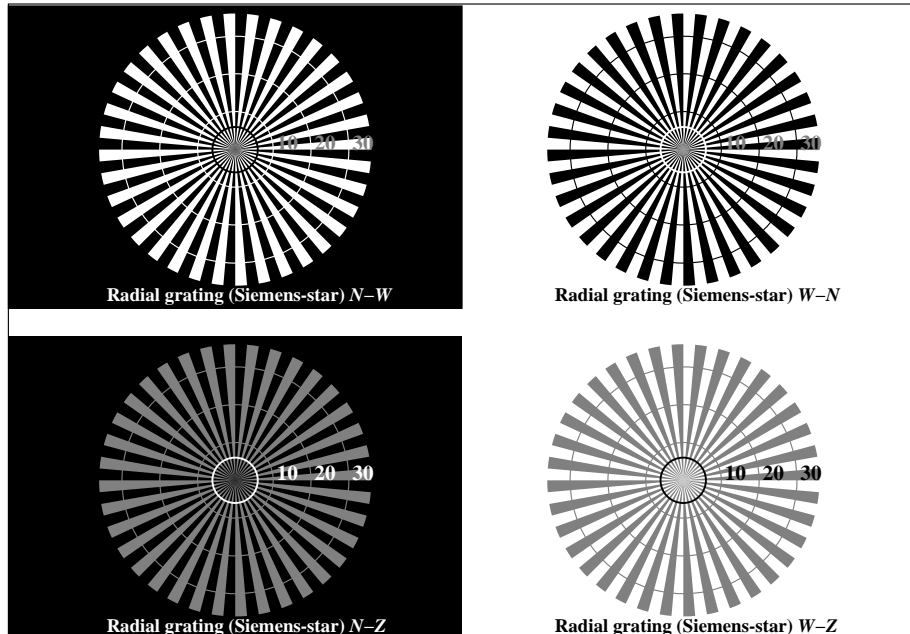
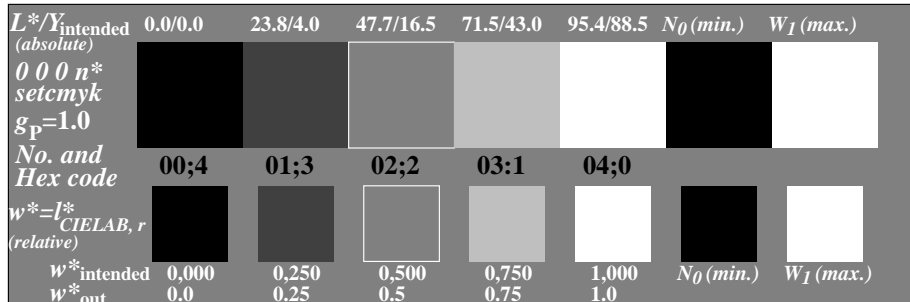


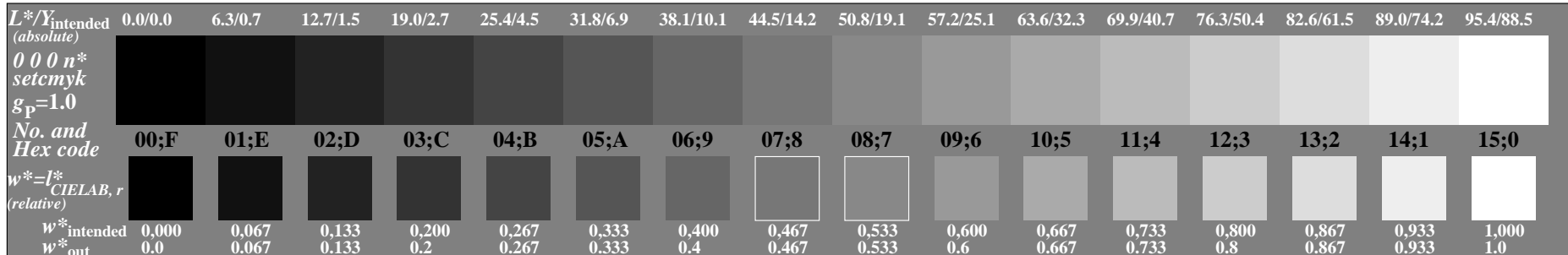
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-100-0: Radial grating N-W, W-N, N-Z, W-Z; PS operator: 0 0 0 n\* setcmykcolor

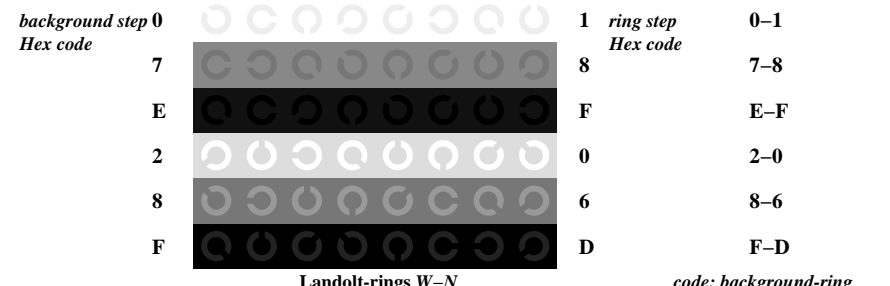


OE540-5N, Picture A2-100-0: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator: 0 0 0 n\* setcmykcolor

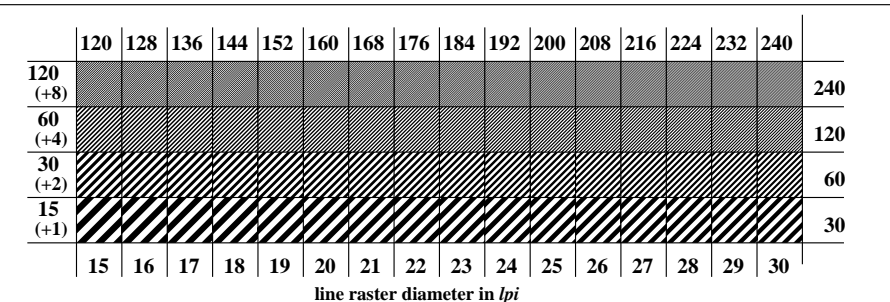


OE540-7N, Picture A3-100-0: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

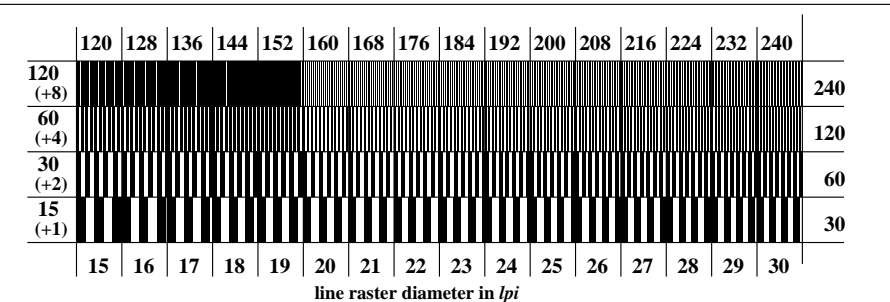
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46



OE541-1N, Picture A4-100-0: Landolt-rings W-N; PS operator: 0 0 0 n\* setcmykcolor



OE541-3N, Picture A5-100-0: Line raster under 45° (or 135°); PS operator: 0 0 0 n\* setcmykcolor



OE541-5N, Picture A6-100-0: Line raster under 90° (or 0°); PS operator: 0 0 0 n\* setcmykcolor

input: all (->rgb\*d) setrgbcolor  
output 130-0:  $g_p=1.0$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-100-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-100-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-100-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-100-0</b>		
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:		..... Steps

Part 1 OE540-3N-100-1

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF>            Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS>            or underline Yes/No

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)  
.....  
.....  
.....

Part 3 OE540-7N-100-1

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W: Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46 output 130-1:  $g_P=1.0$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-100-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-100-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-100-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-100-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-100-1

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

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

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

Office workplace illumination is daylight (clouded/north sky)            Yes/No

**PDF file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>            Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>            Yes/No

**Picture A7-100-2: 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            range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>            Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>            Yes/No

**picture A7-100-2**            Yes/No

**picture A7-100-2**            or underline Yes/No

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

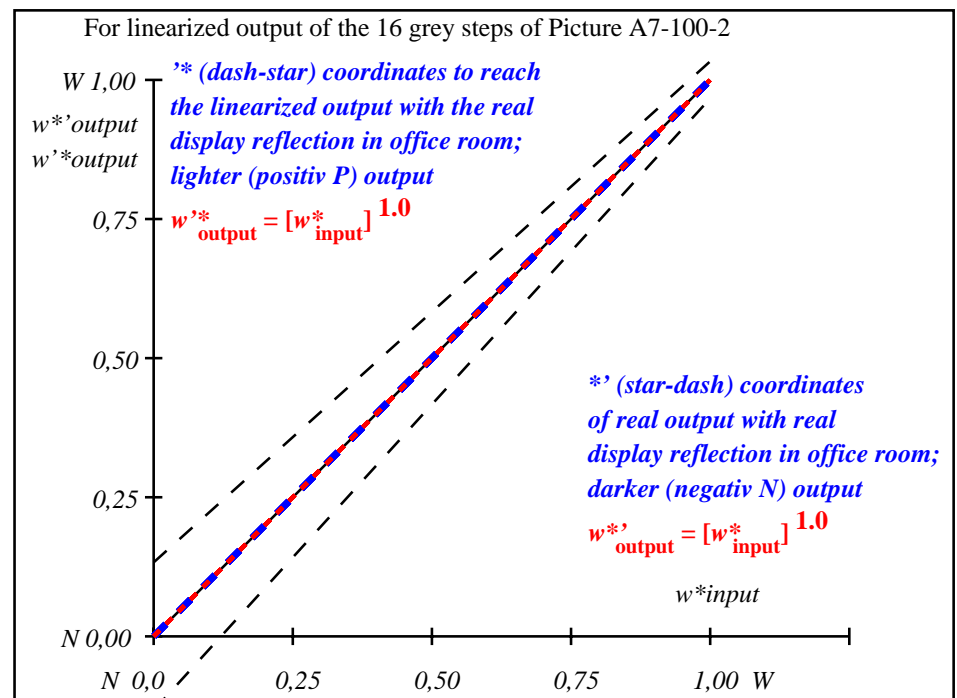
**Colorimetric specification with PS file for colours in the columns A to T**  
Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer  
of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF            Yes/No  
If No, please describe other method: .....

Part 4 OE541-7N-100-1

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	I*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	0.0	0.0	0.0	0.0	0.0	0.01
2	6.36	0.0	0.07	6.36	0.0	0.01
3	12.72	0.0	0.13	12.72	0.0	0.01
4	19.08	0.0	0.2	19.08	0.0	0.01
5	25.44	0.0	0.27	25.44	0.0	0.01
6	31.8	0.0	0.33	31.8	0.0	0.01
7	38.16	0.0	0.4	38.16	0.0	0.01
8	44.52	0.0	0.47	44.52	0.0	0.01
9	50.89	0.0	0.53	50.89	0.0	0.01
10	57.25	0.0	0.6	57.25	0.0	0.01
11	63.61	0.0	0.67	63.61	0.0	0.01
12	69.97	0.0	0.73	69.97	0.0	0.01
13	76.33	0.0	0.8	76.33	0.0	0.01
14	82.69	0.0	0.87	82.69	0.0	0.01
15	89.05	0.0	0.93	89.05	0.0	0.01
16	95.41	0.0	1.0	95.41	0.0	0.01
17	0.0	0.0	0.0	0.0	0.0	0.01
18	23.85	0.0	0.25	23.85	0.0	0.01
19	47.71	0.0	0.5	47.71	0.0	0.01
20	71.56	0.0	0.75	71.56	0.0	0.01
21	95.41	0.0	1.0	95.41	0.0	0.01
Mean lightness difference (16 steps)					ΔE* <sub>CIELAB</sub> =	0.0
Mean lightness difference (5 steps)					ΔE* <sub>CIELAB</sub> =	0.0
Mean colour reproduction index:					R* <sub>ab,m</sub> =	100

OE540-3N-100-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-100-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{intended}$ (absolute)	0.0/0.0	6.4/0.7	12.7/1.5	19.1/2.8	25.4/4.6	31.8/7.0	38.2/10.2	44.5/14.2	50.9/19.2	57.2/25.2	63.6/32.3	70.0/40.7	76.3/50.4	82.7/61.6	89.0/74.3	95.4/88.6
0 0 0 n* setcmk g <sub>p</sub> =1.0 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
$w^*_{intended}$	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
$w^*_{out}$	0.0	0.067	0.133	0.2	0.267	0.333	0.4	0.467	0.533	0.6	0.667	0.733	0.8	0.867	0.933	1.0

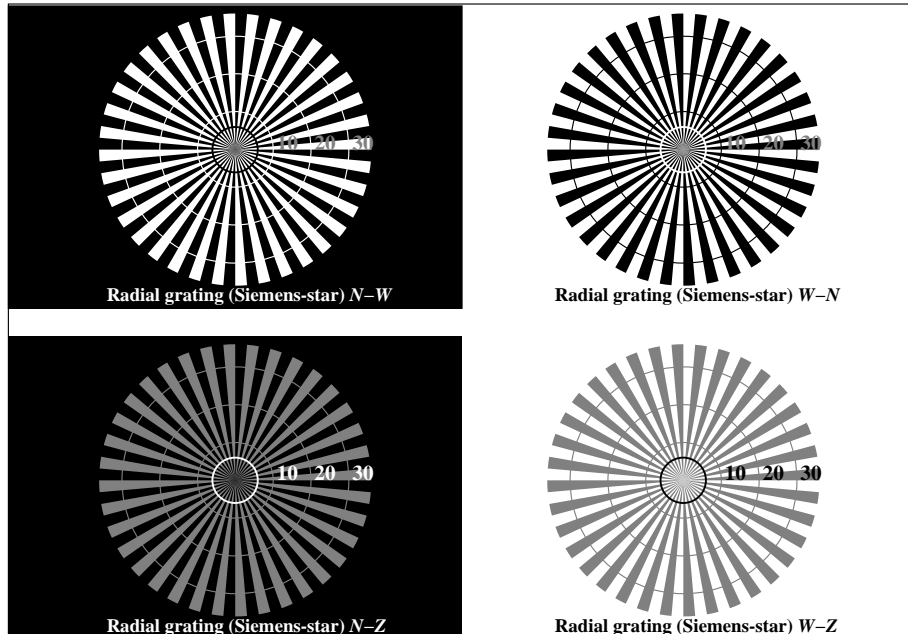
OE540-7N, Picture A7-100-2: 16 visual equidistant L\*-grey steps; PS operator: 0 0 0 n\* setcmkcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing Y contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46

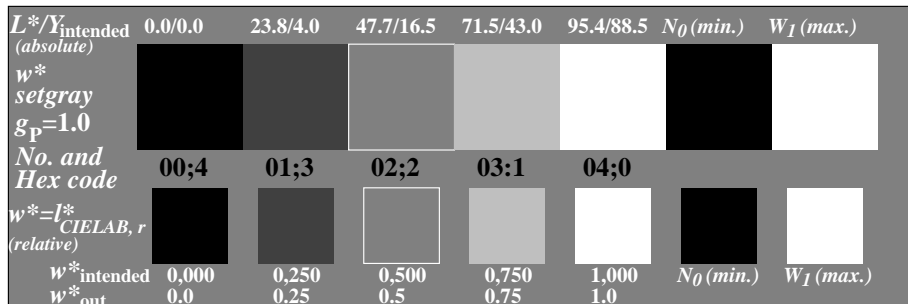
input: all (->rgb\*d) setrgbcolor  
output 130-2: g<sub>p</sub>=1.0; g<sub>N</sub>=1.0

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

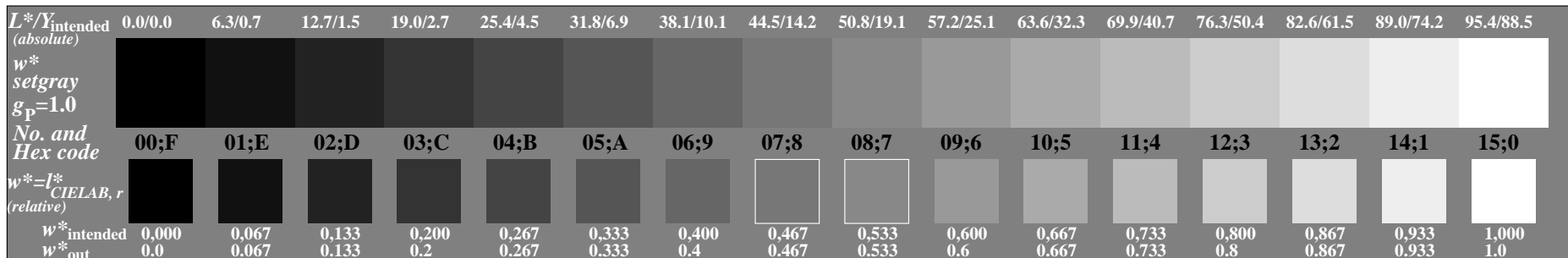
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-110-3: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^*$  setgray



OE540-5N, Picture A2-110-3: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^*$  setgray



OE540-7N, Picture A3-110-3: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

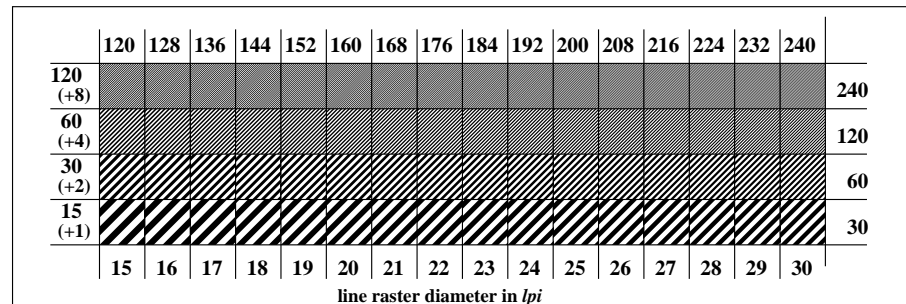
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46

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

Landolt-rings W-N

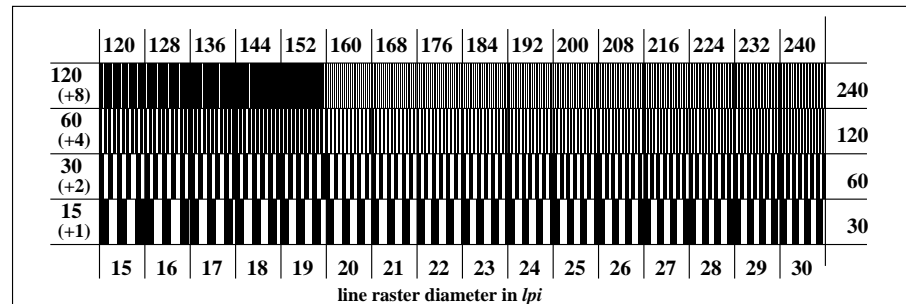
code: background-ring

OE541-1N, Picture A4-110-3: Landolt-rings W-N; PS operator:  $w^*$  setgray



line raster diameter in lpi

OE541-3N, Picture A5-110-3: Line raster under 45° (or 135°); PS operator:  $w^*$  setgray



line raster diameter in lpi

OE541-5N, Picture A6-110-3: Line raster under 90° (or 0°); PS operator:  $w^*$  setgray

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 130-3:  $g_p=1.0$ ;  $g_N=1.0$



<b>Test for the best visual linearized output of Picture A7-110-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-110-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-110-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-110-0</b>		
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:		..... Steps

Part 1 OE540-3N-110-4

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

PDF-File: <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3 OE540-7N-110-4

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46 output 130-4:  $g_P=1.0$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-110-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-110-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-110-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-110-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-110-4

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

PS file: <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

Picture A7-110-2: **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 range

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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

picture A7-110-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

picture A7-110-2

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

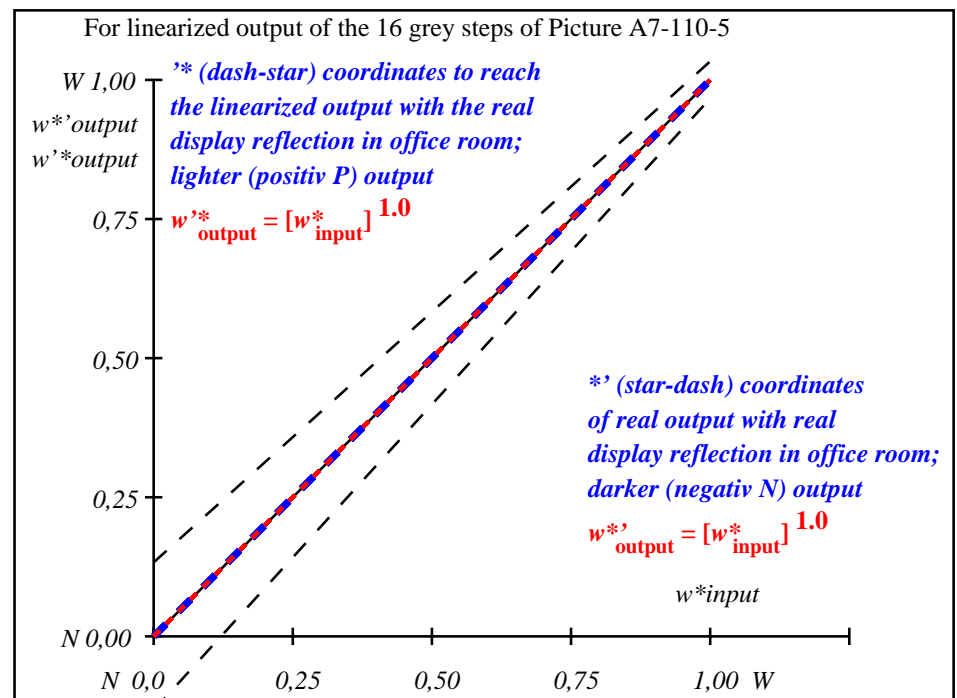
Part 4

OE541-7N-110-4

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	I*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	0.0	0.0	0.0	0.0	0.0	0.01
2	6.36	0.0	0.07	6.36	0.0	0.01
3	12.72	0.0	0.13	12.72	0.0	0.01
4	19.08	0.0	0.2	19.08	0.0	0.01
5	25.44	0.0	0.27	25.44	0.0	0.01
6	31.8	0.0	0.33	31.8	0.0	0.01
7	38.16	0.0	0.4	38.16	0.0	0.01
8	44.52	0.0	0.47	44.52	0.0	0.01
9	50.89	0.0	0.53	50.89	0.0	0.01
10	57.25	0.0	0.6	57.25	0.0	0.01
11	63.61	0.0	0.67	63.61	0.0	0.01
12	69.97	0.0	0.73	69.97	0.0	0.01
13	76.33	0.0	0.8	76.33	0.0	0.01
14	82.69	0.0	0.87	82.69	0.0	0.01
15	89.05	0.0	0.93	89.05	0.0	0.01
16	95.41	0.0	1.0	95.41	0.0	0.01
17	0.0	0.0	0.0	0.0	0.0	0.01
18	23.85	0.0	0.25	23.85	0.0	0.01
19	47.71	0.0	0.5	47.71	0.0	0.01
20	71.56	0.0	0.75	71.56	0.0	0.01
21	95.41	0.0	1.0	95.41	0.0	0.01
Mean lightness difference (16 steps)					ΔE* <sub>CIELAB</sub> =	0.0
Mean lightness difference (5 steps)					ΔE* <sub>CIELAB</sub> =	0.0
Mean colour reproduction index:					R* <sub>ab,m</sub> =	100

OE540-3N-110-5: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-110-5: File: Measure unknown; Device: Device unknown; Date: Date unknown

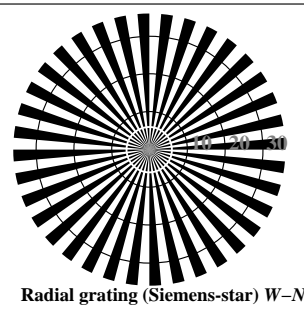
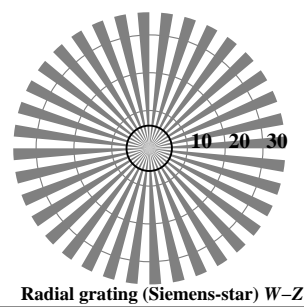
$L^*/Y^*_{intended}$ (absolute)	0.0/0.0	6.4/0.7	12.7/1.5	19.1/2.8	25.4/4.6	31.8/7.0	38.2/10.2	44.5/14.2	50.9/19.2	57.2/25.2	63.6/32.3	70.0/40.7	76.3/50.4	82.7/61.6	89.0/74.3	95.4/88.6
$w^*$ setgray $g_P=1.0$																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	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
$w^*_{out}$	0.0	0.067	0.133	0.2	0.267	0.333	0.4	0.467	0.533	0.6	0.667	0.733	0.8	0.867	0.933	1.0

OE540-7N, Picture A7-110-5: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46

input: all ( $\rightarrow rgb_d$ ) setrgbcOLOR  
output 130-5:  $g_P=1.0$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=thata

Radial grating (Siemens-star)  $W-N$ 

Radial grating (Siemens-star) W-Z

OE541-1N, Picture A4-120-6: Landolt-rings W-N; PS operator:  $n^* n^* n^* 0$  *setcmykcolor*

---

Landolt-rings W-N
*code: background-ring*

OE541-1N, Picture A4-120-6: Landolt-rings W-N; PS operator:  $n^* n^* n^* 0$  *setcmykcolor*

line raster diameter in *lpi*

	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																

**line raster diameter in *lpi***

OE541-5N, Picture A6-120-6: Line raster under 90° (or 0°); PS operator: *n\* n\* n\* 0 setcmykcolor*

OE540-5N, Picture A2-120-6: 5 equidistant  $L^*$ -grey steps+N0+W1; PS operator:  $n^* n^* n^* 0$  setcmykcolor

OE540-7N, Picture A3-120-6: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0\text{ setcmykcolor}$

input: *all* ( $\rightarrow rgb^*_d$ ) *setrgbcolor*  
output 130-6:  $g_p=1.0$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-120-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-120-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-120-0</b>		
Are the 5 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-120-0</b>		
Are the 16 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		.... Steps

Part 1

OE540-3N-120-7

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

#### Used computer operating system:

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

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

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

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

#### For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-120-7

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W: Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46 output 130-7:  $g_P=1.0$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-120-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-120-0</b>		
N-W-radial grating:	Is the recognition frequency of the Landolt-rings > 50% (5 of 8 at least)?	Yes/No
	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
<b>Test of the radial grating under 45° according to picture A5-120-0</b>		
Can equally spaced lines be seen?		Yes/No
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x):	- from 15 lpi:	to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-120-0</b>		
Can equally spaced lines be seen?		Yes/No
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x):	- from 15 lpi:	to ..... lpi

Part 2

OE541-3N-120-7

#### 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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

underline Yes/No

**Picture A7-120-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

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 with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

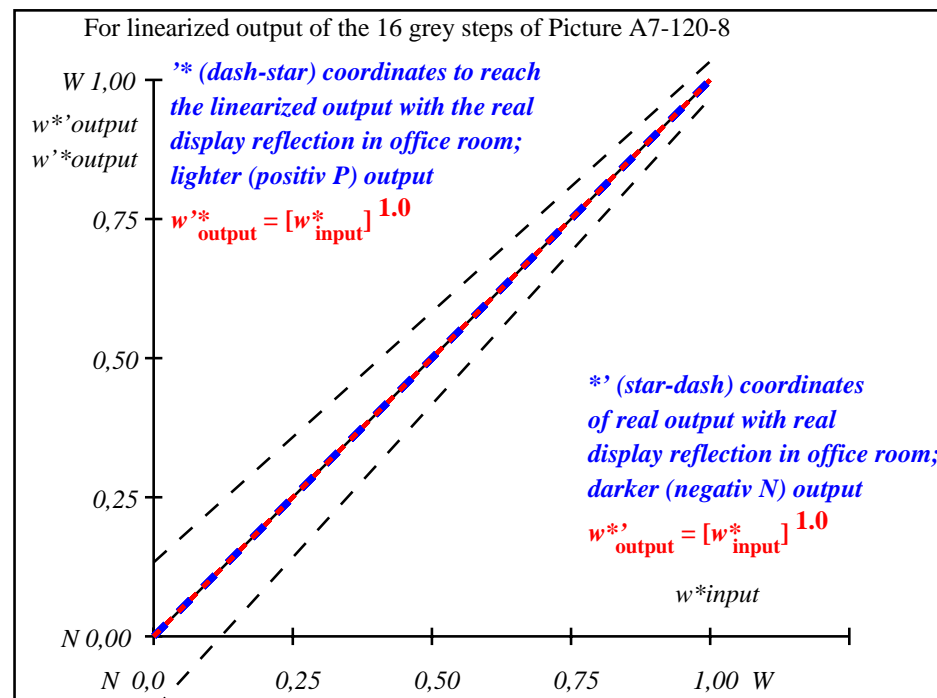
OE541-7N-120-7



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	I*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	0.0	0.0	0.0	0.0	0.0	0.01
2	6.36	0.0	0.07	6.36	0.0	0.01
3	12.72	0.0	0.13	12.72	0.0	0.01
4	19.08	0.0	0.2	19.08	0.0	0.01
5	25.44	0.0	0.27	25.44	0.0	0.01
6	31.8	0.0	0.33	31.8	0.0	0.01
7	38.16	0.0	0.4	38.16	0.0	0.01
8	44.52	0.0	0.47	44.52	0.0	0.01
9	50.89	0.0	0.53	50.89	0.0	0.01
10	57.25	0.0	0.6	57.25	0.0	0.01
11	63.61	0.0	0.67	63.61	0.0	0.01
12	69.97	0.0	0.73	69.97	0.0	0.01
13	76.33	0.0	0.8	76.33	0.0	0.01
14	82.69	0.0	0.87	82.69	0.0	0.01
15	89.05	0.0	0.93	89.05	0.0	0.01
16	95.41	0.0	1.0	95.41	0.0	0.01
17	0.0	0.0	0.0	0.0	0.0	0.01
18	23.85	0.0	0.25	23.85	0.0	0.01
19	47.71	0.0	0.5	47.71	0.0	0.01
20	71.56	0.0	0.75	71.56	0.0	0.01
21	95.41	0.0	1.0	95.41	0.0	0.01
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> =	100

OE540-3N-120-8: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-120-8: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{intended}$ (absolute)	0.0/0.0	6.4/0.7	12.7/1.5	19.1/2.8	25.4/4.6	31.8/7.0	38.2/10.2	44.5/14.2	50.9/19.2	57.2/25.2	63.6/32.3	70.0/40.7	76.3/50.4	82.7/61.6	89.0/74.3	95.4/88.6
$n^* n^* n^* 0$ setcmk $g_P=1.0$																
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
$w^*_{out}$	0.0	0.067	0.133	0.2	0.267	0.333	0.4	0.467	0.533	0.6	0.667	0.733	0.8	0.867	0.933	1.0

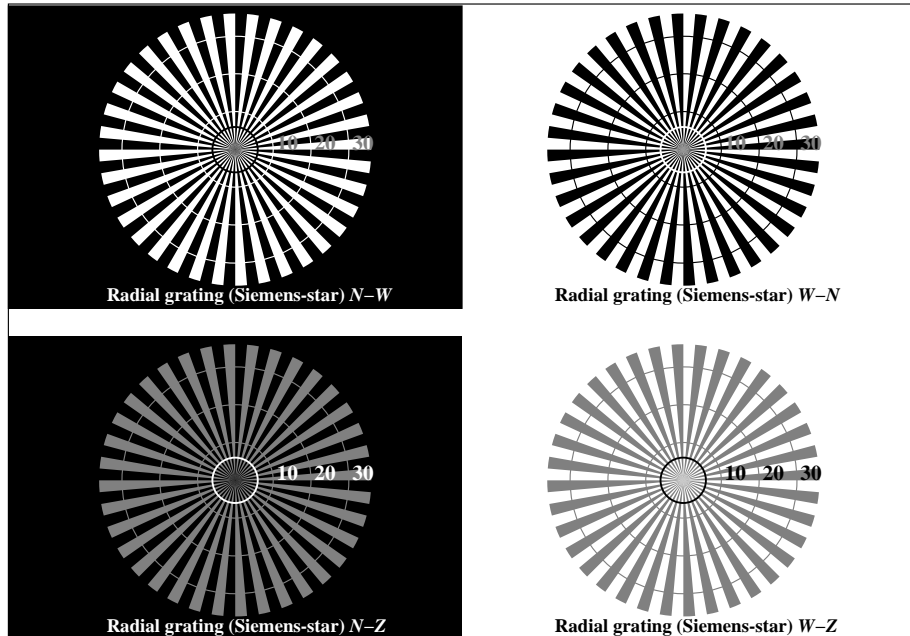
OE540-7N, Picture A7-120-8: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^* n^* n^* 0$  setcmkcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46

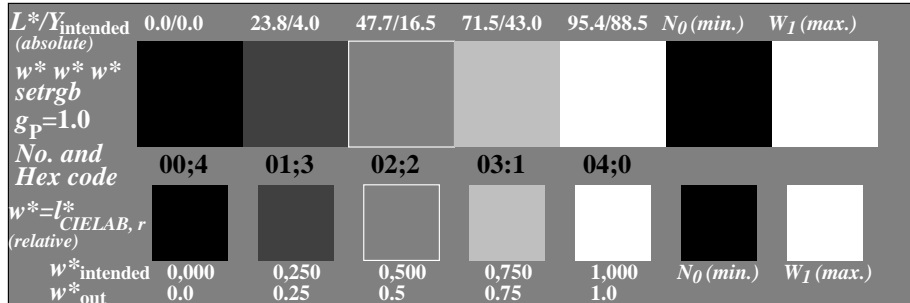
input: all ( $\rightarrow rgb_d$ ) setrgbcOLOR  
output 130-8:  $g_P=1.0$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

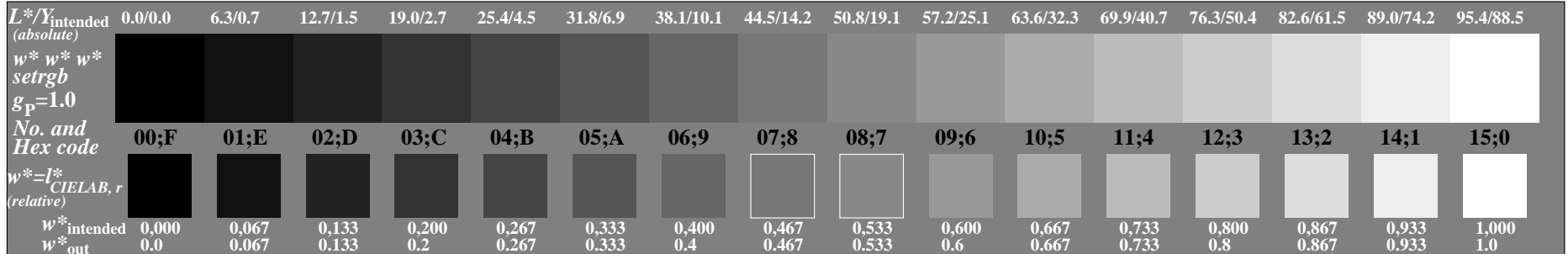
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-130-9: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

