BÄSTATRYCK 2005

Description of Competition Element and Results

Grafiskt Forum

ISO standards
http://www.iso.org

12 646 = Displays for color proofing
12 647-1 = Parameters and measurement methods
12 647-2 = Offset lithographic processes
12 647-3 = Cold set offset lithography on newsprint
12 647-4 = Gravure
12 647-5 = Screen printing

Teknik i Media

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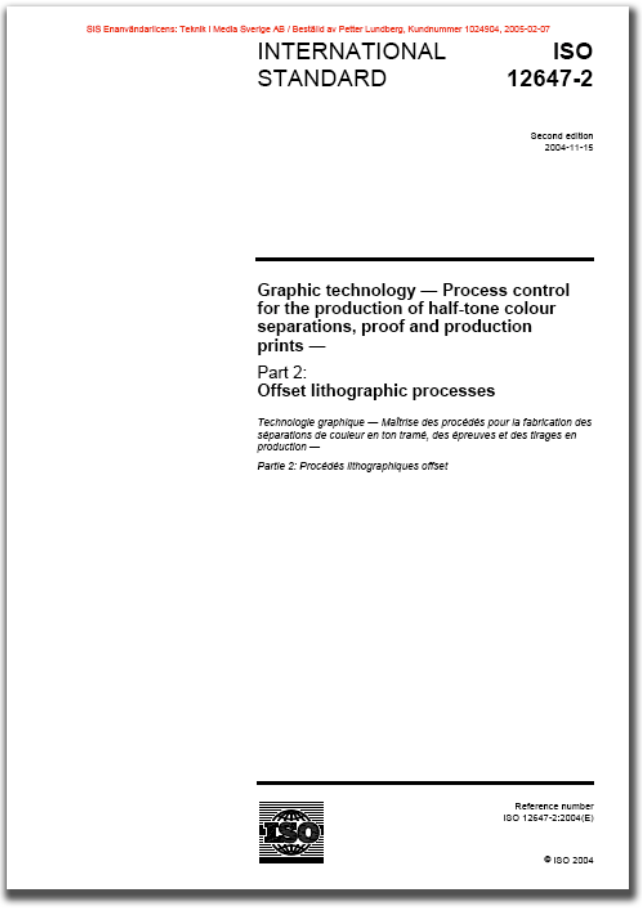
Teknik i Media



INTERNATIONAL STANDARD

ISO 12647-2

Second edition
2004-11-15

Graphic technology — Process control for the production of half-tone colour separations, proof and production prints —

Part 2:
Offset lithographic processes

Technologie graphique — Maîtrise des procédés pour la fabrication des séparations de couleur en ton tramé, des épreuves et des tirages en production —

Partie 2: Procédés lithographiques offset

Reference number
ISO 12647-2:2004(E)

i Media

We have from the ISO standard chosen:

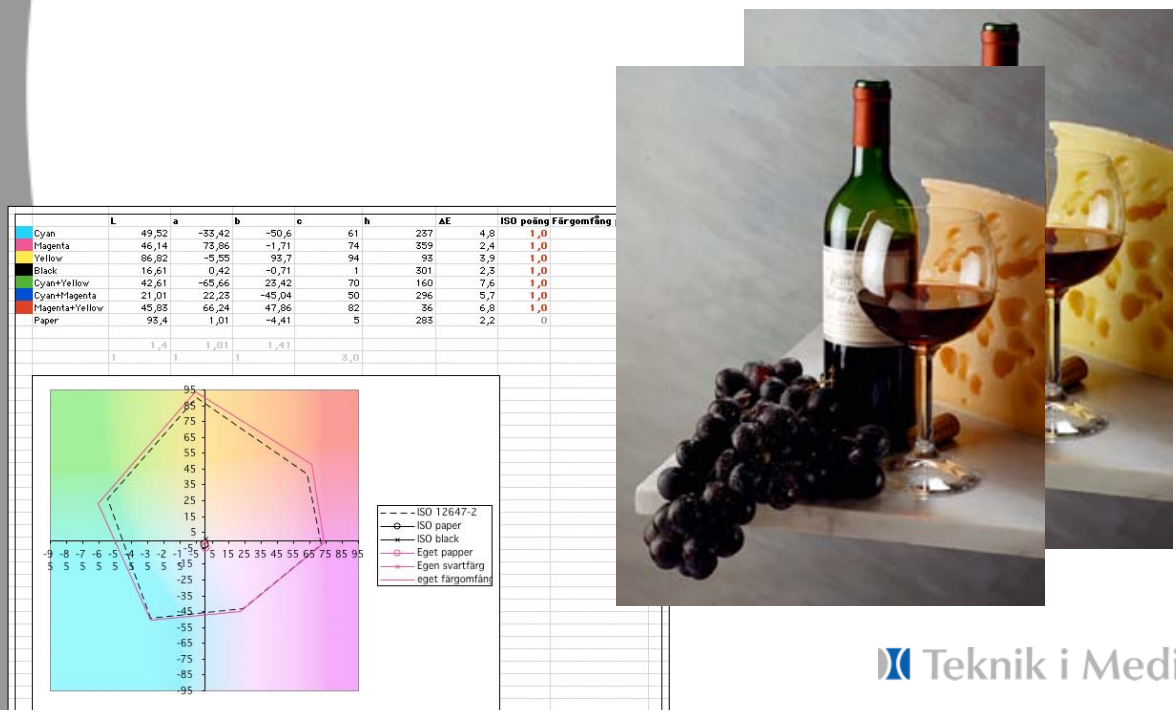
- Color reproduction (Ink set colours)
- Dot gain (Aim values)
- Gray balance (Grey balance)

In the competition we also included

- Color gamut
- Spot colors
- Tone reproduction
- Gray balance and reproduction
- Image reproduction
- Proof on paper

Teknik i Media

Color Reproduction
Do saturated colors show correct hue and nuance?



