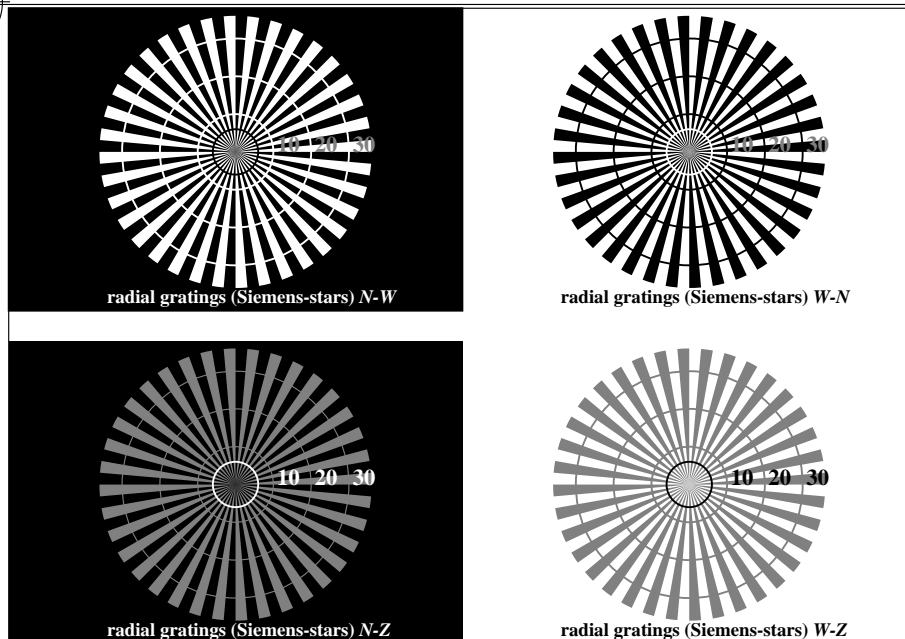
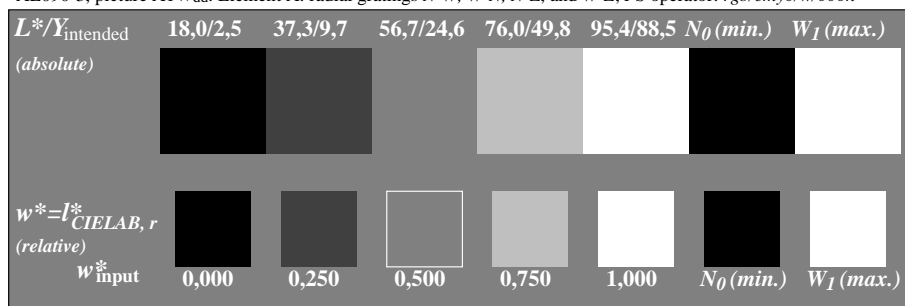


see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 1/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>

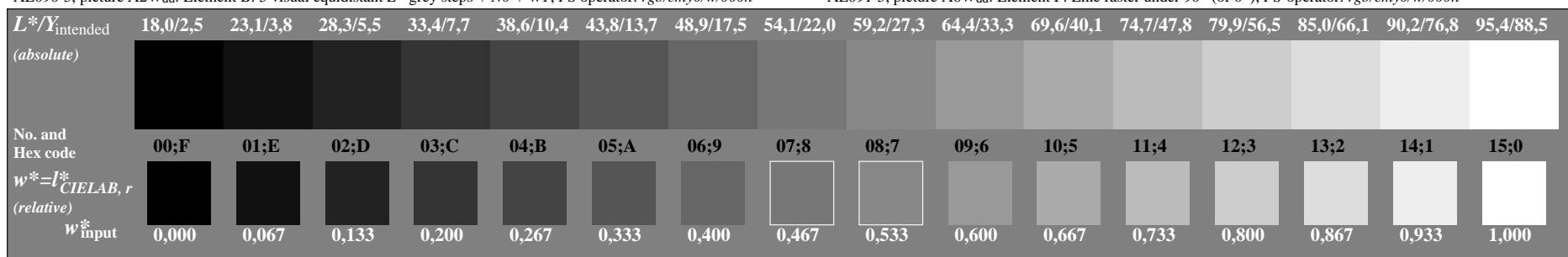
TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta



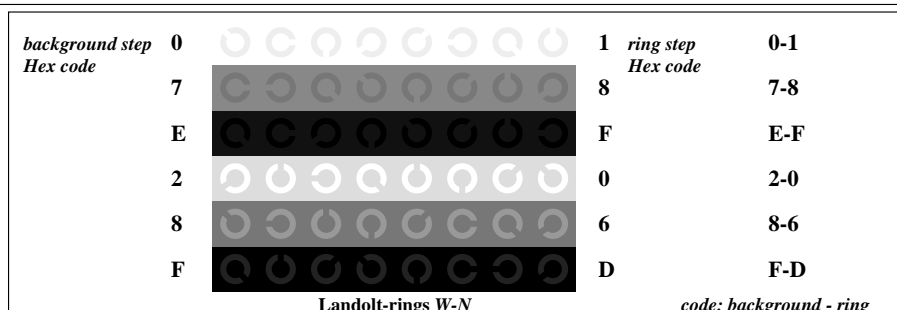
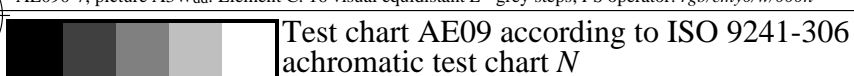
AE090-3, picture A1Wdd: Element A: radial gratings N-W, W-N, N-Z, and W-Z; PS operator: *rgb/cmy0/w/000n*



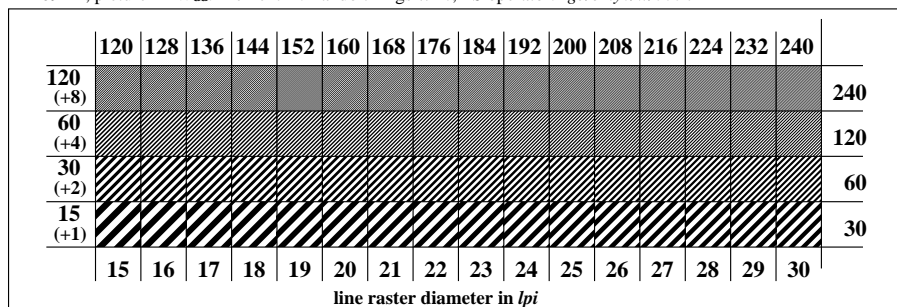
AE090-5, picture A2Wdd: Element B: 5 visual equidistant  $L^*$ -grey steps +  $N_0$  +  $W_1$ ; PS operator: *rgb/cmy0/w/000n*



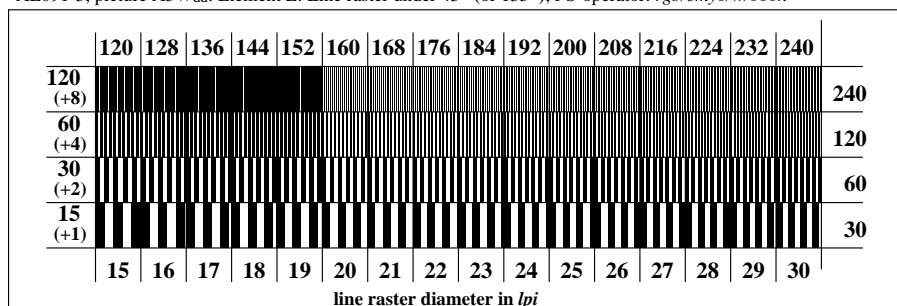
AE090-7, picture A3Wdd: Element C: 16 visual equidistant  $L^*$ -grey steps; PS operator: *rgb/cmy0/w/000n*



AE091-1, picture A4Wdd: Element D: Landolt-rings W-N; PS operator: *rgb/cmy0/w/000n*



AE091-3, picture A5Wdd: Element E: Line raster under 45° (or 135°); PS-operator: *rgb/cmy0/w/000n*



AE091-5, picture A6Wdd: Element F: Line raster under 90° (or 0°); PS-operator: *rgb/cmy0/w/000n*

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*



see similar files: [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY8\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY8_1.PDF)  
technical information: <http://farbe.li.tu-berlin.de/> or [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY8\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY8_1.PDF)

<http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 2/24  
F: 3D-linearization AE09/AE09LF0PX.PDF / .PS in file (F)

**Test of visual linearized output of pictures A1W<sub>dd</sub> to A3W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of the radial grating according to picture A1W<sub>dd</sub>**

N-W-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-N-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

N-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

**Test of 5 visual equidistant L\*-grey steps according to picture A2W<sub>dd</sub>**  
Are the 5 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 5 steps:

**Test of 16 visual equidistant L\*-grey steps according to picture A3W<sub>dd</sub>**  
Are the 16 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 16 steps:

part 1, AE090-3dd: 01001

**Documentation of file format, hardware and software for this test:**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY8\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY8_1.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY8\\_1.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY8_1.PS) **underline: Yes/No**

**Used computer operating system:**

either one of Windows/Mac/Unix/other and version:.....

**This evaluation is for the output:** **underline: monitor/data projector/printer**

Device model, driver and version:.....

**output with PDF/PS-file:** **underline: PDF/PS file**

**For output with PDF file AE09F0PX\_CY8\_1.PDF**

either PDF-file transfer "download, copy" to PDF device.....  
or with computer system interpretation by "Display-PDF":.....  
or with software e. g. Adobe-Reader/-Acrobat and version:.....  
or with software e. g. Ghostscript and version:.....

**For output with PS file AE09F0PX\_CY8\_1.PS**

either PS-file transfer "download, copy" to PS device.....  
or with computer system interpretation by "Display-PS":.....  
or with software e. g. Ghostscript and version:.....  
or with software e. g. Mac-Yap and version:.....

Special remarks: e. g. output of Landscape (L)

.....  
.....  
.....

part 3, AE090-7dd: 01001

Form A: Test chart AE09 according to ISO 9241-306  
achromatic test chart N

**Test of visual linearized output of pictures A4W<sub>dd</sub> to A6W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of Landolt rings N-W according to picture A4W<sub>dd</sub>**

Is the recognition frequency of the Landolt rings > 50% (5 of 8 at least)?

**background - ring**

0 - 1 **Yes/No**  
7 - 8 **Yes/No**  
E - F **Yes/No**  
2 - 0 **Yes/No**  
8 - 6 **Yes/No**  
F - D **Yes/No**

**Test of the radial grating under 45° according to picture A5W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

**Test of the radial grating under 90° according to picture A6W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

part 2, AE091-3dd: 01001

**Documentation of assessor colour-vision properties for visual assessment**

The assessor has **normal** colour vision according to one test:  
either according to DIN 6160:1996 with Anomaloskop of Nagel  
or with test charts using colour points according to Ishihara  
or tested with, please specify: .....

**underline: Yes/No**  
**underline: Yes/unknown**  
**underline: Yes/unknown**  
**underline: Yes/unknown**

**For visual evaluation of the display (Monitor, data projector) output**

Office workplace illumination is daylight (clouded/north sky)

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY8\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY8_3.PDF) **underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY8\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY8_3.PS) **underline: Yes/No**

**picture A7<sub>dd</sub> contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0 **underline: Yes/No**

*Remark: In daylighted offices the contrast range is in many cases:  
on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)*

**Only for optional colorimetric specification with PDF/PS file output**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY8\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY8_3.PDF)

**picture A7<sub>dd</sub>** **underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY8\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY8_3.PS)

**picture A7<sub>dd</sub>** **or underline: Yes/No**

**colour measurement and specification for:**

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry:

**underline: Yes/No**

If No, please give other parameters: .....

**Colorimetric specification for 17 step colours of** <http://farbe.li.tu-berlin.de/OE70/OE70L1NP.PDF>

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer

of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF

**underline: Yes/No**

If No, please describe other method: .....

part 4, AE091-7dd: 01001

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

TUB Registration: 20190301-AE09/AE09L0FA.TXT / .PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 3/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE09.HTM>

i	LAB* <sub>ref</sub>	L* <sub>out</sub>	LAB* <sub>out</sub>	LAB* <sub>out-ref</sub>	ΔE*
1	0,00	0,00	0,00	0,00	0,01
2	6,36	0,00	0,06	0,00	0,01
3	12,72	0,00	0,13	0,00	0,01
4	19,08	0,00	0,20	0,00	0,01
5	25,44	0,00	0,26	0,00	0,01
6	31,80	0,00	0,33	0,00	0,01
7	38,16	0,00	0,40	0,00	0,01
8	44,52	0,00	0,46	0,00	0,01
9	50,88	0,00	0,53	0,00	0,01
10	57,24	0,00	0,60	0,00	0,01
11	63,60	0,00	0,66	0,00	0,01
12	69,96	0,00	0,73	0,00	0,01
13	76,32	0,00	0,80	0,00	0,01
14	82,68	0,00	0,86	0,00	0,01
15	89,04	0,00	0,93	0,00	0,01
16	95,41	0,00	1,00	0,00	0,01
17	0,00	0,00	0,00	0,00	0,01
18	23,85	0,00	0,25	0,00	0,01
19	47,70	0,00	0,50	0,00	0,01
20	71,55	0,00	0,75	0,00	0,01
21	95,41	0,00	1,00	0,00	0,01

**Start output S1**  
**Specification according to**  
**ISO/IEC 15775 Annex G**  
**and DIN 33866-1 Annex G**

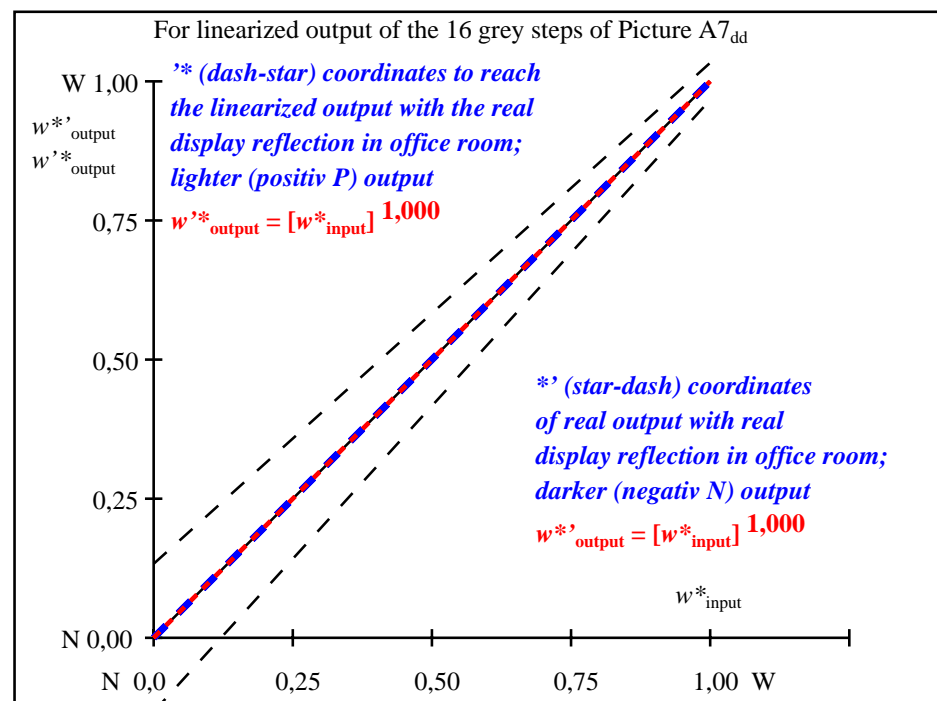
**Mean lightness difference**  
**(16 steps)**  
**ΔE\*<sub>CIELAB</sub> = 0,0**

**Mean lightness difference**  
**(5 steps)**  
**ΔL\*<sub>CIELAB</sub> = 0,0**

**Mean colour reproduction index: R\*<sub>ab,m</sub> = 99,9**

part 1,

AE090-3dd: 01002



part 2,

AE091-3dd: 01002

L*/Y <sub>intended</sub> (absolute)	0,0/0,0	6,3/0,7	12,7/1,5	19,0/2,7	25,4/4,5	31,8/6,9	38,1/10,1	44,5/14,2	50,8/19,1	57,2/25,1	63,6/32,3	69,9/40,7	76,3/50,4	82,6/61,5	89,0/74,2	95,4/88,5
0 0 0 n* setcmyk gp=1,000 No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
w* = l* CIELAB, r (relative)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w* <sub>intended</sub>	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w* <sub>output</sub>	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000

part 3, picture A7<sub>dd</sub>: 16 visual equidistant L\*-grey steps; PS operator: 0 0 0 n\* setcmykcolor

AE090-7dd: 01002

In-out: Test chart AE09 according to ISO 9241-306  
Viewing Y contrast Y<sub>W</sub>:Y<sub>N</sub>=88,9:0,31; Y<sub>N</sub>-range 0,0 to <0,46

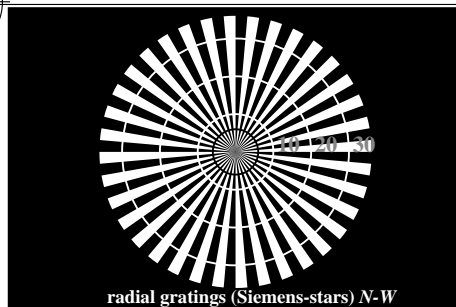
input: rgb/cmy0/000n/w set...  
output: ->rgb<sub>dd</sub> setrgbcolor

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

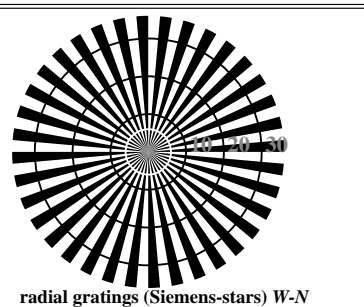
see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 4/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>



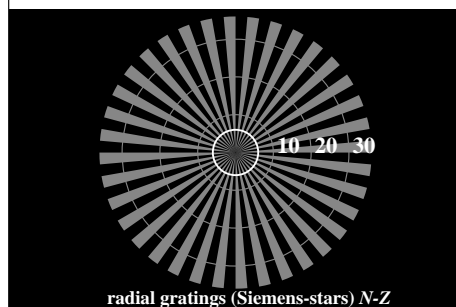
<http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 4/24  
F: 3D-linearization AE09/AE09LF0PX.PDF / .PS in file (F)



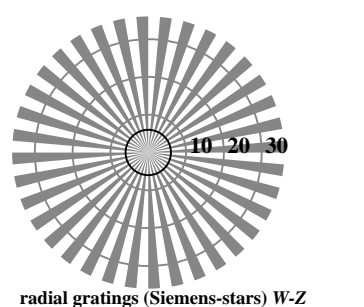
radial gratings (Siemens-stars) N-W



radial gratings (Siemens-stars) W-N



radial gratings (Siemens-stars) N-Z



radial gratings (Siemens-stars) W-Z

AE090-3, picture A1Wdd: Element A: radial gratings N-W, W-N, N-Z, and W-Z; PS operator: *rgb/cmy0/w/000n*

$L^*/Y_{\text{intended}}$ (absolute)	18,0/2,5	37,3/9,7	56,7/24,6	76,0/49,8	95,4/88,5	$N_0$ (min.)	$W_1$ (max.)
$w^* = I^*_{\text{CIELAB}, r}$ (relative)							
$w^*_{\text{input}}$	0,000	0,250	0,500	0,750	1,000	$N_0$ (min.)	$W_1$ (max.)

