)

www.actech.com.br/sc28

(Home-Page of ISO/IEC JTC1/SC28, see NEWS)

Remark 1: There is the second working group meeting "ISO/IEC-test chart production" of ISO/IEC JTC1/SC28 between at June 16 at BAM, Berlin, for ISO/IEC JTC1/SC28-delegates only

Remark 2: There is a meeting of ISO SCIT "ISO Steering Committee of Image Technology" at June 18-19 at BAM, Berlin, for ISO delegates only

Exhibition in the poster room (Plenum 2)

In a poster room materials for the production of test charts are presented especially from Germany, Japan and the United States.

Colour image reproduction devices (Colour copiers, colour printers, colour monitors etc.) and colour measuring instruments of leading manufacturers and the BAM serve for the input and output of DIN- and ISO/IEC-test charts and the comparison with the reference. Within the workshop and the exhibition it will be tried to reproduce the test charts on ISO/IEC reference paper by new ISO/IEC-colour management methods.

Within the workshop it is intended to correct the digital input data of ISO/IEC-test charts - both by visual estimation and colorimetric measurement - to get the output on any colour reproduction device within visual tolerances **identical and independent of hard- and software**. Examples in colour for scales and images will be produced and shown in the exhibition (up to 1.5m x 2.0m in size)

Colour image reproduction devices and materials of the following companies are expected: *Apple, Canon, Fuji, Minolta, OKI, Osram, Pelikan, Tektronix, Xerox.* (Registration and Information only by DFZ).

The new **flat area lamp OSRAM PLANON D65** (10.000 cd/squaremeter) in size A4 and larger will be shown in the colour exhibition. With transparent film material on top this lamp represents **light colour mode of the ISO/IEC- and DIN-test charts** and serves as **analog reference monitor**.

Presenting technologies within the BAM-conference room:

The BAM-conference room has possibilities for one overhead projection, double slide projection (2 times 4 m x 3 m), PC to video projections ((Mac and Windows, 4 m x 3 m), and 6 distributed microphones for questions and discussions. There are additional possibilities for the presentation of ISO/IEC-test chart materials in a poster room.

Preliminary program: Second DFZ-BAM-Workshop: Digital and analog ISO/IEC-test charts for multimedia devices in offices

Timetable for oral presentations, poster and working sessions

Thursday, June 14, 2001, 10.00-13.00h

10.00-13.00h: Opening Session (Plenum 1), Chair: XX,

Prof. Dr. H. Czichos, President of Federal Institute for Material Research and Testing (BAM), Berlin

Prof. Dr. Klaus Palm, President of Deutsches Farbenzentrum e.V., Berlin

Welcome and introduction

Klaus Richter, BAM, Berlin

Development of analog and digital test charts for ISO/IEC- and DIN-standards for specifying image reproduction and for colour management in offices

Other sessions: June 14, 14-17h, June 15, 9-13h, June 15, 14-17h. There will be about 15 papers from Japan, US, and many other countries. during the second DFZ-BAM-Workshop, June 14-15, 2001 at BAM, Berlin. This is similar compared to the program of the first DFZ-BAM Workshop, Nov. 1-2, 1999, see the URL:

www.ps.bam.de/INFO/WORKPE01.PDF