Teknik i Media

Colour	Paper type[a,b]											
	1, 2			3			4			5		
	Coordinates			Coordinates			Coordinates			Coordinates		
	L^{*}[b,c]	a^{*}[b,c]	b^{*}[b,c]	L^{*}[b,c]	a^{*}[b,c]	b^{*}[b,c]	L^{*}[b,c]	a^{*}[b,c]	b^{*}[b,c]	L^{*}[b,c]	a^{*}[b,c]	b^{*}[b,c]
Black	16	0	0	20	0	0	31	1	1	31	1	2
	(16)	(0)	(0)	(20)	(0)	(0)	(31)	(1)	(1)	(31)	(1)	(3)
Cyan	54	–36	–49	55	–36	–44	58	–25	–43	59	–27	–36
	(55)	(–37)	(–50)	(58)	(–38)	(–44)	(60)	(–26)	(–44)	(60)	(–28)	(–36)
Magenta	46	72	–5	46	70	–3	54	58	–2	52	57	2
	(48)	(74)	(–3)	(49)	(75)	(0)	(56)	(61)	(–1)	(54)	(60)	(4)
Yellow	88	–6	90	84	–5	88	86	–4	75	86	–3	77
	(91)	(–5)	(93)	(89)	(–4)	(94)	(89)	(–4)	(78)	(89)	(–3)	(81)
Red, M+Y	47	66	50	45	65	46	52	55	30	51	55	34
	(49)	(69)	(52)	(49)	(70)	(51)	(54)	(58)	(32)	(53)	(58)	(37)
Green, C+Y	49	–66	33	48	–64	31	52	–46	16	49	–44	16
	(50)	(–68)	(33)	(51)	(–67)	(33)	(53)	(–47)	(17)	(50)	(–46)	(17)
Blue, C+M	20	25	–48	21	22	-46	36	12	–32	33	12	–29
	(20)	(25)	(–49)	(22)	(23)	(–47)	(37)	(13)	(–33)	(34)	(12)	(–29)
Overprint of C+M+Y	18	3	0	18	8	6	33	1	3	32	3	1
	(18)	(3)	(0)	(19)	(9)	(7)	(33)	(2)	(3)	(32)	(3)	(2)

[a] Paper types according to 4.3.2.1.

[b] The values without brackets are measurements in accordance with ISO 12647-1: D50 illuminant, 2° observer, 0/45 or 45/0 geometry, black backing. Values in brackets pertain to measurement on the white backing specified by CGATS.5 [5] and are informative only.

[c] The colours were derived from those of ISO 2846-1 [1] by the method given in the informative Annex A of this part of ISO 12647.

Tolerance

Table 3 — CIELAB ΔE^{*}_{ab} tolerances for the solids of the process colours

unit: 1

Parameter	Colour			
	Black	Cyan[a]	Magenta[a]	Yellow[a]
Deviation tolerance	5	5	5	5
Variation tolerance[a]	4	4	4	5

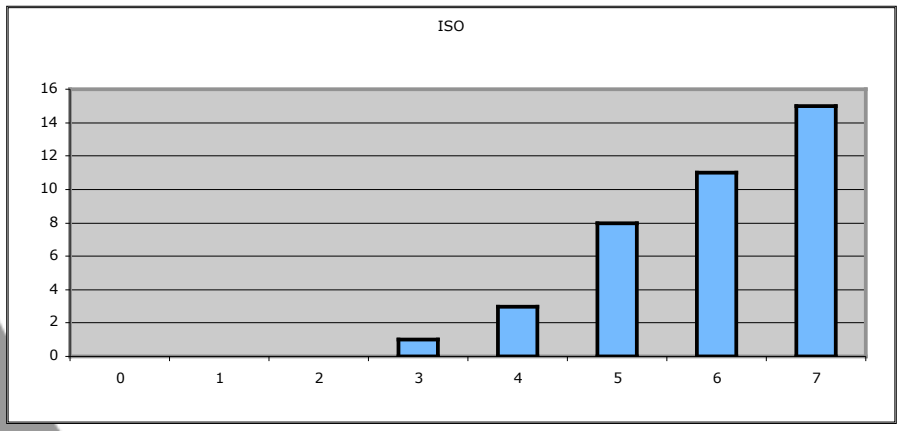
[a] The contribution of the hue difference shall not exceed 2,5.

3.47 variation tolerance: Permissible difference between the OK print and that of a sample print taken at random from the production.

3.11 deviation tolerance: Permissible difference between the OK print from a production run and the reference value.