AE090-5, picture A2Wdd: Element B: 5 visual equidistant  $L^*$ -grey steps +  $N_0$  +  $W_1$ ; PS operator: *rgb/cmy0/w/000n*

$L^*/Y_{\text{intended}}$ (absolute)	18,0/2,5	23,1/3,8	28,3/5,5	33,4/7,7	38,6/10,4	43,8/13,7	48,9/17,5	54,1/22,0	59,2/27,3	64,4/33,3	69,6/40,1	74,7/47,8	79,9/56,5	85,0/66,1	90,2/76,8	95,4/88,5
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = I^*_{\text{CIELAB}, r}$ (relative)																
$w^*_{\text{input}}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000

AE090-7, picture A3Wdd: Element C: 16 visual equidistant  $L^*$ -grey steps; PS operator: *rgb/cmy0/w/000n*



Test chart AE09 according to ISO 9241-306  
achromatic test chart N

background step	0	1	ring step	0-1
Hex code	7	8	Hex code	7-8
E		F	E-F	
2		0	2-0	
8		6	8-6	
F		D	F-D	

Landolt-rings W-N

code: background - ring

AE091-1, picture A4Wdd: Element D: Landolt-rings W-N; PS operator: *rgb/cmy0/w/000n*

	120	128	136	144	152	160	168	176	184	192	200	208	216	224	232	240	
120 (+8)																	240
60 (+4)																	120
30 (+2)																	60
15 (+1)																	30
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

line raster diameter in lpi

AE091-3, picture A5Wdd: Element E: Line raster under 45° (or 135°); PS-operator: *rgb/cmy0/w/000n*

	120	128	136	144	152	160	168	176	184	192	200	208	216	224	232	240	
120 (+8)																	240
60 (+4)																	120
30 (+2)																	60
15 (+1)																	30
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

line raster diameter in lpi

AE091-5, picture A6Wdd: Element F: Line raster under 90° (or 0°); PS-operator: *rgb/cmy0/w/000n*

	120	128	136	144	152	160	168	176	184	192	200	208	216	224	232	240	
120 (+8)																	240
60 (+4)																	120
30 (+2)																	60
15 (+1)																	30
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

line raster diameter in lpi

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*



TUB Registration: 20190301-AE09/AE09L0FA.TXT / .PS  
application for measurement or viewing of display and print output

TUB material: code=th4ta



see similar files: [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY7\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY7_1.PDF)  
technical information: <http://farbe.li.tu-berlin.de/> or [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY7\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY7_1.PDF)

<http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 5/24  
F: 3D-linearization AE09/AE09LF0PX.PDF / .PS in file (F)

**Test of visual linearized output of pictures A1W<sub>dd</sub> to A3W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of the radial grating according to picture A1W<sub>dd</sub>**

N-W-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-N-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

N-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

**Test of 5 visual equidistant L\*-grey steps according to picture A2W<sub>dd</sub>**  
Are the 5 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 5 steps:

**Test of 16 visual equidistant L\*-grey steps according to picture A3W<sub>dd</sub>**  
Are the 16 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 16 steps:

part 1, AE090-3dd: 01011

**Documentation of file format, hardware and software for this test:**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY7\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY7_1.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY7\\_1.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY7_1.PS) **underline: Yes/No**

**Used computer operating system:**

either one of Windows/Mac/Unix/other and version:.....

**This evaluation is for the output:** **underline: monitor/data projector/printer**

Device model, driver and version:.....

**output with PDF/PS-file:** **underline: PDF/PS file**

**For output with PDF file AE09F0PX\_CY7\_1.PDF**

either PDF-file transfer "download, copy" to PDF device.....  
or with computer system interpretation by "Display-PDF":.....  
or with software e. g. Adobe-Reader/-Acrobat and version:.....  
or with software e. g. Ghostscript and version:.....

**For output with PS file AE09F0PX\_CY7\_1.PS**

either PS-file transfer "download, copy" to PS device.....  
or with computer system interpretation by "Display-PS":.....  
or with software e. g. Ghostscript and version:.....  
or with software e. g. Mac-Yap and version:.....

Special remarks: e. g. output of Landscape (L)

.....  
.....  
.....

part 3, AE090-7dd: 01011

Form A: Test chart AE09 according to ISO 9241-306  
achromatic test chart N

**Test of visual linearized output of pictures A4W<sub>dd</sub> to A6W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of Landolt rings N-W according to picture A4W<sub>dd</sub>**

Is the recognition frequency of the Landolt rings > 50% (5 of 8 at least)?

**background - ring**

0 - 1	<b>Yes/No</b>
7 - 8	<b>Yes/No</b>
E - F	<b>Yes/No</b>
2 - 0	<b>Yes/No</b>
8 - 6	<b>Yes/No</b>
F - D	<b>Yes/No</b>

**Test of the radial grating under 45° according to picture A5W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

**Test of the radial grating under 90° according to picture A6W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

part 2, AE091-3dd: 01011

**Documentation of assessor colour-vision properties for visual assessment**

The assessor has **normal** colour vision according to one test:  
either according to DIN 6160:1996 with Anomaloskop of Nagel  
or with test charts using colour points according to Ishihara  
or tested with, please specify: .....

**underline: Yes/No**

**underline: Yes/unknown**

**underline: Yes/unknown**

**underline: Yes/unknown**

**For visual evaluation of the display (Monitor, data projector) output**

Office workplace illumination is daylight (clouded/north sky)

**underline: Yes/No**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY7\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY7_3.PDF)

**underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY7\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY7_3.PS)

**underline: Yes/No**

**picture A7<sub>dd</sub> contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0

**underline: Yes/No**

*Remark: In daylighted offices the contrast range is in many cases:*

*on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)*

**Only for optional colorimetric specification with PDF/PS file output**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY7\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY7_3.PDF)

**underline: Yes/No**

**picture A7<sub>dd</sub>**

**underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY7\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY7_3.PS)

**underline: Yes/No**

**picture A7<sub>dd</sub>**

**or underline: Yes/No**

**colour measurement and specification for:**

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry:

**underline: Yes/No**

If No, please give other parameters: .....

**Colorimetric specification for 17 step colours of** <http://farbe.li.tu-berlin.de/OE70/OE70L1NP.PDF>

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer

of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF

**underline: Yes/No**

If No, please describe other method: .....

part 4,

AE091-7dd: 01011

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

TUB Registration: 20190301-AE09/AE09L0FA.TXT / .PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 6/24  
technical information: <http://farbe.li.tu-berlin.de/AE09/AE09LF0PX.PDF> / .PS in file (F)

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

<i>i</i>	<i>LAB</i> <sup>*</sup> <sub>ref</sub>	<i>L</i> <sup>*</sup> <sub>out</sub>	<i>LAB</i> <sup>*</sup> <sub>out</sub>	<i>LAB</i> <sup>*</sup> <sub>out-ref</sub>	$\Delta E^*$	Start output S1
1	5,69	0,00	0,00	0,00	0,00	0,01
2	11,67	0,00	0,10	14,73	0,00	3,05
3	17,65	0,00	0,18	21,95	0,00	4,30
4	23,63	0,00	0,25	28,62	0,00	4,99
5	29,61	0,00	0,32	34,96	0,00	5,34
6	35,59	0,00	0,39	41,05	0,00	5,45
7	41,57	0,00	0,46	46,96	0,00	5,38
8	47,55	0,00	0,52	52,72	0,00	5,16
9	53,54	0,00	0,58	58,35	0,00	4,81
10	59,52	0,00	0,64	63,88	0,00	4,36
11	65,50	0,00	0,70	69,31	0,00	3,81
12	71,48	0,00	0,76	74,67	0,00	3,18
13	77,46	0,00	0,82	79,95	0,00	2,48
14	83,44	0,00	0,88	85,16	0,00	1,71
15	89,42	0,00	0,94	90,31	0,00	0,88
16	95,41	0,00	1,00	95,41	0,00	0,01
17	5,69	0,00	0,00	5,69	0,00	0,01
18	28,12	0,00	0,30	33,40	0,00	5,28
19	50,55	0,00	0,55	55,55	0,00	5,00
20	72,98	0,00	0,78	75,99	0,00	3,01
21	95,41	0,00	1,00	95,41	0,00	0,01

**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

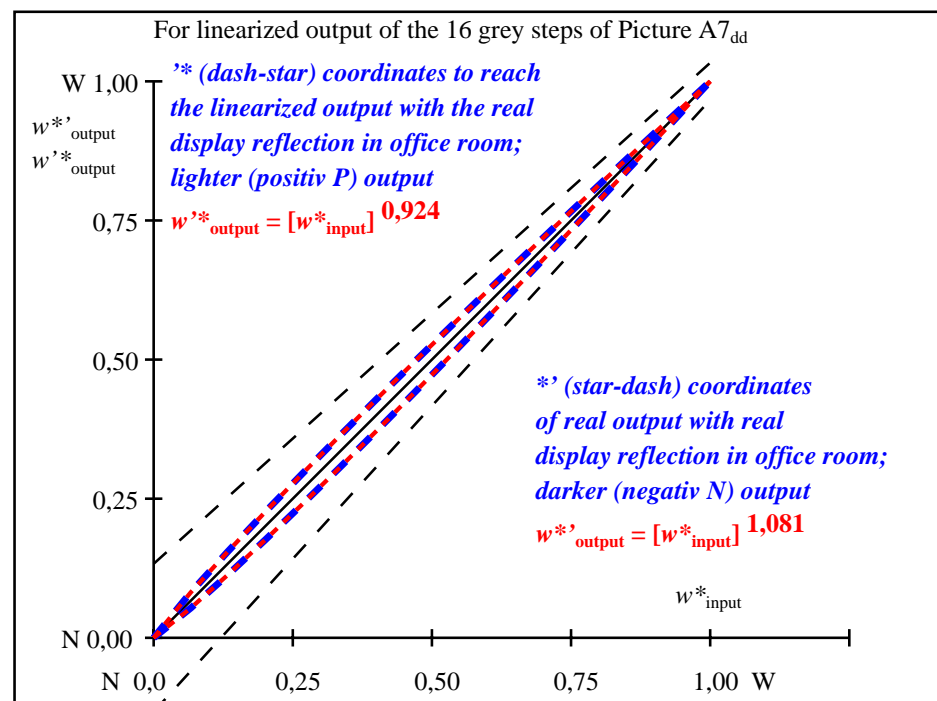
Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 3,4$

Mean lightness difference (5 steps)  
 $\Delta L^*_{\text{CIELAB}} = 2,6$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 85,0$

part 1,

AE090-3dd: 01012



part 2,

AE091-3dd: 01012

<i>L</i> <sup>*</sup> / <i>Y</i> <sub>intended</sub> (absolute)	5,6/0,6	11,6/1,3	17,6/2,4	23,6/3,9	29,6/6,0	35,5/8,8	41,5/12,2	47,5/16,4	53,5/21,5	59,5/27,5	65,5/34,6	71,4/42,8	77,4/52,3	83,4/63,0	89,4/75,0	95,4/88,5
0 0 0 n* setcmyk																
gp=0,924																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{\text{CIELAB}, r}$ (relative)																
$w^*_{\text{intended}}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{\text{output}}$	0,000	0,082	0,154	0,225	0,294	0,361	0,428	0,494	0,558	0,623	0,687	0,750	0,813	0,876	0,937	1,000

part 3, picture A7<sub>dd</sub>: 16 visual equidistant *L*<sup>\*</sup>-grey steps; PS operator: 0 0 0 n\* setcmykcolor

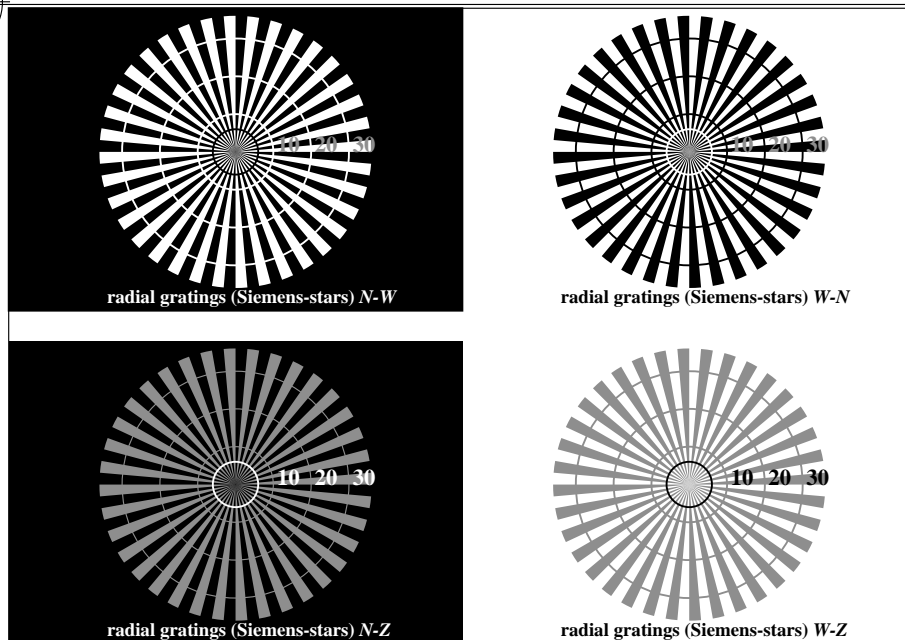
AE090-7dd: 01012

In-out: Test chart AE09 according to ISO 9241-306  
Viewing *Y* contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$ -range 0,46 to <0,93

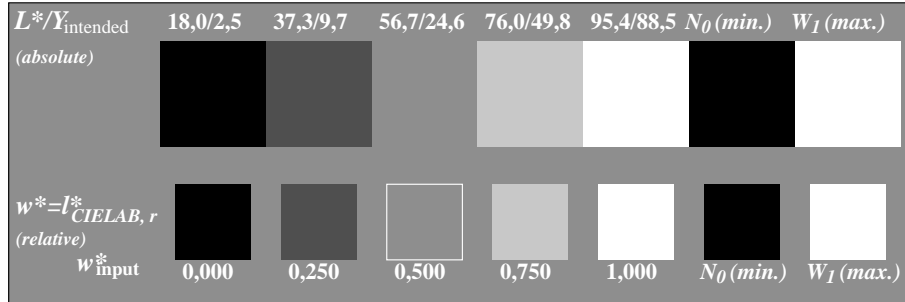
input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 7/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>

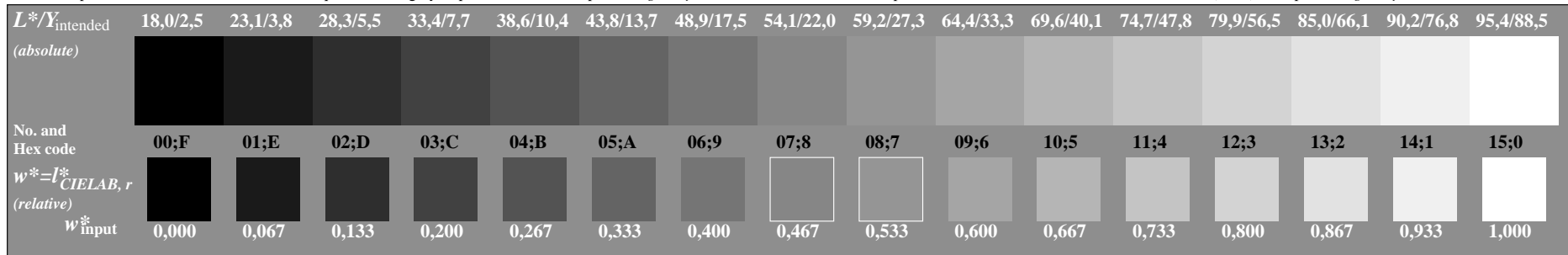
TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta



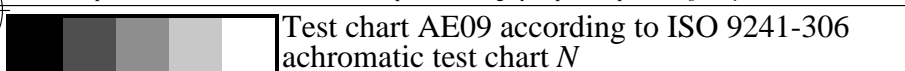
AE090-3, picture A1Wdd: Element A: radial gratings N-W, W-N, N-Z, and W-Z; PS operator: *rgb/cmy0/w/000n*



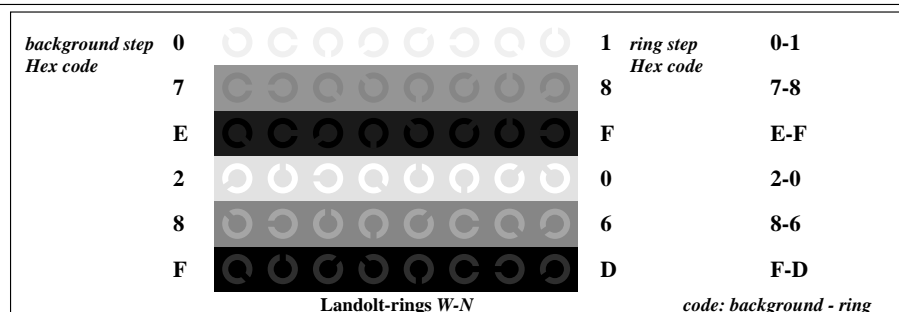
AE090-5, picture A2Wdd: Element B: 5 visual equidistant L\*-grey steps + N0 + W1; PS operator: *rgb/cmy0/w/000n*



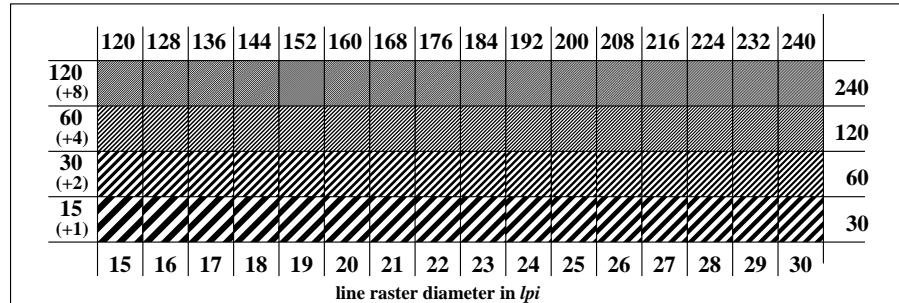
AE090-7, picture A3Wdd: Element C: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*