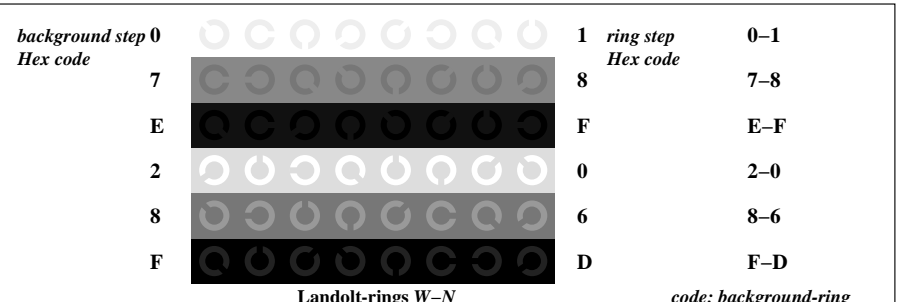


OE540-5N, Picture A2-130-9: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

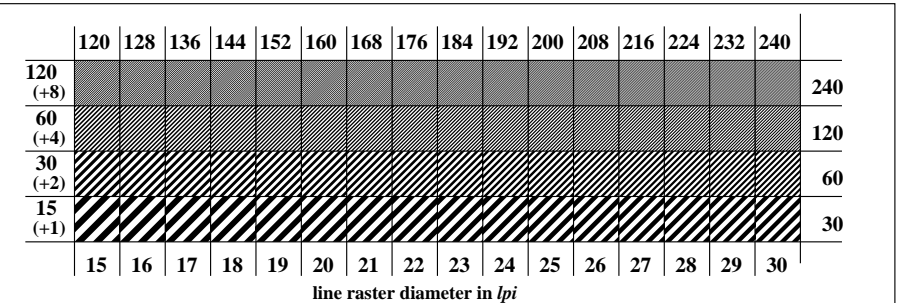


OE540-7N, Picture A3-130-9: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

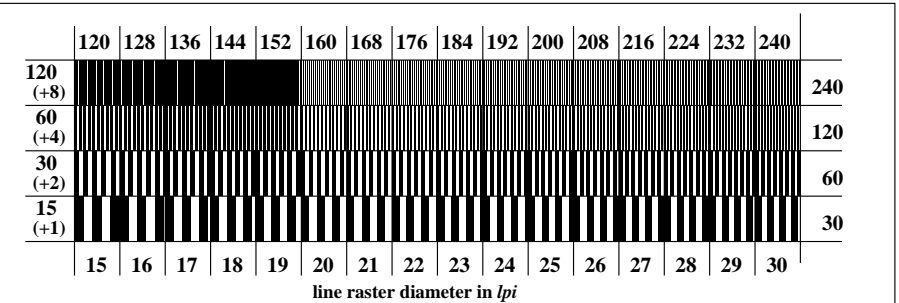
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46



OE541-1N, Picture A4-130-9: Landolt-rings W-N; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-3N, Picture A5-130-9: Line raster under 45° (or 135°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-5N, Picture A6-130-9: Line raster under 90° (or 0°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$

input: all ( $\rightarrow \text{rgb}_d$ )  $\text{setrgbcolor}$   
output 130-9:  $g_p=1.0$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-130-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-130-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-130-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-130-0</b>		
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:		..... Steps

Part 1 OE540-3N-130-10

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3 OE540-7N-130-10

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46 output 130-10:  $g_P=1.0$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-130-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-130-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-130-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-130-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-130-10

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**Picture A7-130-2: 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 range

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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**picture A7-130-2**

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**picture A7-130-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

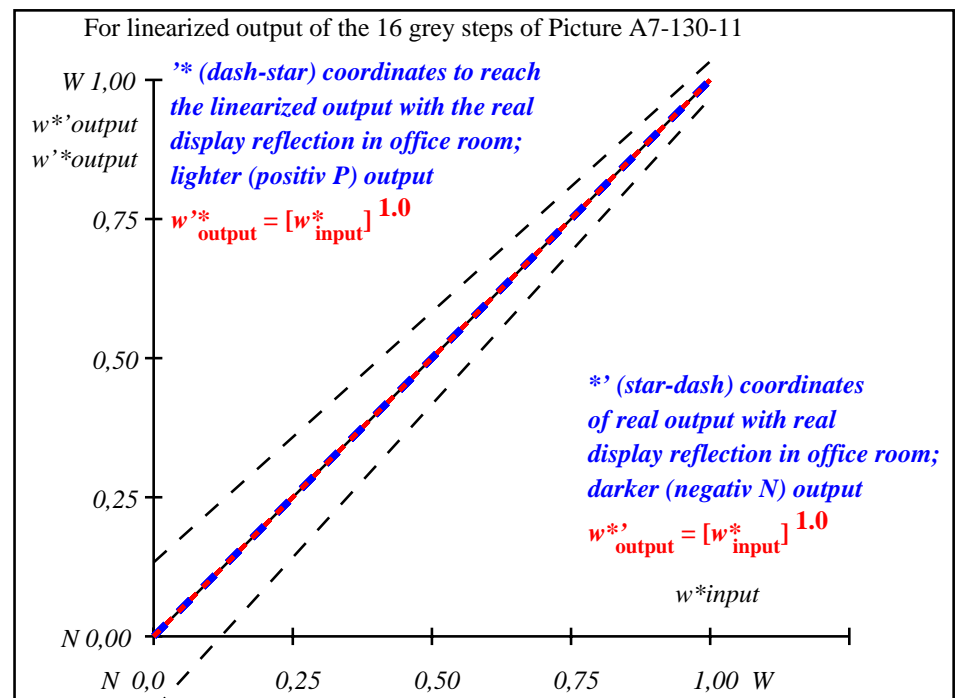
Part 4

OE541-7N-130-10

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	I*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	0.0	0.0	0.0	0.0	0.0	0.01
2	6.36	0.0	0.07	6.36	0.0	0.01
3	12.72	0.0	0.13	12.72	0.0	0.01
4	19.08	0.0	0.2	19.08	0.0	0.01
5	25.44	0.0	0.27	25.44	0.0	0.01
6	31.8	0.0	0.33	31.8	0.0	0.01
7	38.16	0.0	0.4	38.16	0.0	0.01
8	44.52	0.0	0.47	44.52	0.0	0.01
9	50.89	0.0	0.53	50.89	0.0	0.01
10	57.25	0.0	0.6	57.25	0.0	0.01
11	63.61	0.0	0.67	63.61	0.0	0.01
12	69.97	0.0	0.73	69.97	0.0	0.01
13	76.33	0.0	0.8	76.33	0.0	0.01
14	82.69	0.0	0.87	82.69	0.0	0.01
15	89.05	0.0	0.93	89.05	0.0	0.01
16	95.41	0.0	1.0	95.41	0.0	0.01
17	0.0	0.0	0.0	0.0	0.0	0.01
18	23.85	0.0	0.25	23.85	0.0	0.01
19	47.71	0.0	0.5	47.71	0.0	0.01
20	71.56	0.0	0.75	71.56	0.0	0.01
21	95.41	0.0	1.0	95.41	0.0	0.01
Mean lightness difference (16 steps)					ΔE* <sub>CIELAB</sub> =	0.0
Mean lightness difference (5 steps)					ΔE* <sub>CIELAB</sub> =	0.0
Mean colour reproduction index:					R* <sub>ab,m</sub> =	100

OE540-3N-130-11: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-130-11: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{intended}$ (absolute)	0.0/0.0	6.4/0.7	12.7/1.5	19.1/2.8	25.4/4.6	31.8/7.0	38.2/10.2	44.5/14.2	50.9/19.2	57.2/25.2	63.6/32.3	70.0/40.7	76.3/50.4	82.7/61.6	89.0/74.3	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=1.0$																
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
$w^*_{out}$	0.0	0.067	0.133	0.2	0.267	0.333	0.4	0.467	0.533	0.6	0.667	0.733	0.8	0.867	0.933	1.0

OE540-7N, Picture A7-130-11: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

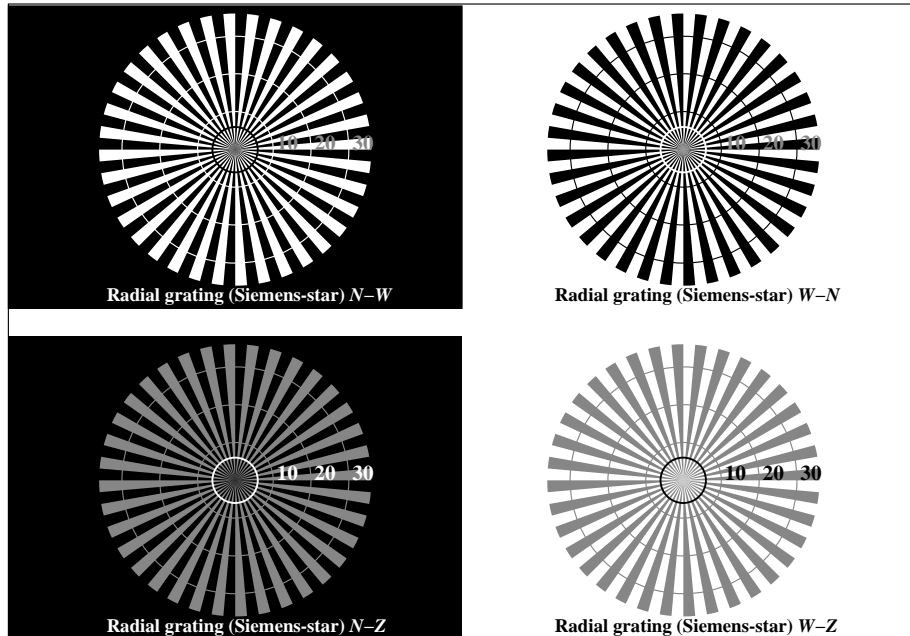
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 130-11:  $g_P=1.0$ ;  $g_N=1.0$

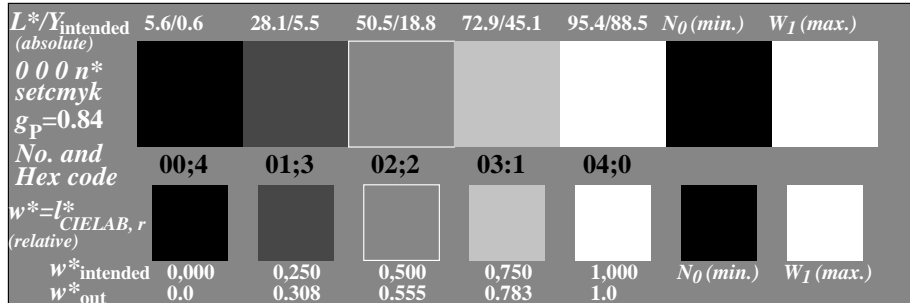
TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta



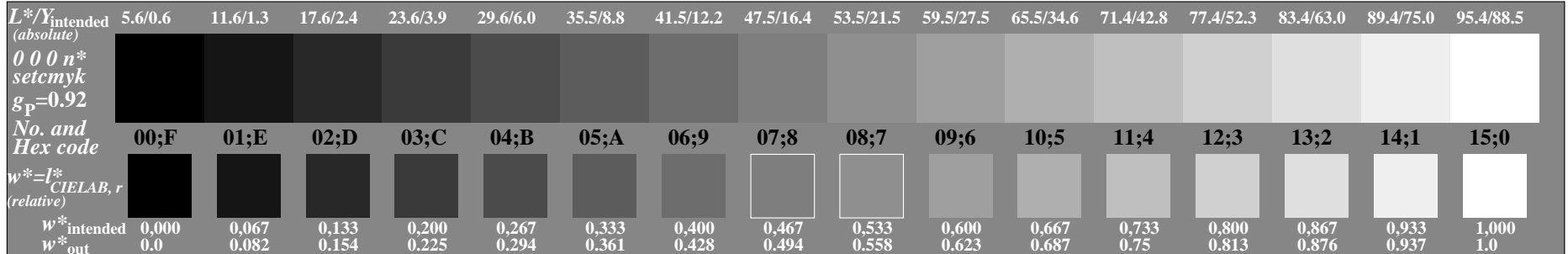
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1.1, CIELAB



OE540-3N, Picture A1-101-0: Radial grating N-W, W-N, N-Z, W-Z; PS operator: 0 0 0 n\* setcmykcolor

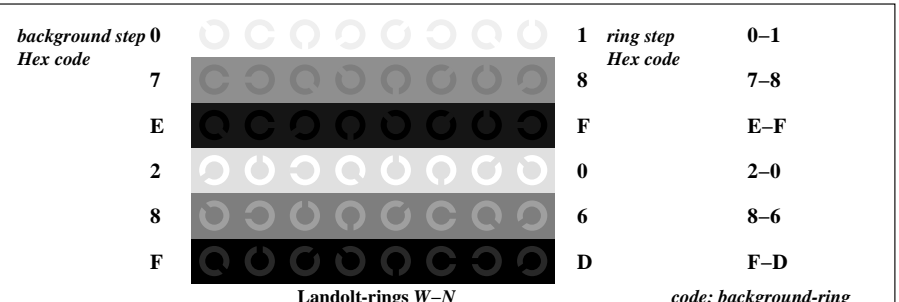


OE540-5N, Picture A2-101-0: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator: 0 0 0 n\* setcmykcolor

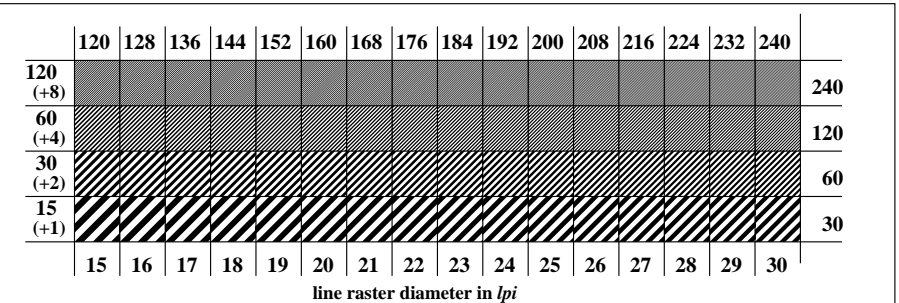


OE540-7N, Picture A3-101-0: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

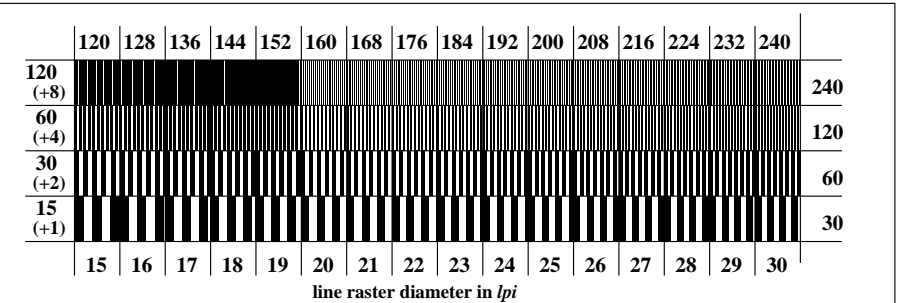
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93



OE541-1N, Picture A4-101-0: Landolt-rings W-N; PS operator: 0 0 0 n\* setcmykcolor



OE541-3N, Picture A5-101-0: Line raster under 45° (or 135°); PS operator: 0 0 0 n\* setcmykcolor



OE541-5N, Picture A6-101-0: Line raster under 90° (or 0°); PS operator: 0 0 0 n\* setcmykcolor

input: all (->rgb\*d) setrgbcolor  
output 131-0:  $g_p=0.92$ ;  $g_N=1.0$

**Test for the best visual linearized output of Picture A7-101-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the radial grating according to picture A1-101-0**  
**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 A2-101-0**  
 Are the 5 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 5 steps: ..... Steps  
**Test of 16 visual equidistant L\*-grey steps according to picture A3-101-0**  
 Are the 16 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 16 steps: .... Steps

Part 1

OE540-3N-101-1

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-101-1

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
 Viewing Y contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93 output 131-1:  $g_P=0,92$ ;  $g_N=1,0$

**Test for the best visual linearized output of Picture A7-101-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the Landolt-rings N-W according to picture A4-101-0**  
**N-W-radial grating:**  
 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 A5-101-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi  
**Test of the radial grating under 90° according to picture A6-101-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi

Part 2

OE541-3N-101-1

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**Picture A7-101-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**picture A7-101-2**

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**picture A7-101-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

Part 4

OE541-7N-101-1

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

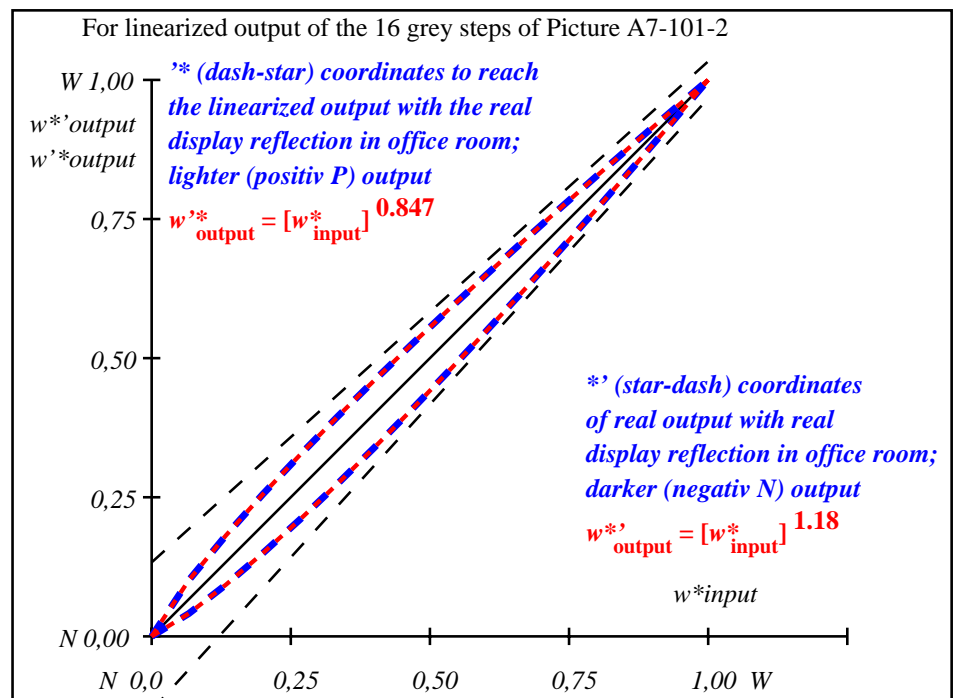
i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	5.69	0.0	0.0	5.69	0.0	0.0
2	11.67	0.0	0.08	13.02	0.0	0.0
3	17.65	0.0	0.16	19.6	0.0	0.0
4	23.63	0.0	0.23	25.94	0.0	0.0
5	29.62	0.0	0.29	32.11	0.0	0.0
6	35.6	0.0	0.36	38.17	0.0	0.0
7	41.58	0.0	0.43	44.13	0.0	0.0
8	47.56	0.0	0.49	50.02	0.0	0.0
9	53.54	0.0	0.56	55.85	0.0	0.0
10	59.52	0.0	0.62	61.62	0.0	0.0
11	65.5	0.0	0.69	67.35	0.0	0.0
12	71.48	0.0	0.75	73.03	0.0	0.0
13	77.47	0.0	0.81	78.68	0.0	0.0
14	83.45	0.0	0.88	84.29	0.0	0.0
15	89.43	0.0	0.94	89.86	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	5.69	0.0	0.0	5.69	0.0	0.0
18	28.12	0.0	0.28	30.58	0.0	0.0
19	50.55	0.0	0.53	52.94	0.0	0.0
20	72.98	0.0	0.77	74.45	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 1.6$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 1.3$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 93$

OE540-3N-101-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-101-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

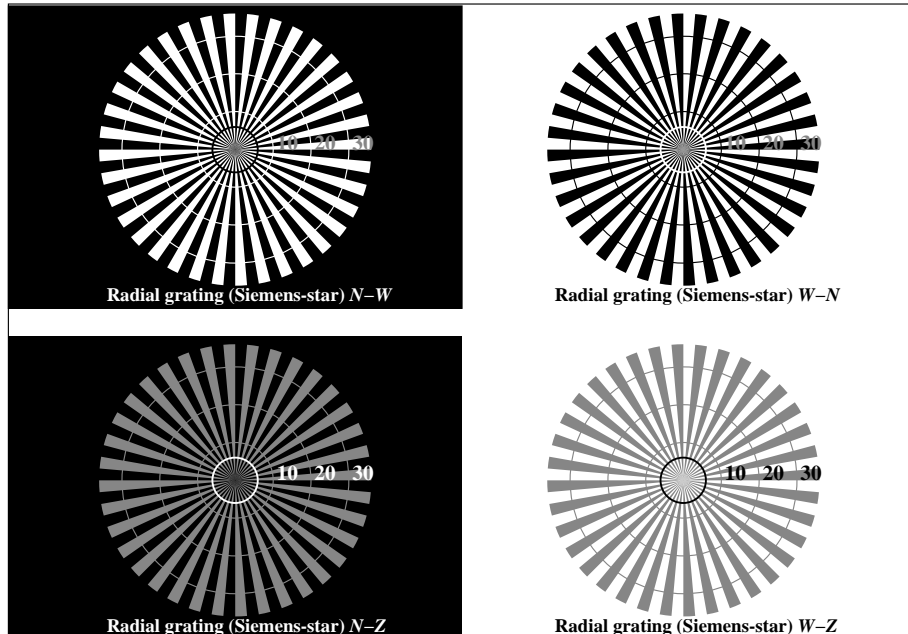
$L^*/Y_{\text{intended}}$ (absolute)	5.7/0.6	11.7/1.4	17.7/2.4	23.6/4.0	29.6/6.1	35.6/8.8	41.6/12.2	47.6/16.5	53.5/21.5	59.5/27.6	65.5/34.7	71.5/42.9	77.5/52.3	83.4/63.0	89.4/75.1	95.4/88.6
$0\ 0\ 0\ n^*$ setcmyk $g_P=0.92$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	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
$w^*_{\text{out}}$	0.0	0.082	0.155	0.226	0.295	0.362	0.428	0.494	0.559	0.623	0.688	0.75	0.814	0.876	0.938	1.0

OE540-7N, Picture A7-101-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $0\ 0\ 0\ n^*$  setcmykcolor

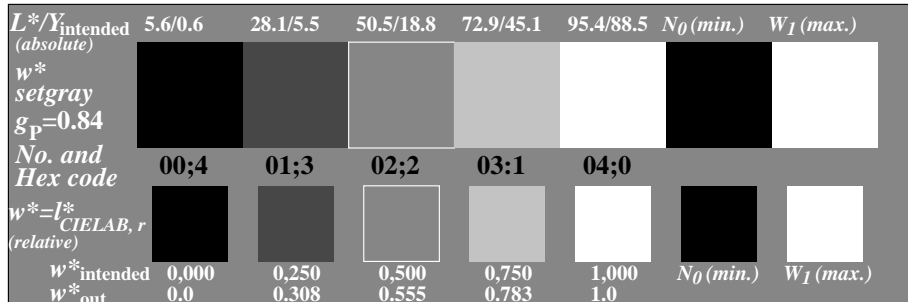
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 131-2:  $g_P=0.92$ ;  $g_N=1.0$

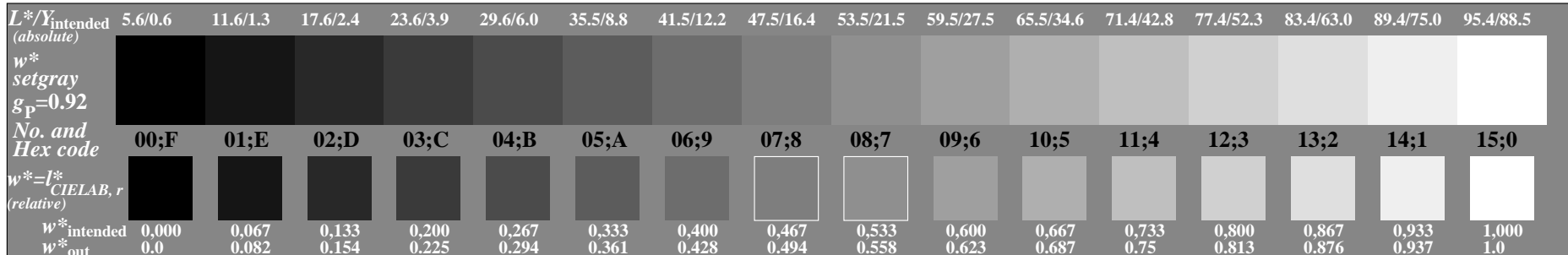
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-111-3: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^*$  setgray

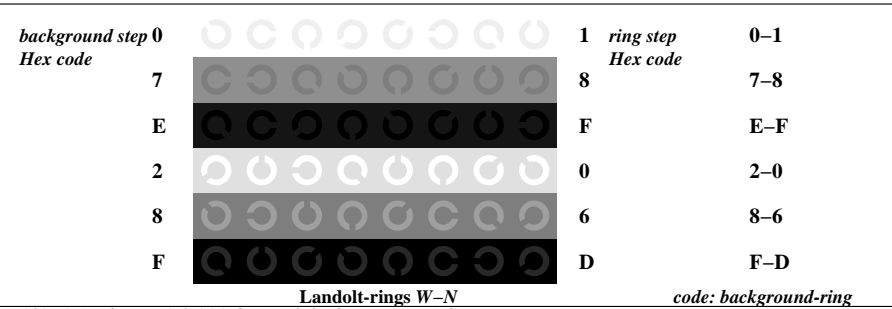


OE540-5N, Picture A2-111-3: 5 equidistant  $L^*$ -gray steps+ $N_0$ + $W_1$ ; PS operator:  $w^*$  setgray

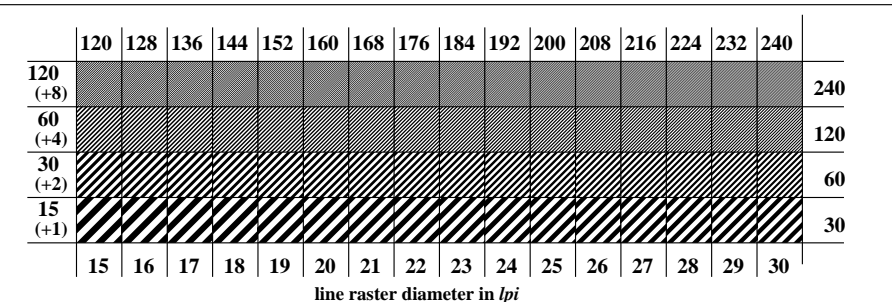


OE540-7N, Picture A3-111-3: 16 visual equidistant  $L^*$ -gray steps; PS operator:  $w^*$  setgray

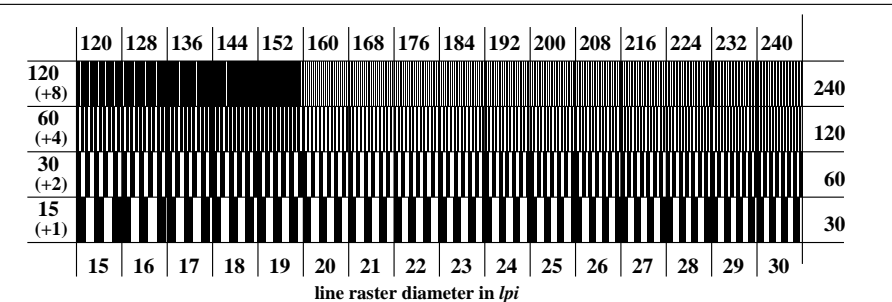
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93



OE541-1N, Picture A4-111-3: Landolt-rings W-N; PS operator:  $w^*$  setgray



OE541-3N, Picture A5-111-3: Line raster under 45° (or 135°); PS operator:  $w^*$  setgray



OE541-5N, Picture A6-111-3: Line raster under 90° (or 0°); PS operator:  $w^*$  setgray

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 131-3:  $g_p=0.92$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta



**Test for the best visual linearized output of Picture A7-111-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the radial grating according to picture A1-111-0**  
**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 A2-111-0**  
 Are the 5 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 5 steps: ..... Steps  
**Test of 16 visual equidistant L\*-grey steps according to picture A3-111-0**  
 Are the 16 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 16 steps: .... Steps

Part 1 OE540-3N-111-4

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

Part 3

OE540-7N-111-4

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
 Viewing Y contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93 output 131-4:  $g_P=0,92$ ;  $g_N=1,0$

**Test for the best visual linearized output of Picture A7-111-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the Landolt-rings N-W according to picture A4-111-0**  
**N-W-radial grating:**  
 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 A5-111-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi  
**Test of the radial grating under 90° according to picture A6-111-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi

Part 2 OE541-3N-111-4

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

underline Yes/No

**Picture A7-111-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

OE541-7N-111-4

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

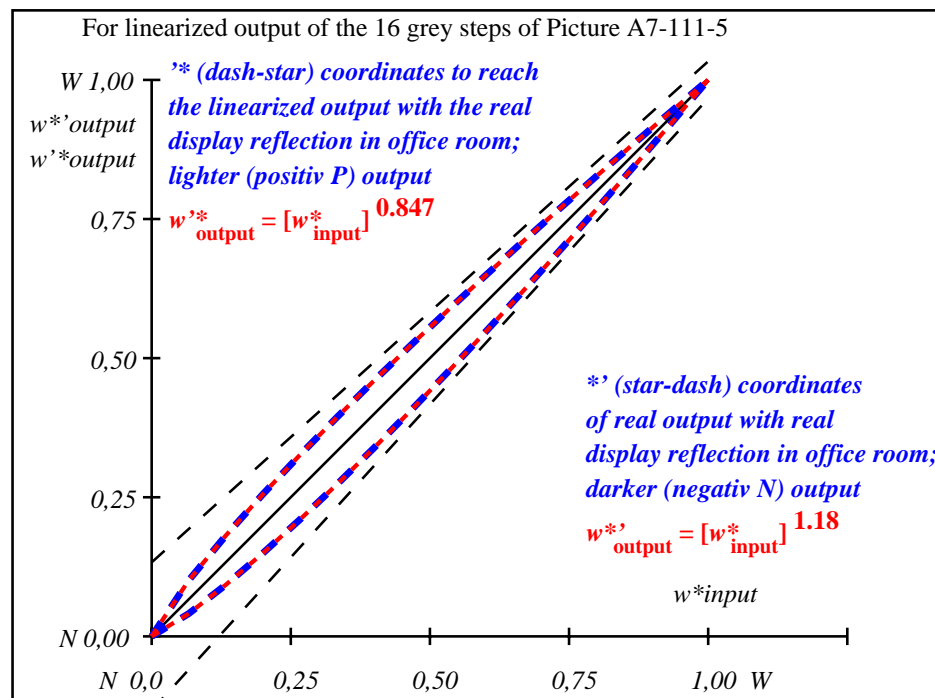
i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	5.69	0.0	0.0	5.69	0.0	0.0
2	11.67	0.0	0.08	13.02	0.0	0.0
3	17.65	0.0	0.16	19.6	0.0	0.0
4	23.63	0.0	0.23	25.94	0.0	0.0
5	29.62	0.0	0.29	32.11	0.0	0.0
6	35.6	0.0	0.36	38.17	0.0	0.0
7	41.58	0.0	0.43	44.13	0.0	0.0
8	47.56	0.0	0.49	50.02	0.0	0.0
9	53.54	0.0	0.56	55.85	0.0	0.0
10	59.52	0.0	0.62	61.62	0.0	0.0
11	65.5	0.0	0.69	67.35	0.0	0.0
12	71.48	0.0	0.75	73.03	0.0	0.0
13	77.47	0.0	0.81	78.68	0.0	0.0
14	83.45	0.0	0.88	84.29	0.0	0.0
15	89.43	0.0	0.94	89.86	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	5.69	0.0	0.0	5.69	0.0	0.0
18	28.12	0.0	0.28	30.58	0.0	0.0
19	50.55	0.0	0.53	52.94	0.0	0.0
20	72.98	0.0	0.77	74.45	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 1.6$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 1.3$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 93$

OE540-3N-111-5: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-111-5: File: Measure unknown; Device: Device unknown; Date: Date unknown

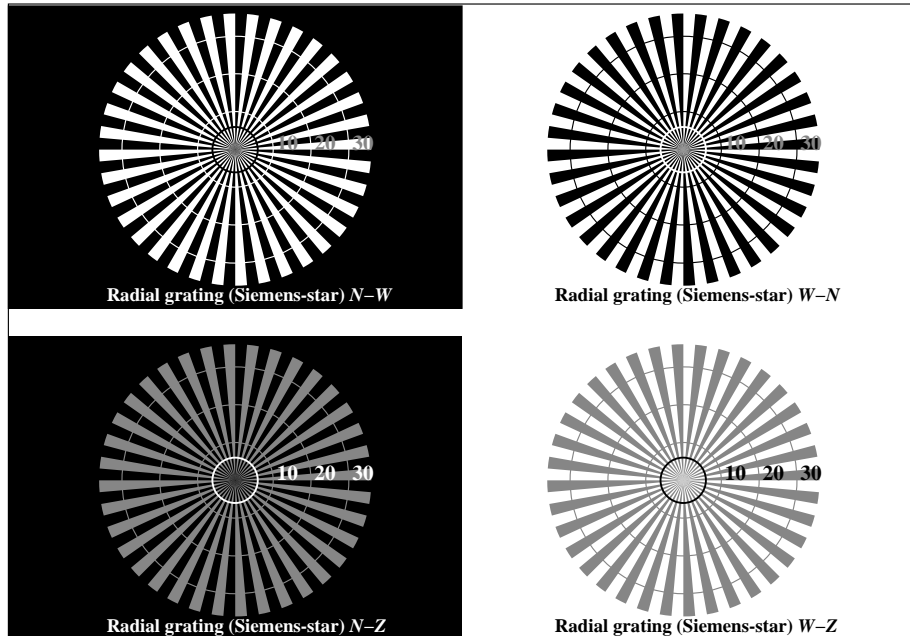
$L^*/Y^*_{\text{intended}}$ (absolute)	5.7/0.6	11.7/1.4	17.7/2.4	23.6/4.0	29.6/6.1	35.6/8.8	41.6/12.2	47.6/16.5	53.5/21.5	59.5/27.6	65.5/34.7	71.5/42.9	77.5/52.3	83.4/63.0	89.4/75.1	95.4/88.6
$w^*_{\text{setgray}}$ $g_P=0.92$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*_{\text{intended}}$ $w^*_{\text{out}}$	0.000 0.0	0.067 0.082	0.133 0.155	0.200 0.226	0.267 0.295	0.333 0.362	0.400 0.428	0.467 0.494	0.533 0.559	0.600 0.623	0.667 0.688	0.733 0.75	0.800 0.814	0.867 0.876	0.933 0.938	1.000 1.0

OE540-7N, Picture A7-111-5: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*_{\text{setgray}}$

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93

input: all ( $\rightarrow rgb_d$ )  $setrgbcolor$   
output 131-5:  $g_P=0.92$ ;  $g_N=1.0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-121-6: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $n^*n^*n^*0$  setcmykcolor

$L^*/Y_{intended}$ (absolute)	5.6/0.6	28.1/5.5	50.5/18.8	72.9/45.1	95.4/88.5	$N_0$ (min.)	$W_1$ (max.)
$n^*n^*n^*0$ setcmyk $g_p=0.84$ No. and Hex code	00;4	01;3	02;2	03;1	04;0		
$w^*=l^*$ CIELAB, r (relative)							
$w^*_{intended}$	0.000	0.250	0.500	0.750	1.000	$N_0$ (min.)	$W_1$ (max.)
$w^*_{out}$	0.0	0.308	0.555	0.783	1.0		

OE540-5N, Picture A2-121-6: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $n^*n^*n^*0$  setcmykcolor

$L^*/Y_{intended}$ (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
$n^*n^*n^*0$ setcmyk $g_p=0.92$ 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
$w^*_{out}$	0.0	0.082	0.154	0.225	0.294	0.361	0.428	0.494	0.558	0.623	0.687	0.75	0.813	0.876	0.937	1.0

OE540-7N, Picture A3-121-6: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0$  setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93

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

OE541-1N, Picture A4-121-6: Landolt-rings W-N; PS operator:  $n^*n^*n^*0$  setcmykcolor

	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	

OE541-3N, Picture A5-121-6: Line raster under 45° (or 135°); PS operator:  $n^*n^*n^*0$  setcmykcolor

	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	

OE541-5N, Picture A6-121-6: Line raster under 90° (or 0°); PS operator:  $n^*n^*n^*0$  setcmykcolor

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 131-6:  $g_p=0.92$ ;  $g_N=1.0$

**Test for the best visual linearized output of Picture A7-121-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the radial grating according to picture A1-121-0**  
**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 A2-121-0**  
 Are the 5 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 5 steps: ..... Steps  
**Test of 16 visual equidistant L\*-grey steps according to picture A3-121-0**  
 Are the 16 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 16 steps: .... Steps

Part 1

OE540-3N-121-7

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

Part 3

OE540-7N-121-7

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
 Viewing Y contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93 output 131-7:  $g_P=0,92$ ;  $g_N=1,0$

**Test for the best visual linearized output of Picture A7-121-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the Landolt-rings N-W according to picture A4-121-0**  
**N-W-radial grating:**  
 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 A5-121-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi  
**Test of the radial grating under 90° according to picture A6-121-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi

Part 2

OE541-3N-121-7

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

underline Yes/No

**Picture A7-121-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

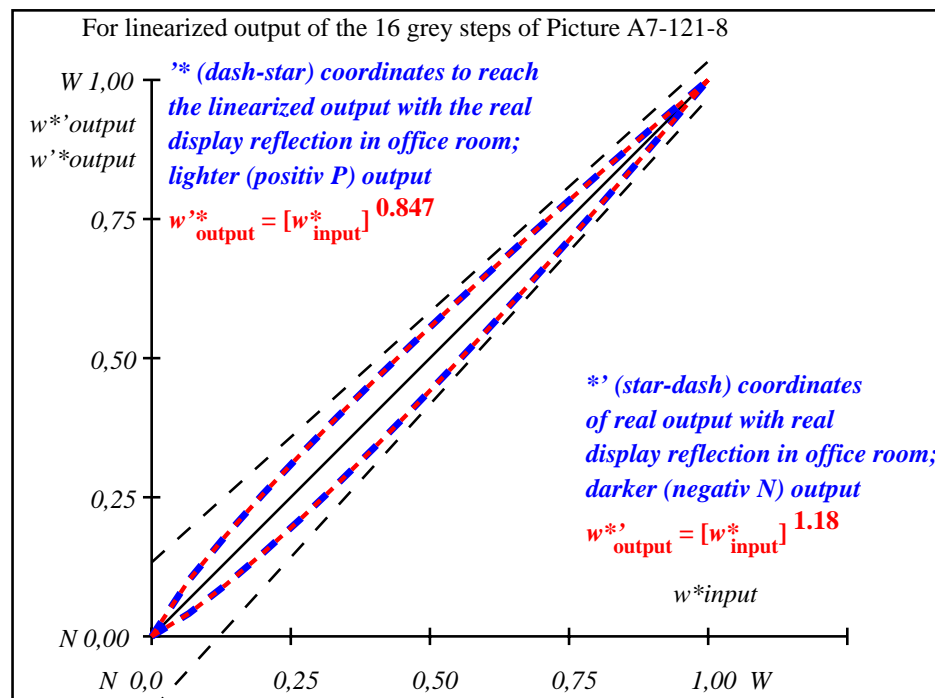
OE541-7N-121-7



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	5.69 0.0 0.0	0.0 0.0 0.0	5.69 0.0 0.0	0.0 0.0 0.0	0.01	Specification according to
2	11.67 0.0 0.0	0.08 13.02 0.0 0.0	13.02 0.0 0.0	1.35 0.0 0.0	1.35	ISO/IEC 15775 Annex G
3	17.65 0.0 0.0	0.16 19.6 0.0 0.0	19.6 0.0 0.0	1.95 0.0 0.0	1.95	and DIN 33866-1 Annex G
4	23.63 0.0 0.0	0.23 25.94 0.0 0.0	25.94 0.0 0.0	2.3 0.0 0.0	2.3	
5	29.62 0.0 0.0	0.29 32.11 0.0 0.0	32.11 0.0 0.0	2.49 0.0 0.0	2.49	
6	35.6 0.0 0.0	0.36 38.17 0.0 0.0	38.17 0.0 0.0	2.57 0.0 0.0	2.57	
7	41.58 0.0 0.0	0.43 44.13 0.0 0.0	44.13 0.0 0.0	2.55 0.0 0.0	2.55	
8	47.56 0.0 0.0	0.49 50.02 0.0 0.0	50.02 0.0 0.0	2.46 0.0 0.0	2.46	
9	53.54 0.0 0.0	0.56 55.85 0.0 0.0	55.85 0.0 0.0	2.31 0.0 0.0	2.31	
10	59.52 0.0 0.0	0.62 61.62 0.0 0.0	61.62 0.0 0.0	2.1 0.0 0.0	2.1	
11	65.5 0.0 0.0	0.69 67.35 0.0 0.0	67.35 0.0 0.0	1.85 0.0 0.0	1.85	
12	71.48 0.0 0.0	0.75 73.03 0.0 0.0	73.03 0.0 0.0	1.55 0.0 0.0	1.55	
13	77.47 0.0 0.0	0.81 78.68 0.0 0.0	78.68 0.0 0.0	1.21 0.0 0.0	1.21	
14	83.45 0.0 0.0	0.88 84.29 0.0 0.0	84.29 0.0 0.0	0.84 0.0 0.0	0.84	
15	89.43 0.0 0.0	0.94 89.86 0.0 0.0	89.86 0.0 0.0	0.43 0.0 0.0	0.43	Mean lightness difference (16 steps)
16	95.41 0.0 0.0	1.0 95.41 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01	ΔE* <sub>CIELAB</sub> = 1.6
17	5.69 0.0 0.0	0.0 0.0 0.0	5.69 0.0 0.0	0.0 0.0 0.0	0.01	
18	28.12 0.0 0.0	0.28 30.58 0.0 0.0	30.58 0.0 0.0	2.46 0.0 0.0	2.46	
19	50.55 0.0 0.0	0.53 52.94 0.0 0.0	52.94 0.0 0.0	2.39 0.0 0.0	2.39	
20	72.98 0.0 0.0	0.77 74.45 0.0 0.0	74.45 0.0 0.0	1.47 0.0 0.0	1.47	Mean lightness difference (5 steps)
21	95.41 0.0 0.0	1.0 95.41 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01	ΔL* <sub>CIELAB</sub> = 1.3
Mean colour reproduction index:					R* <sub>ab,m</sub> = 93	

OE540-3N-121-8: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-121-8: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	5.7/0.6	11.7/1.4	17.7/2.4	23.6/4.0	29.6/6.1	35.6/8.8	41.6/12.2	47.6/16.5	53.5/21.5	59.5/27.6	65.5/34.7	71.5/42.9	77.5/52.3	83.4/63.0	89.4/75.1	95.4/88.6
$n^*n^*n^*0$ setcmk g <sub>P</sub> =0.92																
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
$w^*_{\text{out}}$	0,0	0,082	0,155	0,226	0,295	0,362	0,428	0,494	0,559	0,623	0,688	0,75	0,814	0,876	0,938	1,0

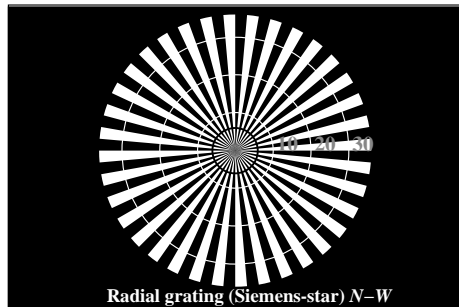
OE540-7N, Picture A7-121-8: 16 visual equidistant L\*-grey steps; PS operator:  $n^*n^*n^*0$  setcmkcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing Y contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93

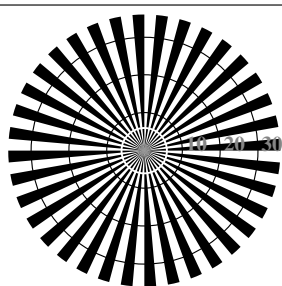
input: all (->rgb<sub>d</sub>) setrgbcolor  
output 131-8: g<sub>P</sub>=0.92; g<sub>N</sub>=1.0

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

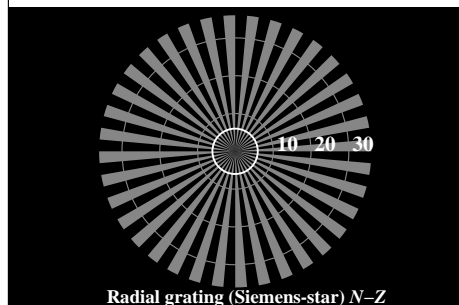
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1.1, CIELAB



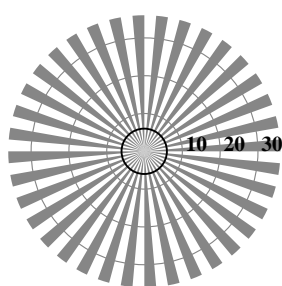
Radial grating (Siemens-star) N-W



Radial grating (Siemens-star) W-N

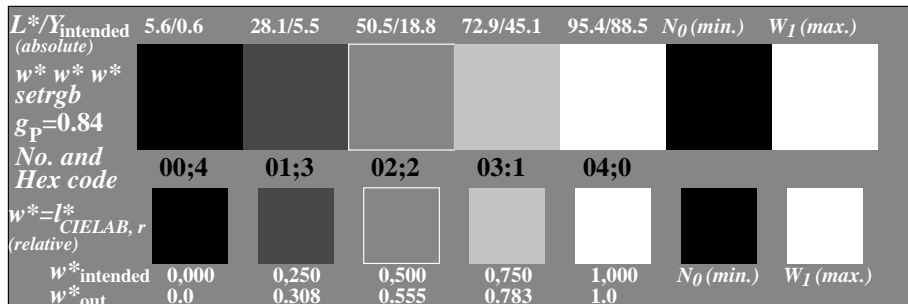


Radial grating (Siemens-star) N-Z

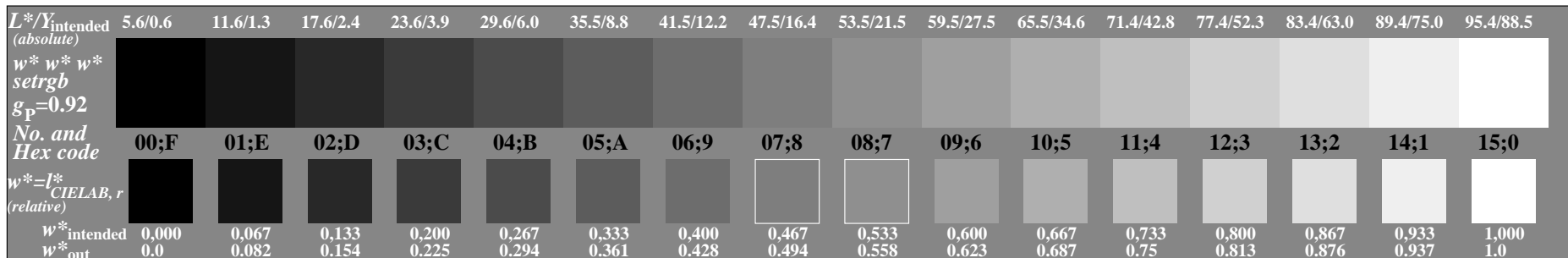


Radial grating (Siemens-star) W-Z

OE540-3N, Picture A1-131-9: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

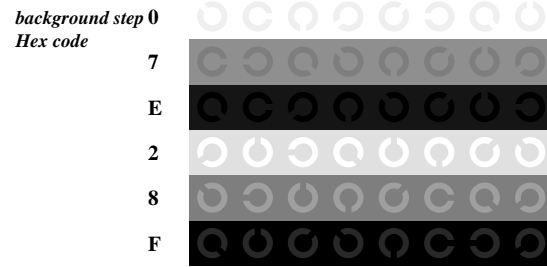


OE540-5N, Picture A2-131-9: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

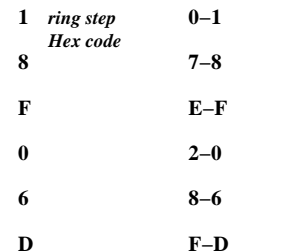


OE540-7N, Picture A3-131-9: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93

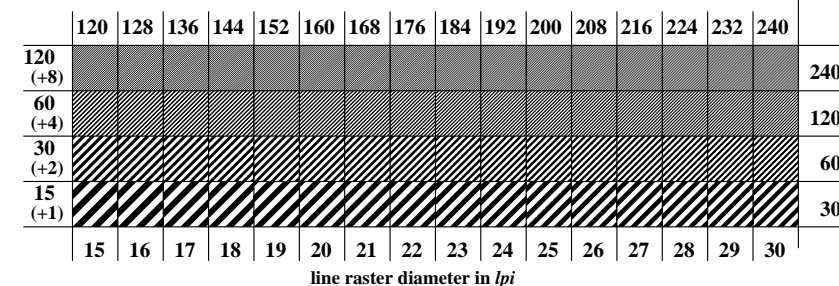


Landolt-rings W-N



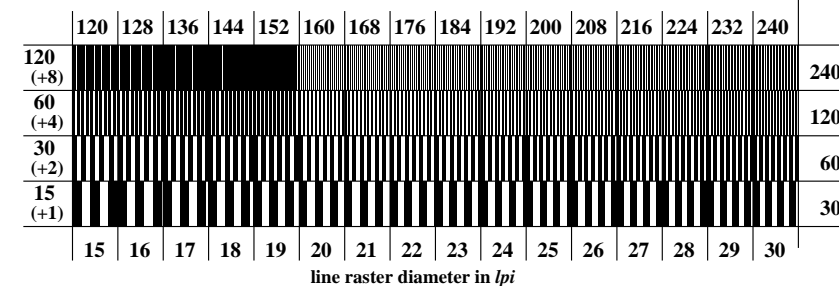
code: background-ring

OE541-1N, Picture A4-131-9: Landolt-rings W-N; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



line raster diameter in  $lpi$

OE541-3N, Picture A5-131-9: Line raster under  $45^\circ$  (or  $135^\circ$ ); PS operator:  $w^* w^* w^* \text{setrgbcolor}$



line raster diameter in  $lpi$

OE541-5N, Picture A6-131-9: Line raster under  $90^\circ$  (or  $0^\circ$ ); PS operator:  $w^* w^* w^* \text{setrgbcolor}$

input: all ( $\rightarrow \text{rgb}_d$ )  $\text{setrgbcolor}$   
output 131-9:  $g_p=0.92$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

**Test for the best visual linearized output of Picture A7-131-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the radial grating according to picture A1-131-0**  
**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 A2-131-0**  
 Are the 5 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 5 steps: ..... Steps  
**Test of 16 visual equidistant L\*-grey steps according to picture A3-131-0**  
 Are the 16 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 16 steps: .... Steps

Part 1

OE540-3N-131-10

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-131-10

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
 Viewing Y contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93 output 131-10:  $g_P=0,92$ ;  $g_N=1,0$

**Test for the best visual linearized output of Picture A7-131-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the Landolt-rings N-W according to picture A4-131-0**  
**N-W-radial grating:**  
 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 A5-131-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi  
**Test of the radial grating under 90° according to picture A6-131-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi

Part 2

OE541-3N-131-10

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

underline Yes/No

**Picture A7-131-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

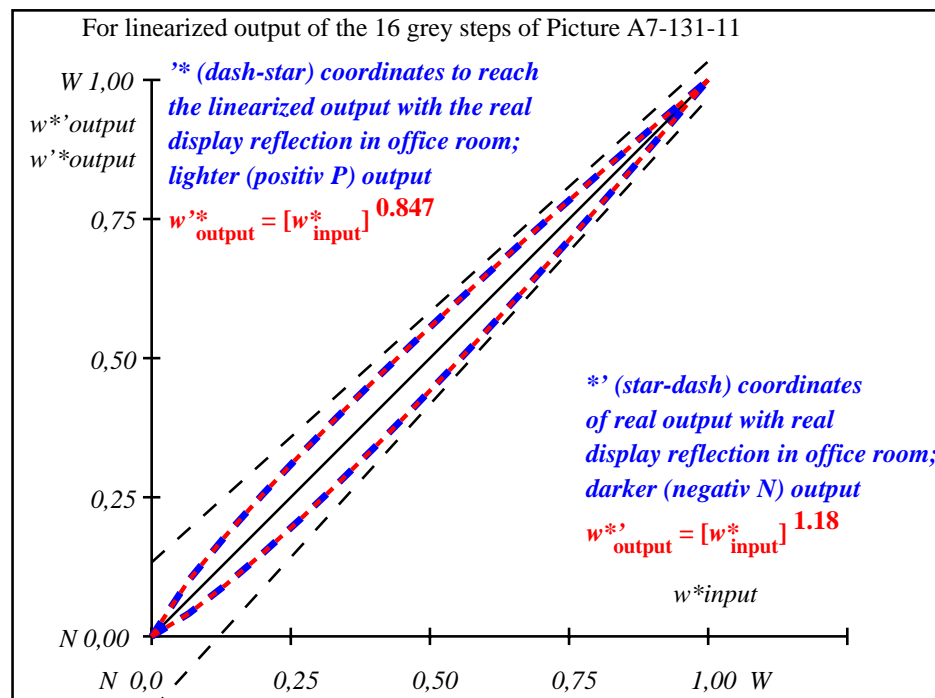
If No, please describe other method: .....

OE541-7N-131-10

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	5.69 0.0 0.0	0.0 0.0 0.0	5.69 0.0 0.0	0.0 0.0 0.0	0.01	Specification according to
2	11.67 0.0 0.0	0.08 13.02 0.0 0.0	13.02 0.0 0.0	1.35 0.0 0.0	1.35	ISO/IEC 15775 Annex G
3	17.65 0.0 0.0	0.16 19.6 0.0 0.0	19.6 0.0 0.0	1.95 0.0 0.0	1.95	and DIN 33866-1 Annex G
4	23.63 0.0 0.0	0.23 25.94 0.0 0.0	25.94 0.0 0.0	2.3 0.0 0.0	2.3	
5	29.62 0.0 0.0	0.29 32.11 0.0 0.0	32.11 0.0 0.0	2.49 0.0 0.0	2.49	
6	35.6 0.0 0.0	0.36 38.17 0.0 0.0	38.17 0.0 0.0	2.57 0.0 0.0	2.57	
7	41.58 0.0 0.0	0.43 44.13 0.0 0.0	44.13 0.0 0.0	2.55 0.0 0.0	2.55	
8	47.56 0.0 0.0	0.49 50.02 0.0 0.0	50.02 0.0 0.0	2.46 0.0 0.0	2.46	
9	53.54 0.0 0.0	0.56 55.85 0.0 0.0	55.85 0.0 0.0	2.31 0.0 0.0	2.31	
10	59.52 0.0 0.0	0.62 61.62 0.0 0.0	61.62 0.0 0.0	2.1 0.0 0.0	2.1	
11	65.5 0.0 0.0	0.69 67.35 0.0 0.0	67.35 0.0 0.0	1.85 0.0 0.0	1.85	
12	71.48 0.0 0.0	0.75 73.03 0.0 0.0	73.03 0.0 0.0	1.55 0.0 0.0	1.55	
13	77.47 0.0 0.0	0.81 78.68 0.0 0.0	78.68 0.0 0.0	1.21 0.0 0.0	1.21	
14	83.45 0.0 0.0	0.88 84.29 0.0 0.0	84.29 0.0 0.0	0.84 0.0 0.0	0.84	
15	89.43 0.0 0.0	0.94 89.86 0.0 0.0	89.86 0.0 0.0	0.43 0.0 0.0	0.43	Mean lightness difference (16 steps)
16	95.41 0.0 0.0	1.0 95.41 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01	ΔE* <sub>CIELAB</sub> = 1.6
17	5.69 0.0 0.0	0.0 0.0 0.0	5.69 0.0 0.0	0.0 0.0 0.0	0.01	
18	28.12 0.0 0.0	0.28 30.58 0.0 0.0	30.58 0.0 0.0	2.46 0.0 0.0	2.46	
19	50.55 0.0 0.0	0.53 52.94 0.0 0.0	52.94 0.0 0.0	2.39 0.0 0.0	2.39	
20	72.98 0.0 0.0	0.77 74.45 0.0 0.0	74.45 0.0 0.0	1.47 0.0 0.0	1.47	Mean lightness difference (5 steps)
21	95.41 0.0 0.0	1.0 95.41 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01	ΔL* <sub>CIELAB</sub> = 1.3
Mean colour reproduction index:					R* <sub>ab,m</sub> = 93	

OE540-3N-131-11: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-131-11: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{intended}$ (absolute)	5.7/0.6	11.7/1.4	17.7/2.4	23.6/4.0	29.6/6.1	35.6/8.8	41.6/12.2	47.6/16.5	53.5/21.5	59.5/27.6	65.5/34.7	71.5/42.9	77.5/52.3	83.4/63.0	89.4/75.1	95.4/88.6
$w^* w^* w^*$ setrgb																
$g_P=0.92$																
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
$w^*_{out}$	0.0	0.082	0.155	0.226	0.295	0.362	0.428	0.494	0.559	0.623	0.688	0.75	0.814	0.876	0.938	1.0

OE540-7N, Picture A7-131-11: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

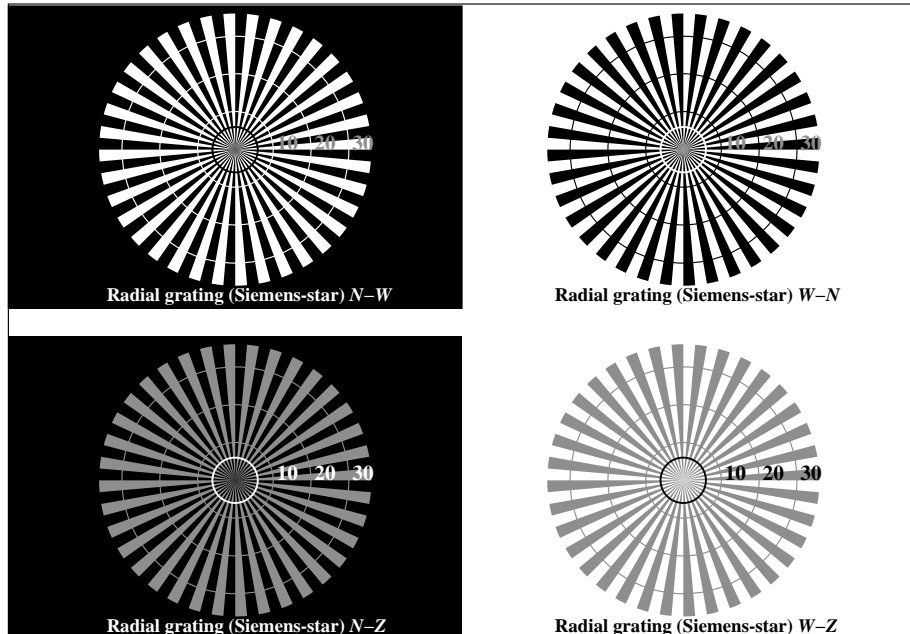
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 131-11:  $g_P=0.92$ ;  $g_N=1.0$

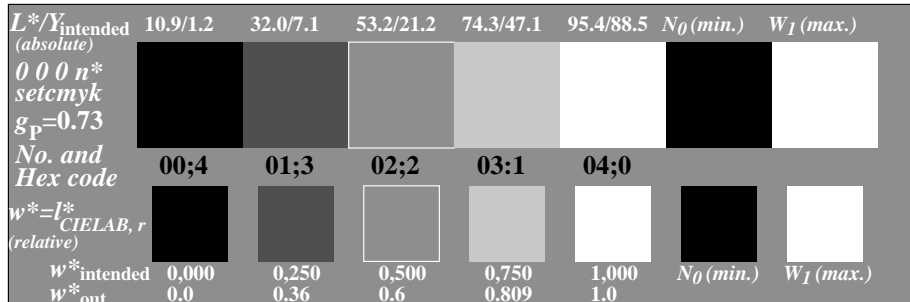
TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta



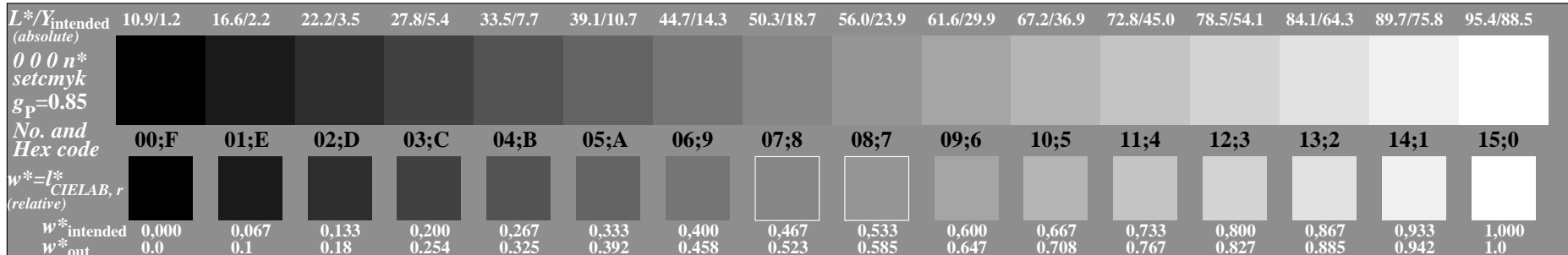
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-102-0: Radial grating N-W, W-N, N-Z, W-Z; PS operator: 0 0 0 n\* setcmykcolor

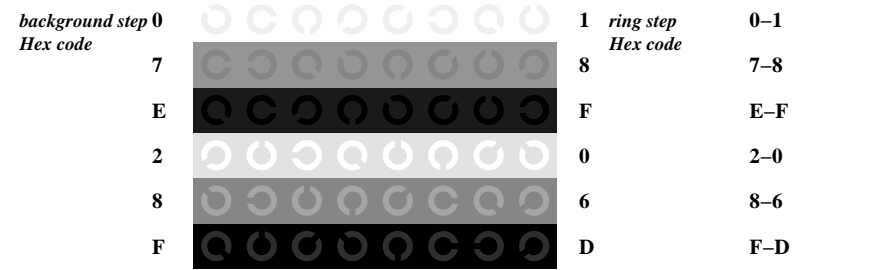


OE540-5N, Picture A2-102-0: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator: 0 0 0 n\* setcmykcolor

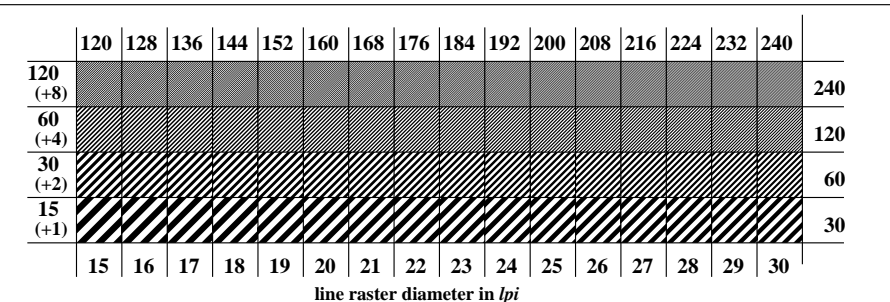


OE540-7N, Picture A3-102-0: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

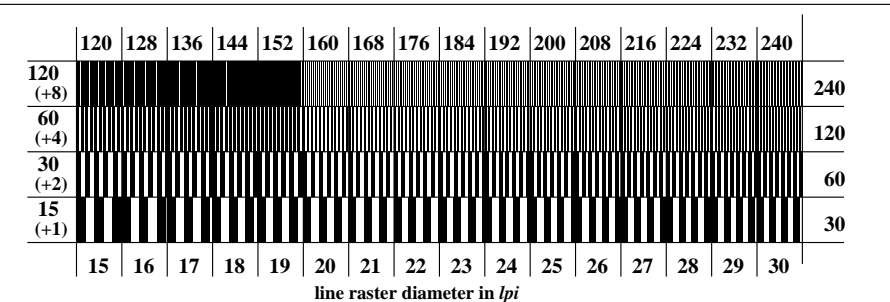
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87



Landolt-rings W-N code: background-ring  
OE541-1N, Picture A4-102-0: Landolt-rings W-N; PS operator: 0 0 0 n\* setcmykcolor



OE541-3N, Picture A5-102-0: Line raster under 45° (or 135°); PS operator: 0 0 0 n\* setcmykcolor



OE541-5N, Picture A6-102-0: Line raster under 90° (or 0°); PS operator: 0 0 0 n\* setcmykcolor

input: all (->rgb\*d) setrgbcolor  
output 132-0:  $g_p=0.85$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

Test for the best visual linearized output of Picture A7-102-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-102-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-102-0</b>		
Are the 5 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-102-0</b>		
Are the 16 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		.... Steps

Part 1

OE540-3N-102-1

Documentation of file format, hardware and software for this test:	
<b>PDF-File:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF">http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF</a>	<u>underline</u> Yes/No
<b>PS-File:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS">http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS</a>	or <u>underline</u> Yes/No
<b>Used computer operating system:</b> either one of Windows/Mac/Unix/other and version:.....	
<b>This evaluation is for the device output:</b> <u>underline</u> monitor/data projector/printer	
Device model, driver and version:.....	
<b>Device output with PDF/PS-file:</b>	<u>underline</u> PDF/PS-file
<b>For device output with PDF-file OE54L0NP.PDF:</b> 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:.....	
<b>For device output with PS-file OE54L0NA.PS:</b> 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: Special remarks, e. g. output of Landscape (L) ..... .....	

Part 3

OE540-7N-102-1

Test for the best visual linearized output of Picture A7-102-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-102-0</b>		
N-W-radial grating:	Is the recognition frequency of the Landolt-rings > 50% (5 of 8 at least)?	Yes/No
	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
<b>Test of the radial grating under 45° according to picture A5-102-0</b>		
Can equally spaced lines be seen?		Yes/No
Visual testing: for radial diameter from 15 to 60 lpi		to ..... lpi
Test with a magnifying glass (e.g. 6x):	- from 15 lpi:	
<b>Test of the radial grating under 90° according to picture A6-102-0</b>		
Can equally spaced lines be seen?		Yes/No
Visual testing: for radial diameter from 15 to 60 lpi		to ..... lpi
Test with a magnifying glass (e.g. 6x):	- from 15 lpi:	

Part 2

OE541-3N-102-1

Documentation of assessor colour vision properties for visual assessment	
The assessor has <b>normal</b> colour vision according to one test:	
either according to DIN 6160:1996 with Anomaloskop of Nagel	<u>underline</u> Yes/No
or with test charts using colour points according to Ishihara	<u>underline</u> Yes/unknown
or tested with, please specify: .....	<u>underline</u> Yes/unknown
<b>For visual evaluation of the display (monitor, data projector) output</b>	
Office workplace illumination is daylight (clouded/north sky)	<u>underline</u> Yes/No
<b>PDF file:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF">http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF</a>	<u>underline</u> Yes/No
<b>PS file:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS">http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS</a>	<u>underline</u> Yes/No
<b>Picture A7-102-2: contrast range:</b> (>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 <u>underline</u> range
<i>Remark: In daylighted offices the contrast range is in many cases: on display between: &gt;F:0 and E:0 (monitor), D:0 and 3:0 (data projector)</i>	
<b>Only for optional colorimetric specification with PDF/PS file output</b>	
<b>PDF-File:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF">http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF</a>	<u>underline</u> Yes/No
<b>PS-File:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS">http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS</a>	or <u>underline</u> Yes/No
<b>colour measurement and specification for:</b> CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: <u>underline</u> Yes/No If No, please give other parameters: .....	
<b>Colorimetric specification with PS file for colours in the columns A to T</b> Exchange of CIELAB data in file <a href="http://www.ps.bam.de/De17/10L/L17e00NP.PS">www.ps.bam.de/De17/10L/L17e00NP.PS</a> and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF <u>underline</u> Yes/No If No, please describe other method: .....	

Part 4

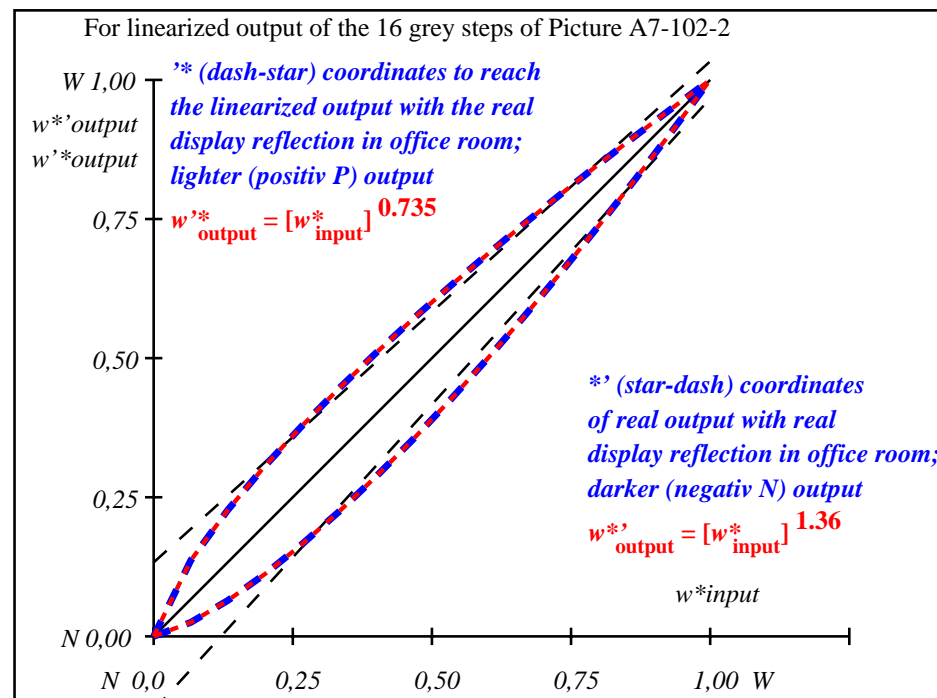
OE541-7N-102-1

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87 output 132-1:  $g_P=0,85$ ;  $g_N=1,0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	10.99	0.0	0.0	0.0	0.0	0.01
2	16.62	0.0	0.1	19.44	0.0	2.82
3	22.25	0.0	0.18	26.22	0.0	3.97
4	27.88	0.0	0.25	32.49	0.0	4.61
5	33.5	0.0	0.33	38.44	0.0	4.94
6	39.13	0.0	0.39	44.17	0.0	5.04
7	44.76	0.0	0.46	49.73	0.0	4.98
8	50.39	0.0	0.52	55.16	0.0	4.77
9	56.02	0.0	0.59	60.47	0.0	4.45
10	61.64	0.0	0.65	65.68	0.0	4.03
11	67.27	0.0	0.71	70.8	0.0	3.53
12	72.9	0.0	0.77	75.85	0.0	2.95
13	78.53	0.0	0.83	80.83	0.0	2.3
14	84.15	0.0	0.89	85.74	0.0	1.59
15	89.78	0.0	0.94	90.6	0.0	0.82
16	95.41	0.0	1.0	95.41	0.0	0.01
17	10.99	0.0	0.0	10.99	0.0	0.01
18	32.1	0.0	0.31	36.98	0.0	4.88
19	53.2	0.0	0.55	57.83	0.0	4.62
20	74.31	0.0	0.78	77.1	0.0	2.79
21	95.41	0.0	1.0	95.41	0.0	0.01
Mean lightness difference (16 steps)					ΔE* <sub>CIELAB</sub> = 3.2	
Mean lightness difference (5 steps)					ΔL* <sub>CIELAB</sub> = 2.5	
Mean colour reproduction index:					R* <sub>ab,m</sub> = 86	

OE540-3N-102-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-102-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	11.0/1.3	16.6/2.2	22.2/3.6	27.9/5.4	33.5/7.8	39.1/10.7	44.8/14.4	50.4/18.7	56.0/23.9	61.6/30.0	67.3/37.0	72.9/45.0	78.5/54.1	84.2/64.4	89.8/75.8	95.4/88.6
0 0 0 n* setcmyk g <sub>p</sub> =0.85 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
$w^* = [L^*_{\text{CIELAB}}]^{1/r}$ (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
$w^*_{\text{out}}$	0.0	0.1	0.18	0.255	0.325	0.393	0.459	0.524	0.586	0.648	0.709	0.768	0.827	0.886	0.943	1.0

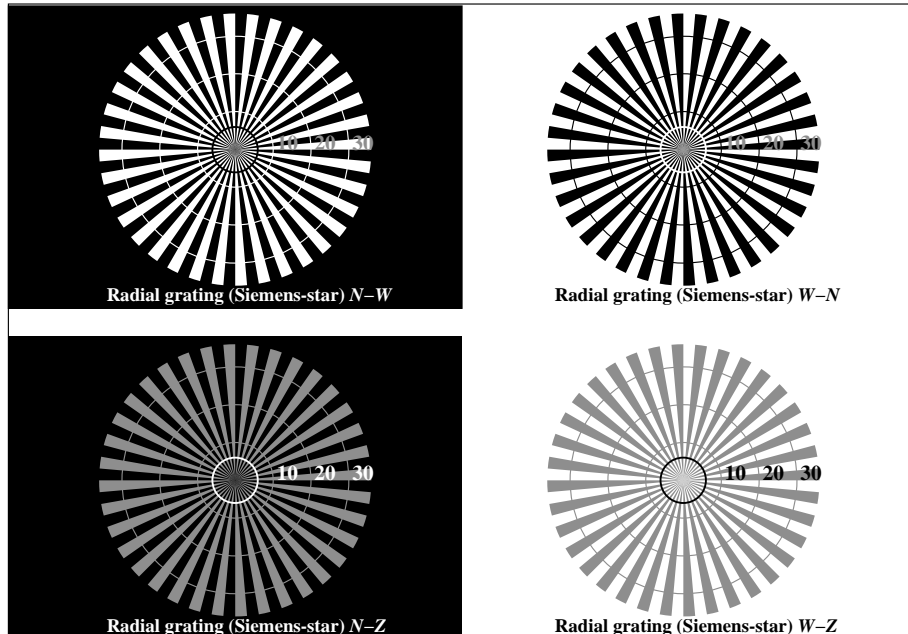
OE540-7N, Picture A7-102-2: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87