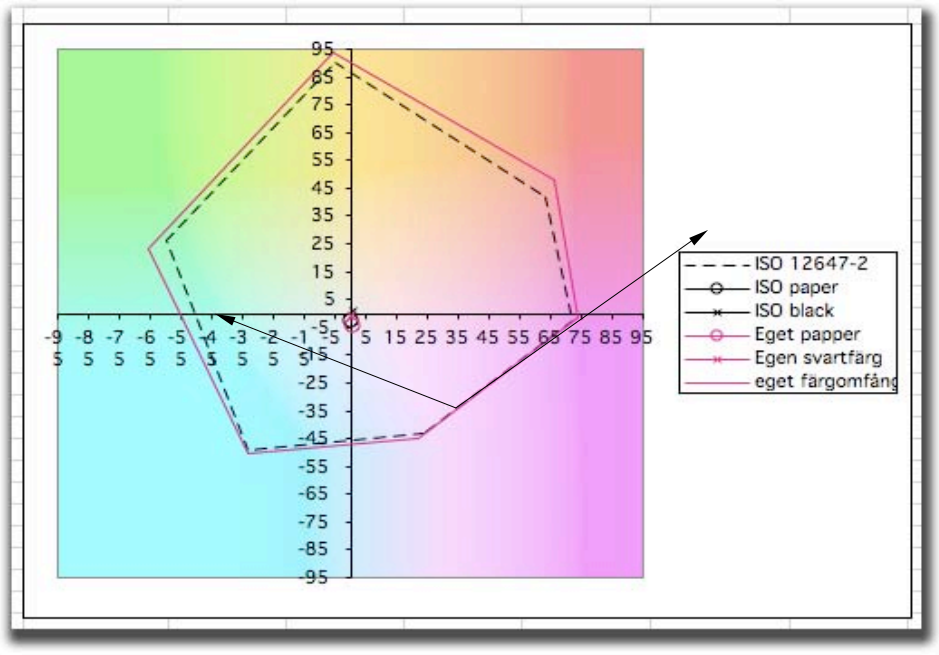
Result Color Reproduction

Possible	7p
Median	6p
Best	7p (39%)
Secons best	6p (29%)



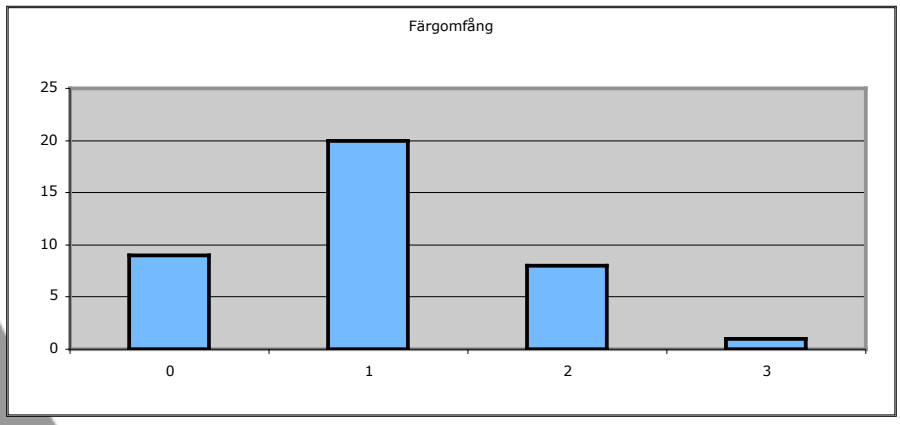
Teknik i Media

Color Gamut



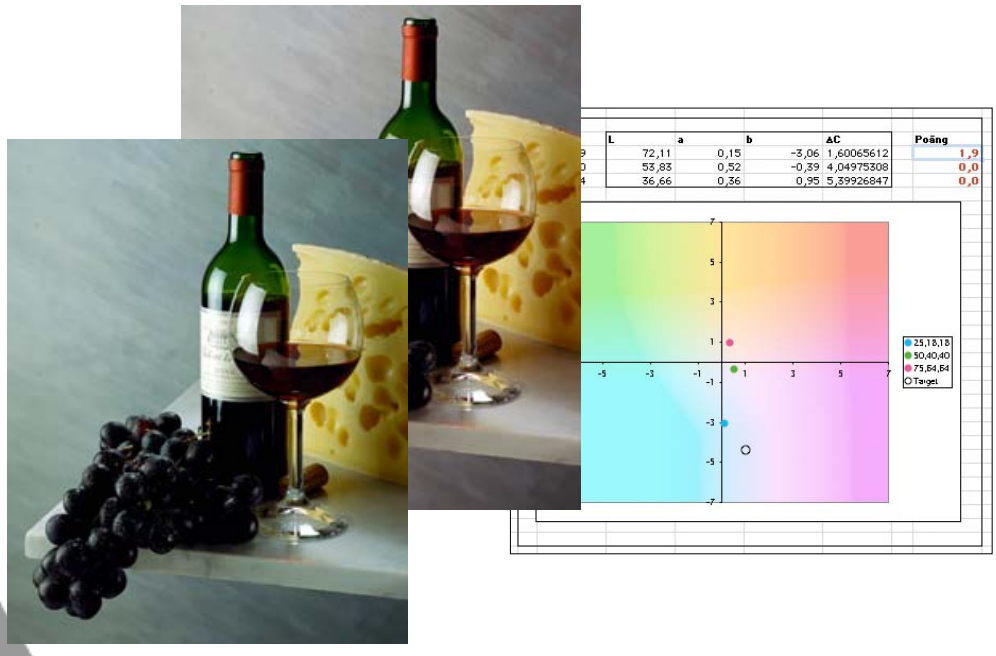
Result Color Gamut

Possible	3p
Median	1.5p
Best	3p (3%)
Second best	2p (21%)



Teknik i Media

Gray Balance
Are neutral colors reproduced as neutral?