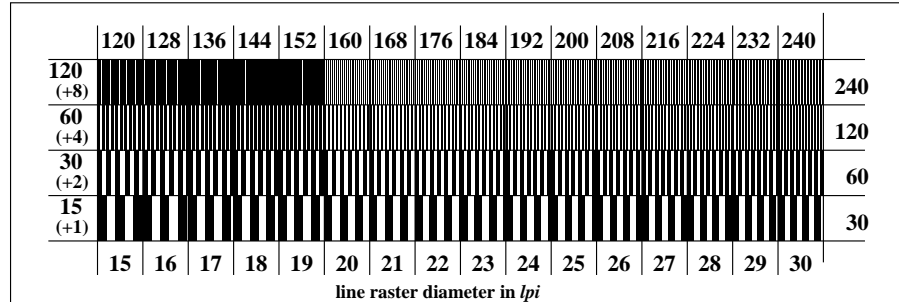
Test chart AE09 according to ISO 9241-306  
achromatic test chart N



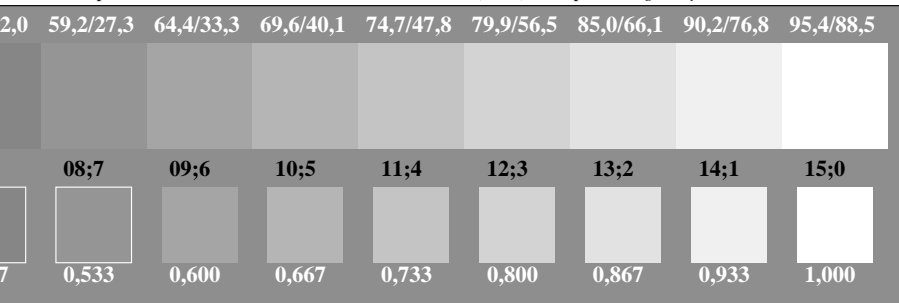
AE091-1, picture A4Wdd: Element D: Landolt-rings W-N; PS operator: *rgb/cmy0/w/000n*



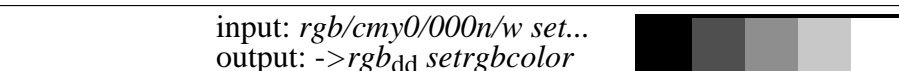
AE091-3, picture A5Wdd: Element E: Line raster under 45° (or 135°); PS-operator: *rgb/cmy0/w/000n*



AE091-5, picture A6Wdd: Element F: Line raster under 90° (or 0°); PS-operator: *rgb/cmy0/w/000n*



AE091-7, picture A7Wdd: Element G: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*



AE091-9, picture A9Wdd: Element H: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-11, picture A11Wdd: Element I: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-13, picture A13Wdd: Element J: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-15, picture A15Wdd: Element K: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-17, picture A17Wdd: Element L: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-19, picture A19Wdd: Element M: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-21, picture A21Wdd: Element N: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-23, picture A23Wdd: Element O: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-25, picture A25Wdd: Element P: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-27, picture A27Wdd: Element Q: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-29, picture A29Wdd: Element R: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-31, picture A31Wdd: Element S: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-33, picture A33Wdd: Element T: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-35, picture A35Wdd: Element U: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-37, picture A37Wdd: Element V: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-39, picture A39Wdd: Element W: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-41, picture A41Wdd: Element X: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-43, picture A43Wdd: Element Y: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-45, picture A45Wdd: Element Z: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-47, picture A47Wdd: Element AA: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-49, picture A49Wdd: Element AB: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-51, picture A51Wdd: Element AC: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-53, picture A53Wdd: Element AD: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-55, picture A55Wdd: Element AE: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-57, picture A57Wdd: Element AF: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-59, picture A59Wdd: Element AG: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-61, picture A61Wdd: Element AH: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-63, picture A63Wdd: Element AI: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-65, picture A65Wdd: Element AJ: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-67, picture A67Wdd: Element AK: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-69, picture A69Wdd: Element AL: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-71, picture A71Wdd: Element AM: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-73, picture A73Wdd: Element AN: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-75, picture A75Wdd: Element AO: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-77, picture A77Wdd: Element AP: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-79, picture A79Wdd: Element AQ: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-81, picture A81Wdd: Element AR: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-83, picture A83Wdd: Element AS: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-85, picture A85Wdd: Element AT: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-87, picture A87Wdd: Element AU: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-89, picture A89Wdd: Element AV: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-91, picture A91Wdd: Element AW: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-93, picture A93Wdd: Element AX: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-95, picture A95Wdd: Element AY: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-97, picture A97Wdd: Element AZ: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-99, picture A99Wdd: Element BA: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-101, picture A101Wdd: Element BB: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-103, picture A103Wdd: Element BC: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-105, picture A105Wdd: Element BD: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-107, picture A107Wdd: Element BE: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-109, picture A109Wdd: Element BF: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-111, picture A111Wdd: Element BG: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-113, picture A113Wdd: Element BH: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-115, picture A115Wdd: Element BI: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-117, picture A117Wdd: Element BJ: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-119, picture A119Wdd: Element BK: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-121, picture A121Wdd: Element BL: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-123, picture A123Wdd: Element BM: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-125, picture A125Wdd: Element BN: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-127, picture A127Wdd: Element BO: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-129, picture A129Wdd: Element BP: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-131, picture A131Wdd: Element BQ: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-133, picture A133Wdd: Element BR: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-135, picture A135Wdd: Element BS: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-137, picture A137Wdd: Element BT: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-139, picture A139Wdd: Element BU: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-141, picture A141Wdd: Element BV: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-143, picture A143Wdd: Element BW: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-145, picture A145Wdd: Element BX: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-147, picture A147Wdd: Element BY: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-149, picture A149Wdd: Element BZ: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-151, picture A151Wdd: Element CA: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-153, picture A153Wdd: Element CB: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-155, picture A155Wdd: Element CC: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-157, picture A157Wdd: Element CD: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-159, picture A159Wdd: Element CE: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-161, picture A161Wdd: Element CF: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-163, picture A163Wdd: Element CG: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-165, picture A165Wdd: Element CH: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-167, picture A167Wdd: Element CI: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-169, picture A169Wdd: Element CJ: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-171, picture A171Wdd: Element CK: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

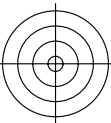
AE091-173, picture A173Wdd: Element CL: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-175, picture A175Wdd: Element CM: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

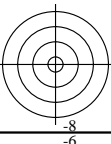
AE091-177, picture A177Wdd: Element CN: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-179, picture A179Wdd: Element CO: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*

AE091-181, picture A181Wdd: Element CP: 1



see similar files: [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY6\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY6_1.PDF)  
 technical information: <http://farbe.li.tu-berlin.de/> or [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY6\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY6_1.PDF)



<http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 8/24  
 F: 3D-linearization AE09/AE09LF0PX.PDF / .PS in file (F)



**Test of visual linearized output of pictures A1W<sub>dd</sub> to A3W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of the radial grating according to picture A1W<sub>dd</sub>**

N-W-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-N-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

N-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

**Test of 5 visual equidistant L\*-grey steps according to picture A2W<sub>dd</sub>**  
 Are the 5 steps on the upper rows distinguishable? **Yes/No**  
 If No: How many steps can be distinguished? ..... Steps

**Test of 16 visual equidistant L\*-grey steps according to picture A3W<sub>dd</sub>**  
 Are the 16 steps on the upper rows distinguishable? **Yes/No**  
 If No: How many steps can be distinguished? ..... Steps

part 1, AE090-3dd: 01021

**Documentation of file format, hardware and software for this test:**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY6\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY6_1.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY6\\_1.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY6_1.PS) **underline: Yes/No**

**Used computer operating system:**  
 either one of Windows/Mac/Unix/other and version:.....

**This evaluation is for the output:** **underline: monitor/data projector/printer**  
 Device model, driver and version:.....

**output with PDF/PS-file:** **underline: PDF/PS file**

**For output with PDF file AE09F0PX\_CY6\_1.PDF**  
 either PDF-file transfer "download, copy" to PDF device.....  
 or with computer system interpretation by "Display-PDF":.....  
 or with software e. g. Adobe-Reader/-Acrobat and version:.....  
 or with software e. g. Ghostscript and version:.....

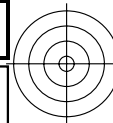
**For output with PS file AE09F0PX\_CY6\_1.PS**  
 either PS-file transfer "download, copy" to PS device.....  
 or with computer system interpretation by "Display-PS":.....  
 or with software e. g. Ghostscript and version:.....  
 or with software e. g. Mac-Yap and version:.....

Special remarks: e. g. output of Landscape (L)  
 .....  
 .....

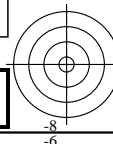
part 3, AE090-7dd: 01021



Form A: Test chart AE09 according to ISO 9241-306  
 achromatic test chart N



TUB Registration: 20190301-AE09/AE09L0FA.TXT / .PS  
 application for measurement or viewing of display and print output  
 TUB material: code=th4ta



**Test of visual linearized output of pictures A4W<sub>dd</sub> to A6W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of Landolt rings N-W according to picture A4W<sub>dd</sub>**  
 Is the recognition frequency of the Landolt rings > 50% (5 of 8 at least)?

<b>background - ring</b>	
0 - 1	<b>Yes/No</b>
7 - 8	<b>Yes/No</b>
E - F	<b>Yes/No</b>
2 - 0	<b>Yes/No</b>
8 - 6	<b>Yes/No</b>
F - D	<b>Yes/No</b>

**Test of the radial grating under 45° according to picture A5W<sub>dd</sub>**  
 Can equally spaced lines be seen? **Yes/No**  
 Visual testing: for radial diameter from 15 to 60 lpi **Yes/No**  
 Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

**Test of the radial grating under 90° according to picture A6W<sub>dd</sub>**  
 Can equally spaced lines be seen? **Yes/No**  
 Visual testing: for radial diameter from 15 to 60 lpi **Yes/No**  
 Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

part 2, AE091-3dd: 01021

**Documentation of assessor colour-vision properties for visual assessment**

The assessor has **normal** colour vision according to one test: **underline: Yes/No**  
 either according to DIN 6160:1996 with Anomaloskop of Nagel **underline: Yes/unknown**  
 or with test charts using colour points according to Ishihara **underline: Yes/unknown**  
 or tested with, please specify: ..... **underline: Yes/unknown**

**For visual evaluation of the display (Monitor, data projector) output**

Office workplace illumination is daylight (clouded/north sky) **underline: Yes/No**  
**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY6\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY6_3.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY6\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY6_3.PS) **underline: Yes/No**

**picture A7<sub>dd</sub> contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)  
 compare standard print output according to ISO/IEC 15775 with range F:0 **underline: Yes/No**  
 Remark: In daylighted offices the contrast range is in many cases:  
 on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

**Only for optional colorimetric specification with PDF/PS file output**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY6\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY6_3.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY6\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY6_3.PS) **underline: Yes/No**  
**picture A7<sub>dd</sub>** **or underline: Yes/No**

**colour measurement and specification for:**  
 CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline: Yes/No**  
 If No, please give other parameters: .....

**Colorimetric specification for 17 step colours of** <http://farbe.li.tu-berlin.de/OE70/OE70L1NP.PDF>  
 Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer  
 of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline: Yes/No**  
 If No, please describe other method: .....

part 4, AE091-7dd: 01021

input: *rgb/cmy0/000n/w set...*  
 output: *->rgb<sub>dd</sub> setrgbcolor*





see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 9/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE09.HTM>

i	LAB <sup>*</sup> <sub>ref</sub>	L <sup>*</sup> <sub>out</sub>	LAB <sup>*</sup> <sub>out</sub>	LAB <sup>*</sup> <sub>out-ref</sub>	ΔE <sup>*</sup>	Start output S1
1	10,99 0,00 0,00	0,00	10,99 0,00 0,00	0,00 0,00 0,00	0,01	Specification according to
2	16,62 0,00 0,00	0,13	22,51 0,00 0,00	5,89 0,00 0,00	5,89	ISO/IEC 15775 Annex G
3	22,24 0,00 0,00	0,22	30,17 0,00 0,00	7,93 0,00 0,00	7,93	and DIN 33866-1 Annex G
4	27,87 0,00 0,00	0,30	36,84 0,00 0,00	8,96 0,00 0,00	8,96	
5	33,50 0,00 0,00	0,37	42,93 0,00 0,00	9,42 0,00 0,00	9,42	
6	39,13 0,00 0,00	0,44	48,62 0,00 0,00	9,49 0,00 0,00	9,49	
7	44,75 0,00 0,00	0,50	54,02 0,00 0,00	9,26 0,00 0,00	9,26	
8	50,38 0,00 0,00	0,57	59,19 0,00 0,00	8,80 0,00 0,00	8,80	
9	56,01 0,00 0,00	0,62	64,16 0,00 0,00	8,15 0,00 0,00	8,15	
10	61,64 0,00 0,00	0,68	68,97 0,00 0,00	7,33 0,00 0,00	7,33	
11	67,27 0,00 0,00	0,74	73,64 0,00 0,00	6,37 0,00 0,00	6,37	
12	72,89 0,00 0,00	0,79	78,19 0,00 0,00	5,29 0,00 0,00	5,29	
13	78,52 0,00 0,00	0,84	82,63 0,00 0,00	4,10 0,00 0,00	4,10	
14	84,15 0,00 0,00	0,90	86,97 0,00 0,00	2,82 0,00 0,00	2,82	
15	89,78 0,00 0,00	0,95	91,23 0,00 0,00	1,45 0,00 0,00	1,45	
16	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	
17	10,99 0,00 0,00	0,00	10,99 0,00 0,00	0,00 0,00 0,00	0,01	
18	32,09 0,00 0,00	0,36	41,45 0,00 0,00	9,35 0,00 0,00	9,35	
19	53,20 0,00 0,00	0,60	61,70 0,00 0,00	8,50 0,00 0,00	8,50	
20	74,30 0,00 0,00	0,80	79,31 0,00 0,00	5,00 0,00 0,00	5,00	
21	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	

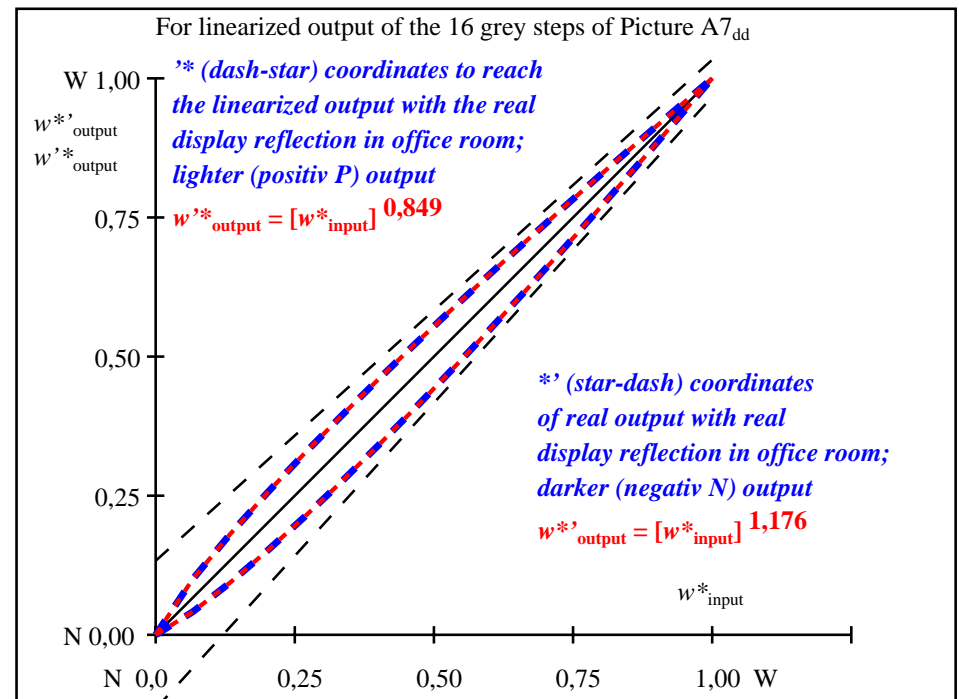
Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 5,9$

Mean lightness difference (5 steps)  
 $\Delta L^*_{\text{CIELAB}} = 4,5$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 74,1$

part 1,

AE090-3dd: 01022



AE091-3dd: 01022

$L^*/Y_{\text{intended}}$ (absolute)	10,9/1,2	16,6/2,2	22,2/3,5	27,8/5,4	33,5/7,7	39,1/10,7	44,7/14,3	50,3/18,7	56,0/23,9	61,6/29,9	67,2/36,9	72,8/45,0	78,5/54,1	84,1/64,3	89,7/75,8	95,4/88,5
0 0 0 n <sup>*</sup> setcmyk gp=0,849 No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^{*} = l^{*}_{\text{CIELAB}, r}$ (relative)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^{*}_{\text{intended}}$ $w^{*}_{\text{output}}$	0,000 0,000	0,067 0,100	0,133 0,180	0,200 0,254	0,267 0,325	0,333 0,392	0,400 0,458	0,467 0,523	0,533 0,585	0,600 0,647	0,667 0,708	0,733 0,767	0,800 0,827	0,867 0,885	0,933 0,942	1,000 1,000

part 3, picture A7<sub>dd</sub>: 16 visual equidistant L<sup>\*</sup>-grey steps; PS operator: 0 0 0 n<sup>\*</sup> setcmykcolor