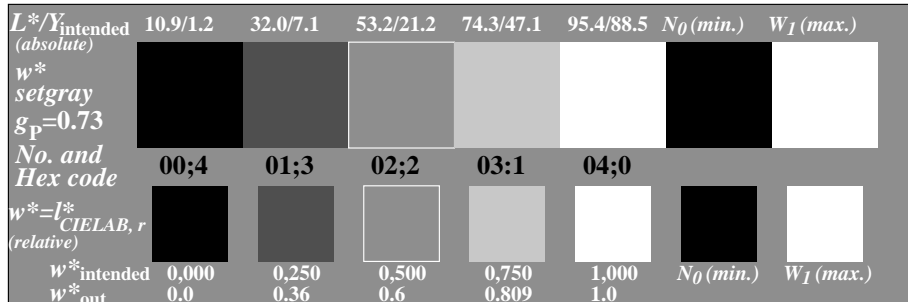
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 132-2:  $g_P=0.85$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

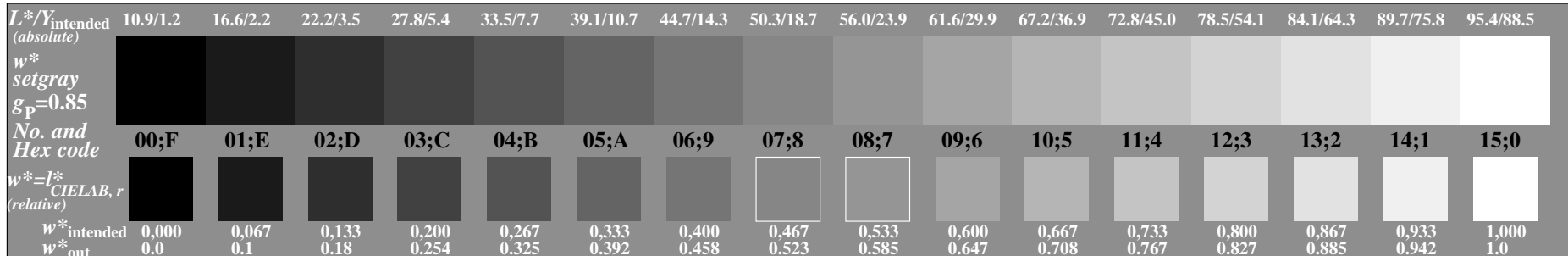
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-112-3: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^*$  setgray



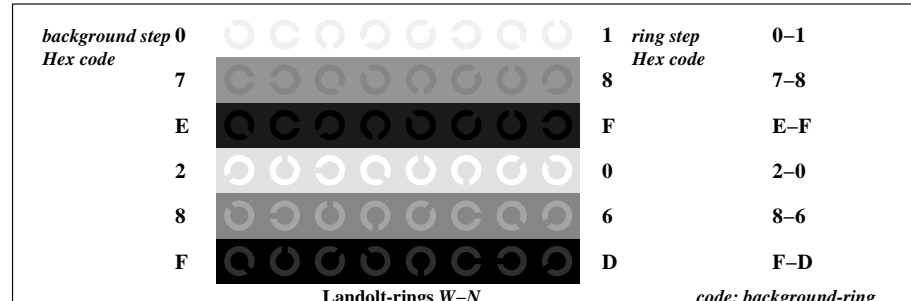
OE540-5N, Picture A2-112-3: 5 equidistant  $L^*$ -grey steps+N0+W1; PS operator:  $w^*$  setgray



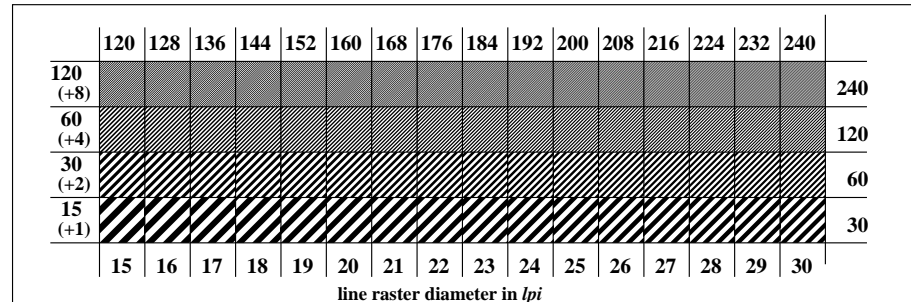
OE540-7N, Picture A3-112-3: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87

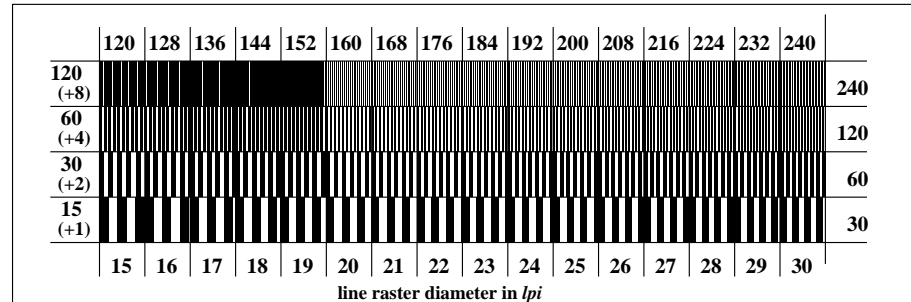
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 132-3:  $g_P=0.85$ ;  $g_N=1.0$



OE541-1N, Picture A4-112-3: Landolt-rings W-N; PS operator:  $w^*$  setgray



OE541-3N, Picture A5-112-3: Line raster under 45° (or 135°); PS operator:  $w^*$  setgray



OE541-5N, Picture A6-112-3: Line raster under 90° (or 0°); PS operator:  $w^*$  setgray

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta



Test for the best visual linearized output of Picture A7-112-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-112-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-112-0</b>		
Are the 5 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-112-0</b>		
Are the 16 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		.... Steps

Part 1 OE540-3N-112-4

Documentation of file format, hardware and software for this test:	
<b>PDF-File:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF">http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF</a>	<u>underline</u> Yes/No
<b>PS-File:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS">http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS</a>	<u>or underline</u> Yes/No
<b>Used computer operating system:</b> either one of Windows/Mac/Unix/other and version:.....	
<b>This evaluation is for the device output:</b> <u>underline</u> monitor/data projector/printer	
Device model, driver and version:.....	
<b>Device output with PDF/PS-file:</b>	<u>underline</u> PDF/PS-file
<b>For device output with PDF-file OE54L0NP.PDF:</b> 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:.....	
<b>For device output with PS-file OE54L0NA.PS:</b> 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: Special remarks, e. g. output of Landscape (L) ..... .....	

Part 3 OE540-7N-112-4

Test for the best visual linearized output of Picture A7-112-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-112-0</b>		
N-W-radial grating:	Is the recognition frequency of the Landolt-rings > 50% (5 of 8 at least)?	Yes/No
	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
<b>Test of the radial grating under 45° according to picture A5-112-0</b>		
Can equally spaced lines be seen?		Yes/No
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x):	- from 15 lpi:	to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-112-0</b>		
Can equally spaced lines be seen?		Yes/No
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x):	- from 15 lpi:	to ..... lpi

Part 2 OE541-3N-112-4

Documentation of assessor colour vision properties for visual assessment	
The assessor has <b>normal</b> colour vision according to one test:	
either according to DIN 6160:1996 with Anomaloskop of Nagel	<u>underline</u> Yes/No
or with test charts using colour points according to Ishihara	<u>underline</u> Yes/unknown
or tested with, please specify: .....	<u>underline</u> Yes/unknown
<b>For visual evaluation of the display (monitor, data projector) output</b>	
Office workplace illumination is daylight (clouded/north sky)	<u>underline</u> Yes/No
<b>PDF file:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF">http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF</a>	<u>underline</u> Yes/No
<b>PS file:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS">http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS</a>	<u>underline</u> Yes/No
<b>Picture A7-112-2: contrast range:</b> (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)	<u>underline</u> range
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)	
<b>Only for optional colorimetric specification with PDF/PS file output</b>	
<b>PDF-File:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF">http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF</a>	<u>underline</u> Yes/No
<b>Picture A7-112-2</b>	<u>underline</u> Yes/No
<b>PS-File:</b> <a href="http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS">http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS</a>	<u>or underline</u> Yes/No
<b>Picture A7-112-2</b>	<u>or underline</u> Yes/No
<b>colour measurement and specification for:</b> CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: <u>underline</u> Yes/No	
If No, please give other parameters: .....	
<b>Colorimetric specification with PS file for colours in the columns A to T</b>	
Exchange of CIELAB data in file <a href="http://www.ps.bam.de/De17/10L/L17e00NP.PS">www.ps.bam.de/De17/10L/L17e00NP.PS</a> and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF <u>underline</u> Yes/No	
If No, please describe other method: .....	

Part 4 OE541-7N-112-4

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: all (->rgb\*d) setrgbcolor  
Viewing Y contrast  $Y_W: Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87 output 132-4:  $g_P=0,85$ ;  $g_N=1,0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

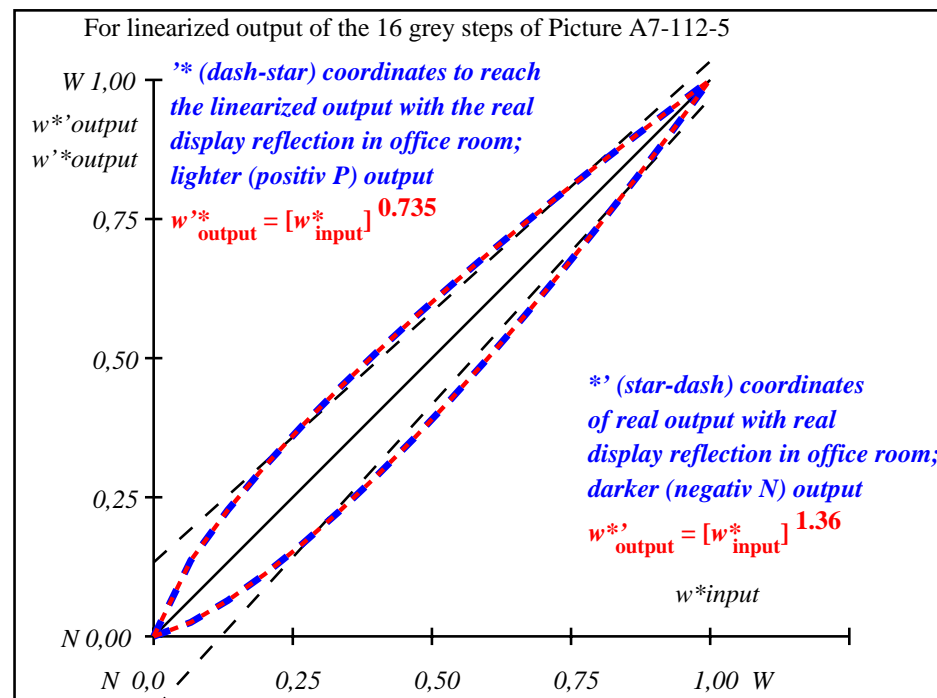
i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	10.99	0.0	0.0	0.0	0.0	0.01
2	16.62	0.0	0.1	19.44	0.0	2.82
3	22.25	0.0	0.18	26.22	0.0	3.97
4	27.88	0.0	0.25	32.49	0.0	4.61
5	33.5	0.0	0.33	38.44	0.0	4.94
6	39.13	0.0	0.39	44.17	0.0	5.04
7	44.76	0.0	0.46	49.73	0.0	4.98
8	50.39	0.0	0.52	55.16	0.0	4.77
9	56.02	0.0	0.59	60.47	0.0	4.45
10	61.64	0.0	0.65	65.68	0.0	4.03
11	67.27	0.0	0.71	70.8	0.0	3.53
12	72.9	0.0	0.77	75.85	0.0	2.95
13	78.53	0.0	0.83	80.83	0.0	2.3
14	84.15	0.0	0.89	85.74	0.0	1.59
15	89.78	0.0	0.94	90.6	0.0	0.82
16	95.41	0.0	1.0	95.41	0.0	0.01
17	10.99	0.0	0.0	10.99	0.0	0.01
18	32.1	0.0	0.31	36.98	0.0	4.88
19	53.2	0.0	0.55	57.83	0.0	4.62
20	74.31	0.0	0.78	77.1	0.0	2.79
21	95.41	0.0	1.0	95.41	0.0	0.01

Mean lightness difference (16 steps)  $\Delta E^*_{CIELAB} = 3.2$

Mean lightness difference (5 steps)  $\Delta E^*_{CIELAB} = 2.5$

Mean colour reproduction index:  $R^*_{ab,m} = 86$

OE540-3N-112-5: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-112-5: File: Measure unknown; Device: Device unknown; Date: Date unknown

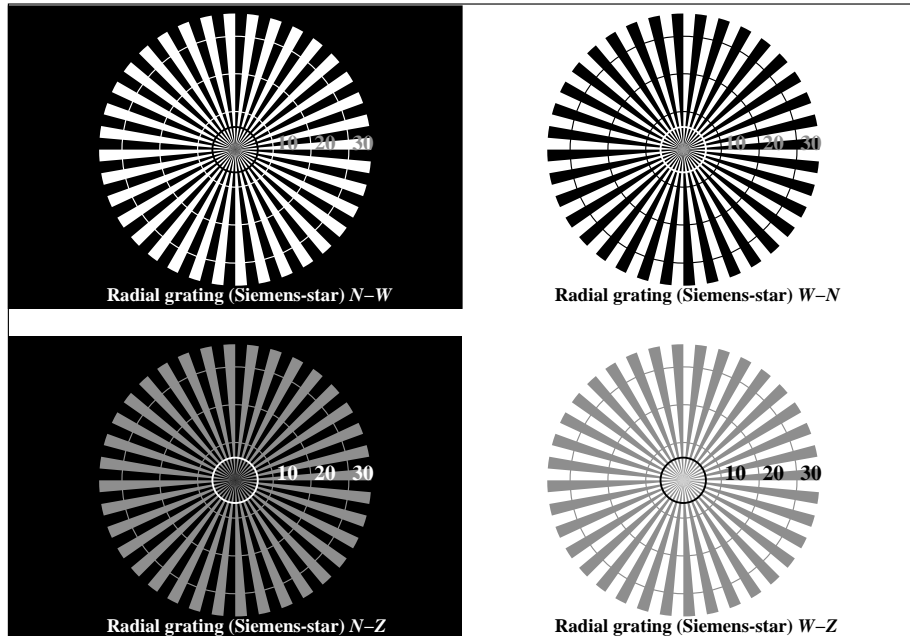
$L^*/Y^*_{intended}$ (absolute)	11.0/1.3	16.6/2.2	22.2/3.6	27.9/5.4	33.5/7.8	39.1/10.7	44.8/14.4	50.4/18.7	56.0/23.9	61.6/30.0	67.3/37.0	72.9/45.0	78.5/54.1	84.2/64.4	89.8/75.8	95.4/88.6
$w^*$ setgray $g_P=0.85$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	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
$w^*_{intended}$	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
$w^*_{out}$	0.0	0.1	0.18	0.255	0.325	0.393	0.459	0.524	0.586	0.648	0.709	0.768	0.827	0.886	0.943	1.0

OE540-7N, Picture A7-112-5: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

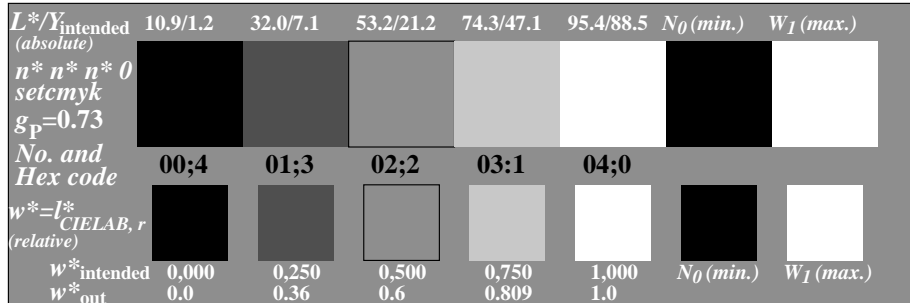
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 132-5:  $g_P=0.85$ ;  $g_N=1.0$

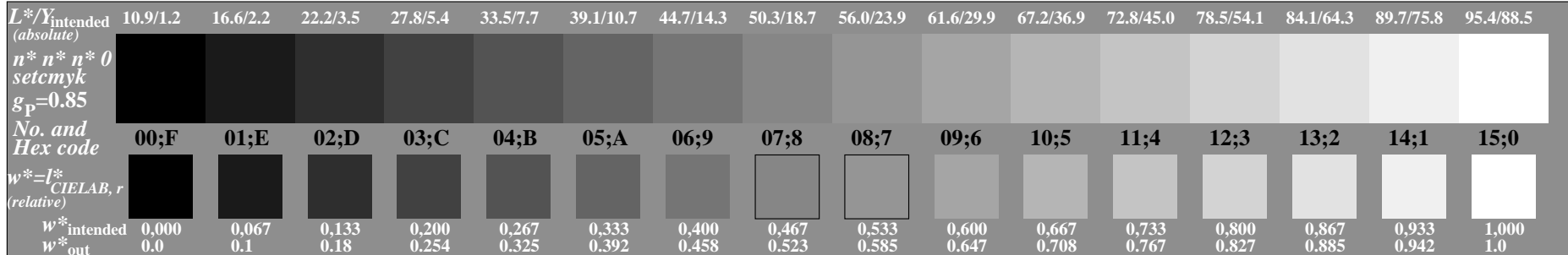
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-122-6: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $n^*n^*n^*0$  setcmykcolor

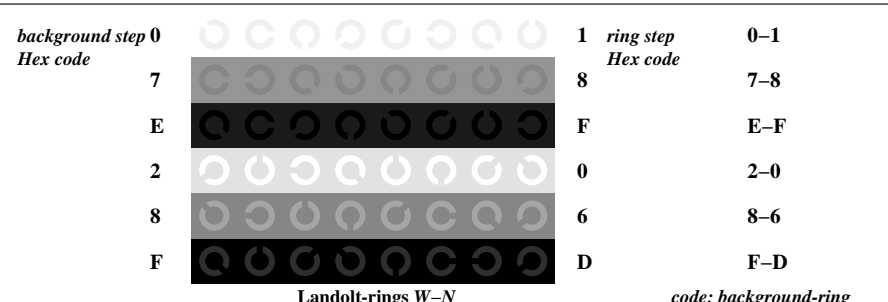


OE540-5N, Picture A2-122-6: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $n^*n^*n^*0$  setcmykcolor

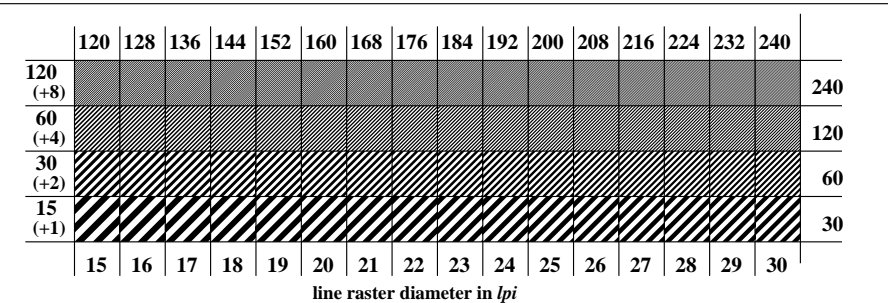


OE540-7N, Picture A3-122-6: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0$  setcmykcolor

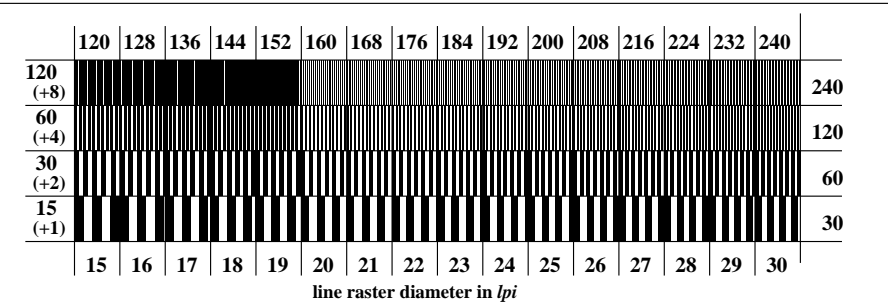
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87



OE541-1N, Picture A4-122-6: Landolt-rings W-N; PS operator:  $n^*n^*n^*0$  setcmykcolor



OE541-3N, Picture A5-122-6: Line raster under 45° (or 135°); PS operator:  $n^*n^*n^*0$  setcmykcolor



OE541-5N, Picture A6-122-6: Line raster under 90° (or 0°); PS operator:  $n^*n^*n^*0$  setcmykcolor

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 132-6:  $g_p=0.85$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-122-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-122-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-122-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-122-0</b>		
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:		..... Steps

Part 1 OE540-3N-122-7

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)  
.....  
.....  
.....

Part 3 OE540-7N-122-7

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all* ( $\rightarrow rgb_d$ ) *setrgbcolor*  
Viewing  $Y$  contrast  $Y_W: Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87 output 132-7:  $g_P=0,85$ ;  $g_N=1,0$

Test for the best visual linearized output of Picture A7-122-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-122-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-122-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): – from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-122-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): – from 15 lpi:		to ..... lpi

Part 2 OE541-3N-122-7

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> underline Yes/No

**Picture A7-122-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**Picture A7-122-2** underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> or underline Yes/No

**Picture A7-122-2** 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 with PS file for colours in the columns A to T**  
Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer  
of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF underline Yes/No  
If No, please describe other method: .....

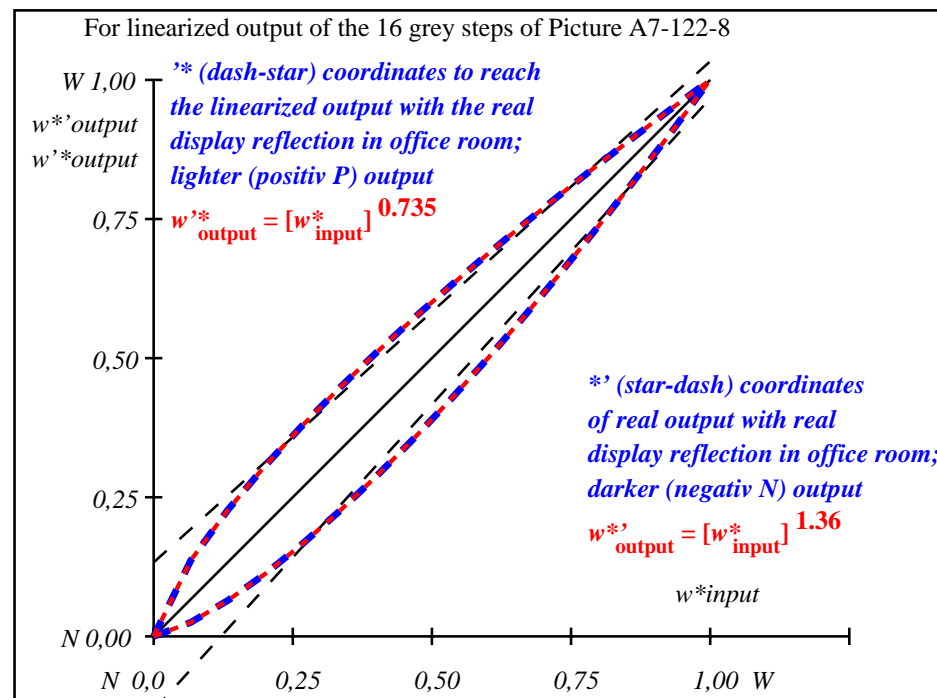
Part 4 OE541-7N-122-7



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	10.99	0.0	0.0	0.0	0.0	0.01
2	16.62	0.0	0.1	19.44	0.0	2.82
3	22.25	0.0	0.18	26.22	0.0	3.97
4	27.88	0.0	0.25	32.49	0.0	4.61
5	33.5	0.0	0.33	38.44	0.0	4.94
6	39.13	0.0	0.39	44.17	0.0	5.04
7	44.76	0.0	0.46	49.73	0.0	4.98
8	50.39	0.0	0.52	55.16	0.0	4.77
9	56.02	0.0	0.59	60.47	0.0	4.45
10	61.64	0.0	0.65	65.68	0.0	4.03
11	67.27	0.0	0.71	70.8	0.0	3.53
12	72.9	0.0	0.77	75.85	0.0	2.95
13	78.53	0.0	0.83	80.83	0.0	2.3
14	84.15	0.0	0.89	85.74	0.0	1.59
15	89.78	0.0	0.94	90.6	0.0	0.82
16	95.41	0.0	1.0	95.41	0.0	0.01
17	10.99	0.0	0.0	10.99	0.0	0.01
18	32.1	0.0	0.31	36.98	0.0	4.88
19	53.2	0.0	0.55	57.83	0.0	4.62
20	74.31	0.0	0.78	77.1	0.0	2.79
21	95.41	0.0	1.0	95.41	0.0	0.01
Mean lightness difference (16 steps)					ΔE* <sub>CIELAB</sub> = 3.2	
Mean lightness difference (5 steps)					ΔE* <sub>CIELAB</sub> = 2.5	
Mean colour reproduction index:					R* <sub>ab,m</sub> = 86	

OE540-3N-122-8: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-122-8: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	11.0/1.3	16.6/2.2	22.2/3.6	27.9/5.4	33.5/7.8	39.1/10.7	44.8/14.4	50.4/18.7	56.0/23.9	61.6/30.0	67.3/37.0	72.9/45.0	78.5/54.1	84.2/64.4	89.8/75.8	95.4/88.6
$n^* n^* n^* 0$ setcmyk $g_P=0.85$ 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
$w^*_{\text{out}}$	0.0	0.1	0.18	0.255	0.325	0.393	0.459	0.524	0.586	0.648	0.709	0.768	0.827	0.886	0.943	1.0

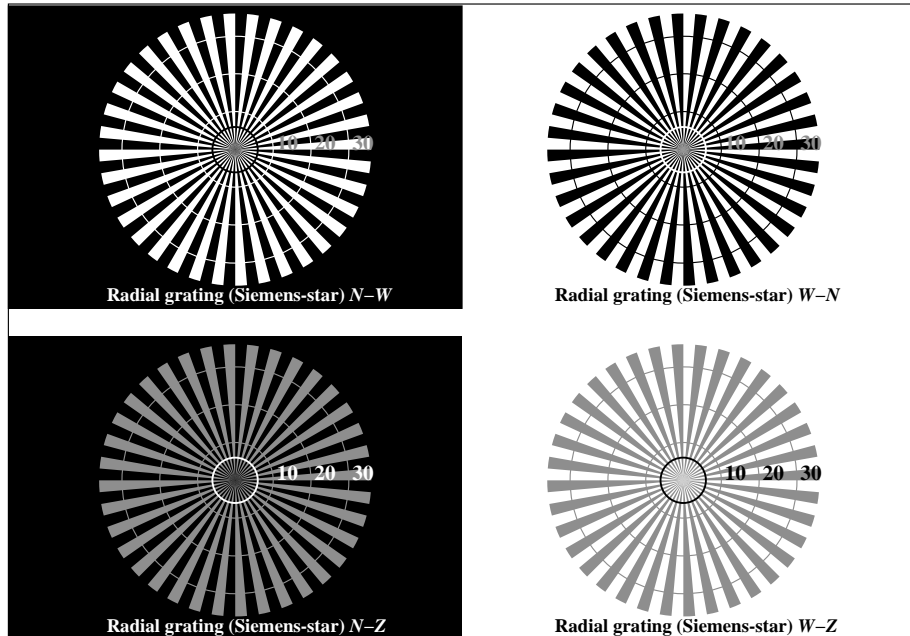
OE540-7N, Picture A7-122-8: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^* n^* n^* 0$  setcmykcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87

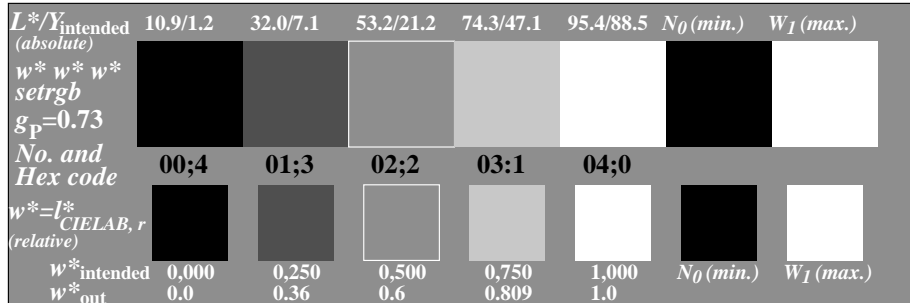
input: all ( $\rightarrow rgb_d$ ) setrgbcOLOR  
output 132-8:  $g_P=0.85$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

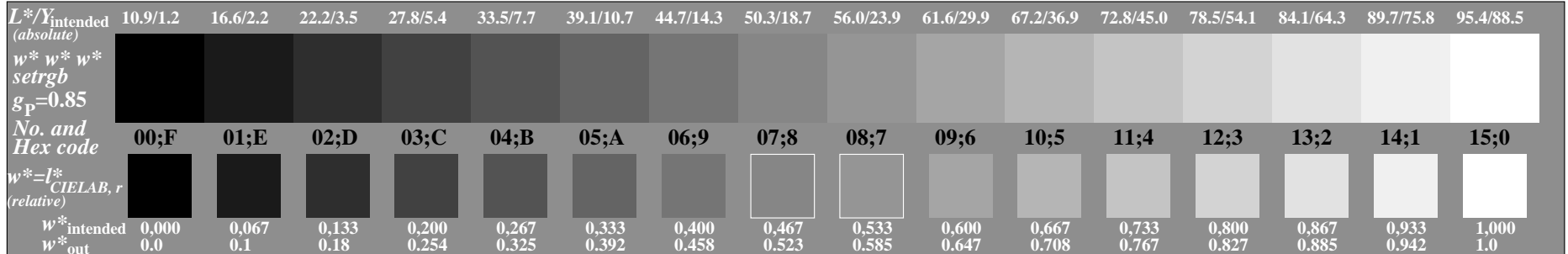
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-132-9: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

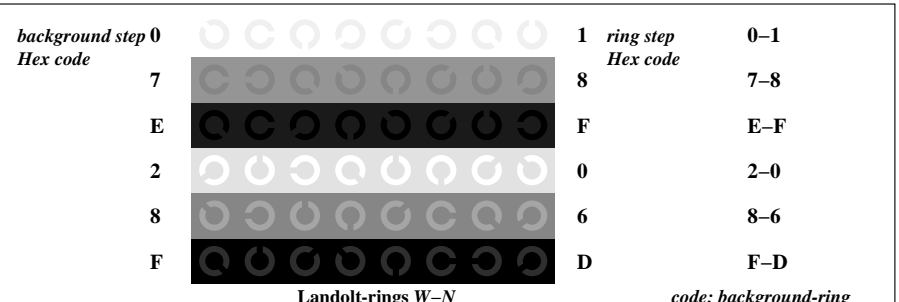


OE540-5N, Picture A2-132-9: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

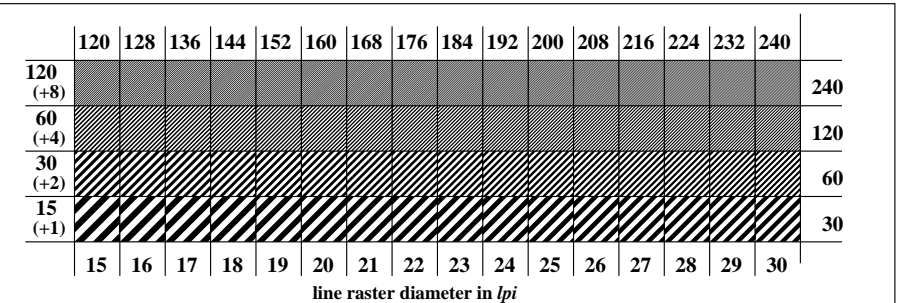


OE540-7N, Picture A3-132-9: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

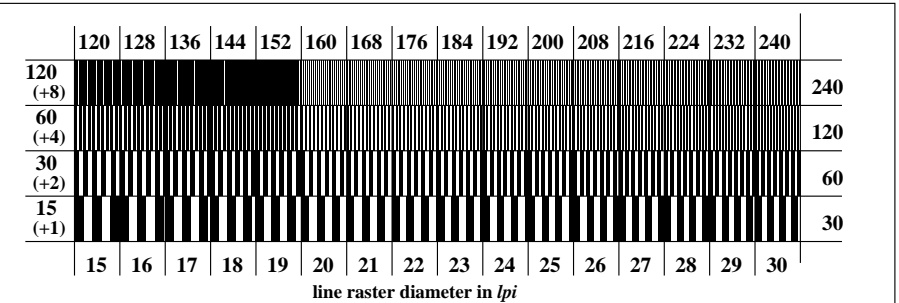
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87



OE541-1N, Picture A4-132-9: Landolt-rings W-N; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-3N, Picture A5-132-9: Line raster under 45° (or 135°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-5N, Picture A6-132-9: Line raster under 90° (or 0°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$

input: all ( $\rightarrow \text{rgb}_d$ )  $\text{setrgbcolor}$   
output 132-9:  $g_p=0.85$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-132-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-132-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-132-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-132-0</b>		
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:		..... Steps

Part 1 OE540-3N-132-10

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3 OE540-7N-132-10

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87 output 132-10:  $g_P=0.85$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-132-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-132-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-132-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-132-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-132-10

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**Picture A7-132-2: 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 range

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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**picture A7-132-2**

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**picture A7-132-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

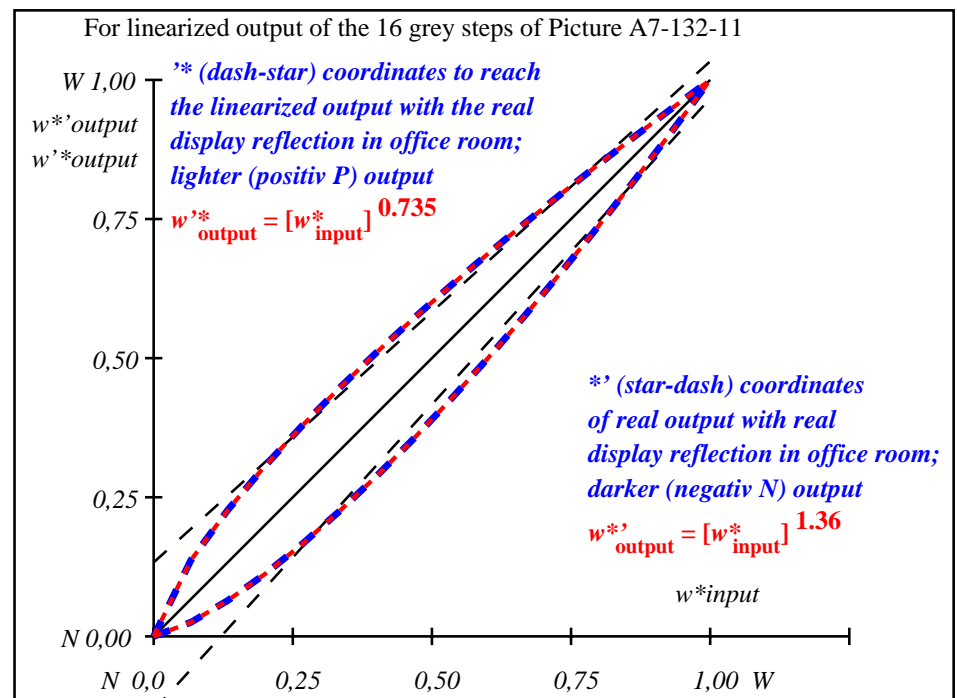
Part 4

OE541-7N-132-10

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	Start output S1
1	10.99	0.0	0.0	0.0	0.0	0.01
2	16.62	0.0	0.1	19.44	0.0	2.82
3	22.25	0.0	0.18	26.22	0.0	3.97
4	27.88	0.0	0.25	32.49	0.0	4.61
5	33.5	0.0	0.33	38.44	0.0	4.94
6	39.13	0.0	0.39	44.17	0.0	5.04
7	44.76	0.0	0.46	49.73	0.0	4.98
8	50.39	0.0	0.52	55.16	0.0	4.77
9	56.02	0.0	0.59	60.47	0.0	4.45
10	61.64	0.0	0.65	65.68	0.0	4.03
11	67.27	0.0	0.71	70.8	0.0	3.53
12	72.9	0.0	0.77	75.85	0.0	2.95
13	78.53	0.0	0.83	80.83	0.0	2.3
14	84.15	0.0	0.89	85.74	0.0	1.59
15	89.78	0.0	0.94	90.6	0.0	0.82
16	95.41	0.0	1.0	95.41	0.0	0.01
17	10.99	0.0	0.0	10.99	0.0	0.01
18	32.1	0.0	0.31	36.98	0.0	4.88
19	53.2	0.0	0.55	57.83	0.0	4.62
20	74.31	0.0	0.78	77.1	0.0	2.79
21	95.41	0.0	1.0	95.41	0.0	0.01
Mean lightness difference (16 steps)						$\Delta E^*_{\text{CIELAB}} = 3.2$
Mean lightness difference (5 steps)						$\Delta E^*_{\text{CIELAB}} = 2.5$
Mean colour reproduction index:						$R^*_{\text{ab,m}} = 86$