Teknik i Media

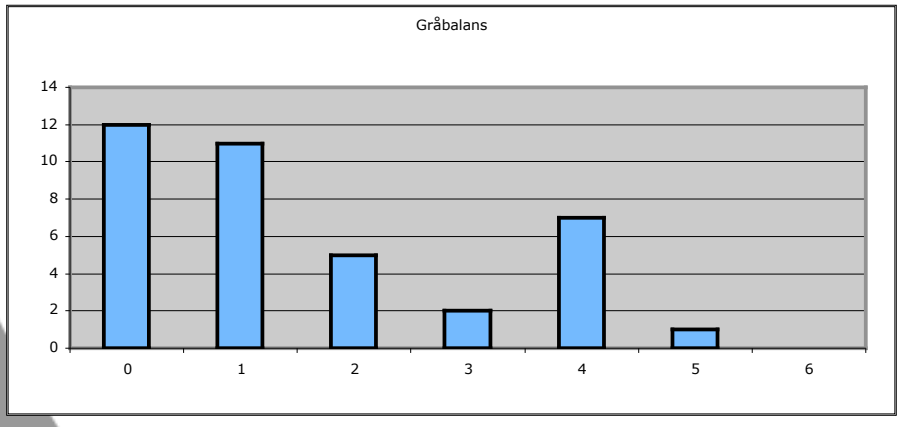
Table C.1 — CMYK values for use in grey balance patches

unit: %

Tone value	Colour		
	Cyan	Magenta	Yellow
Quarter tone	25	19	19
Mid-tone	50	40	40
Three-quarter tone	75	64	64

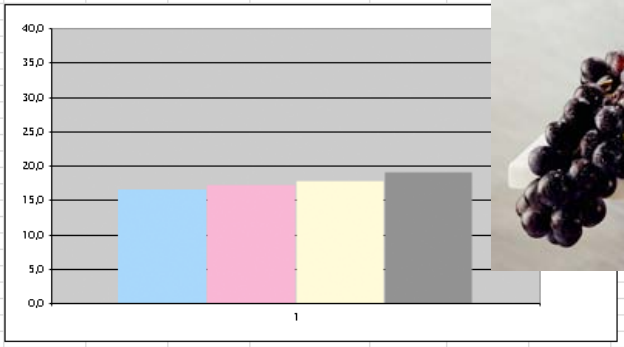
Result Gray Balance

Possible	6p
Median	1.74p
Best	5p (3%)
Second best	4p (11%)



Dot Gain
Lighness in mid range

Densitometer					
		100%	50%	Punktförstoring	Avvikelse	Poäng
	Cyan	1,77	0,46	16,5	1,5	
	Magenta	1,8	0,47	17,2	0,8	
	Yellow	1,6	0,47	17,8	0,2	
	Black	2	0,5	19,1	1,1	
	Poäng Maxavvikelse		2,6		1	
	Poäng punktförstoring				4	