AE090-7dd: 01022

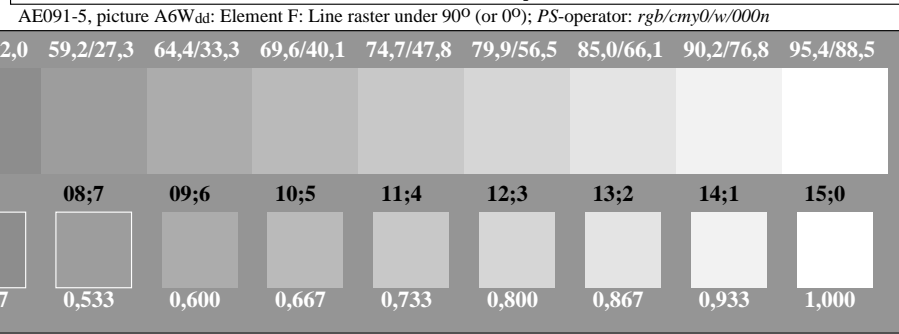
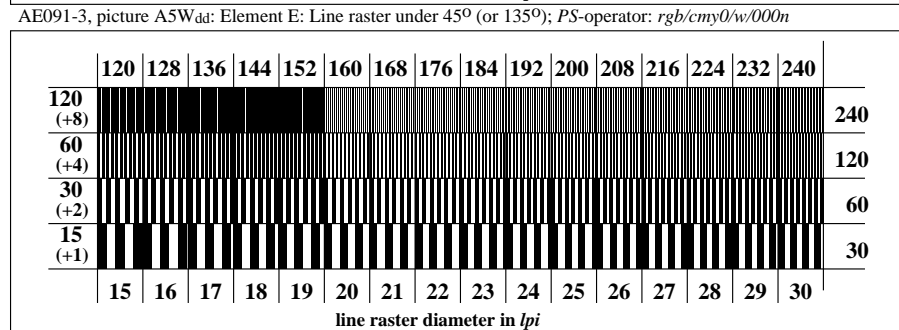
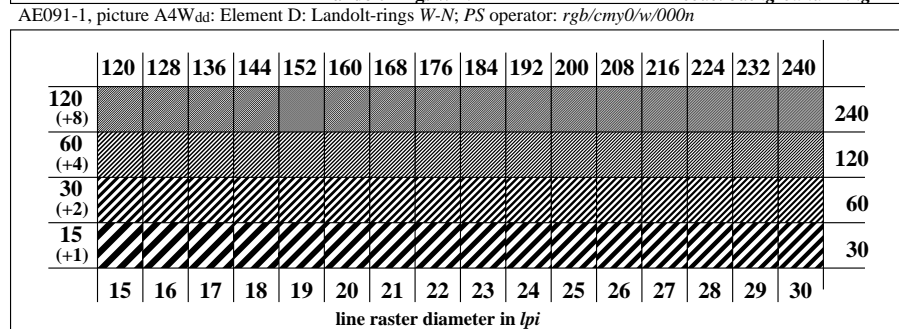
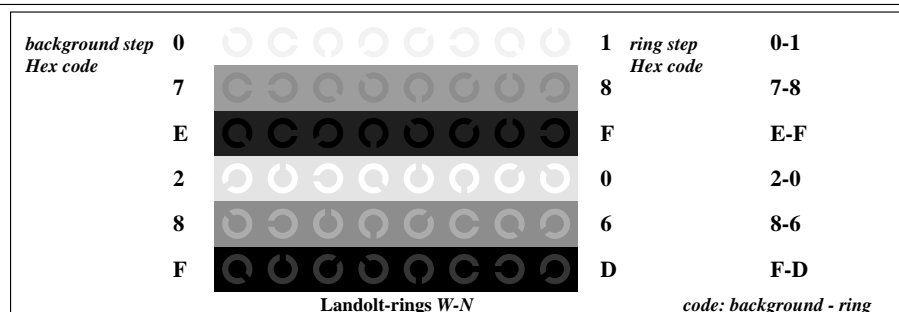
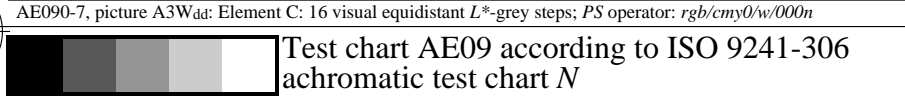
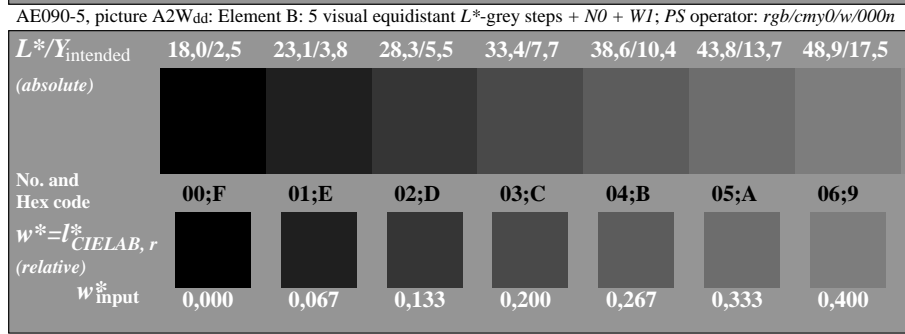
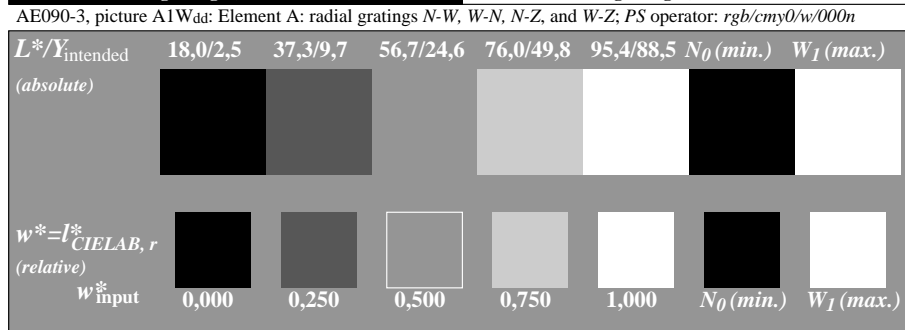
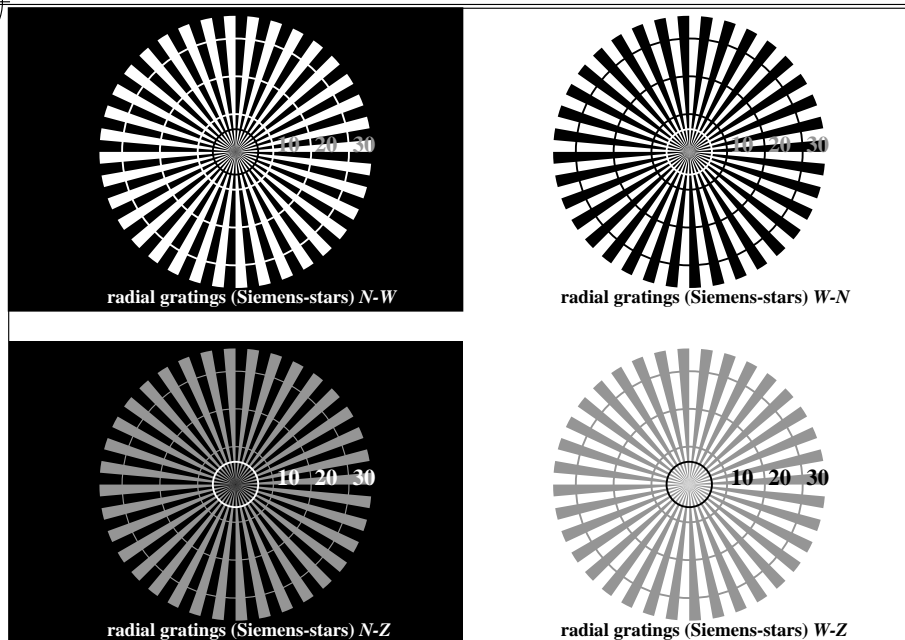
In-out: Test chart AE09 according to ISO 9241-306  
Viewing Y contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$ -range 0,93 to <1,87

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 10/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta



input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*



see similar files: [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY5\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY5_1.PDF)  
technical information: <http://farbe.li.tu-berlin.de/> or [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY5\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY5_1.PDF)

<http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 11/24  
F: 3D-linearization AE09/AE09LF0PX.PDF / .PS in file (F)

**Test of visual linearized output of pictures A1W<sub>dd</sub> to A3W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of the radial grating according to picture A1W<sub>dd</sub>**

N-W-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-N-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

N-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

**Test of 5 visual equidistant L\*-grey steps according to picture A2W<sub>dd</sub>**  
Are the 5 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 5 steps:

**Test of 16 visual equidistant L\*-grey steps according to picture A3W<sub>dd</sub>**  
Are the 16 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 16 steps:

part 1, AE090-3dd: 01031

**Documentation of file format, hardware and software for this test:**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY5\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY5_1.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY5\\_1.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY5_1.PS) **underline: Yes/No**

**Used computer operating system:**

either one of Windows/Mac/Unix/other and version:.....

**This evaluation is for the output:** **underline: monitor/data projector/printer**

Device model, driver and version:.....

**output with PDF/PS-file:** **underline: PDF/PS file**

**For output with PDF file AE09F0PX\_CY5\_1.PDF**

either PDF-file transfer "download, copy" to PDF device.....  
or with computer system interpretation by "Display-PDF":.....  
or with software e. g. Adobe-Reader/-Acrobat and version:.....  
or with software e. g. Ghostscript and version:.....

**For output with PS file AE09F0PX\_CY5\_1.PS**

either PS-file transfer "download, copy" to PS device.....  
or with computer system interpretation by "Display-PS":.....  
or with software e. g. Ghostscript and version:.....  
or with software e. g. Mac-Yap and version:.....

Special remarks: e. g. output of Landscape (L)

.....  
.....  
.....

part 3,

AE090-7dd: 01031

Form A: Test chart AE09 according to ISO 9241-306  
achromatic test chart N

**Test of visual linearized output of pictures A4W<sub>dd</sub> to A6W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of Landolt rings N-W according to picture A4W<sub>dd</sub>**

Is the recognition frequency of the Landolt rings > 50% (5 of 8 at least)?

**background - ring**

0 - 1 **Yes/No**  
7 - 8 **Yes/No**  
E - F **Yes/No**  
2 - 0 **Yes/No**  
8 - 6 **Yes/No**  
F - D **Yes/No**

**Test of the radial grating under 45° according to picture A5W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

**Test of the radial grating under 90° according to picture A6W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

part 2,

AE091-3dd: 01031

**Documentation of assessor colour-vision properties for visual assessment**

The assessor has **normal** colour vision according to one test:  
either according to DIN 6160:1996 with Anomaloskop of Nagel  
or with test charts using colour points according to Ishihara  
or tested with, please specify: .....

**underline: Yes/No**  
**underline: Yes/unknown**  
**underline: Yes/unknown**  
**underline: Yes/unknown**

**For visual evaluation of the display (Monitor, data projector) output**

Office workplace illumination is daylight (clouded/north sky)

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY5\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY5_3.PDF)

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY5\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY5_3.PS)

**picture A7<sub>dd</sub> contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0

**Remark: In daylighted offices the contrast range is in many cases:  
on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)**

**Only for optional colorimetric specification with PDF/PS file output**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY5\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY5_3.PDF)

**picture A7<sub>dd</sub>** **underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY5\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY5_3.PS)

**picture A7<sub>dd</sub>** **or underline: Yes/No**

**colour measurement and specification for:**

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry:

If No, please give other parameters: .....

**Colorimetric specification for 17 step colours of** <http://farbe.li.tu-berlin.de/OE70/OE70L1NP.PDF>

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer

of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF

If No, please describe other method: .....

**underline: Yes/No**

part 4,

AE091-7dd: 01031

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

TUB Registration: 20190301-AE09/AE09L0FA.TXT / .PS  
application for measurement or viewing of display and print output  
TUB material: code=rh4ta

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 12/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE09F0PX.PDF> in file (F)

i	LAB* <sub>ref</sub>	L* <sub>out</sub>	LAB* <sub>out</sub>	LAB* <sub>out-ref</sub>	ΔE*
1	18,00 0,00 0,00	0,00	18,00 0,00 0,00	0,00 0,00 0,00	0,01
2	23,16 0,00 0,00	0,17	31,34 0,00 0,00	8,17 0,00 0,00	8,17
3	28,32 0,00 0,00	0,27	38,92 0,00 0,00	10,59 0,00 0,00	10,59
4	33,48 0,00 0,00	0,35	45,22 0,00 0,00	11,73 0,00 0,00	11,73
5	38,64 0,00 0,00	0,42	50,81 0,00 0,00	12,16 0,00 0,00	12,16
6	43,80 0,00 0,00	0,48	55,93 0,00 0,00	12,12 0,00 0,00	12,12
7	48,96 0,00 0,00	0,55	60,70 0,00 0,00	11,73 0,00 0,00	11,73
8	54,12 0,00 0,00	0,60	65,19 0,00 0,00	11,06 0,00 0,00	11,06
9	59,28 0,00 0,00	0,66	69,46 0,00 0,00	10,17 0,00 0,00	10,17
10	64,44 0,00 0,00	0,71	73,55 0,00 0,00	9,11 0,00 0,00	9,11
11	69,60 0,00 0,00	0,76	77,49 0,00 0,00	7,88 0,00 0,00	7,88
12	74,76 0,00 0,00	0,81	81,29 0,00 0,00	6,52 0,00 0,00	6,52
13	79,92 0,00 0,00	0,86	84,96 0,00 0,00	5,03 0,00 0,00	5,03
14	85,08 0,00 0,00	0,91	88,54 0,00 0,00	3,45 0,00 0,00	3,45
15	90,24 0,00 0,00	0,95	92,01 0,00 0,00	1,76 0,00 0,00	1,76
16	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01
17	18,00 0,00 0,00	0,00	18,00 0,00 0,00	0,00 0,00 0,00	0,01
18	37,35 0,00 0,00	0,40	49,47 0,00 0,00	12,11 0,00 0,00	12,11
19	56,70 0,00 0,00	0,63	67,35 0,00 0,00	10,64 0,00 0,00	10,64
20	76,05 0,00 0,00	0,82	82,22 0,00 0,00	6,16 0,00 0,00	6,16
21	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01

**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

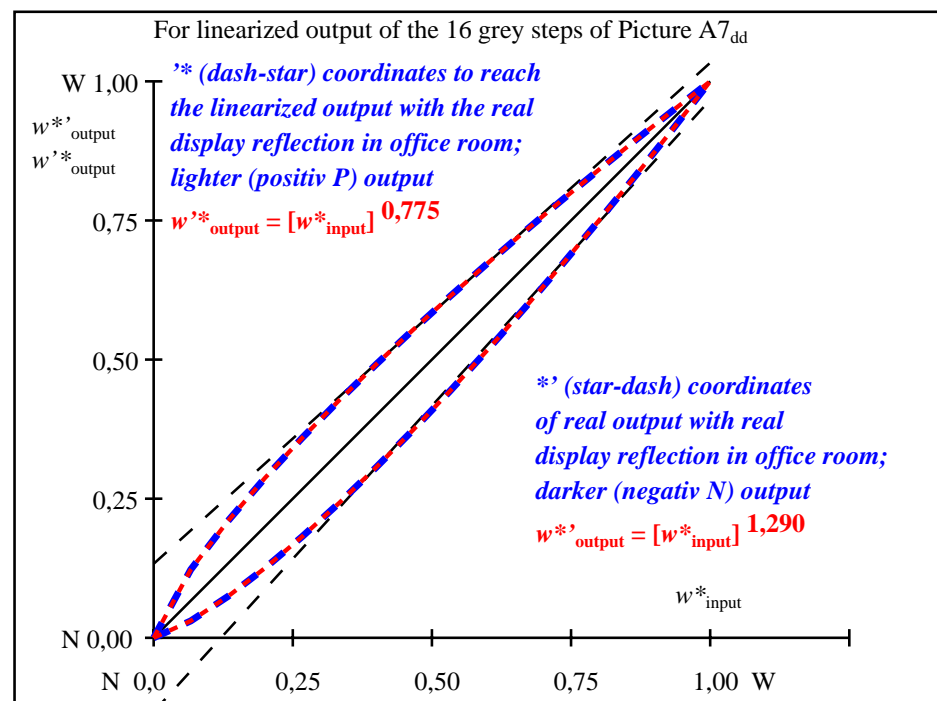
Mean lightness difference (16 steps)  
 $\Delta E^*_{CIELAB} = 7,5$

Mean lightness difference (5 steps)  
 $\Delta L^*_{CIELAB} = 5,7$

Mean colour reproduction index:  $R^*_{ab,m} = 67,0$

part 1,

AE090-3dd: 01032



part 2,

AE091-3dd: 01032

$L^*/Y^*_{intended}$ (absolute)	18,0/2,5	23,1/3,8	28,3/5,5	33,4/7,7	38,6/10,4	43,8/13,7	48,9/17,5	54,1/22,0	59,2/27,3	64,4/33,3	69,6/40,1	74,7/47,9	79,9/56,5	85,0/66,1	90,2/76,8	95,4/88,5
0 0 0 n* setcmyk gp=0,775 No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB,r}$ (relative)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{intended}$ $w^*_{output}$	0,000 0,000	0,067 0,123	0,133 0,209	0,200 0,287	0,267 0,359	0,333 0,426	0,400 0,491	0,467 0,554	0,533 0,614	0,600 0,673	0,667 0,730	0,733 0,786	0,800 0,841	0,867 0,895	0,933 0,947	1,000 1,000

part 3, picture A7<sub>dd</sub>: 16 visual equidistant L\*-grey steps; PS operator: 0 0 0 n\* setcmykcolor

AE090-7dd: 01032

In-out: Test chart AE09 according to ISO 9241-306  
Viewing Y contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$ -range 1,87 to <3,75

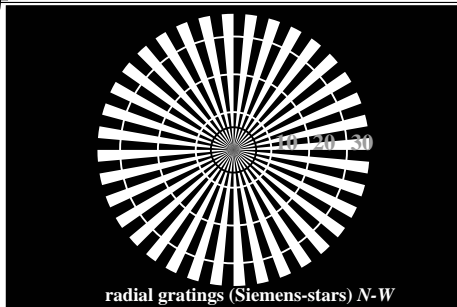
input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

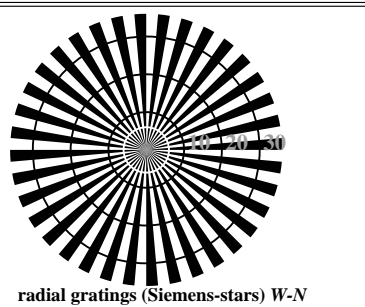


see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 13/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>

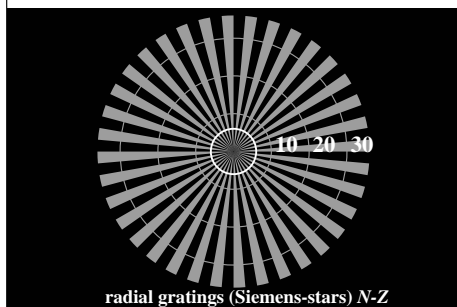
TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta



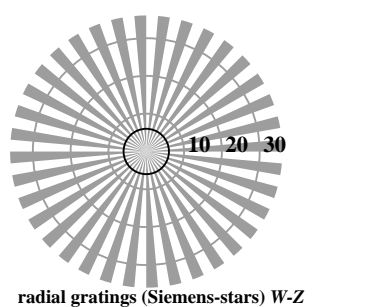
radial gratings (Siemens-stars) N-W



radial gratings (Siemens-stars) W-N

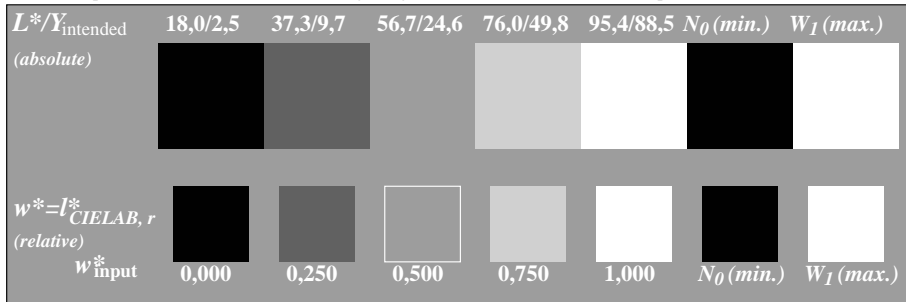


radial gratings (Siemens-stars) N-Z

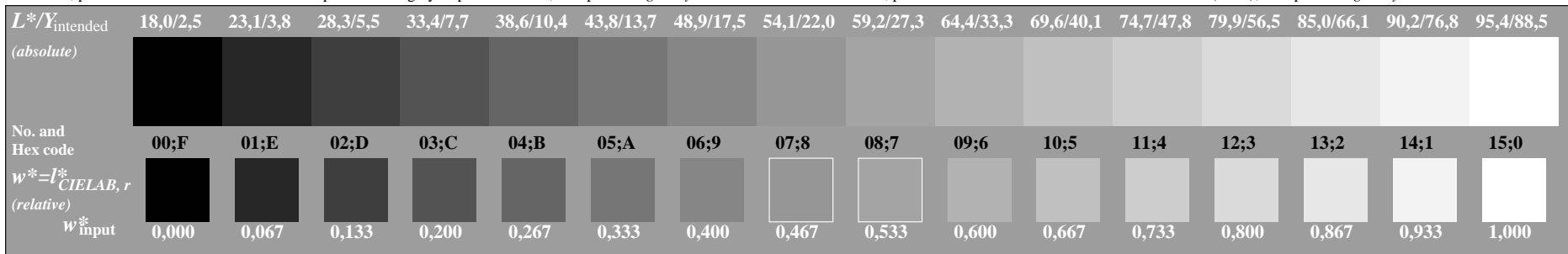


radial gratings (Siemens-stars) W-Z

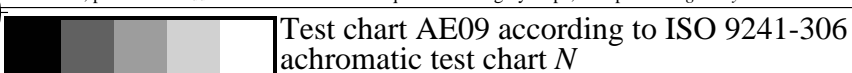
AE090-3, picture A1Wdd: Element A: radial gratings N-W, W-N, N-Z, and W-Z; PS operator: *rgb/cmy0/w/000n*



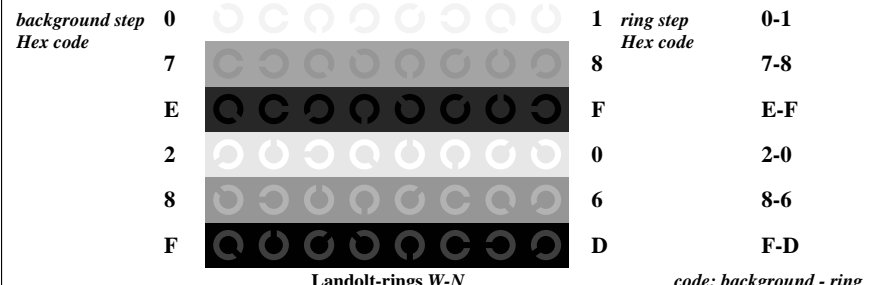
AE090-5, picture A2Wdd: Element B: 5 visual equidistant  $L^*$ -grey steps +  $N_0$  +  $W_1$ ; PS operator: *rgb/cmy0/w/000n*



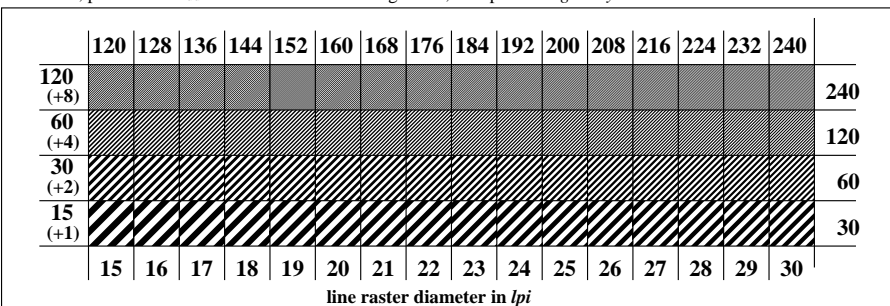
AE090-7, picture A3Wdd: Element C: 16 visual equidistant  $L^*$ -grey steps; PS operator: *rgb/cmy0/w/000n*



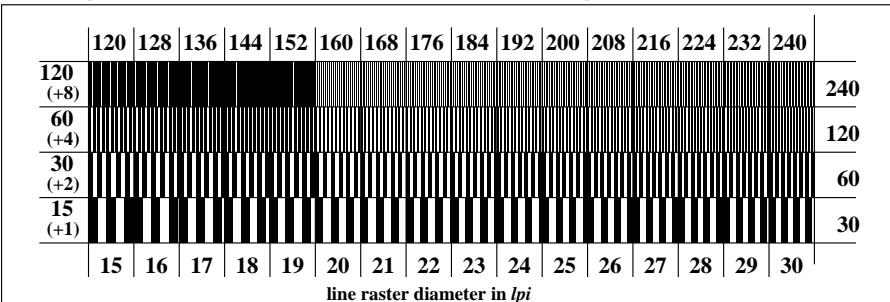
Test chart AE09 according to ISO 9241-306  
achromatic test chart N



AE091-1, picture A4Wdd: Element D: Landolt-rings W-N; PS operator: *rgb/cmy0/w/000n*

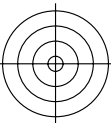


AE091-3, picture A5Wdd: Element E: Line raster under 45° (or 135°); PS-operator: *rgb/cmy0/w/000n*

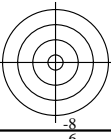


AE091-5, picture A6Wdd: Element F: Line raster under 90° (or 0°); PS-operator: *rgb/cmy0/w/000n*

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*



see similar files: [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY4\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY4_1.PDF)  
 technical information: <http://farbe.li.tu-berlin.de/> or [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY4\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY4_1.PDF)



<http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 14/24  
 F: 3D-linearization AE09/AE09LF0PX.PDF / .PS in file (F)



**Test of visual linearized output of pictures A1W<sub>dd</sub> to A3W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of the radial grating according to picture A1W<sub>dd</sub>**

N-W-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-N-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

N-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

**Test of 5 visual equidistant L\*-grey steps according to picture A2W<sub>dd</sub>**  
 Are the 5 steps on the upper rows distinguishable? **Yes/No**  
 If No: How many steps can be distinguished? ..... Steps  
 of the given 5 steps:

**Test of 16 visual equidistant L\*-grey steps according to picture A3W<sub>dd</sub>**  
 Are the 16 steps on the upper rows distinguishable? **Yes/No**  
 If No: How many steps can be distinguished? ..... Steps  
 of the given 16 steps:

part 1, AE090-3dd: 01041

**Documentation of file format, hardware and software for this test:**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY4\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY4_1.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY4\\_1.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY4_1.PS) **underline: Yes/No**

**Used computer operating system:**  
 either one of Windows/Mac/Unix/other and version:.....

**This evaluation is for the output:** **underline: monitor/data projector/printer**  
 Device model, driver and version:.....

**output with PDF/PS-file:** **underline: PDF/PS file**

**For output with PDF file AE09F0PX\_CY4\_1.PDF**  
 either PDF-file transfer "download, copy" to PDF device.....  
 or with computer system interpretation by "Display-PDF":.....  
 or with software. e. g. Adobe-Reader/-Acrobat and version:.....  
 or with software e. g. Ghostscript and version:.....

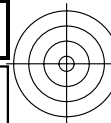
**For output with PS file AE09F0PX\_CY4\_1.PS**  
 either PS-file transfer "download, copy" to PS device.....  
 or with computer system interpretation by "Display-PS":.....  
 or with software e. g. Ghostscript and version:.....  
 or with software e. g. Mac-Yap and version:.....

Special remarks: e. g. output of Landscape (L)  
 .....  
 .....  
 .....

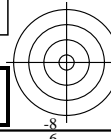
part 3, AE090-7dd: 01041



Form A: Test chart AE09 according to ISO 9241-306  
 achromatic test chart N



TUB Registration: 20190301-AE09/AE09L0FA.TXT / .PS  
 application for measurement or viewing of display and print output  
 TUB material: code=th4ta



**Test of visual linearized output of pictures A4W<sub>dd</sub> to A6W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of Landolt rings N-W according to picture A4W<sub>dd</sub>**  
 Is the recognition frequency of the Landolt rings > 50% (5 of 8 at least)?

background - ring	Yes/No
0 - 1	Yes/No
7 - 8	Yes/No
E - F	Yes/No
2 - 0	Yes/No
8 - 6	Yes/No
F - D	Yes/No

**Test of the radial grating under 45° according to picture A5W<sub>dd</sub>**  
 Can equally spaced lines be seen? **Yes/No**  
 Visual testing: for radial diameter from 15 to 60 lpi ..... lpi  
 Test with magnifying glass (e.g. 6x) - from 15 to

**Test of the radial grating under 90° according to picture A6W<sub>dd</sub>**  
 Can equally spaced lines be seen? **Yes/No**  
 Visual testing: for radial diameter from 15 to 60 lpi ..... lpi  
 Test with magnifying glass (e.g. 6x) - from 15 to

part 2, AE091-3dd: 01041

**Documentation of assessor colour-vision properties for visual assessment**

The assessor has **normal** colour vision according to one test: **underline: Yes/No**  
 either according to DIN 6160:1996 with Anomaloskop of Nagel **underline: Yes/unknown**  
 or with test charts using colour points according to Ishihara **underline: Yes/unknown**  
 or tested with, please specify: ..... **underline: Yes/unknown**

**For visual evaluation of the display (Monitor, data projector) output**

Office workplace illumination is daylight (clouded/north sky) **underline: Yes/No**  
**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY4\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY4_3.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY4\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY4_3.PS) **underline: Yes/No**

**picture A7<sub>dd</sub> contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)  
 compare standard print output according to ISO/IEC 15775 with range F:0 **underline: Yes/No**  
 Remark: In daylighted offices the contrast range is in many cases:  
 on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

**Only for optional colorimetric specification with PDF/PS file output**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY4\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY4_3.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY4\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY4_3.PS) **underline: Yes/No**  
**picture A7<sub>dd</sub>** **or underline: Yes/No**

**colour measurement and specification for:**  
 CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline: Yes/No**  
 If No, please give other parameters: .....

**Colorimetric specification for 17 step colours of** <http://farbe.li.tu-berlin.de/OE70/OE70L1NP.PDF>  
 Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer  
 of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline: Yes/No**  
 If No, please describe other method: .....

part 4, AE091-7dd: 01041

input: *rgb/cmy0/000n/w set...*  
 output: *->rgb<sub>dd</sub> setrgbcolor*



see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 15/24  
technical information: <http://farbe.li.tu-berlin.de/AE09/AE09LF0PX.PDF> / .PS in file (F)

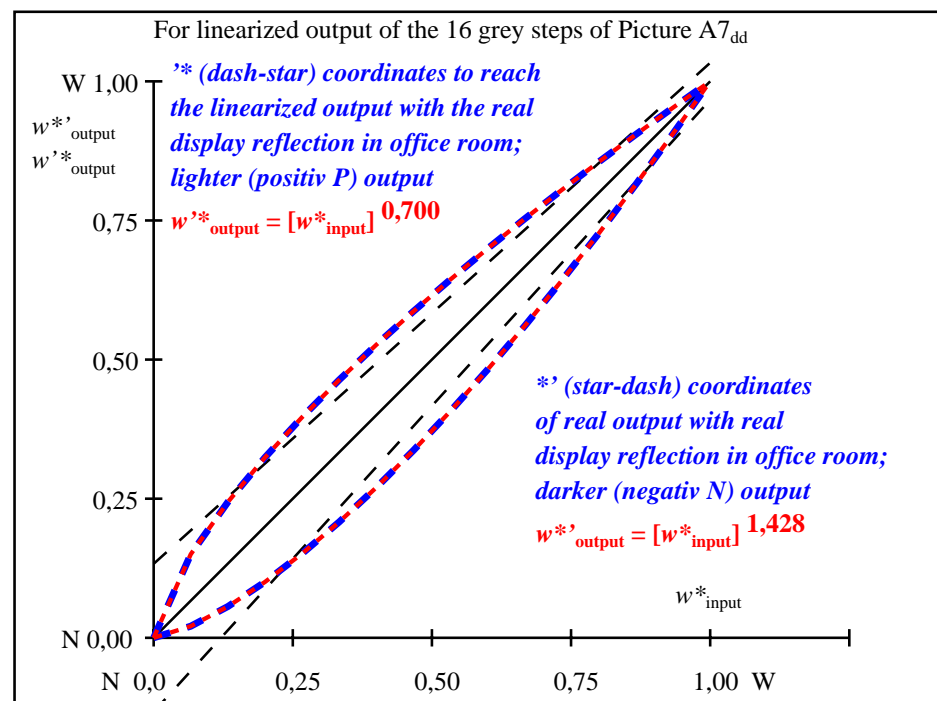
TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

i	LAB <sup>*</sup> <sub>ref</sub>	L <sup>*</sup> <sub>out</sub>	LAB <sup>*</sup> <sub>out</sub>	LAB <sup>*</sup> <sub>out-ref</sub>	ΔE <sup>*</sup>	Start output S1
1	26,84 0,00 0,00	0,00	26,84 0,00 0,00	0,00 0,00 0,00	0,01	Specification according to
2	31,41 0,00 0,00	0,20	41,04 0,00 0,00	9,62 0,00 0,00	9,62	ISO/IEC 15775 Annex G
3	35,98 0,00 0,00	0,30	48,09 0,00 0,00	12,10 0,00 0,00	12,10	and DIN 33866-1 Annex G
4	40,56 0,00 0,00	0,39	53,74 0,00 0,00	13,18 0,00 0,00	13,18	
5	45,13 0,00 0,00	0,46	58,64 0,00 0,00	13,51 0,00 0,00	13,51	
6	49,70 0,00 0,00	0,52	63,04 0,00 0,00	13,34 0,00 0,00	13,34	
7	54,27 0,00 0,00	0,58	67,09 0,00 0,00	12,82 0,00 0,00	12,82	
8	58,84 0,00 0,00	0,64	70,86 0,00 0,00	12,02 0,00 0,00	12,02	
9	63,41 0,00 0,00	0,69	74,42 0,00 0,00	11,00 0,00 0,00	11,00	
10	67,98 0,00 0,00	0,74	77,79 0,00 0,00	9,80 0,00 0,00	9,80	
11	72,55 0,00 0,00	0,78	81,01 0,00 0,00	8,45 0,00 0,00	8,45	
12	77,12 0,00 0,00	0,83	84,09 0,00 0,00	6,97 0,00 0,00	6,97	
13	81,69 0,00 0,00	0,87	87,06 0,00 0,00	5,37 0,00 0,00	5,37	
14	86,26 0,00 0,00	0,92	89,93 0,00 0,00	3,66 0,00 0,00	3,66	Mean lightness difference
15	90,83 0,00 0,00	0,96	92,71 0,00 0,00	1,87 0,00 0,00	1,87	(16 steps)
16	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	ΔE <sup>*</sup> <sub>CIELAB</sub> = 8,3
17	26,84 0,00 0,00	0,00	26,84 0,00 0,00	0,00 0,00 0,00	0,01	
18	43,98 0,00 0,00	0,44	57,47 0,00 0,00	13,48 0,00 0,00	13,48	
19	61,12 0,00 0,00	0,66	72,66 0,00 0,00	11,54 0,00 0,00	11,54	Mean lightness difference
20	78,26 0,00 0,00	0,84	84,85 0,00 0,00	6,58 0,00 0,00	6,58	(5 steps)
21	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	ΔL <sup>*</sup> <sub>CIELAB</sub> = 6,3

Mean colour reproduction index:  $R^*_{ab,m} = 63,7$

part 1,

AE090-3dd: 01042



part 2,

AE091-3dd: 01042

$L^*/Y_{intended}$ (absolute)	26,8/5,0	31,4/6,8	35,9/9,0	40,5/11,5	45,1/14,6	49,7/18,1	54,2/22,2	58,8/26,8	63,4/32,0	67,9/37,9	72,5/44,4	77,1/51,7	81,6/59,7	86,2/68,5	90,8/78,1	95,4/88,5
0 0 0 n*																
setcmyk																
gp=0,700																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB,r}$ (relative)																
$w^*_{intended}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{output}$	0,000	0,150	0,243	0,324	0,396	0,463	0,526	0,586	0,643	0,699	0,753	0,804	0,855	0,904	0,952	1,000

part 3, picture A7<sub>dd</sub>: 16 visual equidistant L<sup>\*</sup>-grey steps; PS operator: 0 0 0 n\* setcmykcolor

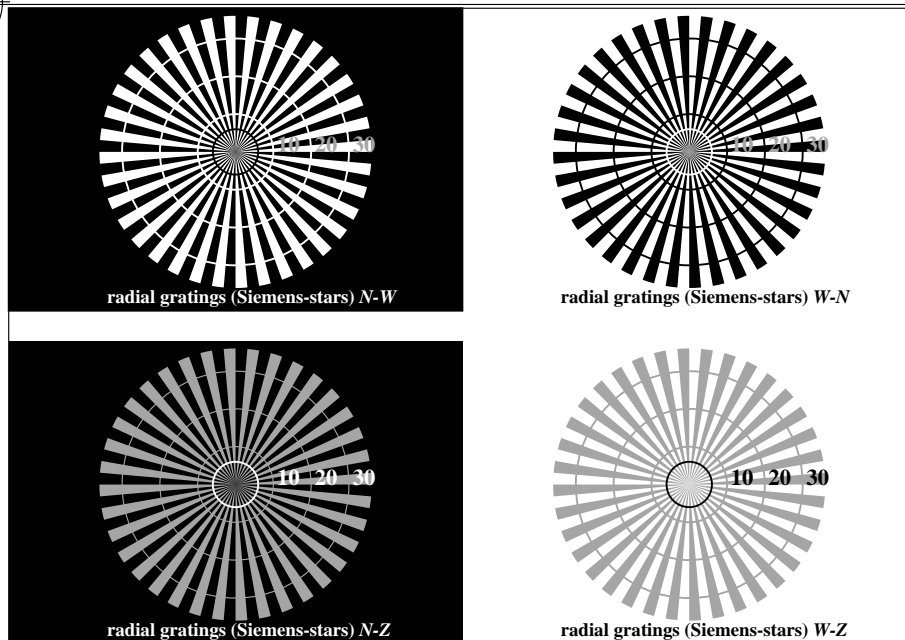
AE090-7dd: 01042

In-out: Test chart AE09 according to ISO 9241-306  
Viewing Y contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$ -range 3,75 to <7,5