OE540-3N-132-11: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-132-11: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{\text{intended}}$ (absolute)	11.0/1.3	16.6/2.2	22.2/3.6	27.9/5.4	33.5/7.8	39.1/10.7	44.8/14.4	50.4/18.7	56.0/23.9	61.6/30.0	67.3/37.0	72.9/45.0	78.5/54.1	84.2/64.4	89.8/75.8	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=0.85$ 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
$w^*_{\text{intended}}$ $w^*_{\text{out}}$	0.0	0.1	0.18	0.255	0.325	0.393	0.459	0.524	0.586	0.648	0.709	0.768	0.827	0.886	0.943	1.0

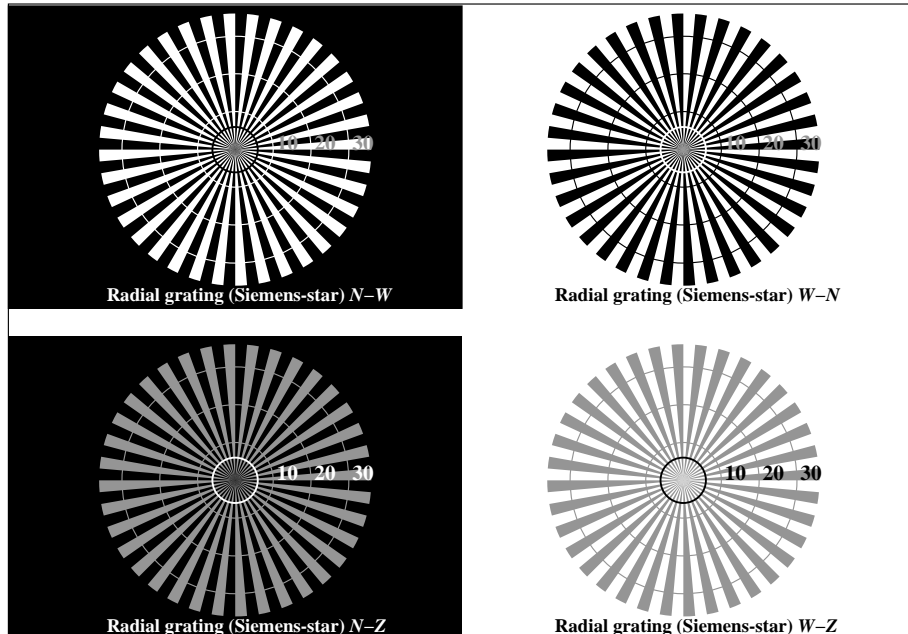
OE540-7N, Picture A7-132-11: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87

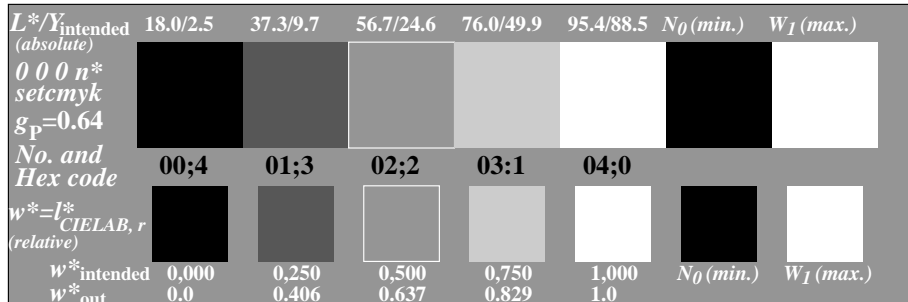
input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcolor  
output 132-11:  $g_P=0.85$ ;  $g_N=1.0$



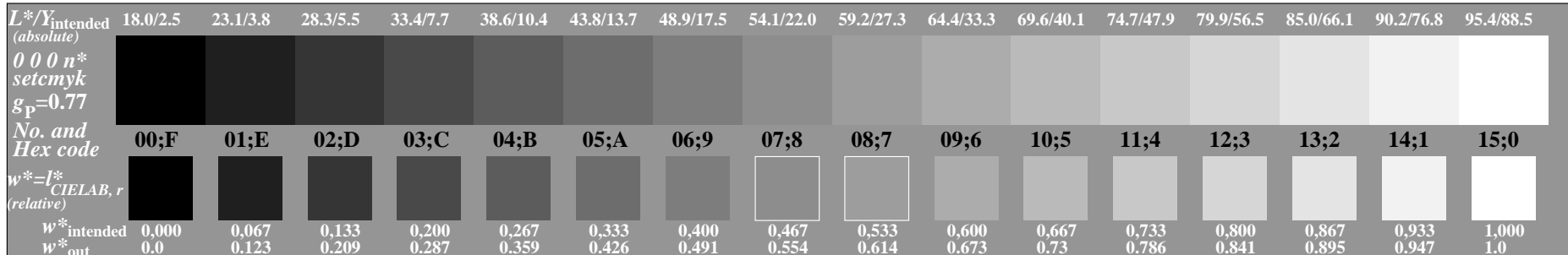
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-103-0: Radial grating N-W, W-N, N-Z, W-Z; PS operator: 0 0 0 n\* setcmykcolor

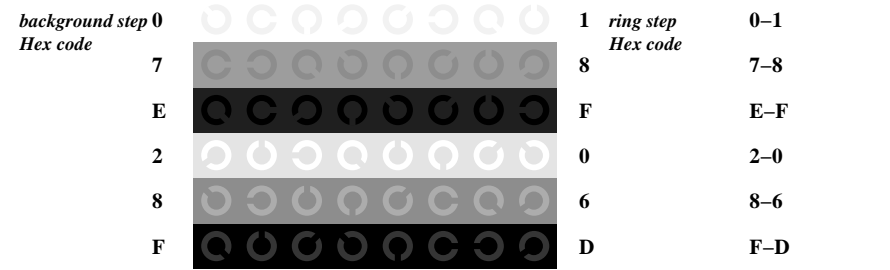


OE540-5N, Picture A2-103-0: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator: 0 0 0 n\* setcmykcolor



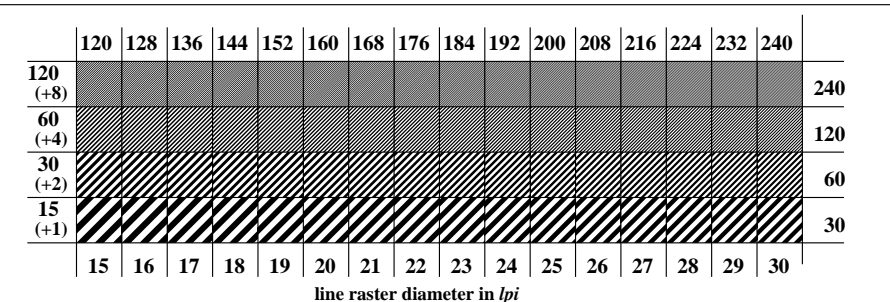
OE540-7N, Picture A3-103-0: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75



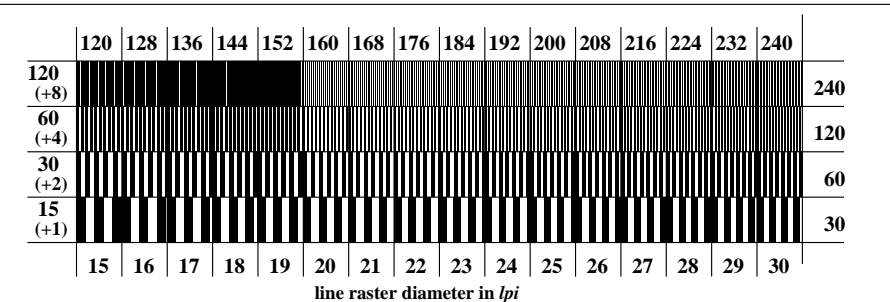
Landolt-rings W-N code: background-ring

OE541-1N, Picture A4-103-0: Landolt-rings W-N; PS operator: 0 0 0 n\* setcmykcolor



line raster diameter in lpi

OE541-3N, Picture A5-103-0: Line raster under 45° (or 135°); PS operator: 0 0 0 n\* setcmykcolor



line raster diameter in lpi

OE541-5N, Picture A6-103-0: Line raster under 90° (or 0°); PS operator: 0 0 0 n\* setcmykcolor

input: all (->rgb\*d) setrgbcolor  
output 133-0:  $g_p=0.77$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

<b>Test for the best visual linearized output of Picture A7-103-0</b>		<b>Yes/No</b>
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-103-0</b>		
<b>N-W-radial grating:</b>	Is the resolution diameter < 6 mm?	<b>Yes/No</b>
	Test with magnifying glass (e.g. 6x)	
	resolution diameter	..... mm
<b>W-N-radial grating:</b>	Is the resolution diameter < 6 mm?	<b>Yes/No</b>
	Test with magnifying glass (e.g. 6x)	
	resolution diameter	..... mm
<b>N-Z-radial grating:</b>	Is the resolution diameter < 6 mm?	<b>Yes/No</b>
	Test with magnifying glass (e.g. 6x)	
	resolution diameter	..... mm
<b>W-Z-radial grating:</b>	Is the resolution diameter < 6 mm?	<b>Yes/No</b>
	Test with magnifying glass (e.g. 6x)	
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-103-0</b>		
Are the 5 steps on the upper rows distinguishable?		<b>Yes/No</b>
If No: How many steps can be distinguished?		
of the given 5 steps:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-103-0</b>		
Are the 16 steps on the upper rows distinguishable?		<b>Yes/No</b>
If No: How many steps can be distinguished?		
of the given 16 steps:		.... Steps

Part 1

OE540-3N-103-1

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> **underline Yes/No**

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> **or underline Yes/No**

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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.....  
.....

Part 3

OE540-7N-103-1

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75 output 133-1:  $g_P=0.77$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-103-0</b>		<b>Yes/No</b>
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-103-0</b>		
<b>N-W-radial grating:</b>		
Is the recognition frequency of the Landolt-rings > 50% (5 of 8 at least)?		
background – ring		<b>Yes/No</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>
<b>Test of the radial grating under 45° according to picture A5-103-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		<b>Yes/No</b>
Test with a magnifying glass (e.g. 6x): – from 15 lpi:		<b>to ..... lpi</b>
<b>Test of the radial grating under 90° according to picture A6-103-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		<b>Yes/No</b>
Test with a magnifying glass (e.g. 6x): – from 15 lpi:		<b>to ..... lpi</b>

Part 2

OE541-3N-103-1

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**underline Yes/No**

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**underline Yes/No**

**Picture A7-103-2: 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 range**

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**underline Yes/No**

**picture A7-103-2**

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

**underline Yes/No**

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

Part 4

OE541-7N-103-1

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$
1	18.01	0.0	18.01	0.0	0.01
2	23.17	0.0	27.5	0.0	4.33
3	28.33	0.0	34.25	0.0	5.92
4	33.49	0.0	40.24	0.0	6.76
5	38.65	0.0	45.8	0.0	7.15
6	43.81	0.0	51.04	0.0	7.23
7	48.97	0.0	56.06	0.0	7.09
8	54.13	0.0	60.89	0.0	6.76
9	59.29	0.0	65.56	0.0	6.27
10	64.45	0.0	70.11	0.0	5.66
11	69.61	0.0	74.54	0.0	4.93
12	74.77	0.0	78.87	0.0	4.1
13	79.93	0.0	83.12	0.0	3.19
14	85.09	0.0	87.28	0.0	2.2
15	90.25	0.0	91.38	0.0	1.13
16	95.41	0.0	95.41	0.0	0.01
17	18.01	0.0	18.01	0.0	0.01
18	37.36	0.0	44.44	0.0	7.08
19	56.71	0.0	63.24	0.0	6.53
20	76.06	0.0	79.94	0.0	3.88
21	95.41	0.0	95.41	0.0	0.01

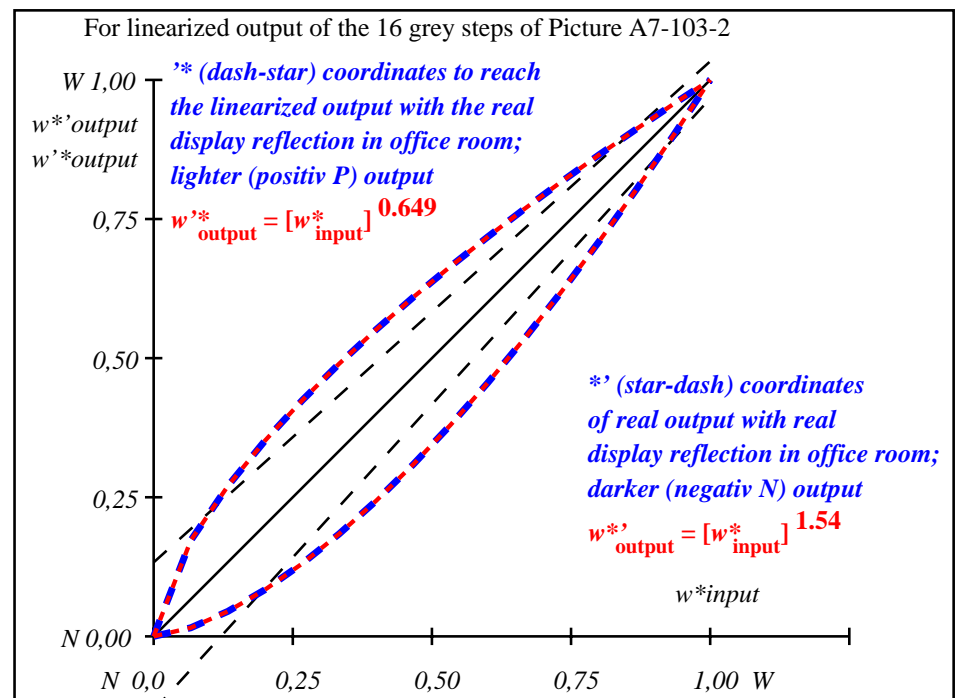
**Start output S1**  
**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 4.5$

Mean lightness difference (5 steps)  $\Delta L^*_{\text{CIELAB}} = 3.5$

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

OE540-3N-103-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-103-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{\text{intended}}$ (absolute)	18.0/2.5	23.2/3.8	28.3/5.6	33.5/7.8	38.6/10.5	43.8/13.7	49.0/17.6	54.1/22.1	59.3/27.3	64.4/33.4	69.6/40.2	74.8/47.9	79.9/56.6	85.1/66.2	90.2/76.8	95.4/88.6
$0\ 0\ 0\ n^*$ setcmyk $g_P=0.78$ 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
$w^*_{\text{out}}$	0.0	0.123	0.209	0.287	0.359	0.426	0.492	0.554	0.614	0.673	0.731	0.786	0.841	0.895	0.948	1.0

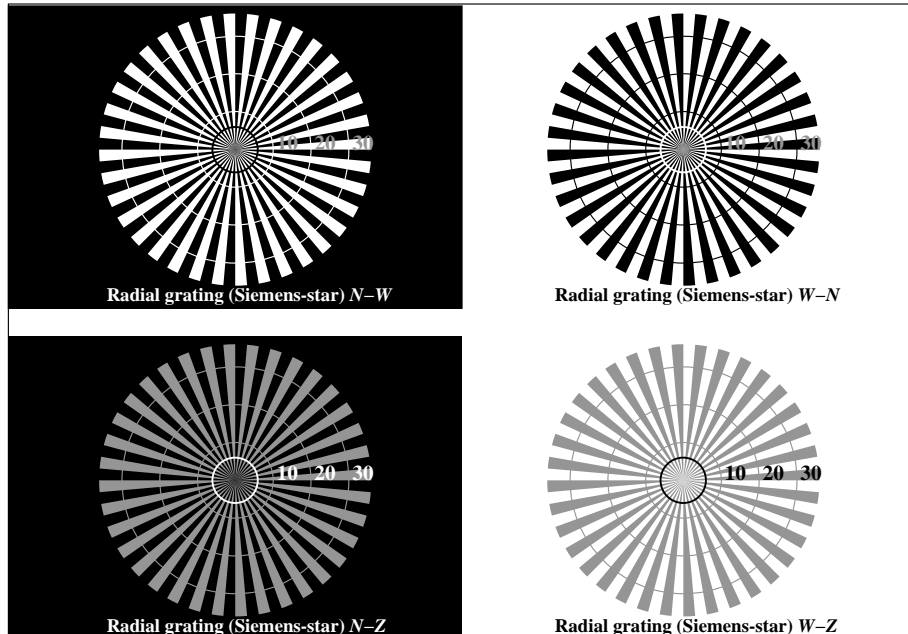
OE540-7N, Picture A7-103-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $0\ 0\ 0\ n^*$  setcmykcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75

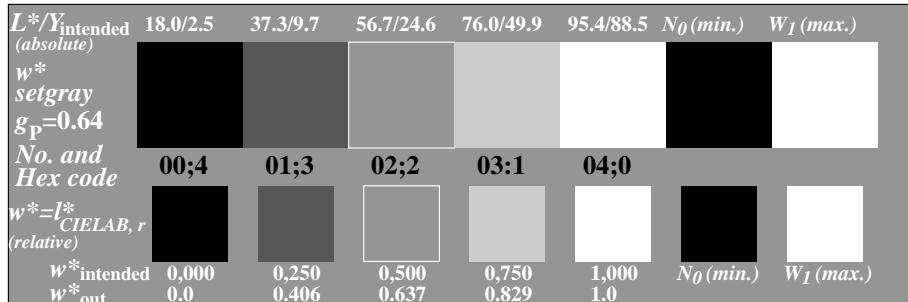
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 133-2:  $g_P=0.77$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

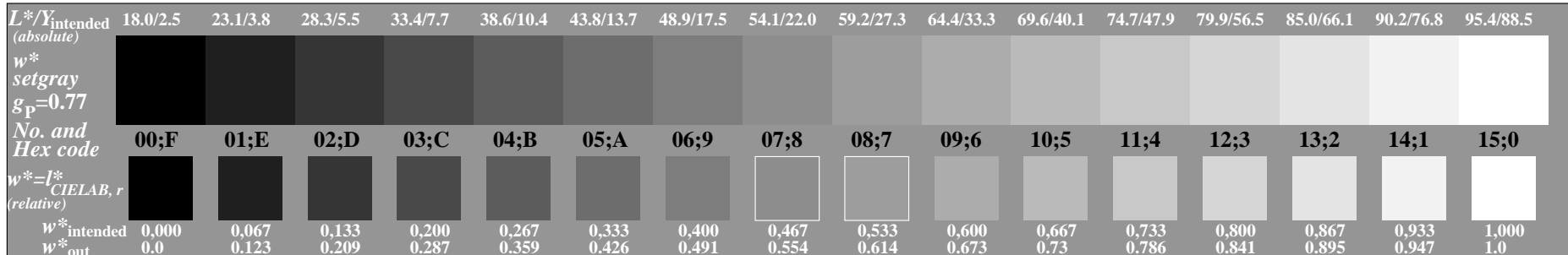
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-113-3: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^*$  setgray

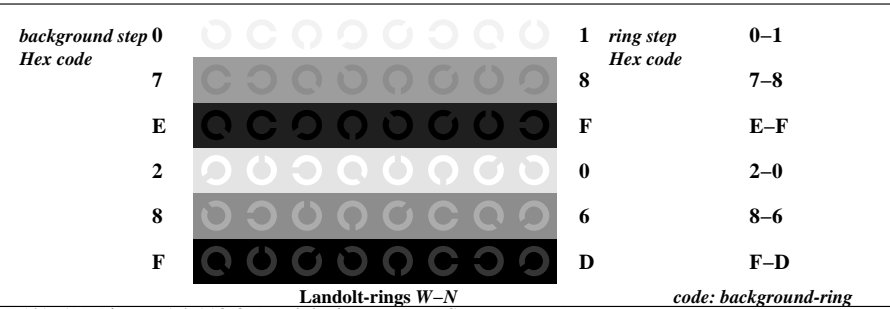


OE540-5N, Picture A2-113-3: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^*$  setgray

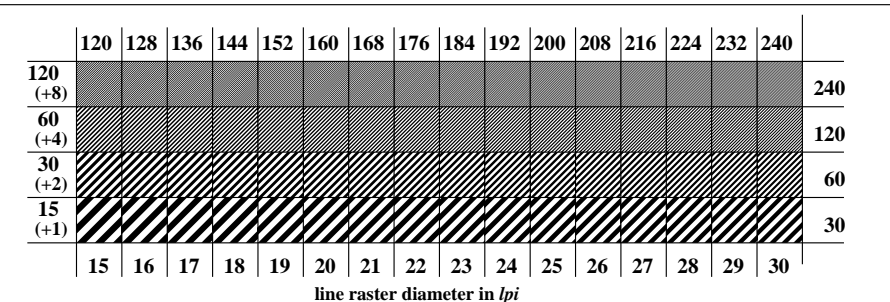


OE540-7N, Picture A3-113-3: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

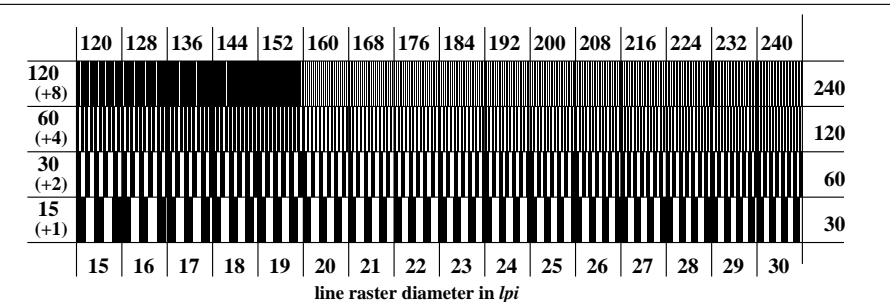
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75



OE541-1N, Picture A4-113-3: Landolt-rings W-N; PS operator:  $w^*$  setgray



OE541-3N, Picture A5-113-3: Line raster under 45° (or 135°); PS operator:  $w^*$  setgray



OE541-5N, Picture A6-113-3: Line raster under 90° (or 0°); PS operator:  $w^*$  setgray

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 133-3:  $g_p=0.77$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta



<b>Test for the best visual linearized output of Picture A7-113-0</b>		<b>Yes/No</b>
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-113-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	<b>Yes/No</b>
	Test with magnifying glass (e.g. 6x)	
	resolution diameter	..... mm
W-N-radial grating:	Is the resolution diameter < 6 mm?	<b>Yes/No</b>
	Test with magnifying glass (e.g. 6x)	
	resolution diameter	..... mm
N-Z-radial grating:	Is the resolution diameter < 6 mm?	<b>Yes/No</b>
	Test with magnifying glass (e.g. 6x)	
	resolution diameter	..... mm
W-Z-radial grating:	Is the resolution diameter < 6 mm?	<b>Yes/No</b>
	Test with magnifying glass (e.g. 6x)	
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-113-0</b>		
Are the 5 steps on the upper rows distinguishable?		<b>Yes/No</b>
If No: How many steps can be distinguished?		
of the given 5 steps:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-113-0</b>		
Are the 16 steps on the upper rows distinguishable?		<b>Yes/No</b>
If No: How many steps can be distinguished?		
of the given 16 steps:		.... Steps

Part 1 OE540-3N-113-4

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> **underline Yes/No**

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> **or underline Yes/No**

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)

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

Part 3 OE540-7N-113-4

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W: Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75 output 133-4:  $g_P=0.77$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-113-0</b>		<b>Yes/No</b>
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-113-0</b>		
N-W-radial grating:		
Is the recognition frequency of the Landolt-rings > 50% (5 of 8 at least)?		
	background - ring	<b>Yes/No</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>
<b>Test of the radial grating under 45° according to picture A5-113-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		<b>Yes/No</b>
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		<b>to ..... lpi</b>
<b>Test of the radial grating under 90° according to picture A6-113-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		<b>Yes/No</b>
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		<b>to ..... lpi</b>

Part 2 OE541-3N-113-4

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**Picture A7-113-2: 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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**picture A7-113-2**

**underline Yes/No**

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**picture A7-113-2**

**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: .....

**underline Yes/No**

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

**underline Yes/No**

Part 4

OE541-7N-113-4

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

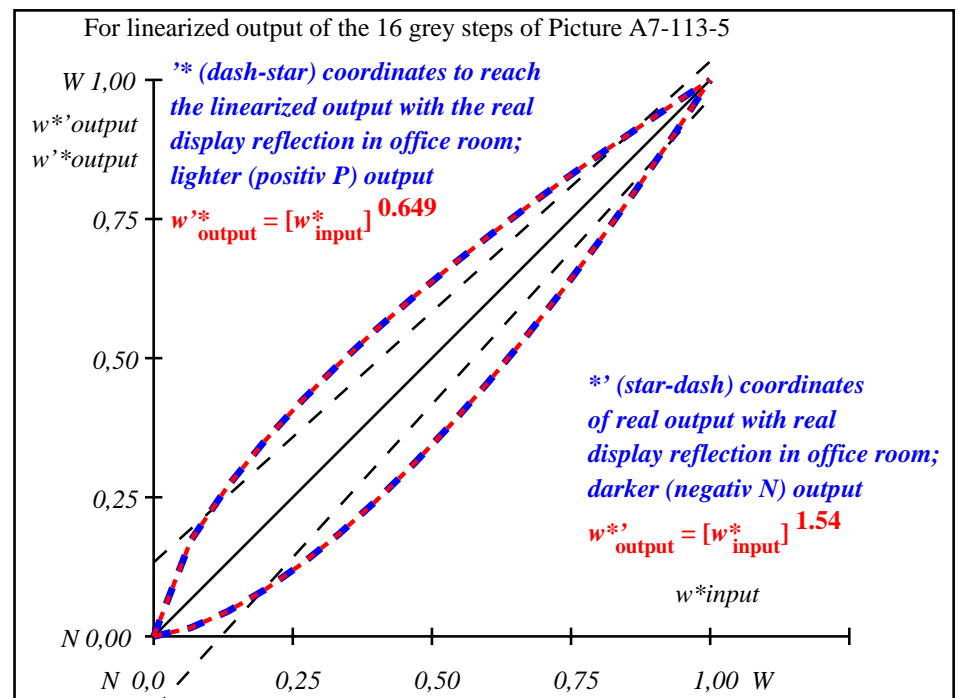
i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	Start output S1
1	18.01	0.0	0.0	18.01	0.0	0.0
2	23.17	0.0	0.12	27.5	0.0	0.0
3	28.33	0.0	0.21	34.25	0.0	0.0
4	33.49	0.0	0.29	40.24	0.0	0.0
5	38.65	0.0	0.36	45.8	0.0	0.0
6	43.81	0.0	0.43	51.04	0.0	0.0
7	48.97	0.0	0.49	56.06	0.0	0.0
8	54.13	0.0	0.55	60.89	0.0	0.0
9	59.29	0.0	0.61	65.56	0.0	0.0
10	64.45	0.0	0.67	70.11	0.0	0.0
11	69.61	0.0	0.73	74.54	0.0	0.0
12	74.77	0.0	0.79	78.87	0.0	0.0
13	79.93	0.0	0.84	83.12	0.0	0.0
14	85.09	0.0	0.9	87.28	0.0	0.0
15	90.25	0.0	0.95	91.38	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	18.01	0.0	0.0	18.01	0.0	0.0
18	37.36	0.0	0.34	44.44	0.0	0.0
19	56.71	0.0	0.58	63.24	0.0	0.0
20	76.06	0.0	0.8	79.94	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 4.5$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 3.5$

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

OE540-3N-113-5: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-113-5: File: Measure unknown; Device: Device unknown; Date: Date unknown

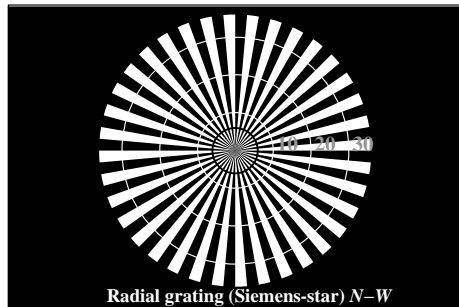
$L^*/Y^*_{\text{intended}}$ (absolute)	18.0/2.5	23.2/3.8	28.3/5.6	33.5/7.8	38.6/10.5	43.8/13.7	49.0/17.6	54.1/22.1	59.3/27.3	64.4/33.4	69.6/40.2	74.8/47.9	79.9/56.6	85.1/66.2	90.2/76.8	95.4/88.6
$w^*_{\text{setgray}}$ $g_P=0.78$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*_{\text{intended}}$ $w^*_{\text{out}}$	0.000 0.0	0.067 0.123	0.133 0.209	0.200 0.287	0.267 0.359	0.333 0.426	0.400 0.492	0.467 0.554	0.533 0.614	0.600 0.673	0.667 0.731	0.733 0.786	0.800 0.841	0.867 0.895	0.933 0.948	1.000 1.0

OE540-7N, Picture A7-113-5: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*_{\text{setgray}}$

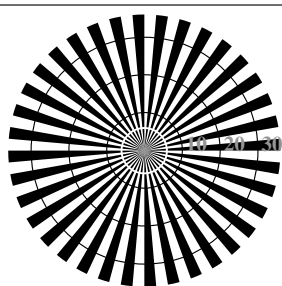
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75

input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcolor  
output 133-5:  $g_P=0.77$ ;  $g_N=1.0$

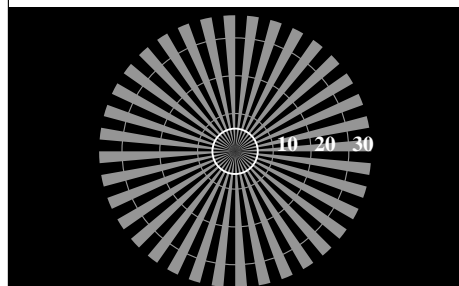
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



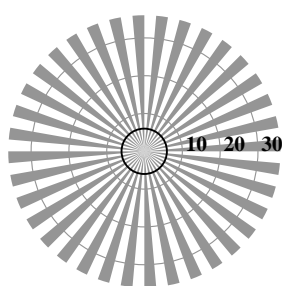
Radial grating (Siemens-star) N-W



Radial grating (Siemens-star) W-N

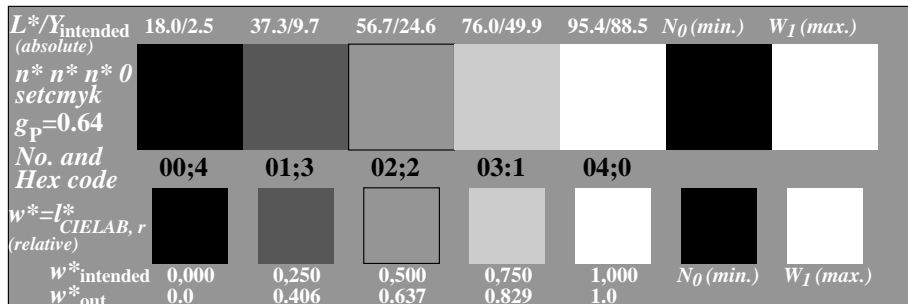


Radial grating (Siemens-star) N-Z

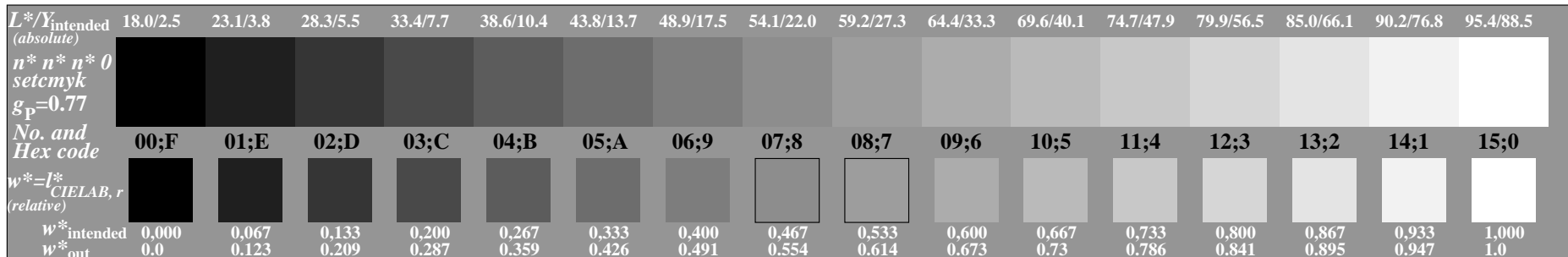


Radial grating (Siemens-star) W-Z

OE540-3N, Picture A1-123-6: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $n^*n^*n^*0$  setcmykcolor

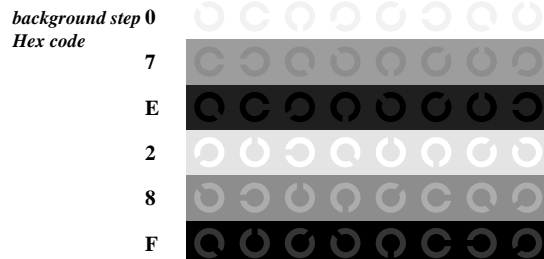


OE540-5N, Picture A2-123-6: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $n^*n^*n^*0$  setcmykcolor

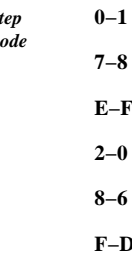


OE540-7N, Picture A3-123-6: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0$  setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75

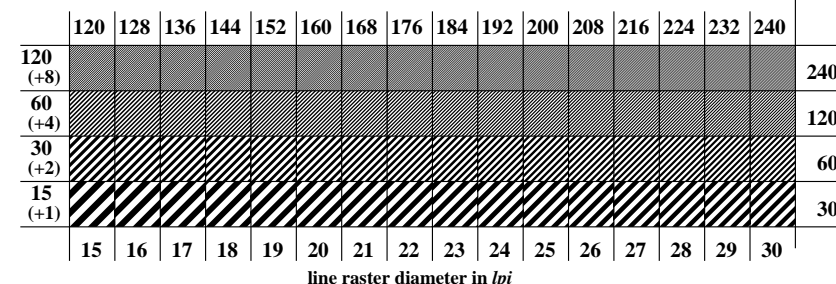


Landolt-rings W-N

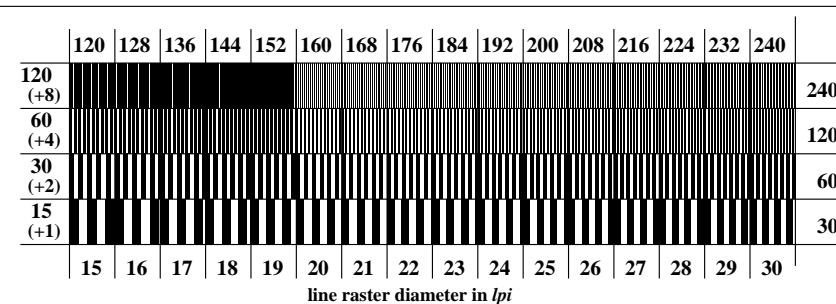


code: background-ring

OE541-1N, Picture A4-123-6: Landolt-rings W-N; PS operator:  $n^*n^*n^*0$  setcmykcolor



OE541-3N, Picture A5-123-6: Line raster under 45° (or 135°); PS operator:  $n^*n^*n^*0$  setcmykcolor



OE541-5N, Picture A6-123-6: Line raster under 90° (or 0°); PS operator:  $n^*n^*n^*0$  setcmykcolor

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 133-6:  $g_p=0.77$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

Test for the best visual linearized output of Picture A7-123-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-123-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-123-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-123-0</b>		
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:		..... Steps

Part 1

OE540-3N-123-7

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

**PDF-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-123-7

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*\_d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75 output 133-7:  $g_P=0,77$ ;  $g_N=1,0$

Test for the best visual linearized output of Picture A7-123-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-123-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-123-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-123-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2

OE541-3N-123-7

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

underline Yes/No

**PS file:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

underline Yes/No

**Picture A7-123-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

or underline Yes/No

**picture A7-123-2**

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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