Teknik i Media

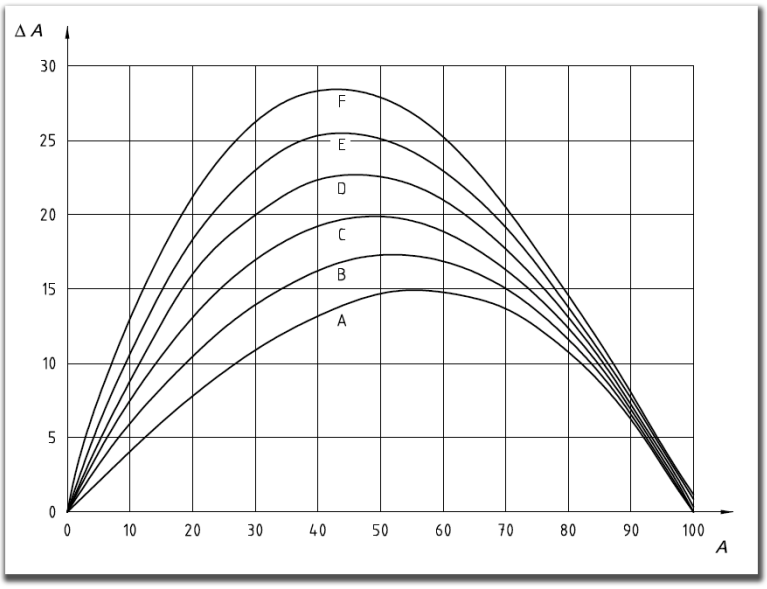


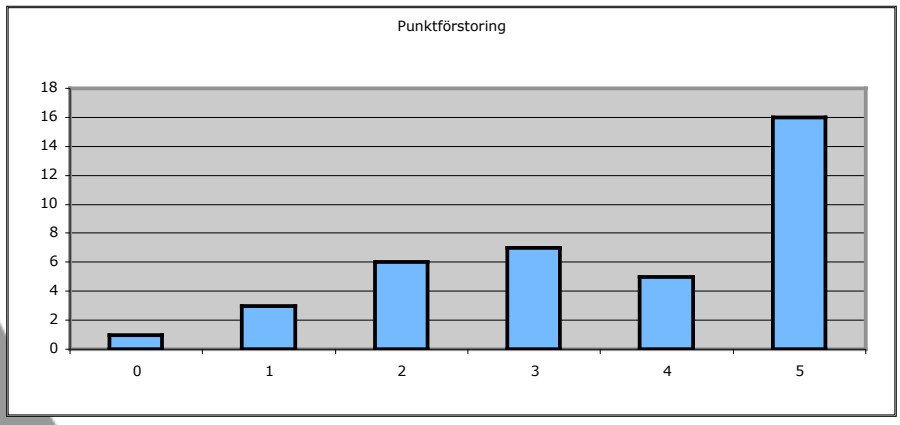
Table 5 — Tone-value increase tolerances and maximum mid-tone spread for proof and production printing

unit: %

Tone value of control patch	Deviation tolerance		Variation tolerance
	Proof print	OK print	Production print
40 or 50	3	4	4
75 or 80	2	3	3
Maximum mid-tone spread	4	5	5

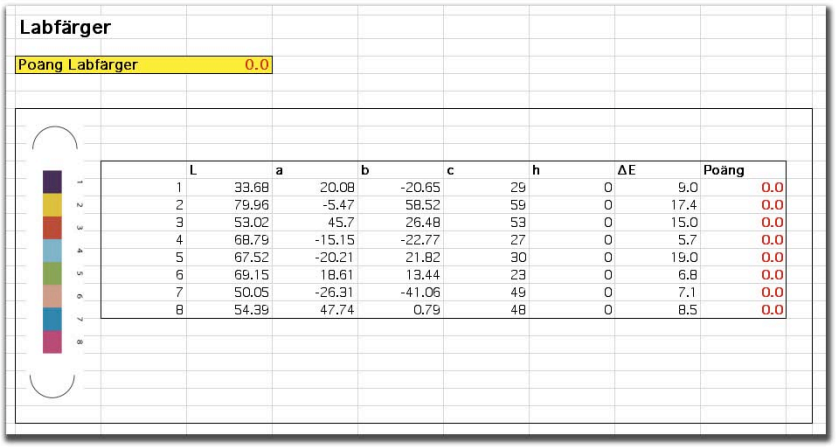
Result Dot Gain

Possible	5 p
Median	4 p
Best	5 (42%)
Second best	4 (13%)



Teknik i Media

Spot Colors (logo colors)



Labfärger

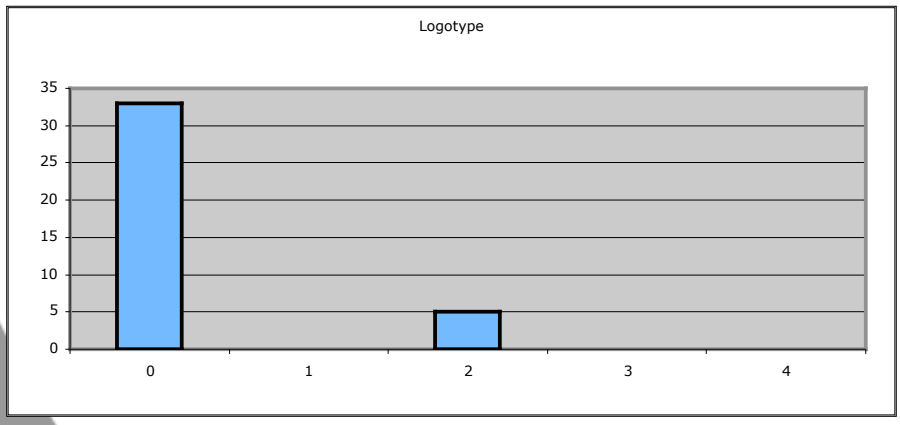
Poäng Labfärger 0.0

	L	a	b	c	h	ΔE	Poäng
1	33.68	20.08	-20.65	29	0	9.0	0.0
2	79.96	-5.47	58.52	59	0	17.4	0.0
3	53.02	45.7	26.48	53	0	15.0	0.0
4	68.79	-15.15	-22.77	27	0	5.7	0.0
5	67.52	-20.21	21.82	30	0	19.0	0.0
6	69.15	18.61	13.44	23	0	6.8	0.0
7	50.05	-26.31	-41.06	49	0	7.1	0.0
8	54.39	47.74	0.79	48	0	8.5	0.0