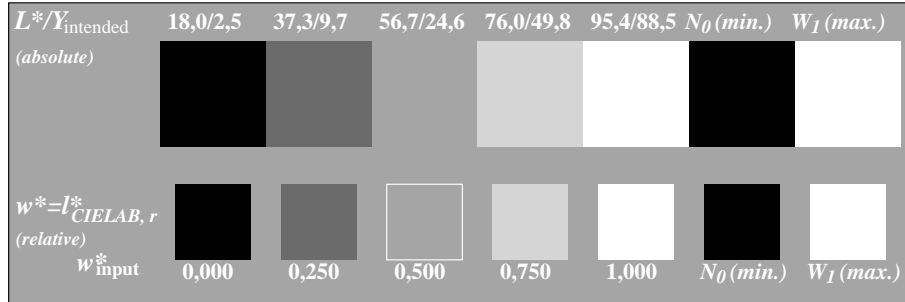
input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 16/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>

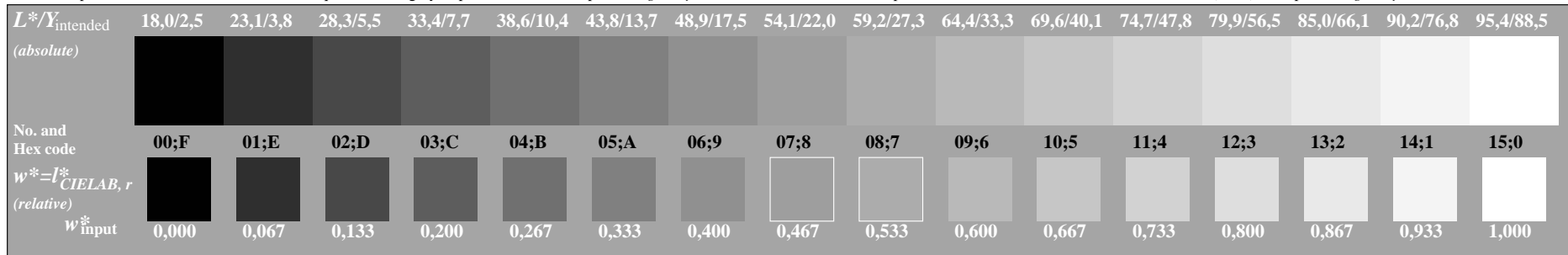
TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta



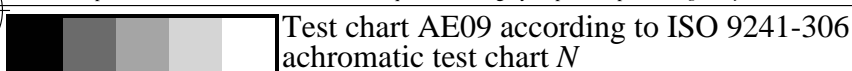
AE090-3, picture A1Wdd: Element A: radial gratings N-W, W-N, N-Z, and W-Z; PS operator: *rgb/cmy0/w/000n*



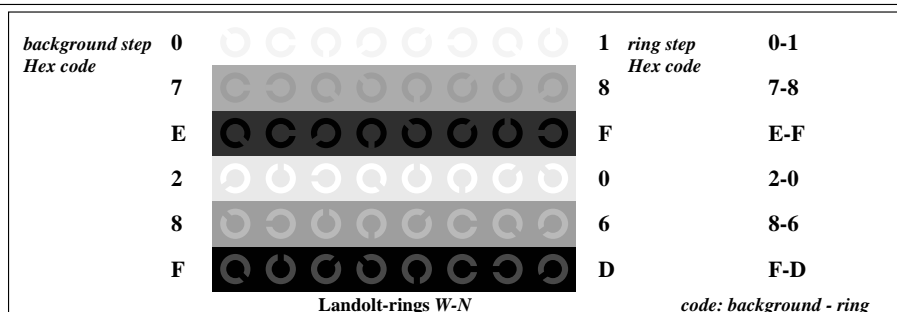
AE090-5, picture A2Wdd: Element B: 5 visual equidistant L\*-grey steps + N0 + W1; PS operator: *rgb/cmy0/w/000n*



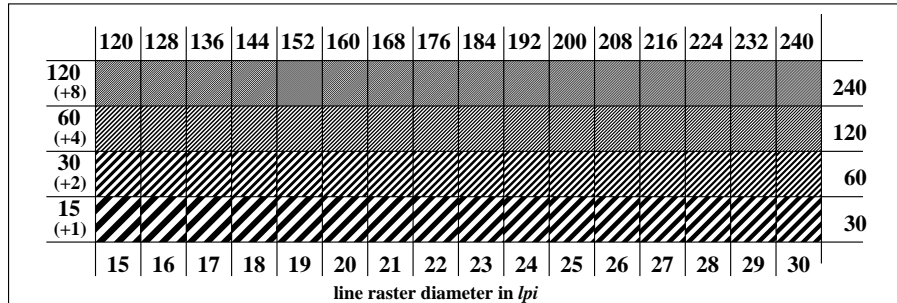
AE090-7, picture A3Wdd: Element C: 16 visual equidistant L\*-grey steps; PS operator: *rgb/cmy0/w/000n*



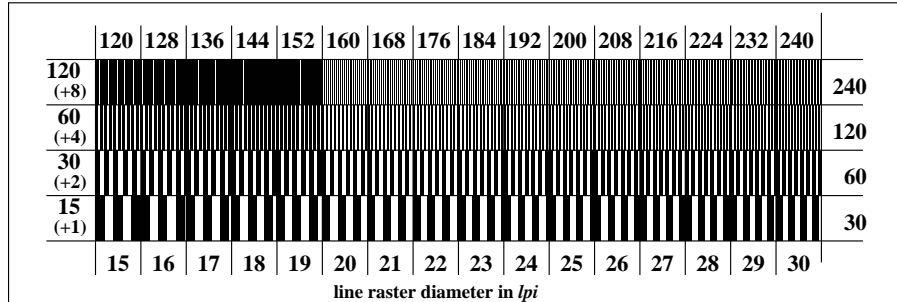
Test chart AE09 according to ISO 9241-306  
achromatic test chart N



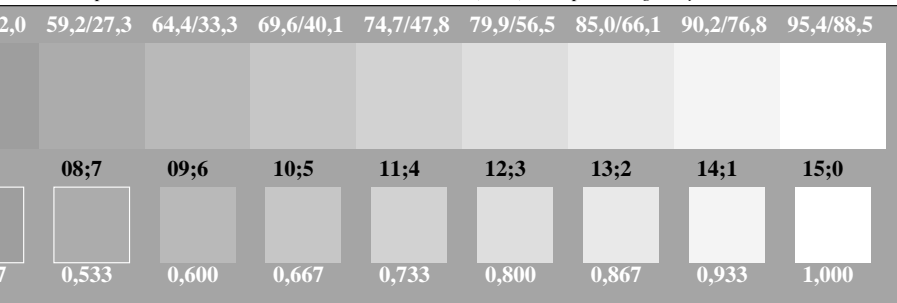
AE091-1, picture A4Wdd: Element D: Landolt-rings W-N; PS operator: *rgb/cmy0/w/000n*



AE091-3, picture A5Wdd: Element E: Line raster under 45° (or 135°); PS-operator: *rgb/cmy0/w/000n*

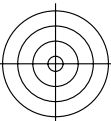


AE091-5, picture A6Wdd: Element F: Line raster under 90° (or 0°); PS-operator: *rgb/cmy0/w/000n*

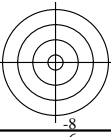


input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

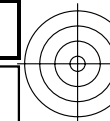




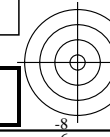
see similar files: [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY3\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY3_1.PDF)  
 technical information: <http://farbe.li.tu-berlin.de/> or [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY3\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY3_1.PDF)



<http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 17/24  
 F: 3D-linearization AE09/AE09LF0PX.PDF / .PS in file (F)



TUB Registration: 20190301-AE09/AE09L0FA.TXT / .PS  
 application for measurement or viewing of display and print output  
 TUB material: code=th4ta



**Test of visual linearized output of pictures A1W<sub>dd</sub> to A3W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of the radial grating according to picture A1W<sub>dd</sub>**

N-W-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-N-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

N-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
 Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

**Test of 5 visual equidistant L\*-grey steps according to picture A2W<sub>dd</sub>**  
 Are the 5 steps on the upper rows distinguishable? **Yes/No**  
 If No: How many steps can be distinguished? ..... Steps

**Test of 16 visual equidistant L\*-grey steps according to picture A3W<sub>dd</sub>**  
 Are the 16 steps on the upper rows distinguishable? **Yes/No**  
 If No: How many steps can be distinguished? ..... Steps

part 1, AE090-3dd: 01051

**Documentation of file format, hardware and software for this test:**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY3\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY3_1.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY3\\_1.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY3_1.PS) **underline: Yes/No**

**Used computer operating system:**  
 either one of Windows/Mac/Unix/other and version:.....

**This evaluation is for the output:** **underline: monitor/data projector/printer**  
 Device model, driver and version:.....

**output with PDF/PS-file:** **underline: PDF/PS file**

**For output with PDF file AE09F0PX\_CY3\_1.PDF**  
 either PDF-file transfer "download, copy" to PDF device.....  
 or with computer system interpretation by "Display-PDF":.....  
 or with software e. g. Adobe-Reader/-Acrobat and version:.....  
 or with software e. g. Ghostscript and version:.....

**For output with PS file AE09F0PX\_CY3\_1.PS**  
 either PS-file transfer "download, copy" to PS device.....  
 or with computer system interpretation by "Display-PS":.....  
 or with software e. g. Ghostscript and version:.....  
 or with software e. g. Mac-Yap and version:.....

Special remarks: e. g. output of Landscape (L)  
 .....  
 .....

part 3, AE090-7dd: 01051



Form A: Test chart AE09 according to ISO 9241-306  
 achromatic test chart N

**Test of visual linearized output of pictures A4W<sub>dd</sub> to A6W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of Landolt rings N-W according to picture A4W<sub>dd</sub>**  
 Is the recognition frequency of the Landolt rings > 50% (5 of 8 at least)?

<b>background - ring</b>	
0 - 1	<b>Yes/No</b>
7 - 8	<b>Yes/No</b>
E - F	<b>Yes/No</b>
2 - 0	<b>Yes/No</b>
8 - 6	<b>Yes/No</b>
F - D	<b>Yes/No</b>

**Test of the radial grating under 45° according to picture A5W<sub>dd</sub>**  
 Can equally spaced lines be seen? **Yes/No**  
 Visual testing: for radial diameter from 15 to 60 lpi ..... lpi  
 Test with magnifying glass (e.g. 6x) - from 15 to

**Test of the radial grating under 90° according to picture A6W<sub>dd</sub>**  
 Can equally spaced lines be seen? **Yes/No**  
 Visual testing: for radial diameter from 15 to 60 lpi ..... lpi  
 Test with magnifying glass (e.g. 6x) - from 15 to

part 2, AE091-3dd: 01051

**Documentation of assessor colour-vision properties for visual assessment**

The assessor has **normal** colour vision according to one test: **underline: Yes/No**  
 either according to DIN 6160:1996 with Anomaloskop of Nagel **underline: Yes/unknown**  
 or with test charts using colour points according to Ishihara **underline: Yes/unknown**  
 or tested with, please specify: ..... **underline: Yes/unknown**

**For visual evaluation of the display (Monitor, data projector) output**

Office workplace illumination is daylight (clouded/north sky) **underline: Yes/No**  
**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY3\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY3_3.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY3\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY3_3.PS) **underline: Yes/No**

**picture A7<sub>dd</sub> contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)  
 compare standard print output according to ISO/IEC 15775 with range F:0 **underline: Yes/No**  
 Remark: In daylighted offices the contrast range is in many cases:  
 on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

**Only for optional colorimetric specification with PDF/PS file output**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY3\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY3_3.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY3\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY3_3.PS) **underline: Yes/No**  
**picture A7<sub>dd</sub>** **or underline: Yes/No**

**colour measurement and specification for:**  
 CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline: Yes/No**  
 If No, please give other parameters: .....

**Colorimetric specification for 17 step colours of** <http://farbe.li.tu-berlin.de/OE70/OE70L1NP.PDF>  
 Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer  
 of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline: Yes/No**  
 If No, please describe other method: .....

part 4, AE091-7dd: 01051



input: *rgb/cmy0/000n/w set...*  
 output: *->rgb<sub>dd</sub> setrgbcolor*

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 18/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE09F0PX.PDF> in file (F)

i	LAB* <sub>ref</sub>	L* <sub>out</sub>	LAB* <sub>out</sub>	LAB* <sub>out-ref</sub>	ΔE*	Start output S1
1	37,98 0,00 0,00	0,00	37,98 0,00 0,00	0,00 0,00 0,00	0,01	Specification according to
2	41,81 0,00 0,00	0,24	51,79 0,00 0,00	9,97 0,00 0,00	9,97	ISO/IEC 15775 Annex G
3	45,64 0,00 0,00	0,34	57,87 0,00 0,00	12,22 0,00 0,00	12,22	and DIN 33866-1 Annex G
4	49,47 0,00 0,00	0,42	62,60 0,00 0,00	13,13 0,00 0,00	13,13	
5	53,29 0,00 0,00	0,49	66,62 0,00 0,00	13,32 0,00 0,00	13,32	
6	57,12 0,00 0,00	0,56	70,19 0,00 0,00	13,06 0,00 0,00	13,06	
7	60,95 0,00 0,00	0,61	73,43 0,00 0,00	12,48 0,00 0,00	12,48	
8	64,78 0,00 0,00	0,66	76,43 0,00 0,00	11,65 0,00 0,00	11,65	
9	68,61 0,00 0,00	0,71	79,23 0,00 0,00	10,62 0,00 0,00	10,62	
10	72,44 0,00 0,00	0,76	81,87 0,00 0,00	9,43 0,00 0,00	9,43	
11	76,26 0,00 0,00	0,80	84,37 0,00 0,00	8,10 0,00 0,00	8,10	
12	80,09 0,00 0,00	0,84	86,76 0,00 0,00	6,66 0,00 0,00	6,66	
13	83,92 0,00 0,00	0,88	89,04 0,00 0,00	5,12 0,00 0,00	5,12	
14	87,75 0,00 0,00	0,92	91,24 0,00 0,00	3,49 0,00 0,00	3,49	
15	91,58 0,00 0,00	0,96	93,36 0,00 0,00	1,78 0,00 0,00	1,78	
16	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	
17	37,98 0,00 0,00	0,00	37,98 0,00 0,00	0,00 0,00 0,00	0,01	
18	52,34 0,00 0,00	0,48	65,66 0,00 0,00	13,32 0,00 0,00	13,32	
19	66,69 0,00 0,00	0,69	77,85 0,00 0,00	11,15 0,00 0,00	11,15	
20	81,05 0,00 0,00	0,85	87,34 0,00 0,00	6,28 0,00 0,00	6,28	
21	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	

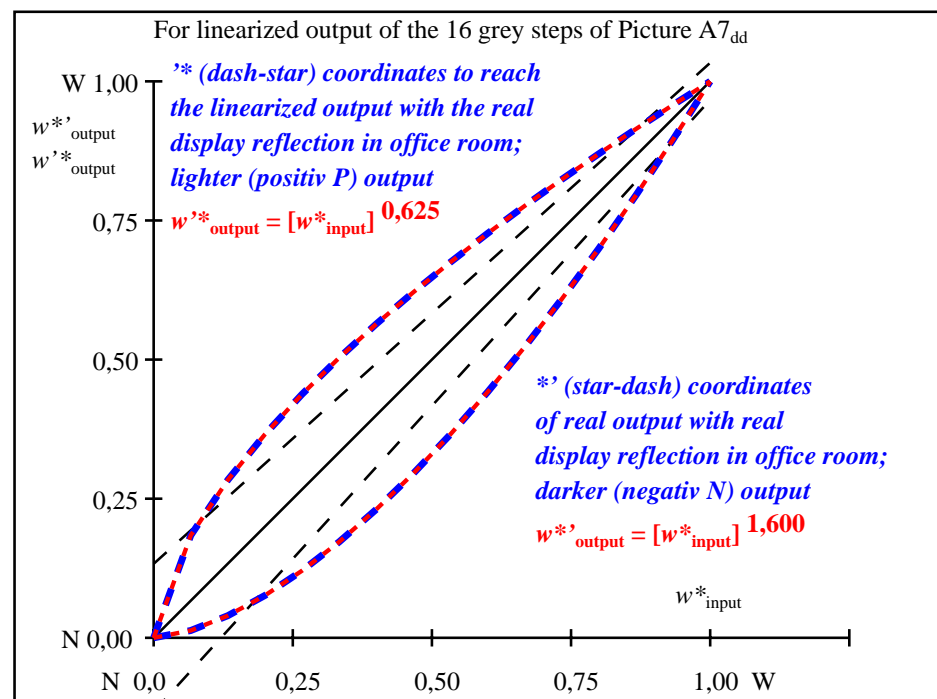
Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 8,1$

Mean lightness difference (5 steps)  
 $\Delta L^*_{\text{CIELAB}} = 6,1$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 64,5$

part 1,

AE090-3dd: 01052



part 2,

AE091-3dd: 01052

$L^*/Y_{\text{intended}}$ (absolute)	37,9/10,0	41,8/12,3	45,6/15,0	49,4/17,9	53,2/21,3	57,1/25,0	60,9/29,1	64,7/33,7	68,6/38,8	72,4/44,3	76,2/50,3	80,0/56,8	83,9/63,9	87,7/71,5	91,5/79,7	95,4/88,5
0 0 0 n* setcmyk gp=0,625 No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{\text{CIELAB}, r}$ (relative)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{\text{intended}}$ $w^*_{\text{output}}$	0,000 0,000	0,067 0,184	0,133 0,283	0,200 0,365	0,267 0,438	0,333 0,502	0,400 0,564	0,467 0,621	0,533 0,674	0,600 0,726	0,667 0,776	0,733 0,823	0,800 0,869	0,867 0,914	0,933 0,957	1,000 1,000

part 3, picture A7<sub>dd</sub>: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