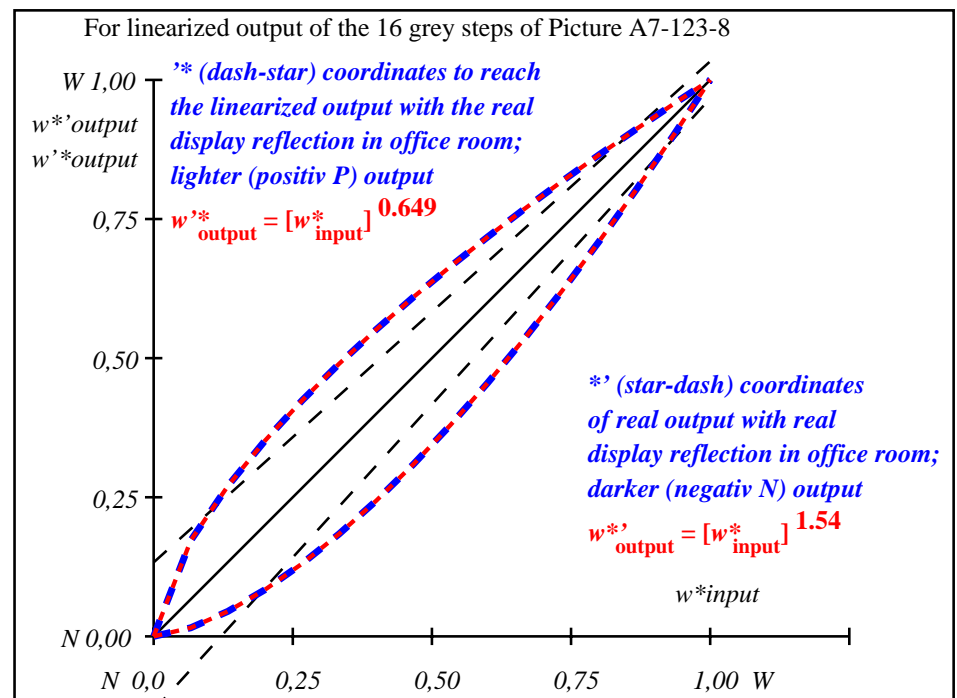
OE541-7N-123-7



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	Start output S1
1	18.01	0.0	0.0	18.01	0.0	0.0
2	23.17	0.0	0.12	27.5	0.0	0.0
3	28.33	0.0	0.21	34.25	0.0	0.0
4	33.49	0.0	0.29	40.24	0.0	0.0
5	38.65	0.0	0.36	45.8	0.0	0.0
6	43.81	0.0	0.43	51.04	0.0	0.0
7	48.97	0.0	0.49	56.06	0.0	0.0
8	54.13	0.0	0.55	60.89	0.0	0.0
9	59.29	0.0	0.61	65.56	0.0	0.0
10	64.45	0.0	0.67	70.11	0.0	0.0
11	69.61	0.0	0.73	74.54	0.0	0.0
12	74.77	0.0	0.79	78.87	0.0	0.0
13	79.93	0.0	0.84	83.12	0.0	0.0
14	85.09	0.0	0.9	87.28	0.0	0.0
15	90.25	0.0	0.95	91.38	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	18.01	0.0	0.0	18.01	0.0	0.0
18	37.36	0.0	0.34	44.44	0.0	0.0
19	56.71	0.0	0.58	63.24	0.0	0.0
20	76.06	0.0	0.8	79.94	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0
Mean lightness difference (16 steps)						$\Delta E^*_{\text{CIELAB}} = 4.5$
Mean lightness difference (5 steps)						$\Delta E^*_{\text{CIELAB}} = 3.5$
Mean colour reproduction index:						$R^*_{\text{ab,m}} = 80$

OE540-3N-123-8: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-123-8: File: Measure unknown; Device: Device unknown; Date: Date unknown

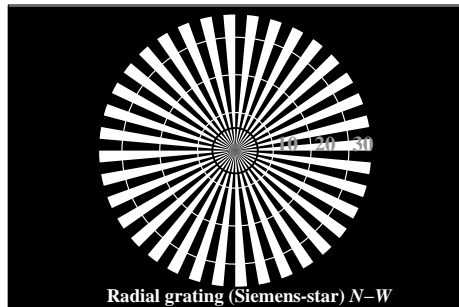
$L^*/Y_{\text{intended}}$ (absolute)	18.0/2.5	23.2/3.8	28.3/5.6	33.5/7.8	38.6/10.5	43.8/13.7	49.0/17.6	54.1/22.1	59.3/27.3	64.4/33.4	69.6/40.2	74.8/47.9	79.9/56.6	85.1/66.2	90.2/76.8	95.4/88.6
$n^* n^* n^* 0$ setcmyk $g_P=0.78$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	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
$w^*_{\text{out}}$	0.0	0.123	0.209	0.287	0.359	0.426	0.492	0.554	0.614	0.673	0.731	0.786	0.841	0.895	0.948	1.0

OE540-7N, Picture A7-123-8: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^* n^* n^* 0$  setcmykcolor

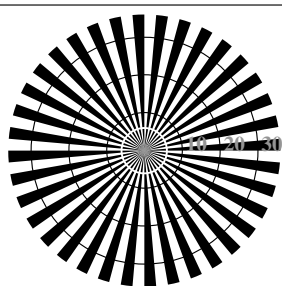
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75

input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcOLOR  
output 133-8:  $g_P=0.77$ ;  $g_N=1.0$

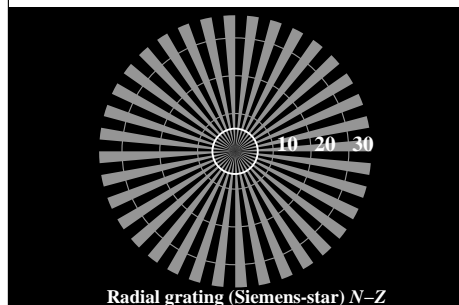
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



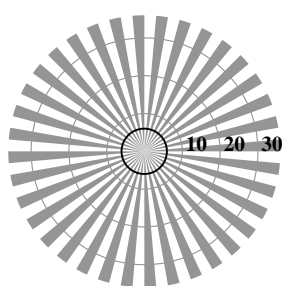
Radial grating (Siemens-star) N-W



Radial grating (Siemens-star) W-N

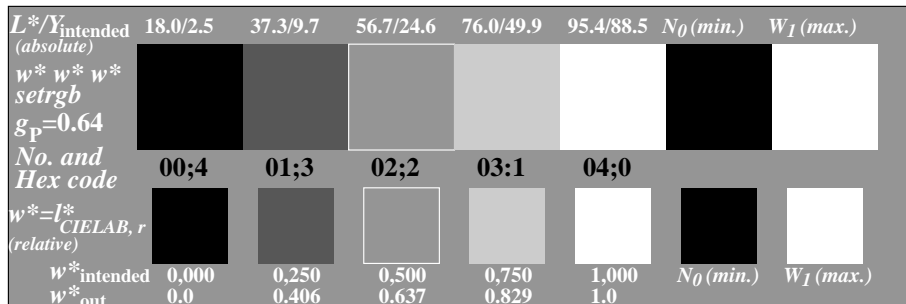


Radial grating (Siemens-star) N-Z

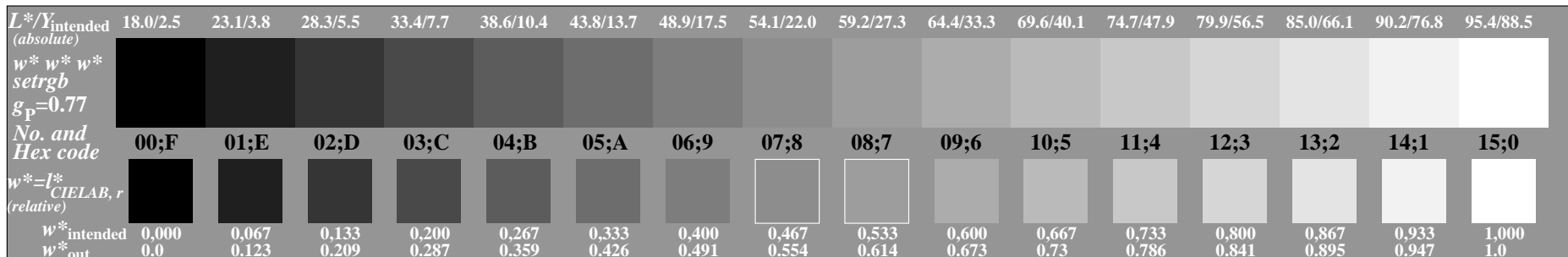


Radial grating (Siemens-star) W-Z

OE540-3N, Picture A1-133-9: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

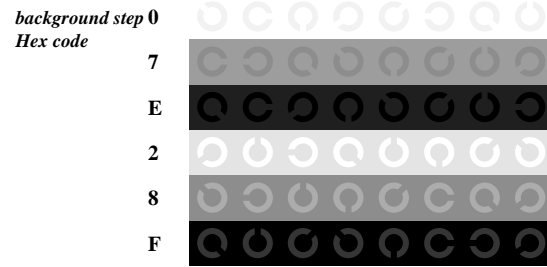


OE540-5N, Picture A2-133-9: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE540-7N, Picture A3-133-9: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

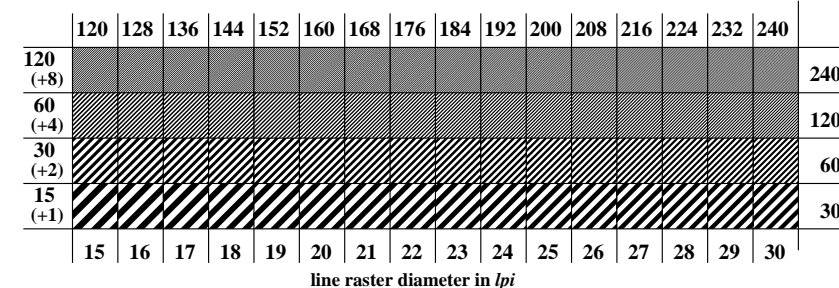
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75



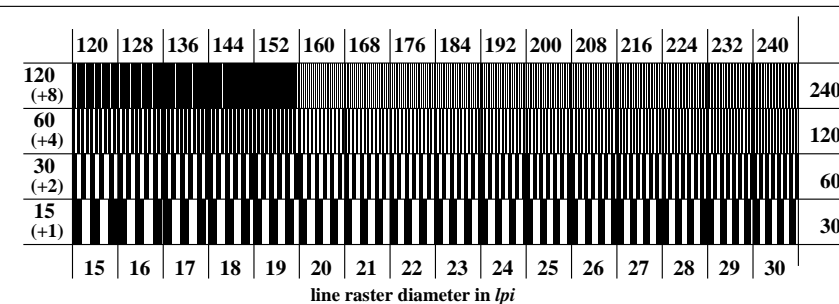
Landolt-rings W-N

code: background-ring

OE541-1N, Picture A4-133-9: Landolt-rings W-N; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-3N, Picture A5-133-9: Line raster under 45° (or 135°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-5N, Picture A6-133-9: Line raster under 90° (or 0°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$

input: all ( $\rightarrow \text{rgb}_d$ )  $\text{setrgbcolor}$   
output 133-9:  $g_p=0.77$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

Test for the best visual linearized output of Picture A7-133-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-133-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-133-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-133-0</b>		
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:		..... Steps

Part 1

OE540-3N-133-10

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

**PDF-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

.....

.....

.....

Part 3

OE540-7N-133-10

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75 output 133-10:  $g_P=0.77$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-133-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-133-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-133-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-133-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2

OE541-3N-133-10

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**PS file:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**Picture A7-133-2: 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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**picture A7-133-2**

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**picture A7-133-2**

**colour measurement and specification for:**

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

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

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

underline Yes/No

underline Yes/No

underline Yes/No

underline Yes/No

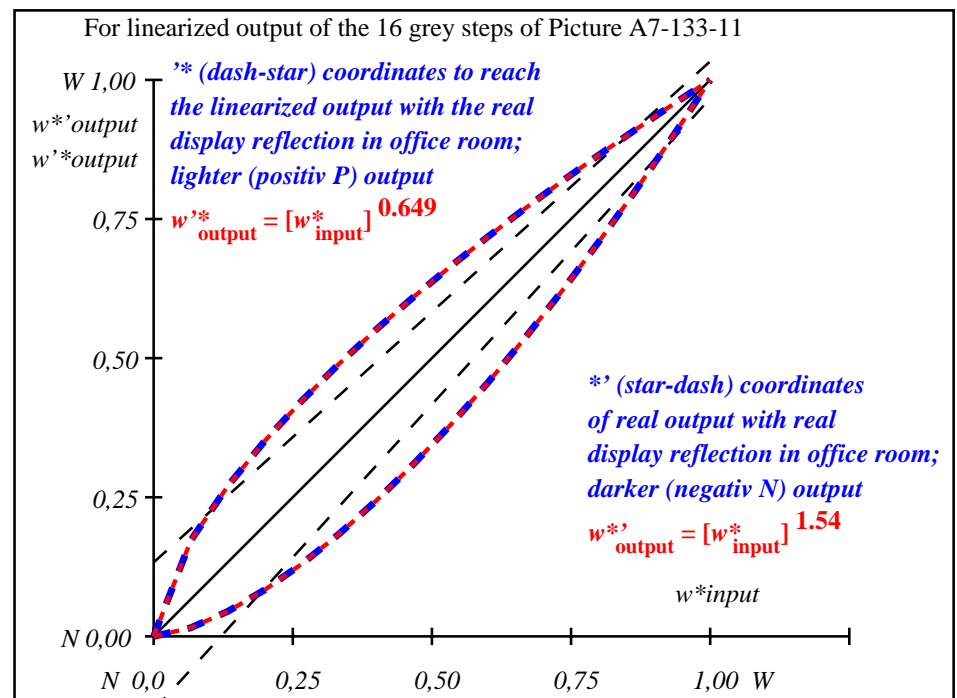
underline Yes/No

OE541-7N-133-10

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	18.01	0.0	0.0	18.01	0.0	0.0
2	23.17	0.0	0.12	27.5	0.0	0.0
3	28.33	0.0	0.21	34.25	0.0	0.0
4	33.49	0.0	0.29	40.24	0.0	0.0
5	38.65	0.0	0.36	45.8	0.0	0.0
6	43.81	0.0	0.43	51.04	0.0	0.0
7	48.97	0.0	0.49	56.06	0.0	0.0
8	54.13	0.0	0.55	60.89	0.0	0.0
9	59.29	0.0	0.61	65.56	0.0	0.0
10	64.45	0.0	0.67	70.11	0.0	0.0
11	69.61	0.0	0.73	74.54	0.0	0.0
12	74.77	0.0	0.79	78.87	0.0	0.0
13	79.93	0.0	0.84	83.12	0.0	0.0
14	85.09	0.0	0.9	87.28	0.0	0.0
15	90.25	0.0	0.95	91.38	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	18.01	0.0	0.0	18.01	0.0	0.0
18	37.36	0.0	0.34	44.44	0.0	0.0
19	56.71	0.0	0.58	63.24	0.0	0.0
20	76.06	0.0	0.8	79.94	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0
Mean lightness difference (16 steps)						ΔE* <sub>CIELAB</sub> = 4.5
Mean lightness difference (5 steps)						ΔE* <sub>CIELAB</sub> = 3.5
Mean colour reproduction index:						R* <sub>ab,m</sub> = 80

OE540-3N-133-11: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-133-11: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{intended}$ (absolute)	18.0/2.5	23.2/3.8	28.3/5.6	33.5/7.8	38.6/10.5	43.8/13.7	49.0/17.6	54.1/22.1	59.3/27.3	64.4/33.4	69.6/40.2	74.8/47.9	79.9/56.6	85.1/66.2	90.2/76.8	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=0.78$ 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
$w^*_{intended}$ $w^*_{out}$	0.000	0.123	0.209	0.287	0.359	0.426	0.492	0.554	0.614	0.673	0.731	0.786	0.841	0.895	0.948	1.0

OE540-7N, Picture A7-133-11: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

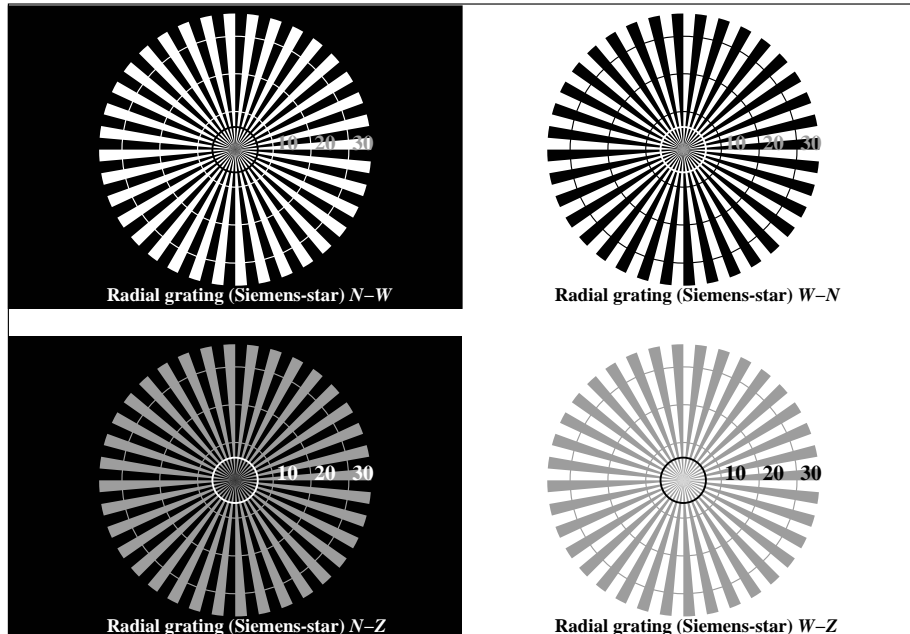
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 133-11:  $g_P=0.77$ ;  $g_N=1.0$

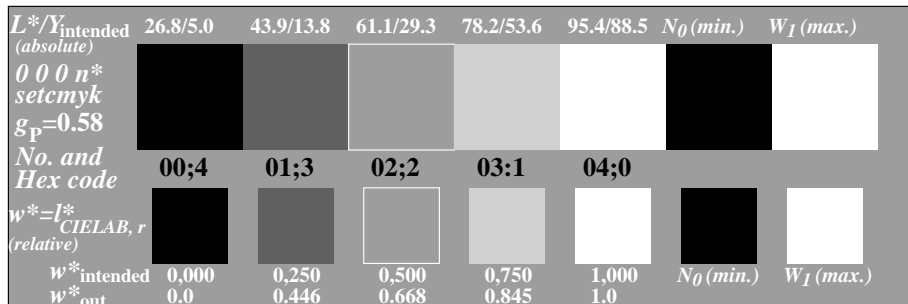
TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta



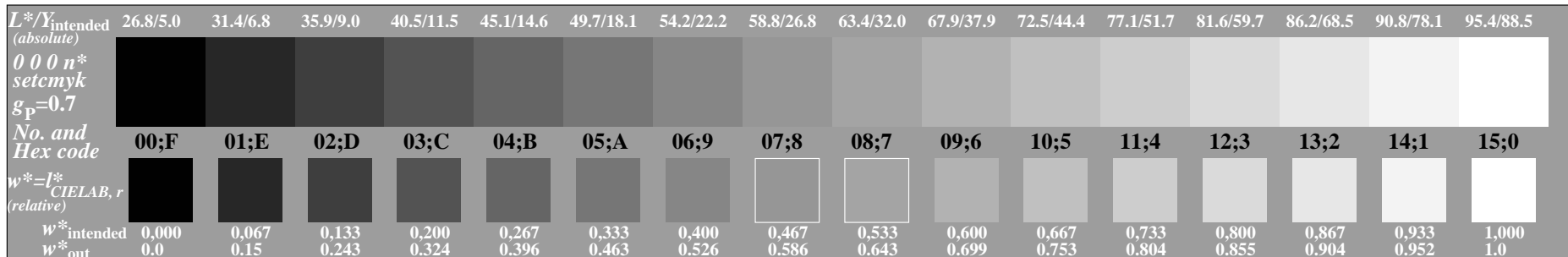
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1.1, CIELAB



OE540-3N, Picture A1-104-0: Radial grating N-W, W-N, N-Z, W-Z; PS operator: 0 0 0 n\* setcmykcolor



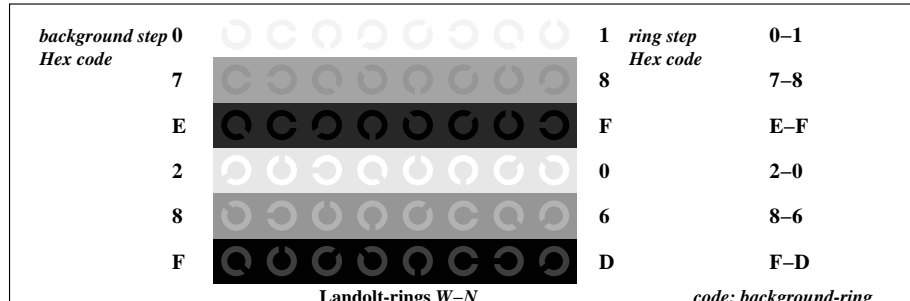
OE540-5N, Picture A2-104-0: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator: 0 0 0 n\* setcmykcolor



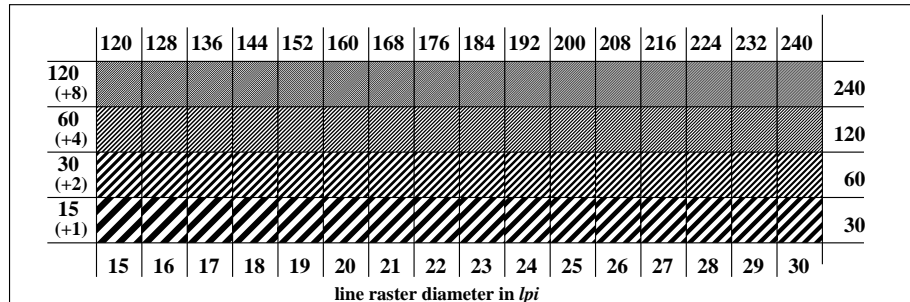
OE540-7N, Picture A3-104-0: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5

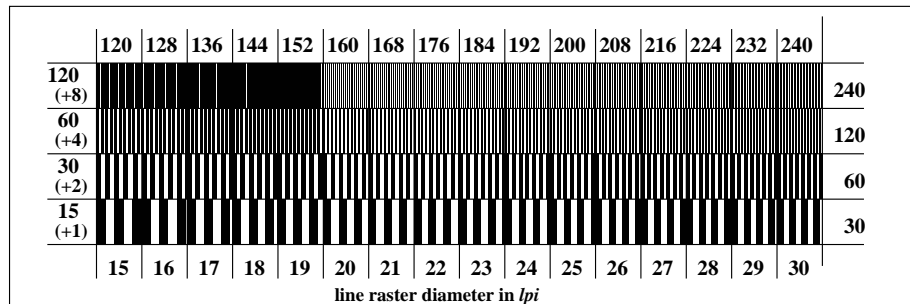
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 134-0:  $g_p=0.7$ ;  $g_N=1.0$



OE541-1N, Picture A4-104-0: Landolt-rings W-N; PS operator: 0 0 0 n\* setcmykcolor



OE541-3N, Picture A5-104-0: Line raster under 45° (or 135°); PS operator: 0 0 0 n\* setcmykcolor



OE541-5N, Picture A6-104-0: Line raster under 90° (or 0°); PS operator: 0 0 0 n\* setcmykcolor

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

Test for the best visual linearized output of Picture A7-104-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-104-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-104-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-104-0</b>		
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:		..... Steps

Part 1

OE540-3N-104-1

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

**PDF-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-104-1

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: all (->rgb\*\_d) setrgbcolor  
Viewing Y contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5 output 134-1:  $g_P=0.7$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-104-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-104-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-104-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-104-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2

OE541-3N-104-1

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**PS file:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**Picture A7-104-2: 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 range

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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**picture A7-104-2**

underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**picture A7-104-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

Part 4

OE541-7N-104-1

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

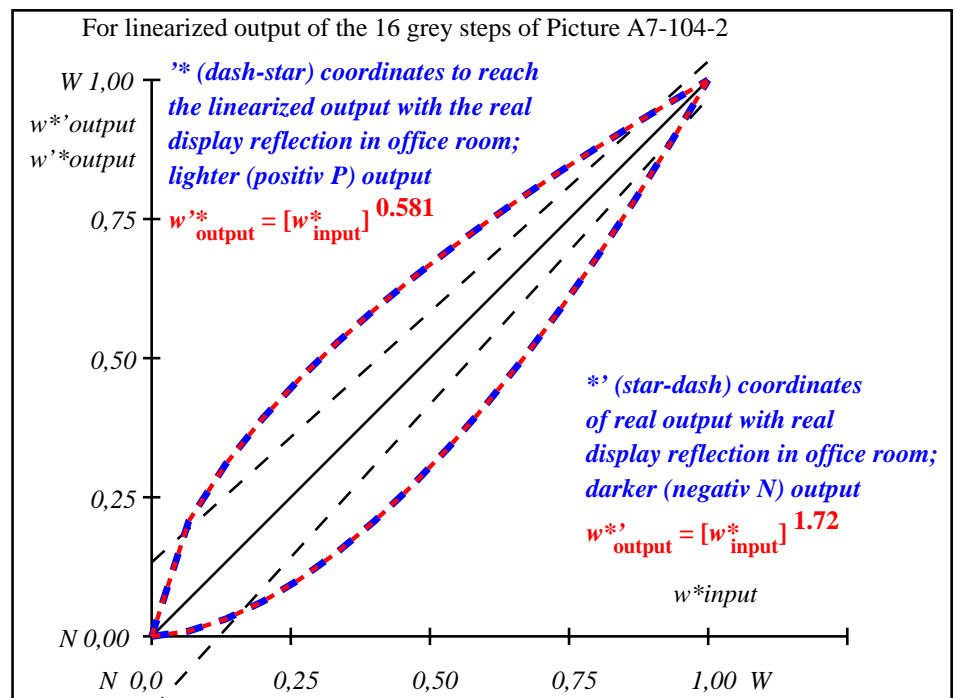
i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	Start output S1
1	26.85	0.0	0.0	26.85	0.0	0.0
2	31.42	0.0	0.15	37.15	0.0	0.0
3	35.99	0.0	0.24	43.58	0.0	0.0
4	40.56	0.0	0.32	49.07	0.0	0.0
5	45.13	0.0	0.4	54.03	0.0	0.0
6	49.7	0.0	0.46	58.62	0.0	0.0
7	54.27	0.0	0.53	62.95	0.0	0.0
8	58.84	0.0	0.59	67.06	0.0	0.0
9	63.41	0.0	0.64	71.0	0.0	0.0
10	67.99	0.0	0.7	74.8	0.0	0.0
11	72.56	0.0	0.75	78.47	0.0	0.0
12	77.13	0.0	0.8	82.03	0.0	0.0
13	81.7	0.0	0.86	85.5	0.0	0.0
14	86.27	0.0	0.9	88.87	0.0	0.0
15	90.84	0.0	0.95	92.18	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	26.85	0.0	0.0	26.85	0.0	0.0
18	43.99	0.0	0.38	52.83	0.0	0.0
19	61.13	0.0	0.62	69.05	0.0	0.0
20	78.27	0.0	0.82	82.9	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 5.6$

Mean lightness difference (5 steps)  $\Delta L^*_{\text{CIELAB}} = 4.3$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 76$

OE540-3N-104-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-104-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

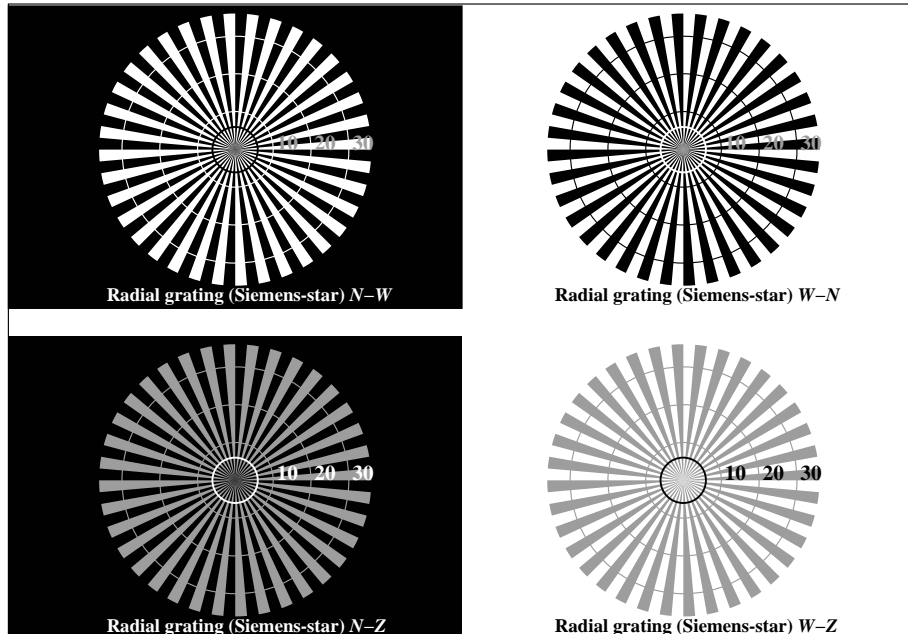
$L^*/Y_{\text{intended}}$ (absolute)	26.8/5.0	31.4/6.8	36.0/9.0	40.6/11.6	45.1/14.6	49.7/18.2	54.3/22.2	58.8/26.9	63.4/32.1	68.0/38.0	72.6/44.5	77.1/51.7	81.7/59.7	86.3/68.5	90.8/78.1	95.4/88.6
$0\ 0\ 0\ n^*$ setcmyk $g_P=0.7$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	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
$w^*_{\text{out}}$	0.0	0.151	0.244	0.324	0.397	0.463	0.527	0.587	0.644	0.699	0.753	0.805	0.855	0.905	0.953	1.0

OE540-7N, Picture A7-104-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $0\ 0\ 0\ n^*$  setcmykcolor

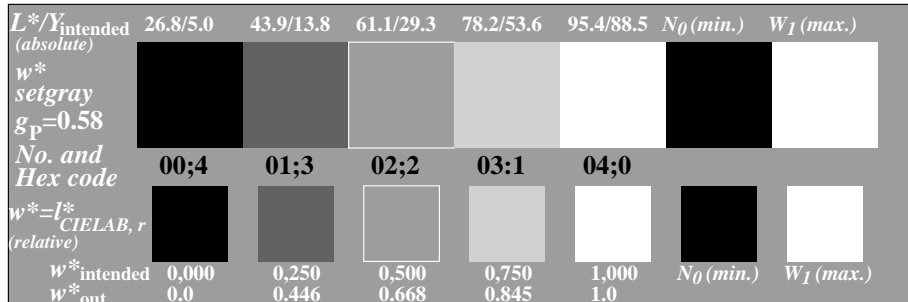
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 134-2:  $g_P=0.7$ ;  $g_N=1.0$

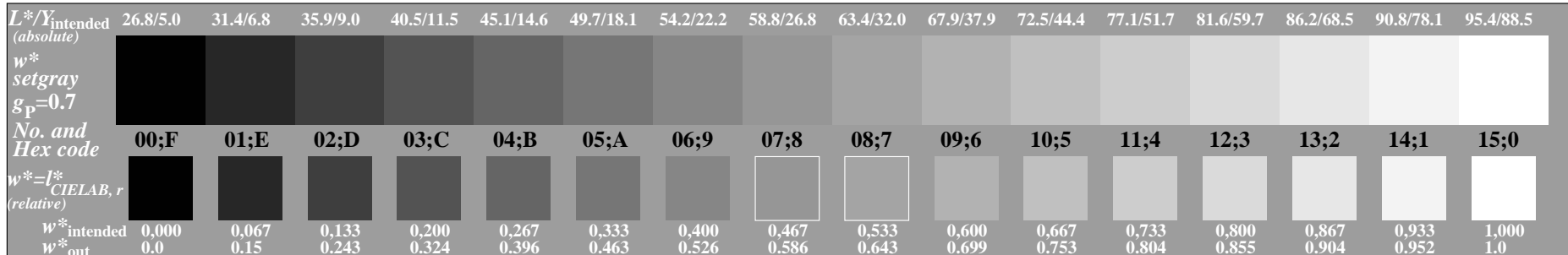
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1.1, CIELAB



OE540-3N, Picture A1-114-3: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^*$  setgray



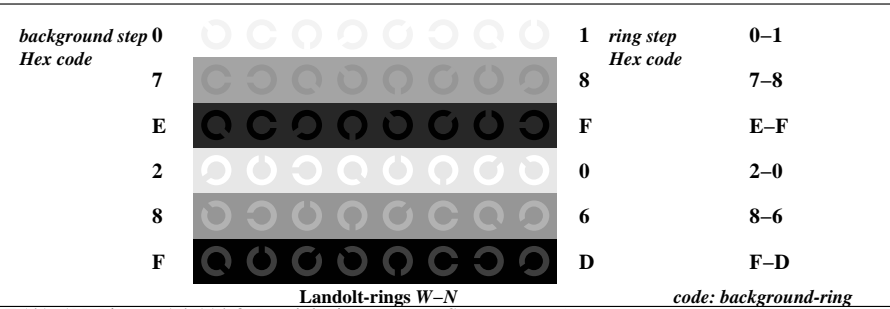
OE540-5N, Picture A2-114-3: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^*$  setgray



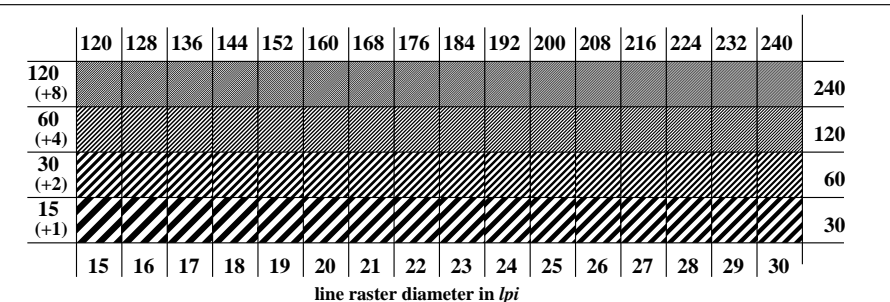
OE540-7N, Picture A3-114-3: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5

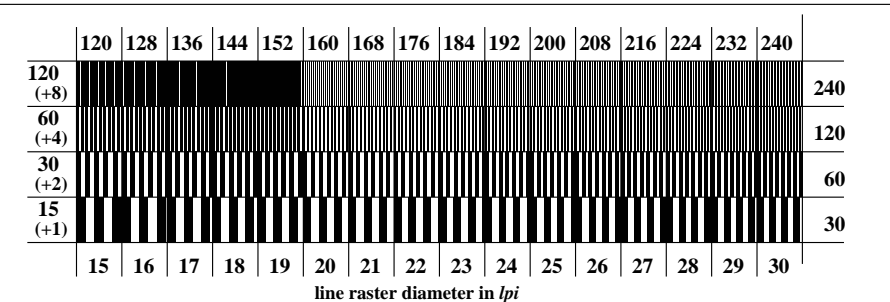
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 134-3:  $g_p=0.7$ ;  $g_N=1.0$



OE541-1N, Picture A4-114-3: Landolt-rings W-N; PS operator:  $w^*$  setgray



OE541-3N, Picture A5-114-3: Line raster under 45° (or 135°); PS operator:  $w^*$  setgray



OE541-5N, Picture A6-114-3: Line raster under 90° (or 0°); PS operator:  $w^*$  setgray

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta



Test for the best visual linearized output of Picture A7-114-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-114-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-114-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-114-0</b>		
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:		..... Steps

Part 1 OE540-3N-114-4

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

PDF-File: <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

#### Used computer operating system:

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

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

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

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

#### For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)

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

Part 3 OE540-7N-114-4

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*\_d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5 output 134-4:  $g_P=0.7$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-114-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-114-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-114-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-114-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-114-4

#### 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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

PS file: <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

Picture A7-114-2: 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 range

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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

picture A7-114-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

picture A7-114-2

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: .....