Teknik i Media

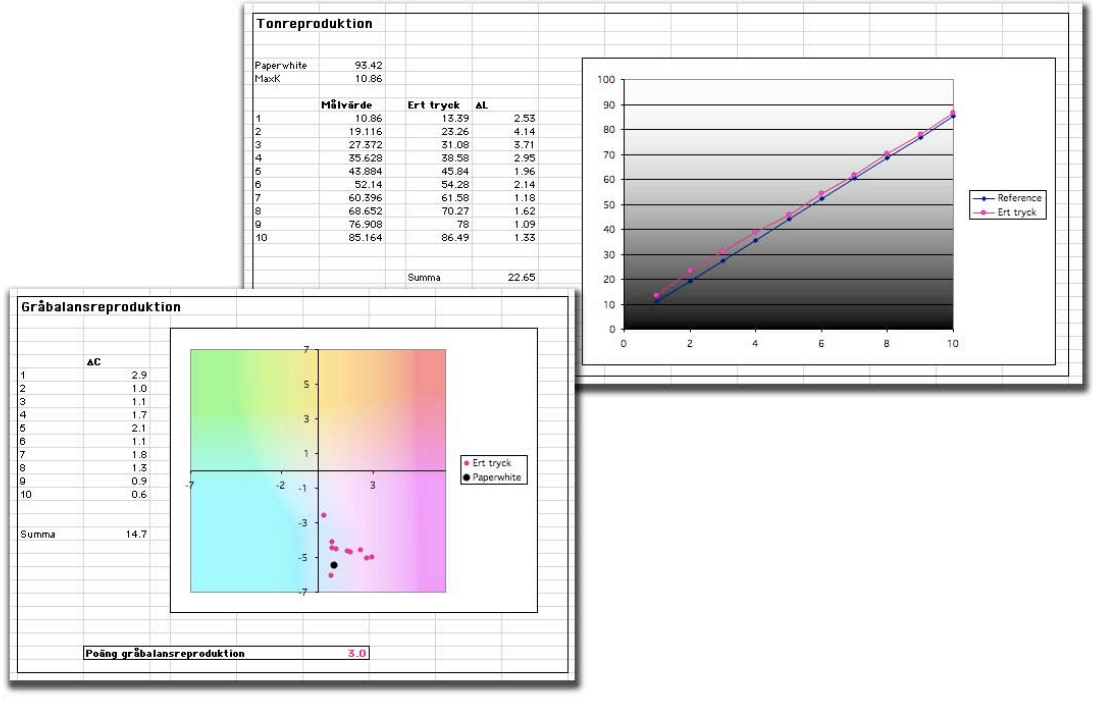
Result Spot Colors

Possible	4 p
Median	0 p
Best	2 (13%)
Second best	0 (87%)



Teknik i Media

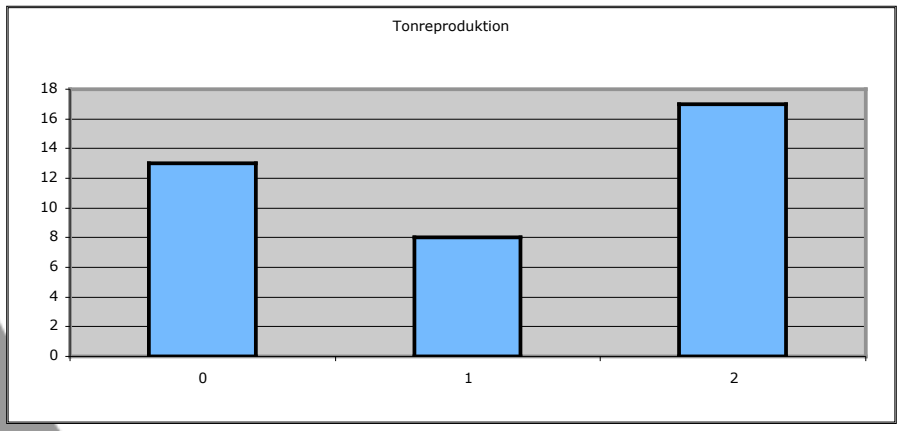
Gray Balance and Tone Reproduction



Teknik i Media

Result Tone Reproduction

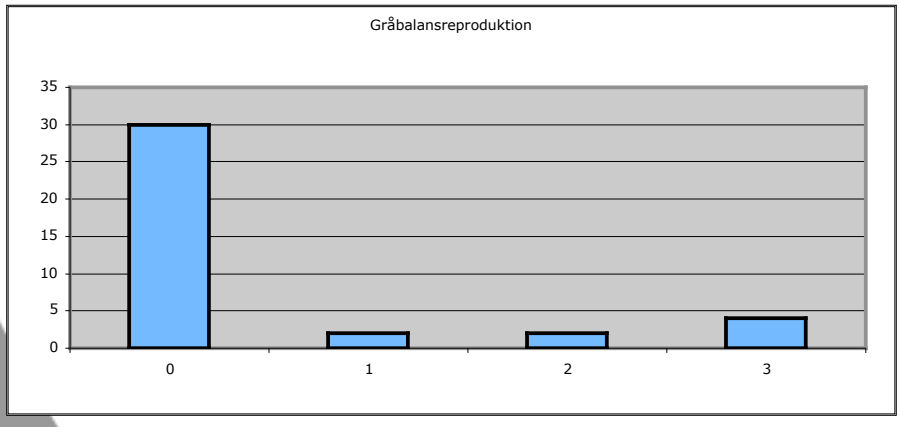
Possible	2 p
Median	1.5 p
Best	2 (45%)
Second best	1 (21%)



Teknik i Media

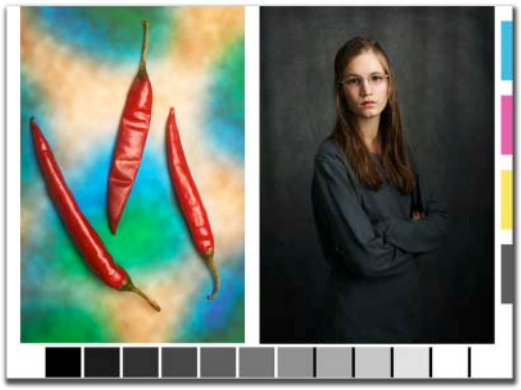
Result Gray Balance Reproduction

Possible	3p
Median	0p
Best	3p (11%)
Second best	2p (5%)