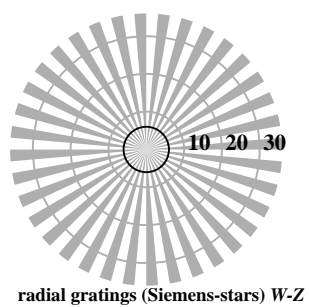
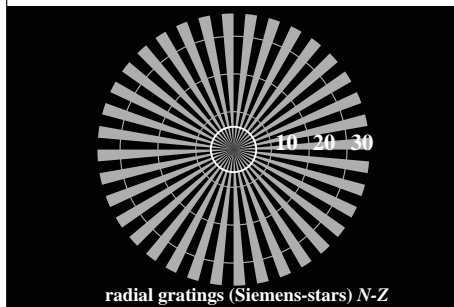
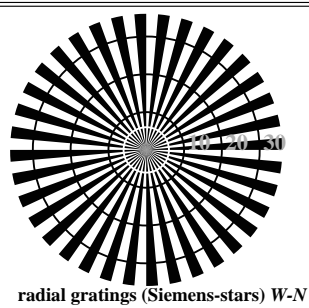
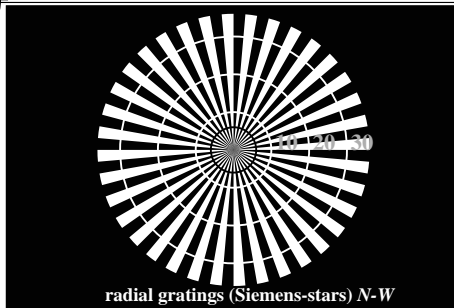
AE090-7dd: 01052

In-out: Test chart AE09 according to ISO 9241-306  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$ -range 7,5 to <15

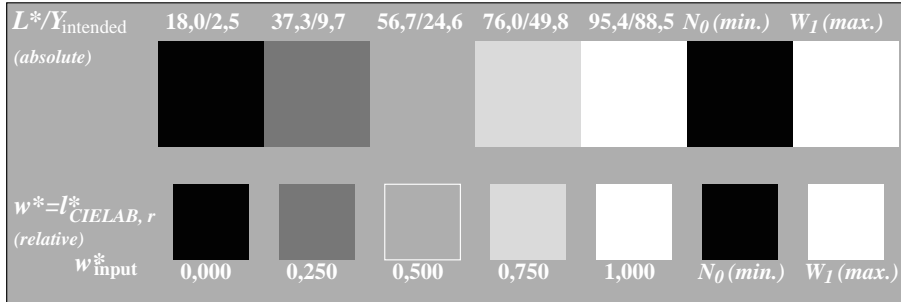
input:  $rgb/cmy0/000n/w$  set...  
output:  $->rgb_{dd}$  setrgbcolor

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

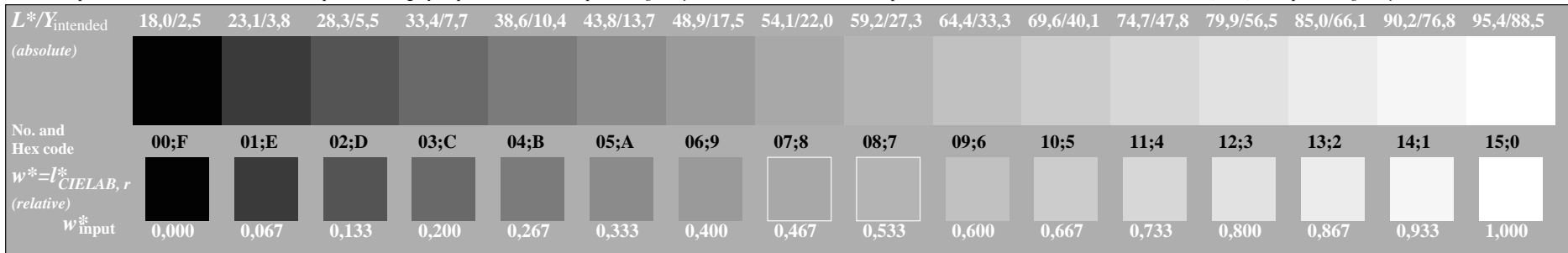
see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 19/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>



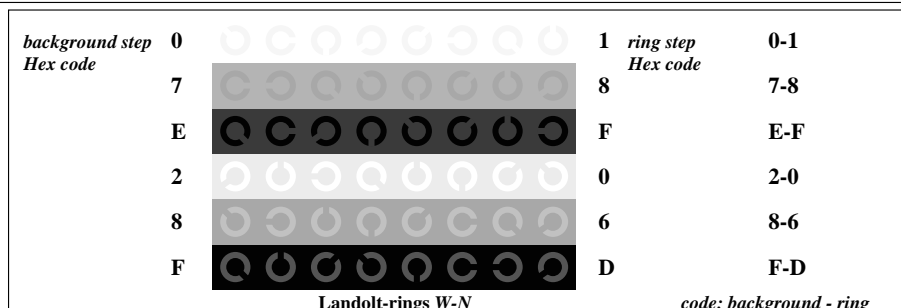
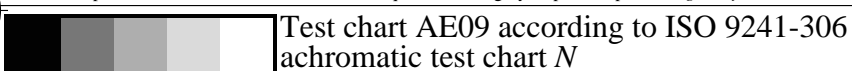
AE090-3, picture A1Wdd: Element A: radial gratings N-W, W-N, N-Z, and W-Z; PS operator: *rgb/cmy0/w/000n*



AE090-5, picture A2Wdd: Element B: 5 visual equidistant  $L^*$ -grey steps +  $N_0$  +  $W_1$ ; PS operator: *rgb/cmy0/w/000n*



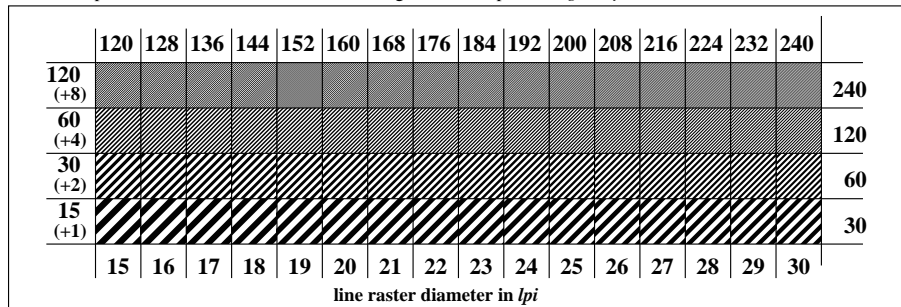
AE090-7, picture A3Wdd: Element C: 16 visual equidistant  $L^*$ -grey steps; PS operator: *rgb/cmy0/w/000n*



Landolt-rings W-N

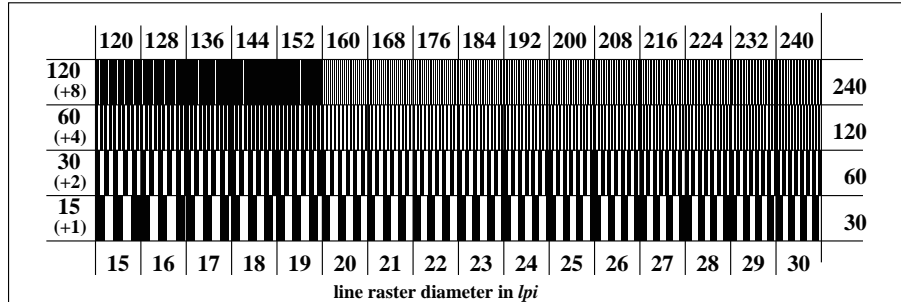
code: background - ring

AE091-1, picture A4Wdd: Element D: Landolt-rings W-N; PS operator: *rgb/cmy0/w/000n*



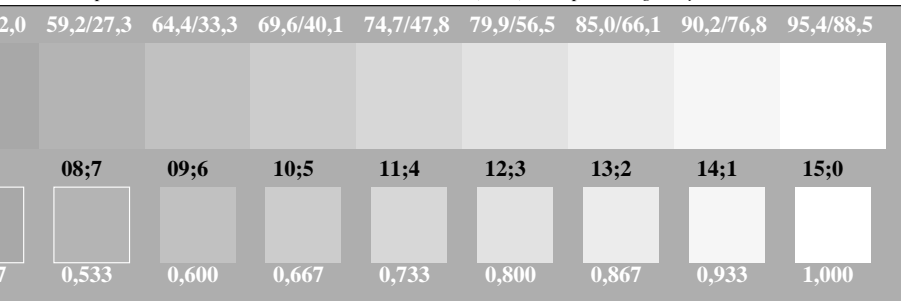
line raster diameter in lpi

AE091-3, picture A5Wdd: Element E: Line raster under 45° (or 135°); PS-operator: *rgb/cmy0/w/000n*



line raster diameter in lpi

AE091-5, picture A6Wdd: Element F: Line raster under 90° (or 0°); PS-operator: *rgb/cmy0/w/000n*



input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

see similar files: [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY2\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY2_1.PDF) / .PS; 3D-linearization, page 20/24  
technical information: <http://farbe.li.tu-berlin.de/> or [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY2\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY2_1.PDF) / .PS in file (F)

<http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 20/24  
F: 3D-linearization AE09/AE09LF0PX.PDF / .PS in file (F)

**Test of visual linearized output of pictures A1W<sub>dd</sub> to A3W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of the radial grating according to picture A1W<sub>dd</sub>**

N-W-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-N-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

N-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

**Test of 5 visual equidistant L\*-grey steps according to picture A2W<sub>dd</sub>**  
Are the 5 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 5 steps:

**Test of 16 visual equidistant L\*-grey steps according to picture A3W<sub>dd</sub>**  
Are the 16 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 16 steps:

part 1, AE090-3dd: 01061

**Documentation of file format, hardware and software for this test:**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY2\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY2_1.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY2\\_1.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY2_1.PS) **underline: Yes/No**

**Used computer operating system:**

either one of Windows/Mac/Unix/other and version:.....

**This evaluation is for the output:** **underline: monitor/data projector/printer**

Device model, driver and version:.....

**output with PDF/PS-file:** **underline: PDF/PS file**

**For output with PDF file AE09F0PX\_CY2\_1.PDF**

either PDF-file transfer "download, copy" to PDF device.....  
or with computer system interpretation by "Display-PDF":.....  
or with software e. g. Adobe-Reader/-Acrobat and version:.....  
or with software e. g. Ghostscript and version:.....

**For output with PS file AE09F0PX\_CY2\_1.PS**

either PS-file transfer "download, copy" to PS device.....  
or with computer system interpretation by "Display-PS":.....  
or with software e. g. Ghostscript and version:.....  
or with software e. g. Mac-Yap and version:.....

Special remarks: e. g. output of Landscape (L)

.....  
.....  
.....

part 3, AE090-7dd: 01061

Form A: Test chart AE09 according to ISO 9241-306  
achromatic test chart N

**Test of visual linearized output of pictures A4W<sub>dd</sub> to A6W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of Landolt rings N-W according to picture A4W<sub>dd</sub>**

Is the recognition frequency of the Landolt rings > 50% (5 of 8 at least)?

**background - ring**

0 - 1 **Yes/No**  
7 - 8 **Yes/No**  
E - F **Yes/No**  
2 - 0 **Yes/No**  
8 - 6 **Yes/No**  
F - D **Yes/No**

**Test of the radial grating under 45° according to picture A5W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

**Test of the radial grating under 90° according to picture A6W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

part 2, AE091-3dd: 01061

**Documentation of assessor colour-vision properties for visual assessment**

The assessor has **normal** colour vision according to one test:  
either according to DIN 6160:1996 with Anomaloskop of Nagel  
or with test charts using colour points according to Ishihara  
or tested with, please specify: .....

**underline: Yes/No**  
**underline: Yes/unknown**  
**underline: Yes/unknown**  
**underline: Yes/unknown**

**For visual evaluation of the display (Monitor, data projector) output**

Office workplace illumination is daylight (clouded/north sky)

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY2\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY2_3.PDF) **underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY2\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY2_3.PS) **underline: Yes/No**

**picture A7<sub>dd</sub> contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0 **underline: Yes/No**

*Remark: In daylighted offices the contrast range is in many cases:  
on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)*

**Only for optional colorimetric specification with PDF/PS file output**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY2\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY2_3.PDF)

**picture A7<sub>dd</sub>** **underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY2\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY2_3.PS)

**picture A7<sub>dd</sub>** **or underline: Yes/No**

**colour measurement and specification for:**

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry:

**underline: Yes/No**

If No, please give other parameters: .....

**Colorimetric specification for 17 step colours of** <http://farbe.li.tu-berlin.de/OE70/OE70L1NP.PDF>

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer

of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF

**underline: Yes/No**

If No, please describe other method: .....

part 4, AE091-7dd: 01061

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

TUB Registration: 20190301-AE09/AE09L0FA.TXT / .PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta



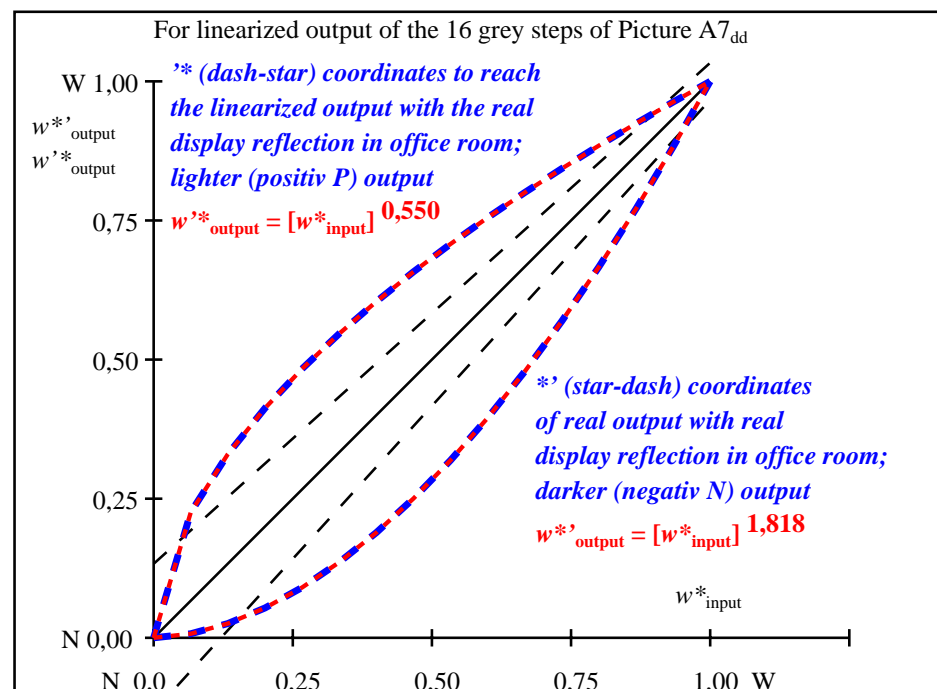
see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 21/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE09F0PX.PDF> / .PS in file (F)

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta

<i>i</i>	$LAB^*_{ref}$	$L^*_{out}$	$LAB^*_{out}$	$LAB^*_{out-ref}$	$\Delta E^*$	Start output S1
1	52,01 0,00 0,00	0,00	52,01 0,00 0,00	0,00 0,00 0,00	0,01	Specification according to
2	54,91 0,00 0,00	0,27	63,82 0,00 0,00	8,90 0,00 0,00	8,90	ISO/IEC 15775 Annex G
3	57,80 0,00 0,00	0,37	68,48 0,00 0,00	10,68 0,00 0,00	10,68	and DIN 33866-1 Annex G
4	60,69 0,00 0,00	0,46	72,03 0,00 0,00	11,33 0,00 0,00	11,33	
5	63,58 0,00 0,00	0,52	75,00 0,00 0,00	11,41 0,00 0,00	11,41	
6	66,48 0,00 0,00	0,58	77,60 0,00 0,00	11,12 0,00 0,00	11,12	
7	69,37 0,00 0,00	0,64	79,94 0,00 0,00	10,57 0,00 0,00	10,57	
8	72,26 0,00 0,00	0,69	82,09 0,00 0,00	9,83 0,00 0,00	9,83	
9	75,16 0,00 0,00	0,73	84,09 0,00 0,00	8,93 0,00 0,00	8,93	
10	78,05 0,00 0,00	0,78	85,96 0,00 0,00	7,90 0,00 0,00	7,90	
11	80,94 0,00 0,00	0,82	87,72 0,00 0,00	6,77 0,00 0,00	6,77	
12	83,83 0,00 0,00	0,86	89,39 0,00 0,00	5,56 0,00 0,00	5,56	
13	86,73 0,00 0,00	0,89	90,99 0,00 0,00	4,26 0,00 0,00	4,26	
14	89,62 0,00 0,00	0,93	92,52 0,00 0,00	2,90 0,00 0,00	2,90	Mean lightness difference
15	92,51 0,00 0,00	0,96	93,99 0,00 0,00	1,47 0,00 0,00	1,47	(16 steps)
16	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	$\Delta E^*_{CIELAB} = 6,9$
17	52,01 0,00 0,00	0,00	52,01 0,00 0,00	0,00 0,00 0,00	0,01	
18	62,86 0,00 0,00	0,51	74,30 0,00 0,00	11,43 0,00 0,00	11,43	Mean lightness difference
19	73,71 0,00 0,00	0,71	83,11 0,00 0,00	9,39 0,00 0,00	9,39	(5 steps)
20	84,56 0,00 0,00	0,87	89,80 0,00 0,00	5,24 0,00 0,00	5,24	$\Delta L^*_{CIELAB} = 5,2$
21	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	Mean colour reproduction index: $R^*_{ab,m} = 69,8$

part 1,

AE090-3dd: 01062



part 2,

AE091-3dd: 01062

$L^*/Y_{intended}$ (absolute)	52,0/20,1	54,9/22,8	57,8/25,7	60,6/28,9	63,5/32,2	66,4/35,9	69,3/39,8	72,2/44,0	75,1/48,5	78,0/53,3	80,9/58,3	83,8/63,7	86,7/69,4	89,6/75,4	92,5/81,8	95,4/88,5
0 0 0 n*																
setcmyk																
gp=0,550																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{CIELAB, r}$ (relative)																
$w^*_{intended}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{output}$	0,000	0,226	0,329	0,412	0,483	0,546	0,604	0,657	0,707	0,755	0,800	0,842	0,884	0,924	0,962	1,000

part 3, picture A7<sub>dd</sub>: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

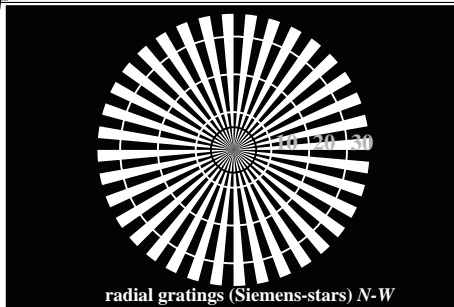
AE090-7dd: 01062

In-out: Test chart AE09 according to ISO 9241-306  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$ -range 15 to <30

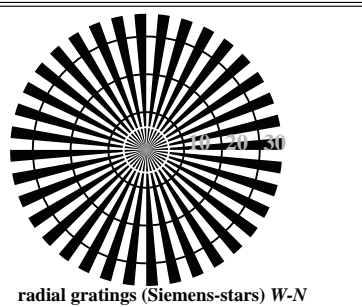
input:  $rgb/cmy0/000n/w$  set...  
output: -> $rgb_{dd}$  setrgbcolor