underline Yes/No

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

Part 4

OE541-7N-114-4

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1.1, CIELAB

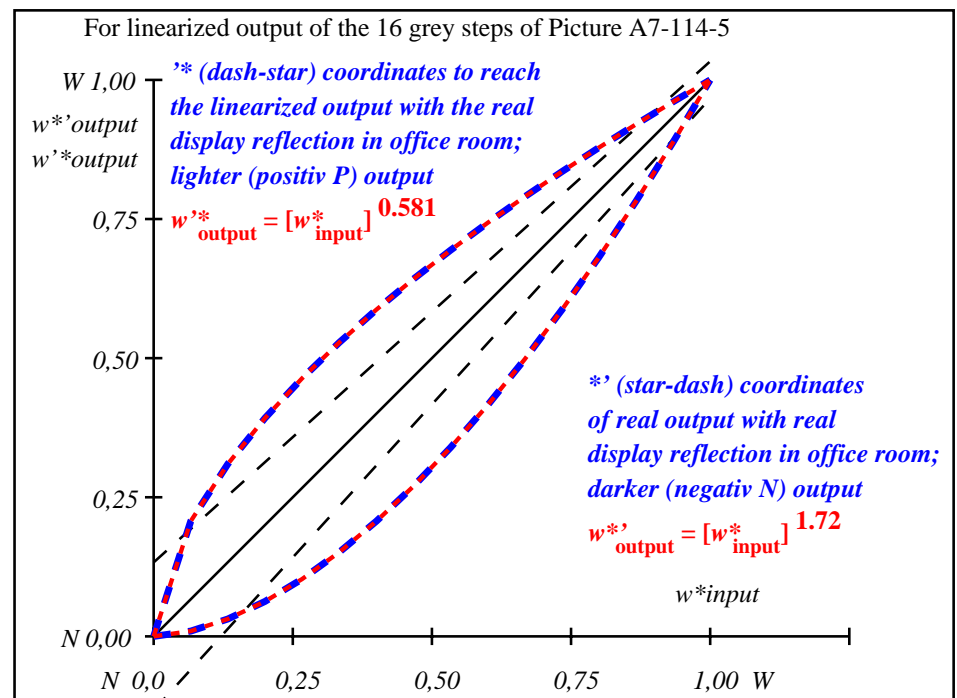
i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	Start output S1
1	26.85	0.0	0.0	26.85	0.0	0.0
2	31.42	0.0	0.15	37.15	0.0	0.0
3	35.99	0.0	0.24	43.58	0.0	0.0
4	40.56	0.0	0.32	49.07	0.0	0.0
5	45.13	0.0	0.4	54.03	0.0	0.0
6	49.7	0.0	0.46	58.62	0.0	0.0
7	54.27	0.0	0.53	62.95	0.0	0.0
8	58.84	0.0	0.59	67.06	0.0	0.0
9	63.41	0.0	0.64	71.0	0.0	0.0
10	67.99	0.0	0.7	74.8	0.0	0.0
11	72.56	0.0	0.75	78.47	0.0	0.0
12	77.13	0.0	0.8	82.03	0.0	0.0
13	81.7	0.0	0.86	85.5	0.0	0.0
14	86.27	0.0	0.9	88.87	0.0	0.0
15	90.84	0.0	0.95	92.18	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	26.85	0.0	0.0	26.85	0.0	0.0
18	43.99	0.0	0.38	52.83	0.0	0.0
19	61.13	0.0	0.62	69.05	0.0	0.0
20	78.27	0.0	0.82	82.9	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 5.6$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 4.3$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 76$

OE540-3N-114-5: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-114-5: File: Measure unknown; Device: Device unknown; Date: Date unknown

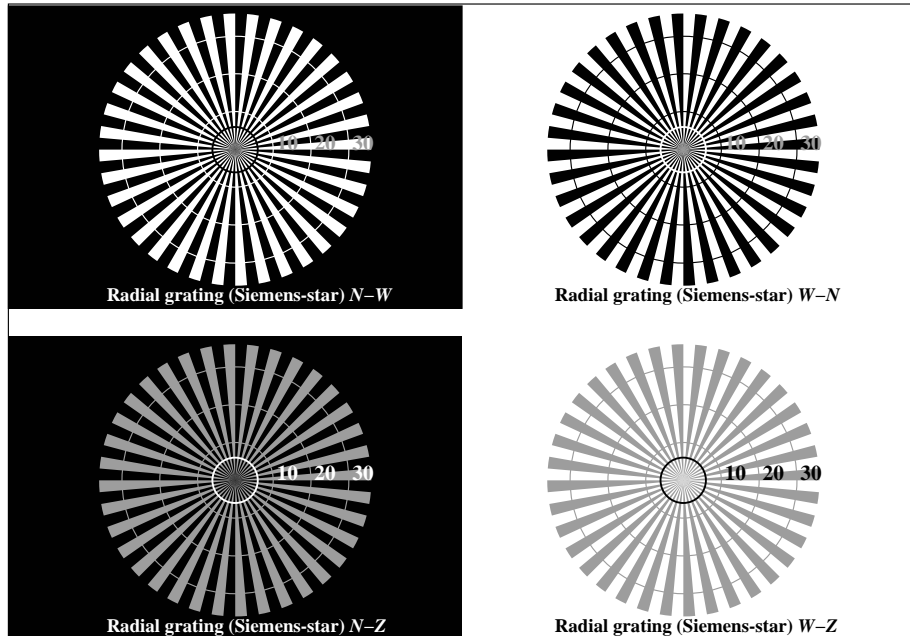
$L^*/Y^*_{\text{intended}}$ (absolute)	26.8/5.0	31.4/6.8	36.0/9.0	40.6/11.6	45.1/14.6	49.7/18.2	54.3/22.2	58.8/26.9	63.4/32.1	68.0/38.0	72.6/44.5	77.1/51.7	81.7/59.7	86.3/68.5	90.8/78.1	95.4/88.6
$w^*$ setgray $g_p=0.7$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	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
$w^*_{\text{out}}$	0.0	0.151	0.244	0.324	0.397	0.463	0.527	0.587	0.644	0.699	0.753	0.805	0.855	0.905	0.953	1.0

OE540-7N, Picture A7-114-5: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

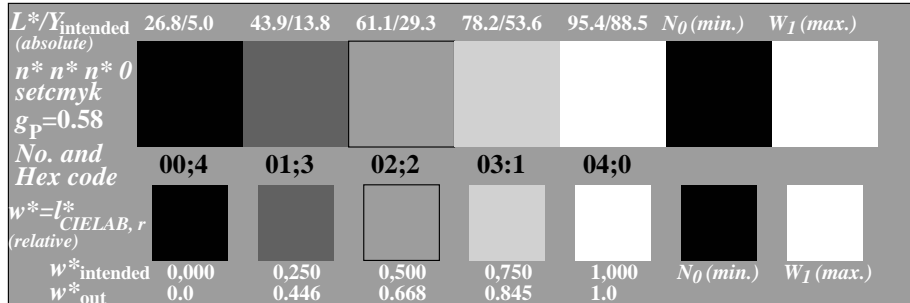
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5

input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcOLOR  
output 134-5:  $g_p=0.7$ ;  $g_N=1.0$

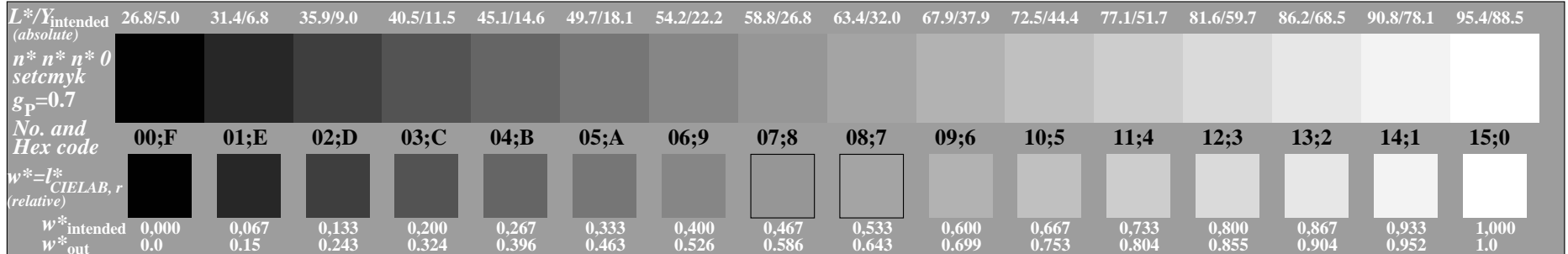
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1.1, CIE LAB



OE540-3N, Picture A1-124-6: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $n^*n^*n^*0$  setcmykcolor

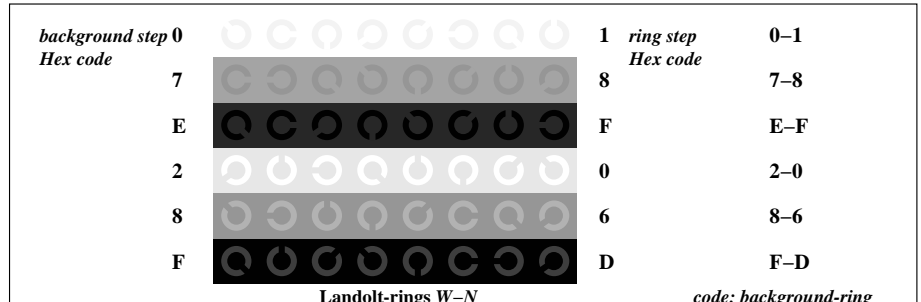


OE540-5N, Picture A2-124-6: 5 equidistant  $L^*$ -grey steps+N0+W1; PS operator:  $n^*n^*n^*0$  setcmykcolor

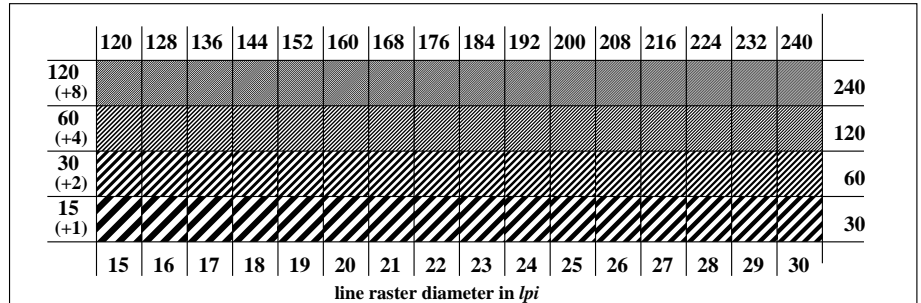


OE540-7N, Picture A3-124-6: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0$  setcmykcolor

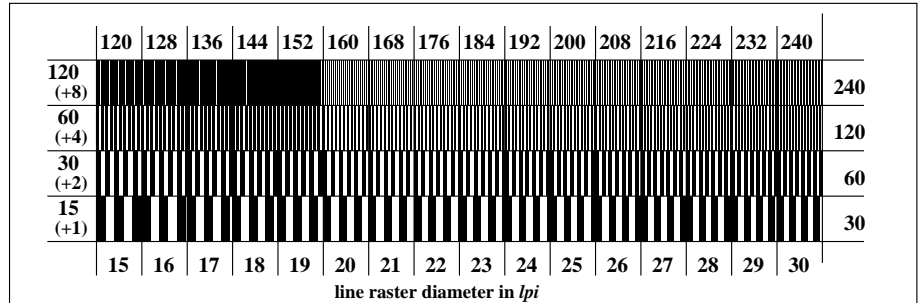
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5



OE541-1N, Picture A4-124-6: Landolt-rings W-N; PS operator:  $n^*n^*n^*0$  setcmykcolor



OE541-3N, Picture A5-124-6: Line raster under 45° (or 135°); PS operator:  $n^*n^*n^*0$  setcmykcolor



OE541-5N, Picture A6-124-6: Line raster under 90° (or 0°); PS operator:  $n^*n^*n^*0$  setcmykcolor

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 134-6:  $g_p=0.7$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

Test for the best visual linearized output of Picture A7-124-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-124-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-124-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-124-0</b>		
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:		..... Steps

Part 1 OE540-3N-124-7

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)  
.....  
.....  
.....

Part 3 OE540-7N-124-7

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all* ( $\rightarrow$ rgb<sub>d</sub>) setrgbcolor  
Viewing Y contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5  
output 134-7:  $g_P=0.7$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-124-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-124-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-124-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-124-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-124-7

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> underline Yes/No

**Picture A7-124-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**Picture A7-124-2** underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> or underline Yes/No

**Picture A7-124-2** 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 with PS file for colours in the columns A to T**  
Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer  
of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF underline Yes/No  
If No, please describe other method: .....

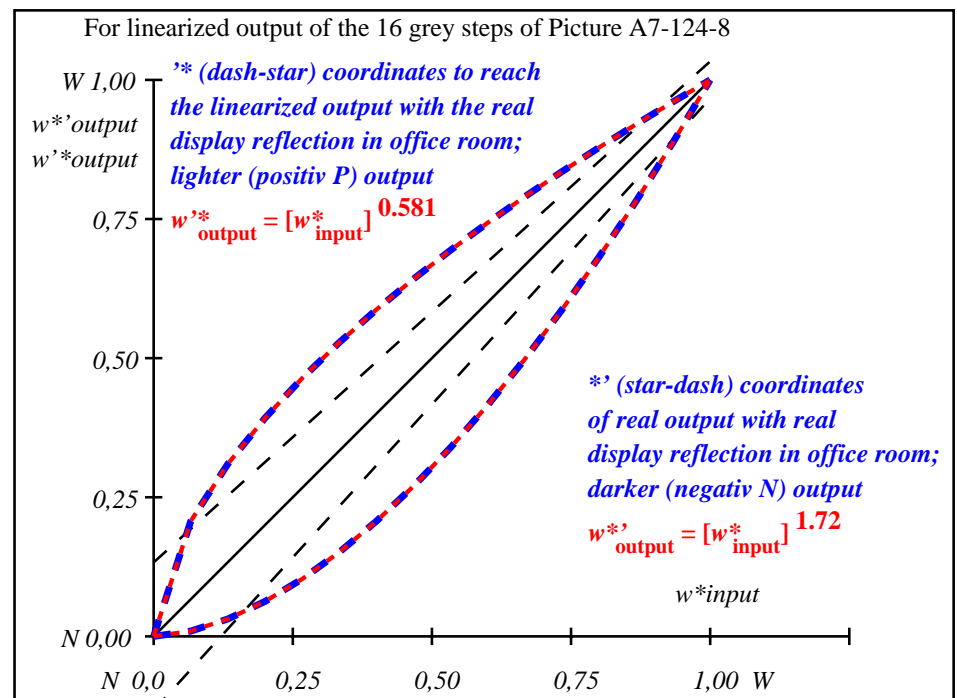
Part 4 OE541-7N-124-7



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1.1, CIELAB

i	LAB*ref	I*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	26.85 0.0 0.0	0.0	26.85 0.0 0.0	0.0 0.0 0.0	0.01	Specification according to
2	31.42 0.0 0.0	0.15	37.15 0.0 0.0	5.73 0.0 0.0	5.73	ISO/IEC 15775 Annex G
3	35.99 0.0 0.0	0.24	43.58 0.0 0.0	7.59 0.0 0.0	7.59	and DIN 33866-1 Annex G
4	40.56 0.0 0.0	0.32	49.07 0.0 0.0	8.51 0.0 0.0	8.51	
5	45.13 0.0 0.0	0.4	54.03 0.0 0.0	8.9 0.0 0.0	8.9	
6	49.7 0.0 0.0	0.46	58.62 0.0 0.0	8.92 0.0 0.0	8.92	
7	54.27 0.0 0.0	0.53	62.95 0.0 0.0	8.68 0.0 0.0	8.68	
8	58.84 0.0 0.0	0.59	67.06 0.0 0.0	8.22 0.0 0.0	8.22	
9	63.41 0.0 0.0	0.64	71.0 0.0 0.0	7.59 0.0 0.0	7.59	
10	67.99 0.0 0.0	0.7	74.8 0.0 0.0	6.81 0.0 0.0	6.81	
11	72.56 0.0 0.0	0.75	78.47 0.0 0.0	5.91 0.0 0.0	5.91	
12	77.13 0.0 0.0	0.8	82.03 0.0 0.0	4.9 0.0 0.0	4.9	
13	81.7 0.0 0.0	0.86	85.5 0.0 0.0	3.8 0.0 0.0	3.8	
14	86.27 0.0 0.0	0.9	88.87 0.0 0.0	2.61 0.0 0.0	2.61	
15	90.84 0.0 0.0	0.95	92.18 0.0 0.0	1.34 0.0 0.0	1.34	Mean lightness difference (16 steps)
16	95.41 0.0 0.0	1.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01	ΔE* <sub>CIELAB</sub> = 5.6
17	26.85 0.0 0.0	0.0	26.85 0.0 0.0	0.0 0.0 0.0	0.01	
18	43.99 0.0 0.0	0.38	52.83 0.0 0.0	8.84 0.0 0.0	8.84	
19	61.13 0.0 0.0	0.62	69.05 0.0 0.0	7.92 0.0 0.0	7.92	
20	78.27 0.0 0.0	0.82	82.9 0.0 0.0	4.64 0.0 0.0	4.64	Mean lightness difference (5 steps)
21	95.41 0.0 0.0	1.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01	ΔL* <sub>CIELAB</sub> = 4.3
Mean colour reproduction index:					R* <sub>ab,m</sub> = 76	

OE540-3N-124-8: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-124-8: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{intended}$ (absolute)	26.8/5.0	31.4/6.8	36.0/9.0	40.6/11.6	45.1/14.6	49.7/18.2	54.3/22.2	58.8/26.9	63.4/32.1	68.0/38.0	72.6/44.5	77.1/51.7	81.7/59.7	86.3/68.5	90.8/78.1	95.4/88.6
$n^*n^*n^*0$ setcmyk $g_P=0.7$																
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
$w^*_{out}$	0.0	0.151	0.244	0.324	0.397	0.463	0.527	0.587	0.644	0.699	0.753	0.805	0.855	0.905	0.953	1.0

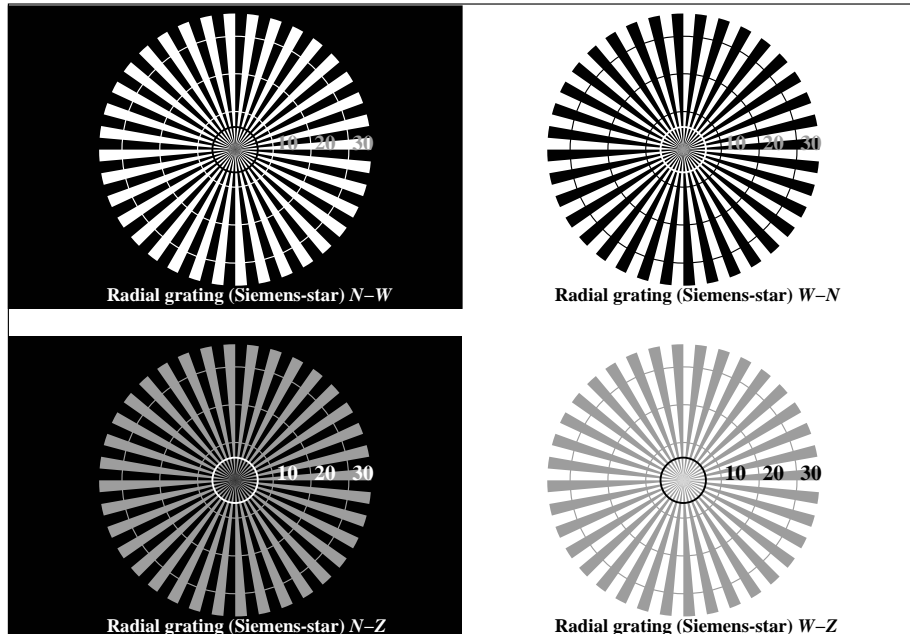
OE540-7N, Picture A7-124-8: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0$  setcmykcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5

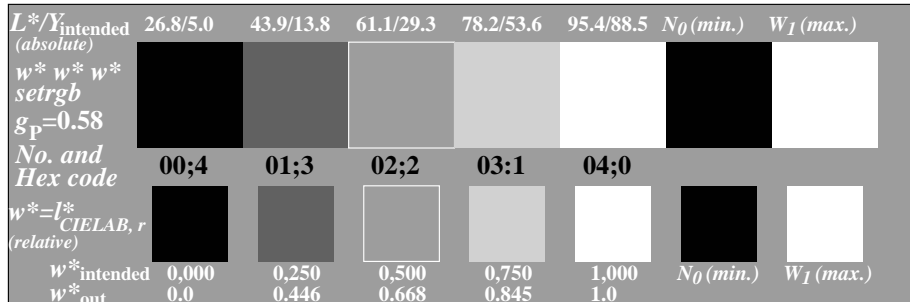
input: all ( $\rightarrow rgb_d$ ) setrgbcOLOR  
output 134-8:  $g_P=0.7$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=thata

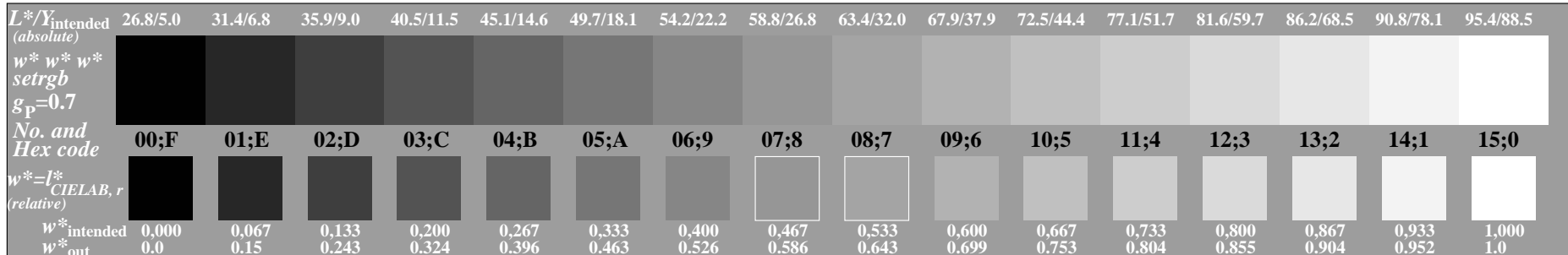
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1.1, CIELAB



OE540-3N, Picture A1-134-9: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



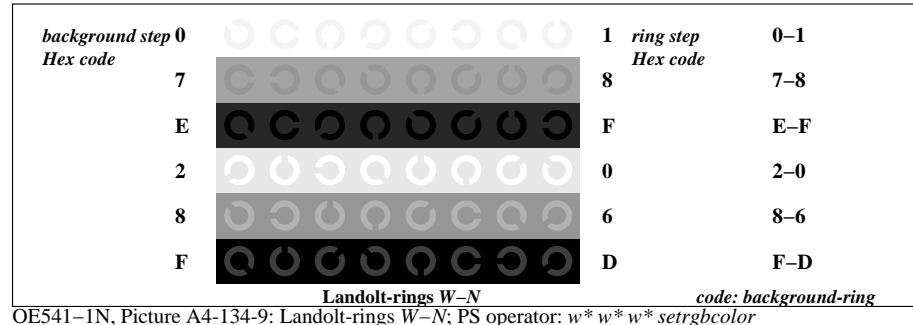
OE540-5N, Picture A2-134-9: 5 equidistant  $L^*$ -grey steps+N0+W1; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



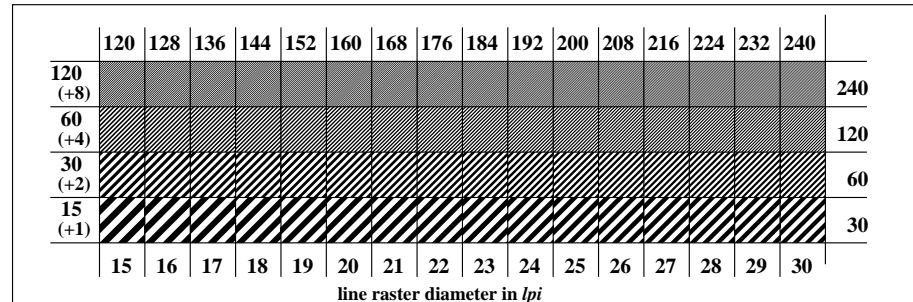
OE540-7N, Picture A3-134-9: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5

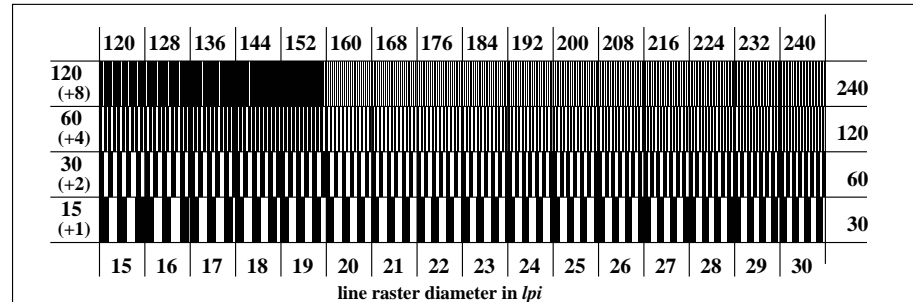
input:  $all (->rgb_d) \text{setrgbcolor}$   
output 134-9:  $g_P=0.7$ ;  $g_N=1.0$



OE541-1N, Picture A4-134-9: Landolt-rings W-N; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-3N, Picture A5-134-9: Line raster under 45° (or 135°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-5N, Picture A6-134-9: Line raster under 90° (or 0°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

Test for the best visual linearized output of Picture A7-134-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-134-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-134-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-134-0</b>		
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:		..... Steps

Part 1 OE540-3N-134-10

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

**PDF-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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.....  
.....

Part 3 OE540-7N-134-10

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: all (->rgb\*d) setrgbcolor  
Viewing Y contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5 output 134-10:  $g_P=0.7$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-134-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-134-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-134-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-134-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-134-10

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**PS file:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**Picture A7-134-2: 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 range

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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**picture A7-134-2**

underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**picture A7-134-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

Part 4

OE541-7N-134-10

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$
1	26.85 0.0 0.0	0.0 0.0 0.0	26.85 0.0 0.0	0.0 0.0 0.0	0.01
2	31.42 0.0 0.0	0.15 37.15 0.0	0.0 0.0 0.0	5.73 0.0 0.0	5.73
3	35.99 0.0 0.0	0.24 43.58 0.0	0.0 0.0 0.0	7.59 0.0 0.0	7.59
4	40.56 0.0 0.0	0.32 49.07 0.0	0.0 0.0 0.0	8.51 0.0 0.0	8.51
5	45.13 0.0 0.0	0.4 54.03 0.0	0.0 0.0 0.0	8.9 0.0 0.0	8.9
6	49.7 0.0 0.0	0.46 58.62 0.0	0.0 0.0 0.0	8.92 0.0 0.0	8.92
7	54.27 0.0 0.0	0.53 62.95 0.0	0.0 0.0 0.0	8.68 0.0 0.0	8.68
8	58.84 0.0 0.0	0.59 67.06 0.0	0.0 0.0 0.0	8.22 0.0 0.0	8.22
9	63.41 0.0 0.0	0.64 71.0 0.0	0.0 0.0 0.0	7.59 0.0 0.0	7.59
10	67.99 0.0 0.0	0.7 74.8 0.0	0.0 0.0 0.0	6.81 0.0 0.0	6.81
11	72.56 0.0 0.0	0.75 78.47 0.0	0.0 0.0 0.0	5.91 0.0 0.0	5.91
12	77.13 0.0 0.0	0.8 82.03 0.0	0.0 0.0 0.0	4.9 0.0 0.0	4.9
13	81.7 0.0 0.0	0.86 85.5 0.0	0.0 0.0 0.0	3.8 0.0 0.0	3.8
14	86.27 0.0 0.0	0.9 88.87 0.0	0.0 0.0 0.0	2.61 0.0 0.0	2.61
15	90.84 0.0 0.0	0.95 92.18 0.0	0.0 0.0 0.0	1.34 0.0 0.0	1.34
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
17	26.85 0.0 0.0	0.0 26.85 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	43.99 0.0 0.0	0.38 52.83 0.0	0.0 0.0 0.0	8.84 0.0 0.0	8.84
19	61.13 0.0 0.0	0.62 69.05 0.0	0.0 0.0 0.0	7.92 0.0 0.0	7.92
20	78.27 0.0 0.0	0.82 82.9 0.0	0.0 0.0 0.0	4.64 0.0 0.0	4.64
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01

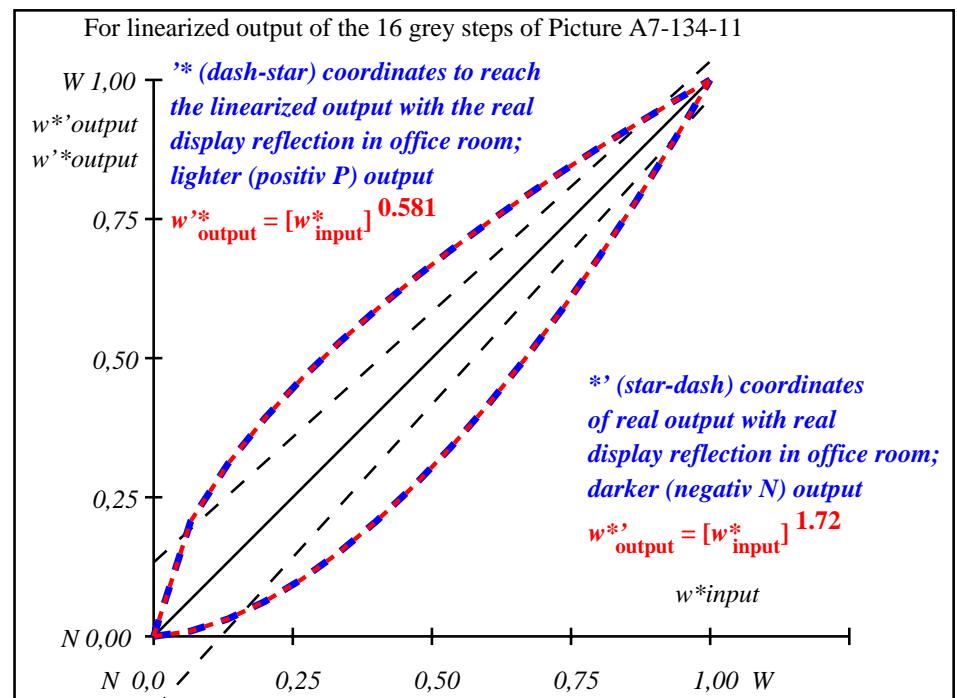
**Start output S1**  
**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 5.6$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 4.3$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 76$

OE540-3N-134-11: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-134-11: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	26.8/5.0	31.4/6.8	36.0/9.0	40.6/11.6	45.1/14.6	49.7/18.2	54.3/22.2	58.8/26.9	63.4/32.1	68.0/38.0	72.6/44.5	77.1/51.7	81.7/59.7	86.3/68.5	90.8/78.1	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=0.7$ 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
$w^*_{\text{intended}}$ $w^*_{\text{out}}$	0.000	0.151	0.244	0.324	0.397	0.463	0.527	0.587	0.644	0.699	0.753	0.805	0.855	0.905	0.953	1.0

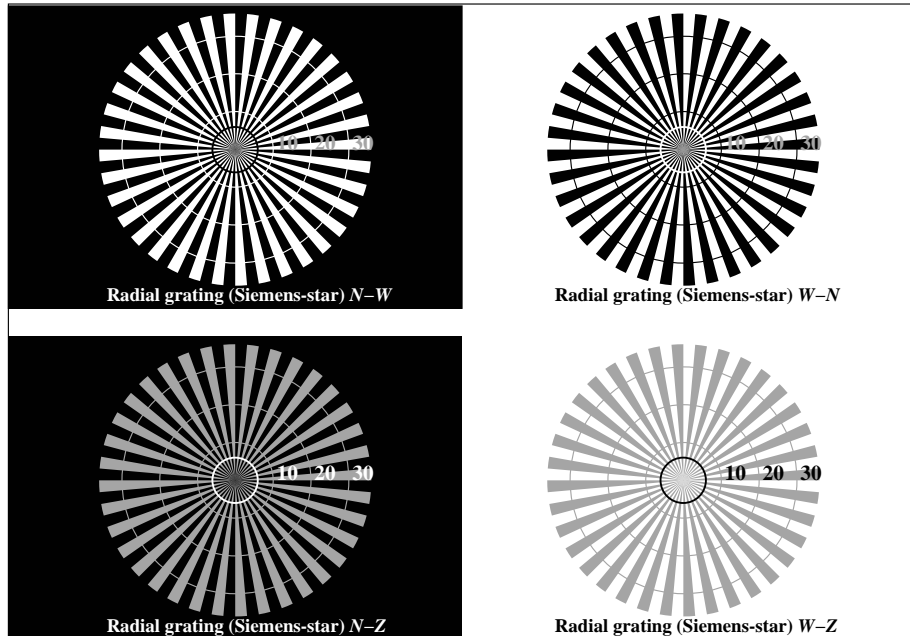
OE540-7N, Picture A7-134-11: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5

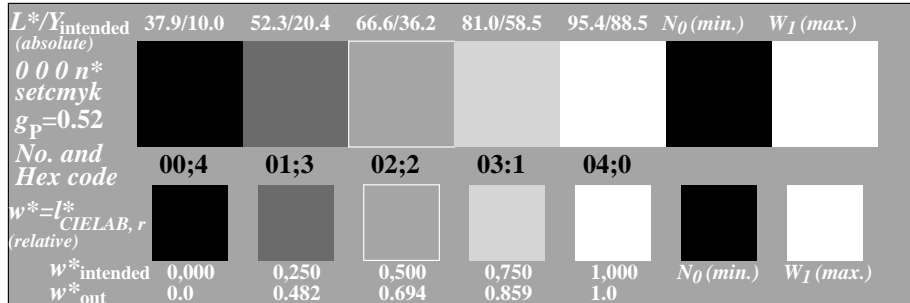
input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcolor  
output 134-11:  $g_P=0.7$ ;  $g_N=1.0$



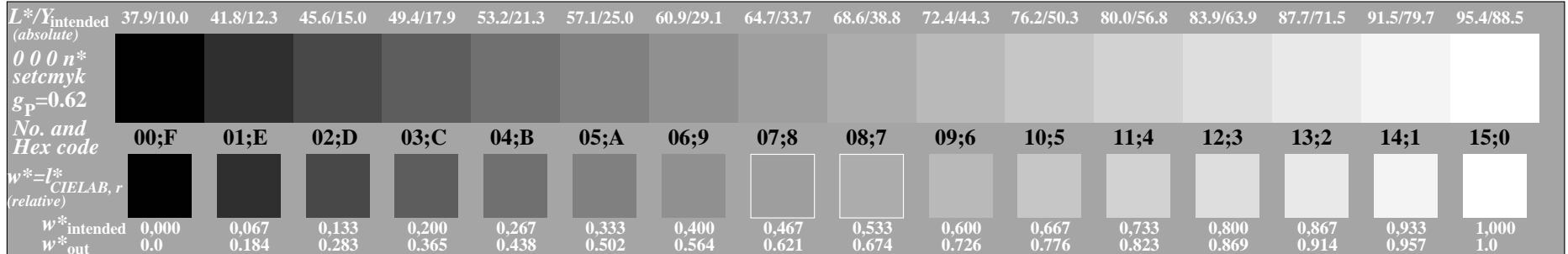
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-105-0: Radial grating N-W, W-N, N-Z, W-Z; PS operator: 0 0 0 n\* setcmykcolor



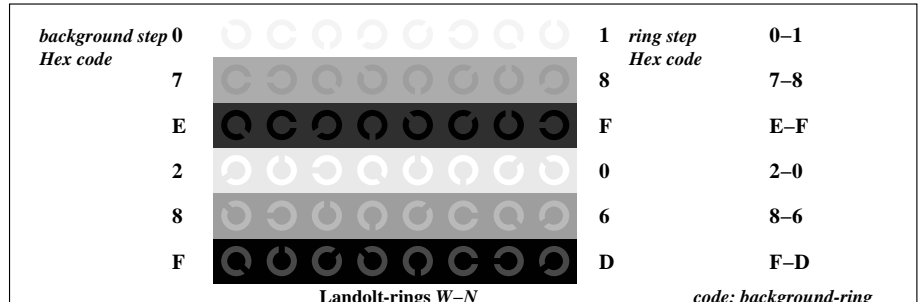
OE540-5N, Picture A2-105-0: 5 equidistant  $L^*$ -grey steps+N0+W1; PS operator: 0 0 0 n\* setcmykcolor



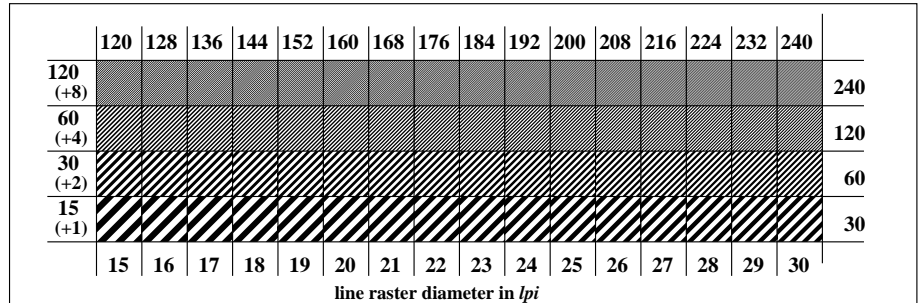
OE540-7N, Picture A3-105-0: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

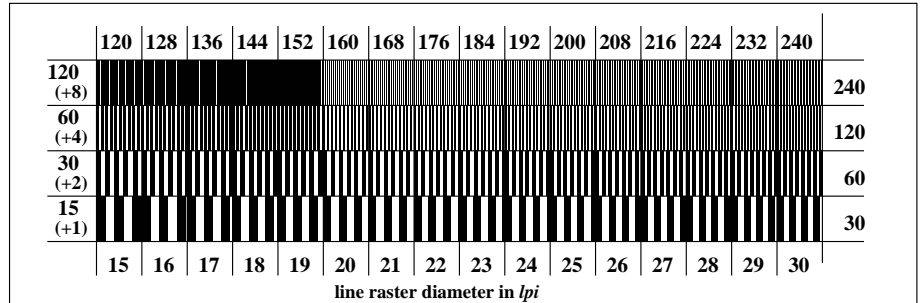
input: all (->rgb\*d) setrgbcolor  
output 135-0:  $g_p=0.62$ ;  $g_N=1.0$



OE541-1N, Picture A4-105-0: Landolt-rings W-N; PS operator: 0 0 0 n\* setcmykcolor



OE541-3N, Picture A5-105-0: Line raster under 45° (or 135°); PS operator: 0 0 0 n\* setcmykcolor



OE541-5N, Picture A6-105-0: Line raster under 90° (or 0°); PS operator: 0 0 0 n\* setcmykcolor

<b>Test for the best visual linearized output of Picture A7-105-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-105-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-105-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-105-0</b>		
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:		..... Steps

Part 1 OE540-3N-105-1

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)  
.....  
.....  
.....