Teknik i Media

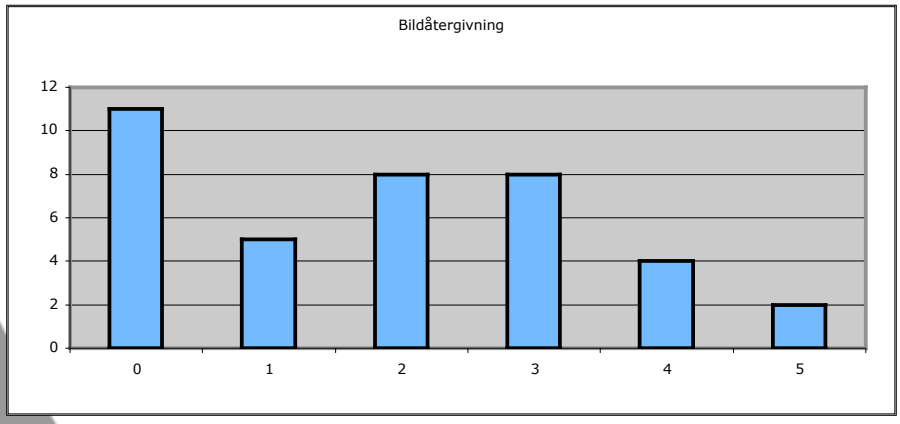
RGB image to be reproduced with printers profile



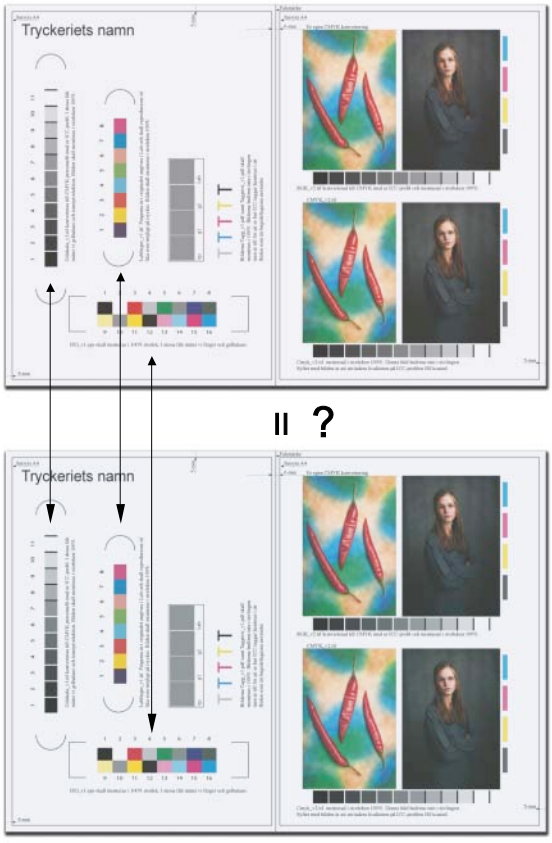
CMYK image to be reproduced with no changes

Result RGB Image Reproduction

Possible	5p
Median	2p
Best	5p (5%)
Second best	4p (11%)