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09F0PX.PDF> / .PS; 3D-linearization, page 22/24  
technical information: <http://farbe.li.tu-berlin.de/AE09/AE09LF0PX.PDF> / .PS in file (F)

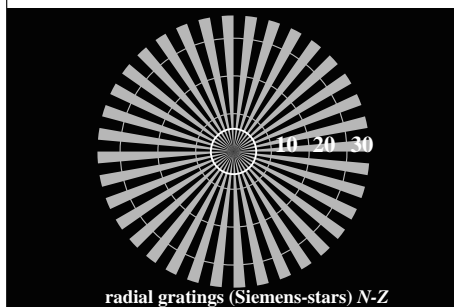
TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta



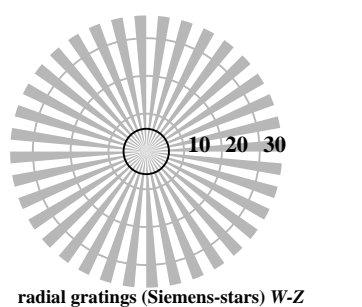
radial gratings (Siemens-stars) N-W



radial gratings (Siemens-stars) W-N

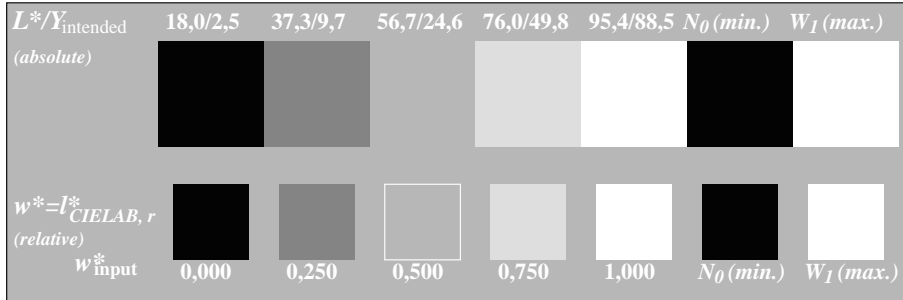


radial gratings (Siemens-stars) N-Z

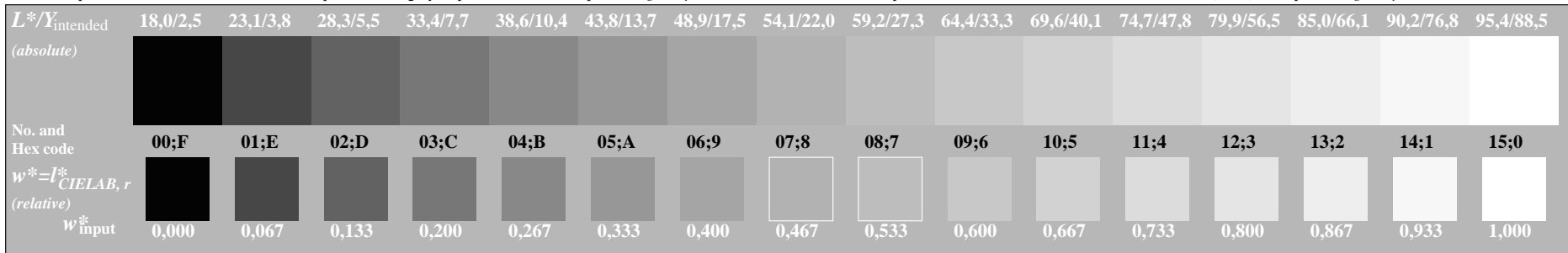


radial gratings (Siemens-stars) W-Z

AE090-3, picture A1Wdd: Element A: radial gratings N-W, W-N, N-Z, and W-Z; PS operator: *rgb/cmy0/w/000n*



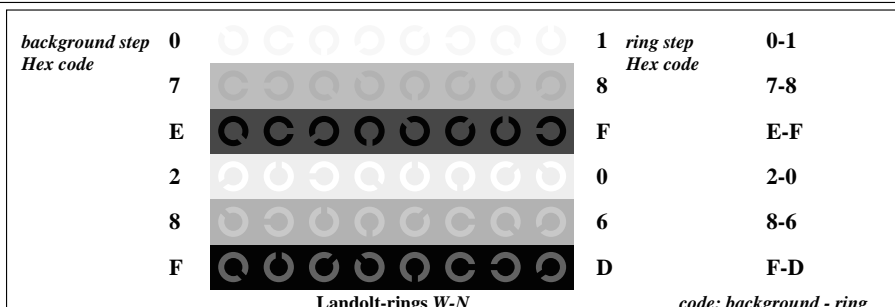
AE090-5, picture A2Wdd: Element B: 5 visual equidistant  $L^*$ -grey steps +  $N_0$  +  $W_1$ ; PS operator: *rgb/cmy0/w/000n*



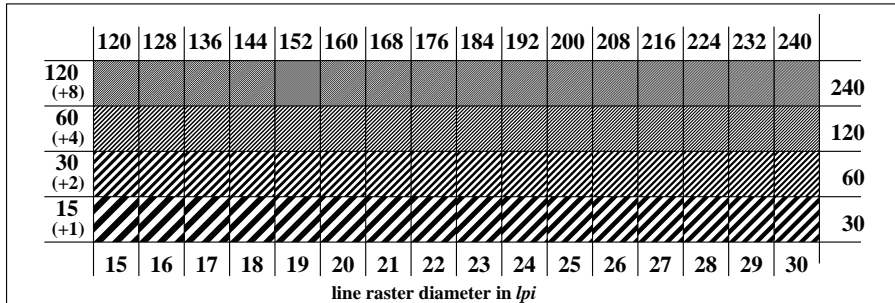
AE090-7, picture A3Wdd: Element C: 16 visual equidistant  $L^*$ -grey steps; PS operator: *rgb/cmy0/w/000n*



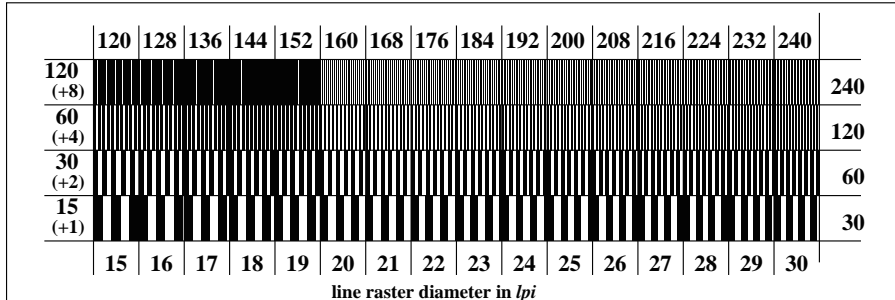
Test chart AE09 according to ISO 9241-306  
achromatic test chart N



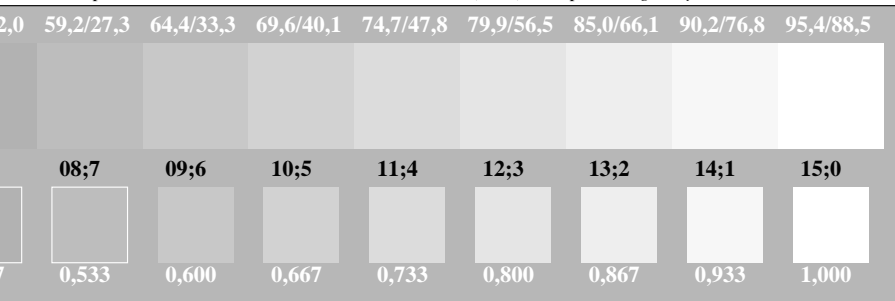
AE091-1, picture A4Wdd: Element D: Landolt-rings W-N; PS operator: *rgb/cmy0/w/000n*



AE091-3, picture A5Wdd: Element E: Line raster under 45° (or 135°); PS-operator: *rgb/cmy0/w/000n*



AE091-5, picture A6Wdd: Element F: Line raster under 90° (or 0°); PS-operator: *rgb/cmy0/w/000n*



input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*



**Test of visual linearized output of pictures A1W<sub>dd</sub> to A3W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of the radial grating according to picture A1W<sub>dd</sub>**

N-W-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-N-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

N-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

W-Z-radial grating: Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (e.g. 6x) resolution diameter ..... mm

**Test of 5 visual equidistant L\*-grey steps according to picture A2W<sub>dd</sub>**  
Are the 5 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 5 steps:

**Test of 16 visual equidistant L\*-grey steps according to picture A3W<sub>dd</sub>**  
Are the 16 steps on the upper rows distinguishable? **Yes/No**  
If No: How many steps can be distinguished? ..... Steps  
of the given 16 steps:

part 1, AE090-3dd: 01071

**Documentation of file format, hardware and software for this test:**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY1\\_1.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY1_1.PDF) **underline: Yes/No**  
**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY1\\_1.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY1_1.PS) **underline: Yes/No**

**Used computer operating system:**

either one of Windows/Mac/Unix/other and version:.....

**This evaluation is for the output:** **underline: monitor/data projector/printer**

Device model, driver and version:.....

**output with PDF/PS-file:** **underline: PDF/PS file**

**For output with PDF file AE09F0PX\_CY1\_1.PDF**

either PDF-file transfer "download, copy" to PDF device.....  
or with computer system interpretation by "Display-PDF":.....  
or with software e. g. Adobe-Reader/-Acrobat and version:.....  
or with software e. g. Ghostscript and version:.....

**For output with PS file AE09F0PX\_CY1\_1.PS**

either PS-file transfer "download, copy" to PS device.....  
or with computer system interpretation by "Display-PS":.....  
or with software e. g. Ghostscript and version:.....  
or with software e. g. Mac-Yap and version:.....

Special remarks: e. g. output of Landscape (L)

.....  
.....  
.....

part 3, AE090-7dd: 01071

Form A: Test chart AE09 according to ISO 9241-306  
achromatic test chart N

**Test of visual linearized output of pictures A4W<sub>dd</sub> to A6W<sub>dd</sub>** please underline **Yes/No**  
**Output test with computer display ( ) or the external display ( )** please mark by (x)!

**Test of Landolt rings N-W according to picture A4W<sub>dd</sub>**

Is the recognition frequency of the Landolt rings > 50% (5 of 8 at least)?

**background - ring**

0 - 1	<b>Yes/No</b>
7 - 8	<b>Yes/No</b>
E - F	<b>Yes/No</b>
2 - 0	<b>Yes/No</b>
8 - 6	<b>Yes/No</b>
F - D	<b>Yes/No</b>

**Test of the radial grating under 45° according to picture A5W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

**Test of the radial grating under 90° according to picture A6W<sub>dd</sub>**

Can equally spaced lines be seen?

Visual testing: for radial diameter from 15 to 60 lpi

Test with magnifying glass (e.g. 6x) - from 15 to ..... lpi

part 2, AE091-3dd: 01071

**Documentation of assessor colour-vision properties for visual assessment**

The assessor has **normal** colour vision according to one test:  
either according to DIN 6160:1996 with Anomaloskop of Nagel  
or with test charts using colour points according to Ishihara  
or tested with, please specify: .....

**underline: Yes/No**

**underline: Yes/unknown**

**underline: Yes/unknown**

**underline: Yes/unknown**

**For visual evaluation of the display (Monitor, data projector) output**

Office workplace illumination is daylight (clouded/north sky)

**underline: Yes/No**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY1\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY1_3.PDF)

**underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY1\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY1_3.PS)

**underline: Yes/No**

**picture A7<sub>dd</sub> contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0

**underline: Yes/No**

Remark: In daylighted offices the contrast range is in many cases:

on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

**Only for optional colorimetric specification with PDF/PS file output**

**PDF file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY1\\_3.PDF](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY1_3.PDF)

**underline: Yes/No**

**picture A7<sub>dd</sub>**

**underline: Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE09/AE09F0PX\\_CY1\\_3.PS](http://farbe.li.tu-berlin.de/AE09/AE09F0PX_CY1_3.PS)

**underline: Yes/No**

**picture A7<sub>dd</sub>**

**or underline: Yes/No**

**colour measurement and specification for:**

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry:

**underline: Yes/No**

If No, please give other parameters: .....

**Colorimetric specification for 17 step colours of** <http://farbe.li.tu-berlin.de/OE70/OE70L1NP.PDF>

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer

of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF

**underline: Yes/No**

If No, please describe other method: .....

part 4,

AE091-7dd: 01071

input: *rgb/cmy0/000n/w set...*  
output: *->rgb<sub>dd</sub> setrgbcolor*

see similar files: <http://farbe.li.tu-berlin.de/AE09/AE09.HTM>  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>

i	LAB* <sub>ref</sub>	L* <sub>out</sub>	LAB* <sub>out</sub>	LAB* <sub>out-ref</sub>	ΔE*	Start output S1
1	69,69 0,00 0,00	0,00	69,69 0,00 0,00	0,00 0,00 0,00	0,01	Specification according to
2	71,41 0,00 0,00	0,30	77,45 0,00 0,00	6,04 0,00 0,00	6,04	ISO/IEC 15775 Annex G
3	73,12 0,00 0,00	0,41	80,23 0,00 0,00	7,11 0,00 0,00	7,11	and DIN 33866-1 Annex G
4	74,83 0,00 0,00	0,49	82,31 0,00 0,00	7,47 0,00 0,00	7,47	
5	76,55 0,00 0,00	0,55	84,02 0,00 0,00	7,47 0,00 0,00	7,47	
6	78,26 0,00 0,00	0,61	85,51 0,00 0,00	7,24 0,00 0,00	7,24	
7	79,98 0,00 0,00	0,66	86,83 0,00 0,00	6,85 0,00 0,00	6,85	
8	81,69 0,00 0,00	0,71	88,04 0,00 0,00	6,35 0,00 0,00	6,35	
9	83,41 0,00 0,00	0,75	89,16 0,00 0,00	5,75 0,00 0,00	5,75	
10	85,12 0,00 0,00	0,79	90,20 0,00 0,00	5,08 0,00 0,00	5,08	
11	86,83 0,00 0,00	0,83	91,18 0,00 0,00	4,34 0,00 0,00	4,34	
12	88,55 0,00 0,00	0,87	92,11 0,00 0,00	3,55 0,00 0,00	3,55	
13	90,26 0,00 0,00	0,90	92,99 0,00 0,00	2,72 0,00 0,00	2,72	
14	91,98 0,00 0,00	0,93	93,83 0,00 0,00	1,85 0,00 0,00	1,85	
15	93,69 0,00 0,00	0,96	94,63 0,00 0,00	0,94 0,00 0,00	0,94	
16	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	
17	69,69 0,00 0,00	0,00	69,69 0,00 0,00	0,00 0,00 0,00	0,01	
18	76,12 0,00 0,00	0,54	83,62 0,00 0,00	7,49 0,00 0,00	7,49	
19	82,55 0,00 0,00	0,73	88,61 0,00 0,00	6,06 0,00 0,00	6,06	
20	88,98 0,00 0,00	0,88	92,33 0,00 0,00	3,35 0,00 0,00	3,35	
21	95,41 0,00 0,00	1,00	95,41 0,00 0,00	0,00 0,00 0,00	0,01	

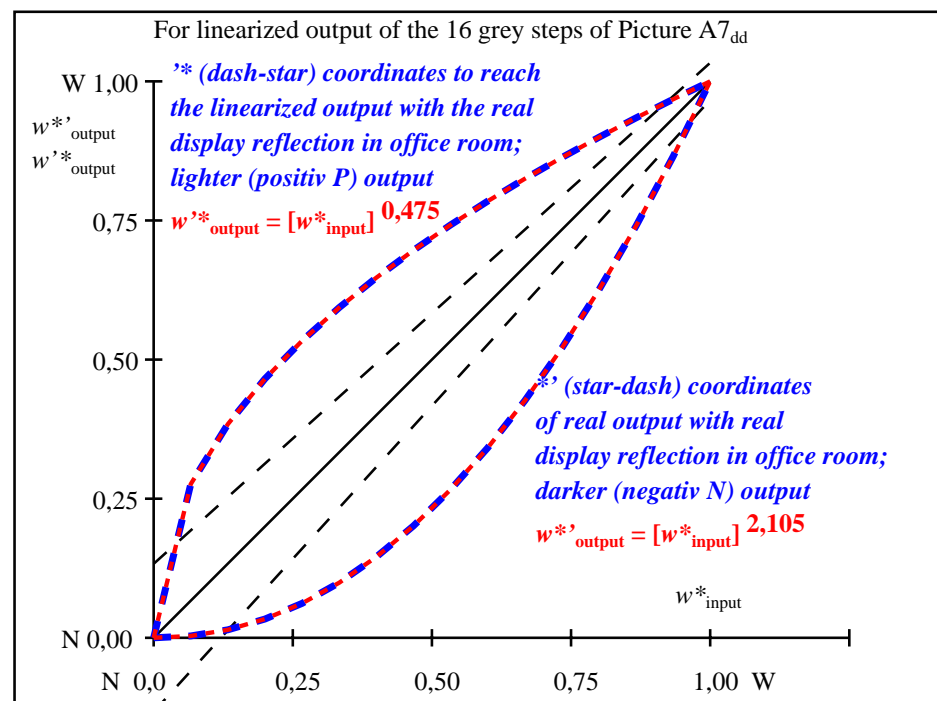
Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 4,5$

Mean lightness difference (5 steps)  
 $\Delta L^*_{\text{CIELAB}} = 3,3$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 80,3$

part 1,

AE090-3dd: 01072



part 2,

AE091-3dd: 01072

$L^*/Y_{\text{intended}}$ (absolute)	69,6/40,3	71,4/42,7	73,1/45,3	74,8/48,0	76,5/50,7	78,2/53,6	79,9/56,6	81,6/59,7	83,4/62,9	85,1/66,2	86,8/69,6	88,5/73,2	90,2/76,8	91,9/80,6	93,6/84,5	95,4/88,5
0 0 0 n* setcmyk gp=0,475 No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{\text{CIELAB}, r}$ (relative)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{\text{intended}}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{\text{output}}$	0,000	0,276	0,383	0,465	0,534	0,593	0,647	0,696	0,741	0,784	0,825	0,862	0,899	0,934	0,967	1,000

part 3, picture A7<sub>dd</sub>: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

AE090-7dd: 01072

In-out: Test chart AE09 according to ISO 9241-306  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$ -range 30 to <60

input:  $rgb/cmy0/000n/w$  set...  
output:  $\rightarrow rgb_{\text{dd}}$  setrgbcOLOR

TUB Registration: 20190301-AE09/AE09L0FA.TXT /.PS  
application for measurement or viewing of display and print output  
TUB material: code=th4ta