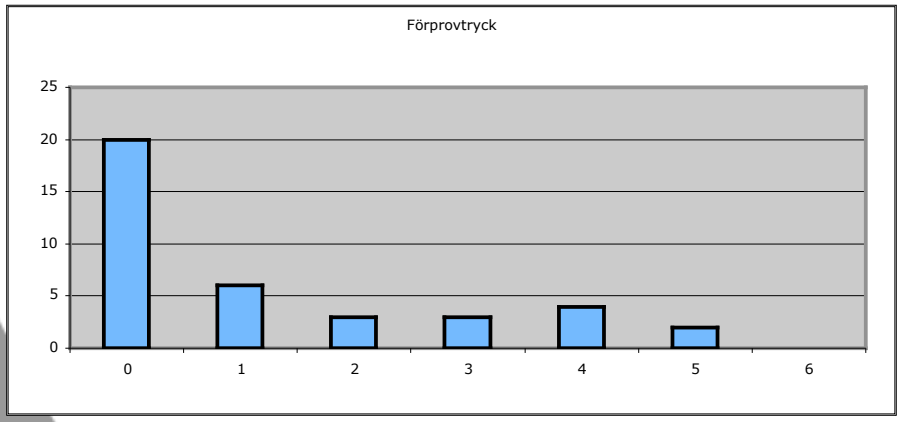


Proofing on Paper



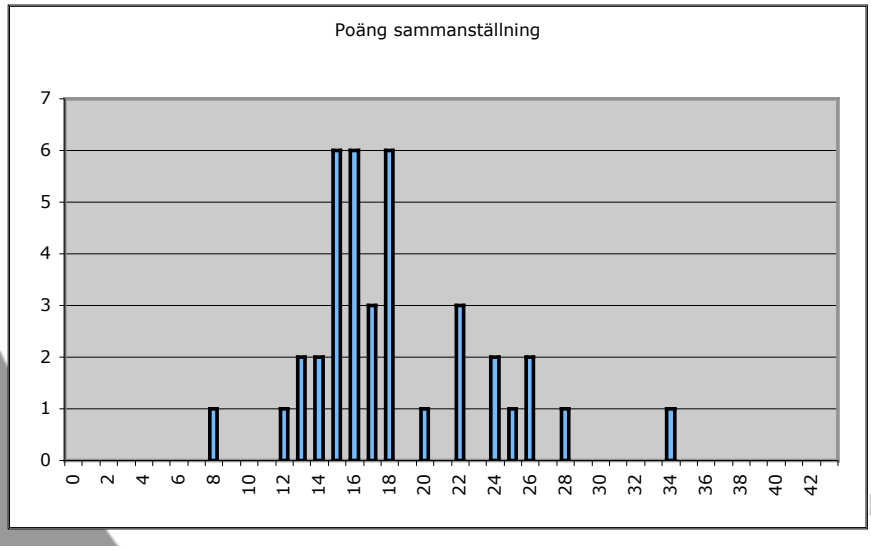
Result Proofing

Possible	6p
Median	0.8p
Best	5p (5%)
Second best	4p (8%)

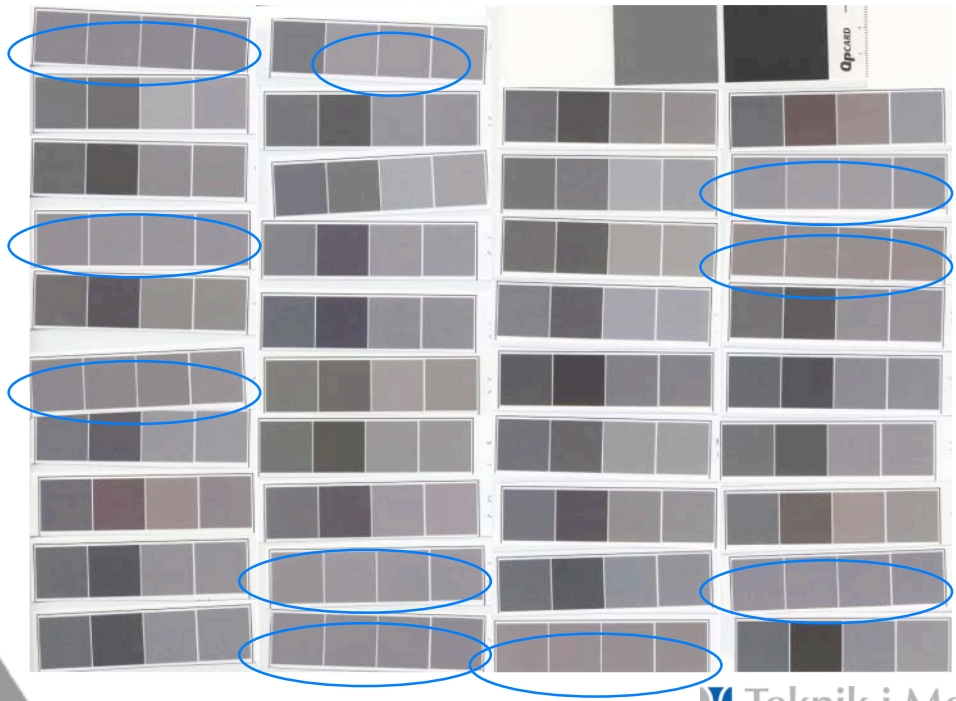


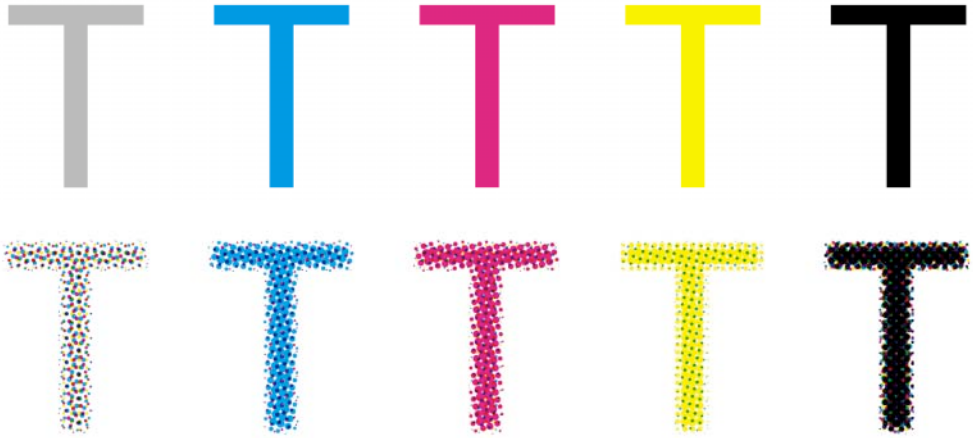
Total Result

Possible	41p
Median	17p
Best	34p



Extras Outside Competition





6 of 38 converted vector graphics from CMYK to CMYK

Teknik i Media

Improvements

Element	Printers	Rules
Color reproduction	++	OK
Color gamut	+	OK
Gray balance	--	Adjust tolerances?
Dot gain	++	New aim value?
Spot color	-	Adjust tolerances?
Tone reproduction	+	OK
Gray balance reproduction	-	OK
Image reproduction	-/+	Better image
Proofing	--	Better color patches

Teknik i Media

Thank You!

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