Part 3 OE540-7N-105-1

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: all (->rgb\*d) setrgbcolor  
Viewing Y contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15 output 135-1:  $g_P=0.62$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-105-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-105-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-105-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		
Test with a magnifying glass (e.g. 6x): - from 15 lpi: to ..... lpi		
<b>Test of the radial grating under 90° according to picture A6-105-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		
Test with a magnifying glass (e.g. 6x): - from 15 lpi: to ..... lpi		

Part 2 OE541-3N-105-1

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> underline Yes/No

**Picture A7-105-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**picture A7-105-2**

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> or underline Yes/No

**picture A7-105-2**

**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 with PS file for colours in the columns A to T**  
Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer  
of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF underline Yes/No  
If No, please describe other method: .....

Part 4 OE541-7N-105-1

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

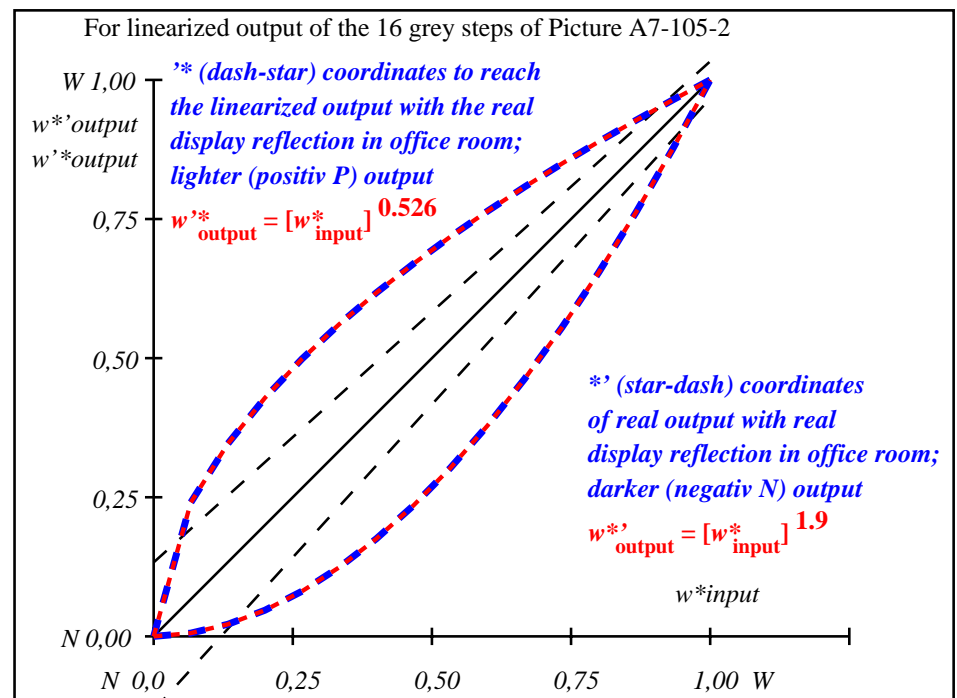
i	LAB*ref	I*out	LAB*out	LAB*out/c-ref	ΔE*	Start output S1
1	37.99	0.0	0.0	37.99	0.0	0.0
2	41.81	0.0	0.18	48.55	0.0	0.0
3	45.64	0.0	0.28	54.29	0.0	0.0
4	49.47	0.0	0.37	58.99	0.0	0.0
5	53.3	0.0	0.44	63.12	0.0	0.0
6	57.13	0.0	0.5	66.89	0.0	0.0
7	60.96	0.0	0.56	70.37	0.0	0.0
8	64.78	0.0	0.62	73.65	0.0	0.0
9	68.61	0.0	0.68	76.75	0.0	0.0
10	72.44	0.0	0.73	79.71	0.0	0.0
11	76.27	0.0	0.78	82.56	0.0	0.0
12	80.1	0.0	0.82	85.29	0.0	0.0
13	83.93	0.0	0.87	87.93	0.0	0.0
14	87.75	0.0	0.91	90.5	0.0	0.0
15	91.58	0.0	0.96	92.99	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	37.99	0.0	0.0	37.99	0.0	0.0
18	52.34	0.0	0.42	62.13	0.0	0.0
19	66.7	0.0	0.65	75.22	0.0	0.0
20	81.05	0.0	0.84	85.96	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 6.1$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 4.6$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 73$

OE540-3N-105-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-105-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	38.0/10.1	41.8/12.4	45.6/15.0	49.5/18.0	53.3/21.3	57.1/25.1	61.0/29.2	64.8/33.8	68.6/38.8	72.4/44.3	76.3/50.3	80.1/56.9	83.9/63.9	87.8/71.6	91.6/79.8	95.4/88.6
0 0 0 n* setcmyk gp=0.63																
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
$w^*_{\text{out}}$	0.0	0.185	0.283	0.366	0.438	0.503	0.564	0.621	0.675	0.727	0.776	0.824	0.87	0.915	0.958	1.0

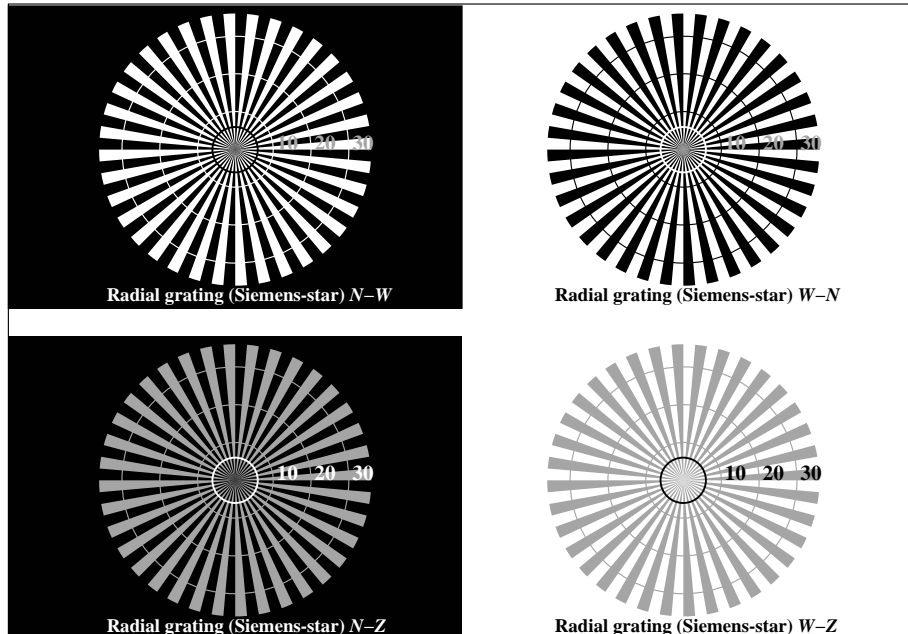
OE540-7N, Picture A7-105-2: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

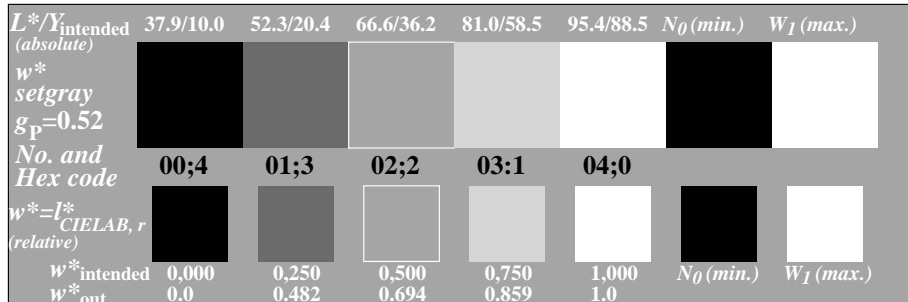
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 135-2:  $g_P=0.62$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=thata

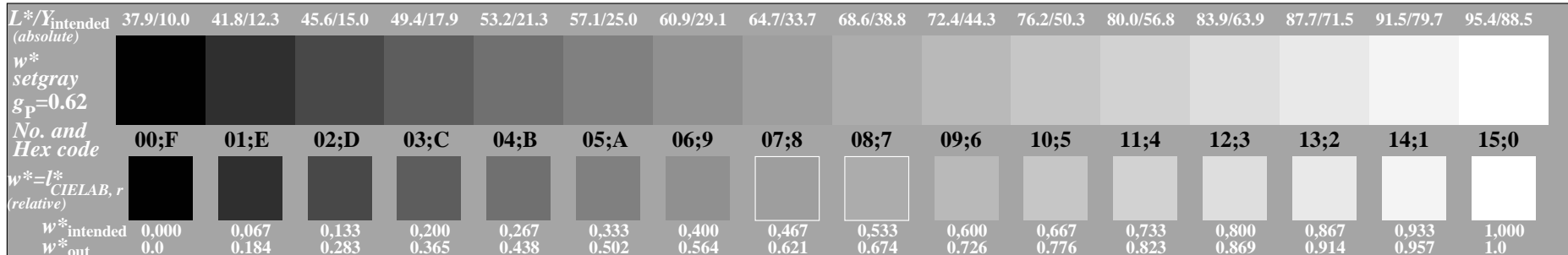
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-115-3: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^*$  setgray



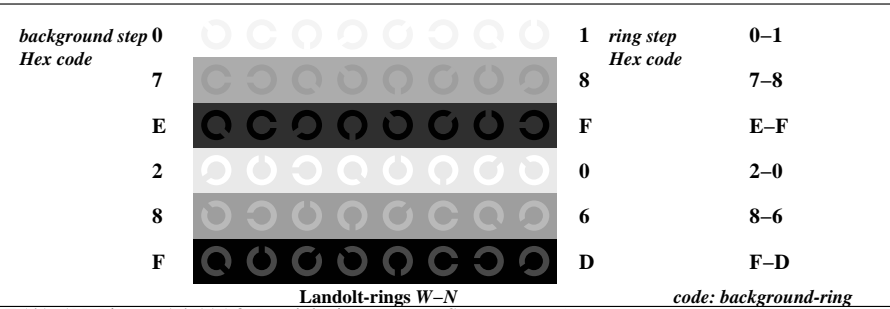
OE540-5N, Picture A2-115-3: 5 equidistant  $L^*$ -gray steps+ $N_0$ + $W_1$ ; PS operator:  $w^*$  setgray



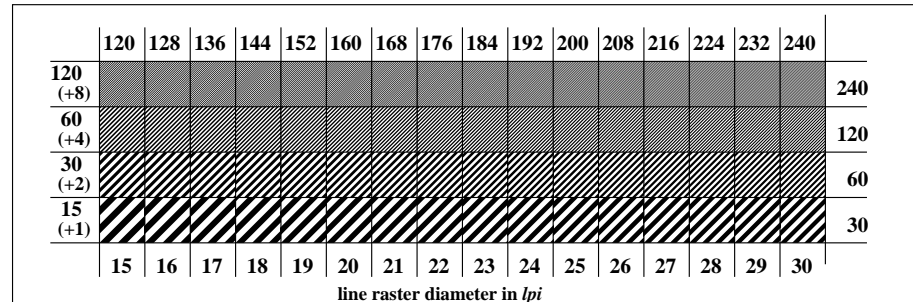
OE540-7N, Picture A3-115-3: 16 visual equidistant  $L^*$ -gray steps; PS operator:  $w^*$  setgray

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

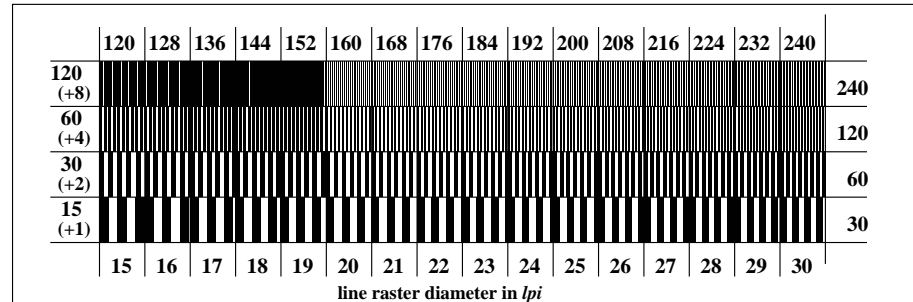
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 135-3:  $g_P=0.62$ ;  $g_N=1.0$



OE541-1N, Picture A4-115-3: Landolt-rings W-N; PS operator:  $w^*$  setgray



OE541-3N, Picture A5-115-3: Line raster under 45° (or 135°); PS operator:  $w^*$  setgray



OE541-5N, Picture A6-115-3: Line raster under 90° (or 0°); PS operator:  $w^*$  setgray

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta



Test for the best visual linearized output of Picture A7-115-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-115-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-115-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-115-0</b>		
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:		..... Steps

Part 1 OE540-3N-115-4

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

PDF-File: <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

#### Used computer operating system:

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

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

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

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

#### For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-115-4

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all* ( $\rightarrow$ rgb<sub>d</sub>) setrgbcolor  
Viewing Y contrast  $Y_W: Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15  
output 135-4:  $g_P=0.62$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-115-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-115-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-115-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-115-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2

OE541-3N-115-4

#### 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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

PS file: <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

Picture A7-115-2: 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 range

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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

picture A7-115-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

picture A7-115-2

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: .....

underline Yes/No

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

OE541-7N-115-4

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

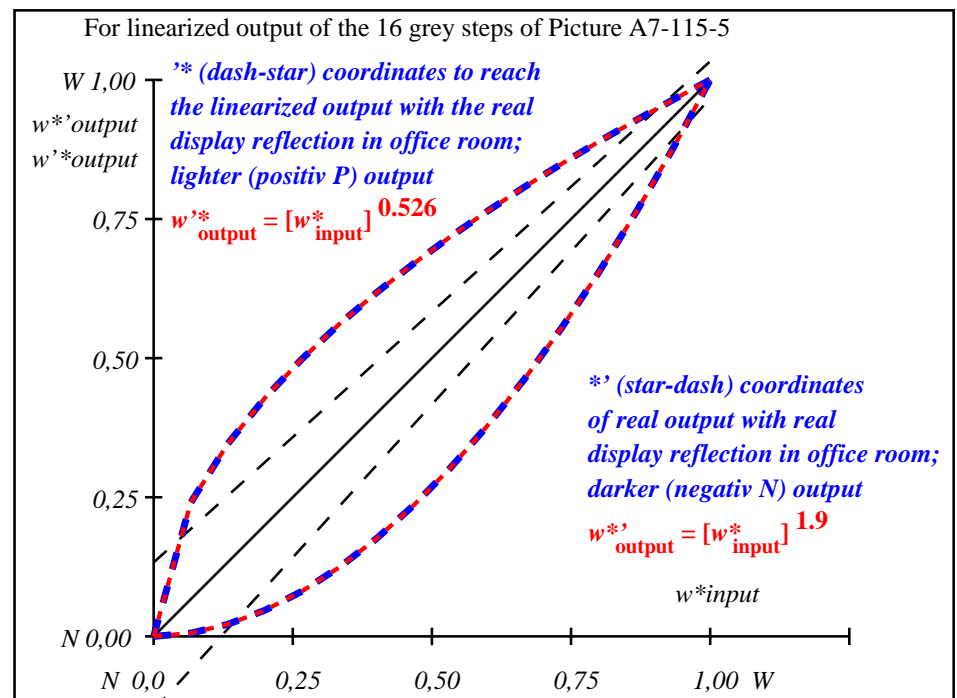
i	LAB*ref	I*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	Start output S1
1	37.99	0.0	0.0	37.99	0.0	0.0
2	41.81	0.0	0.18	48.55	0.0	0.0
3	45.64	0.0	0.28	54.29	0.0	0.0
4	49.47	0.0	0.37	58.99	0.0	0.0
5	53.3	0.0	0.44	63.12	0.0	0.0
6	57.13	0.0	0.5	66.89	0.0	0.0
7	60.96	0.0	0.56	70.37	0.0	0.0
8	64.78	0.0	0.62	73.65	0.0	0.0
9	68.61	0.0	0.68	76.75	0.0	0.0
10	72.44	0.0	0.73	79.71	0.0	0.0
11	76.27	0.0	0.78	82.56	0.0	0.0
12	80.1	0.0	0.82	85.29	0.0	0.0
13	83.93	0.0	0.87	87.93	0.0	0.0
14	87.75	0.0	0.91	90.5	0.0	0.0
15	91.58	0.0	0.96	92.99	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	37.99	0.0	0.0	37.99	0.0	0.0
18	52.34	0.0	0.42	62.13	0.0	0.0
19	66.7	0.0	0.65	75.22	0.0	0.0
20	81.05	0.0	0.84	85.96	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0

Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 6.1$

Mean lightness difference (5 steps)  
 $\Delta E^*_{\text{CIELAB}} = 4.6$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 73$

OE540-3N-115-5: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-115-5: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{\text{intended}}$ (absolute)	38.0/10.1	41.8/12.4	45.6/15.0	49.5/18.0	53.3/21.3	57.1/25.1	61.0/29.2	64.8/33.8	68.6/38.8	72.4/44.3	76.3/50.3	80.1/56.9	83.9/63.9	87.8/71.6	91.6/79.8	95.4/88.6
$w^*_{\text{setgray}}$ $g_p=0.63$	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
$w^*_{\text{intended}}$	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
$w^*_{\text{out}}$	0.0	0.185	0.283	0.366	0.438	0.503	0.564	0.621	0.675	0.727	0.776	0.824	0.87	0.915	0.958	1.0

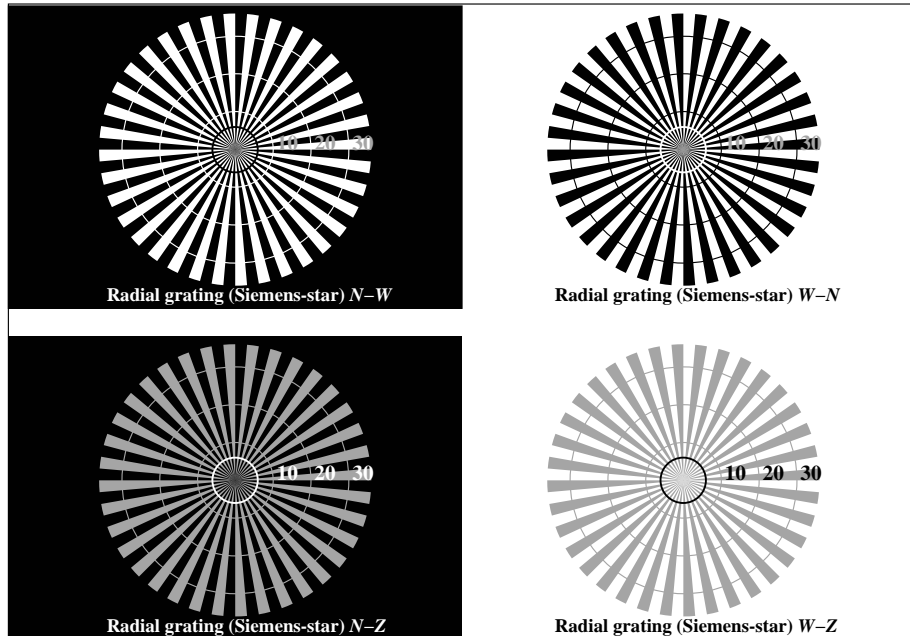
OE540-7N, Picture A7-115-5: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*_{\text{setgray}}$

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

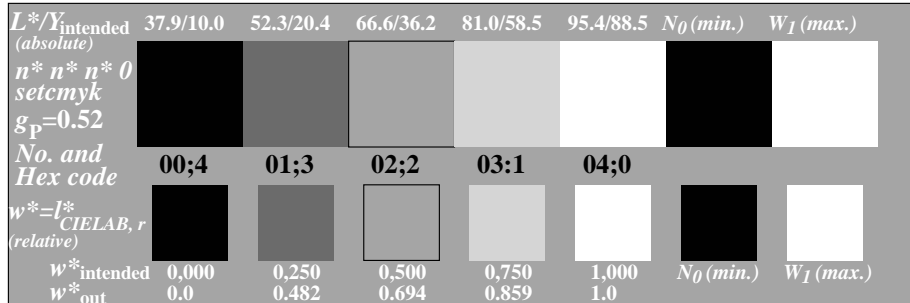
input: all ( $\rightarrow \text{rgb}_d$ )  $\text{setrgbcolor}$   
output 135-5:  $g_p=0.62$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=thata

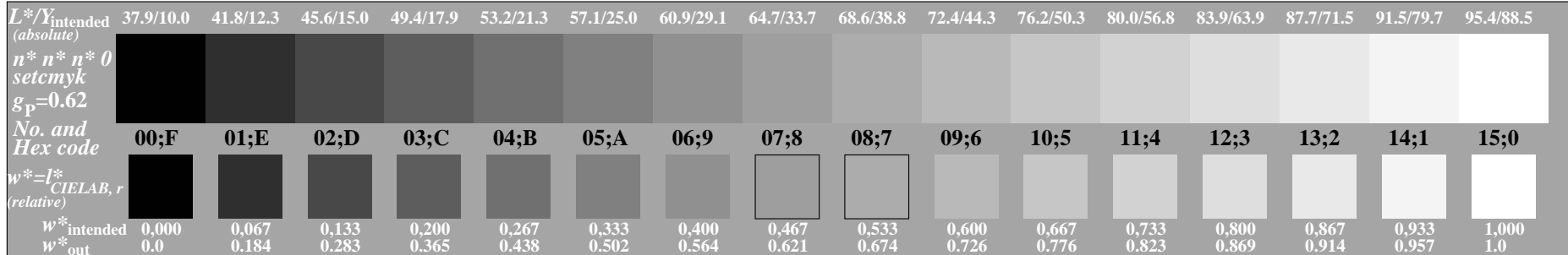
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-125-6: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $n^*n^*n^*0$  setcmykcolor



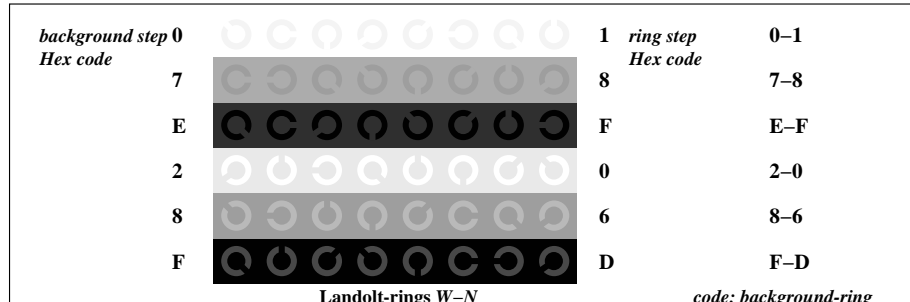
OE540-5N, Picture A2-125-6: 5 equidistant  $L^*$ -grey steps+N0+W1; PS operator:  $n^*n^*n^*0$  setcmykcolor



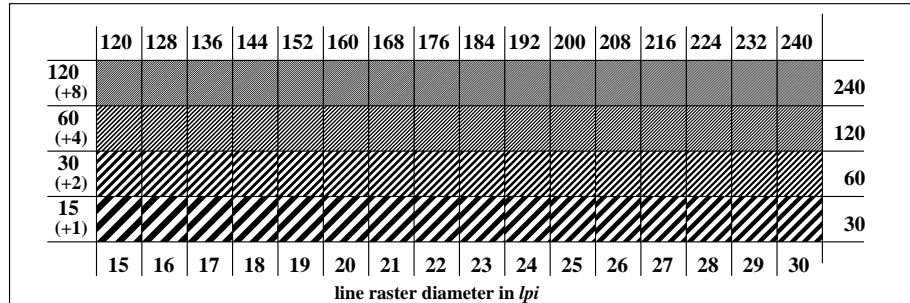
OE540-7N, Picture A3-125-6: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0$  setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

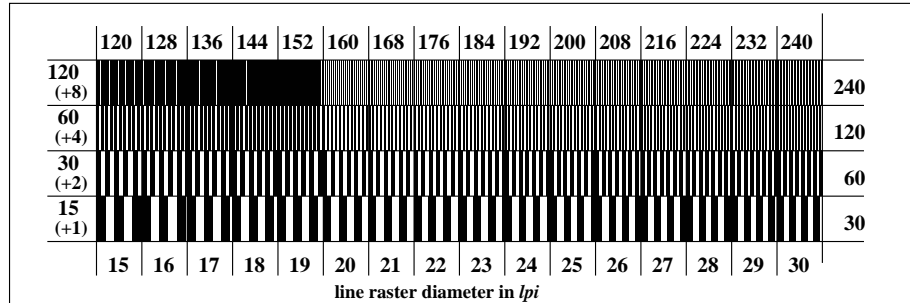
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 135-6:  $g_P=0.62$ ;  $g_N=1.0$



OE541-1N, Picture A4-125-6: Landolt-rings W-N; PS operator:  $n^*n^*n^*0$  setcmykcolor



OE541-3N, Picture A5-125-6: Line raster under 45° (or 135°); PS operator:  $n^*n^*n^*0$  setcmykcolor



OE541-5N, Picture A6-125-6: Line raster under 90° (or 0°); PS operator:  $n^*n^*n^*0$  setcmykcolor

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

Test for the best visual linearized output of Picture A7-125-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-125-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-125-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-125-0</b>		
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:		..... Steps

Part 1

OE540-3N-125-7

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

**PDF-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-125-7

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: all (->rgb\*d) setrgbcolor  
Viewing Y contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15  
output 135-7:  $g_P=0.62$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-125-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-125-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-125-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-125-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2

OE541-3N-125-7

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**PS file:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**Picture A7-125-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**picture A7-125-2**

underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**picture A7-125-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

Part 4

OE541-7N-125-7



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	
1	37.99	0.0	0.0	37.99	0.0	0.0
2	41.81	0.0	0.18	48.55	0.0	0.0
3	45.64	0.0	0.28	54.29	0.0	0.0
4	49.47	0.0	0.37	58.99	0.0	0.0
5	53.3	0.0	0.44	63.12	0.0	0.0
6	57.13	0.0	0.5	66.89	0.0	0.0
7	60.96	0.0	0.56	70.37	0.0	0.0
8	64.78	0.0	0.62	73.65	0.0	0.0
9	68.61	0.0	0.68	76.75	0.0	0.0
10	72.44	0.0	0.73	79.71	0.0	0.0
11	76.27	0.0	0.78	82.56	0.0	0.0
12	80.1	0.0	0.82	85.29	0.0	0.0
13	83.93	0.0	0.87	87.93	0.0	0.0
14	87.75	0.0	0.91	90.5	0.0	0.0
15	91.58	0.0	0.96	92.99	0.0	0.0
16	95.41	0.0	1.0	95.41	0.0	0.0
17	37.99	0.0	0.0	37.99	0.0	0.0
18	52.34	0.0	0.42	62.13	0.0	0.0
19	66.7	0.0	0.65	75.22	0.0	0.0
20	81.05	0.0	0.84	85.96	0.0	0.0
21	95.41	0.0	1.0	95.41	0.0	0.0

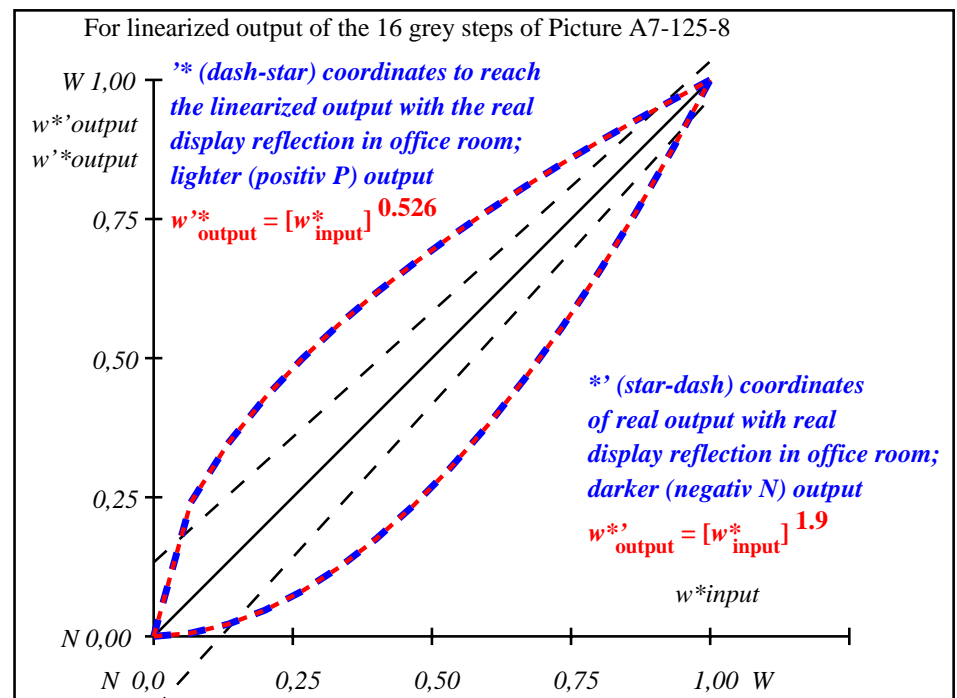
**Start output S1**  
**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 6.1$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 4.6$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 73$

OE540-3N-125-8: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-125-8: File: Measure unknown; Device: Device unknown; Date: Date unknown

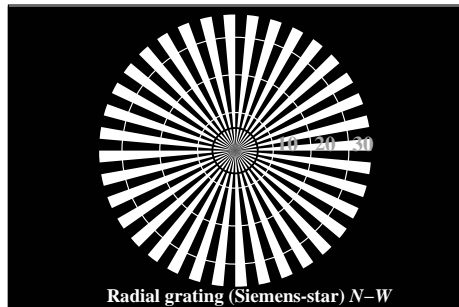
$L^*/Y_{\text{intended}}$ (absolute)	38.0/10.1	41.8/12.4	45.6/15.0	49.5/18.0	53.3/21.3	57.1/25.1	61.0/29.2	64.8/33.8	68.6/38.8	72.4/44.3	76.3/50.3	80.1/56.9	83.9/63.9	87.8/71.6	91.6/79.8	95.4/88.6
$n^* n^* n^* 0$ setcmk $g_P=0.63$	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	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
$w^*_{\text{out}}$	0.0	0.185	0.283	0.366	0.438	0.503	0.564	0.621	0.675	0.727	0.776	0.824	0.87	0.915	0.958	1.0

OE540-7N, Picture A7-125-8: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^* n^* n^* 0$  setcmkcolor

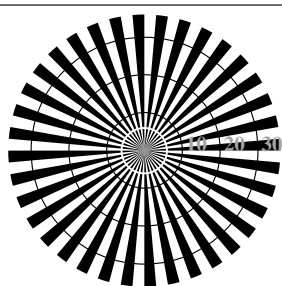
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcolor  
output 135-8:  $g_P=0.62$ ;  $g_N=1.0$

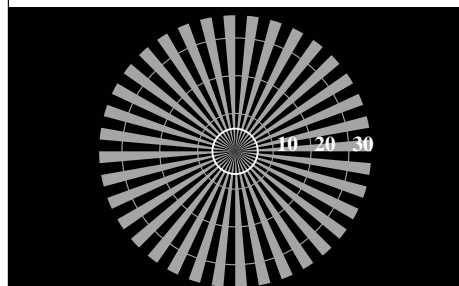
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



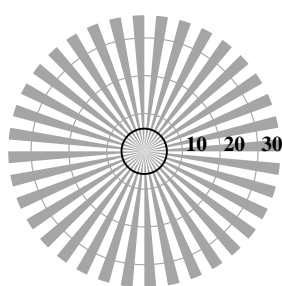
Radial grating (Siemens-star) N-W



Radial grating (Siemens-star) W-N

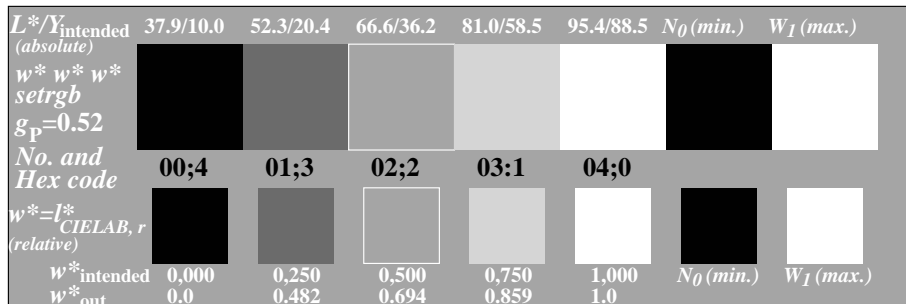


Radial grating (Siemens-star) N-Z

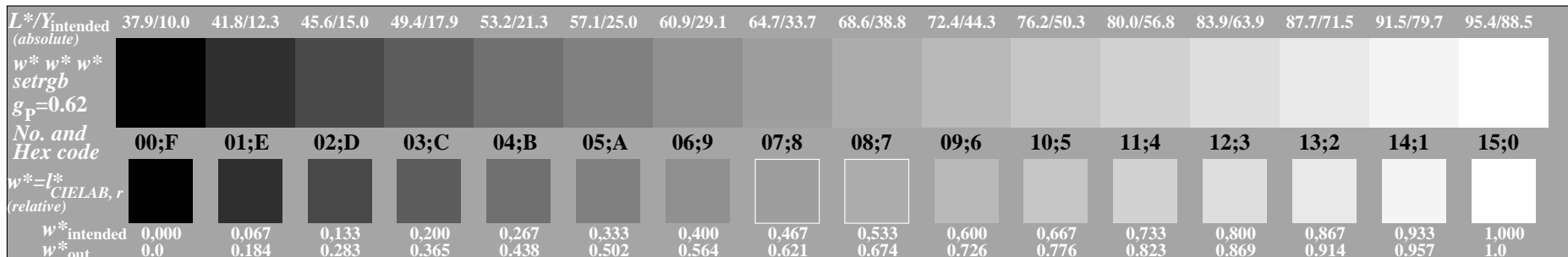


Radial grating (Siemens-star) W-Z

OE540-3N, Picture A1-135-9: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



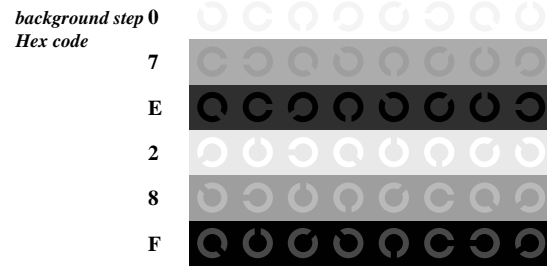
OE540-5N, Picture A2-135-9: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE540-7N, Picture A3-135-9: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

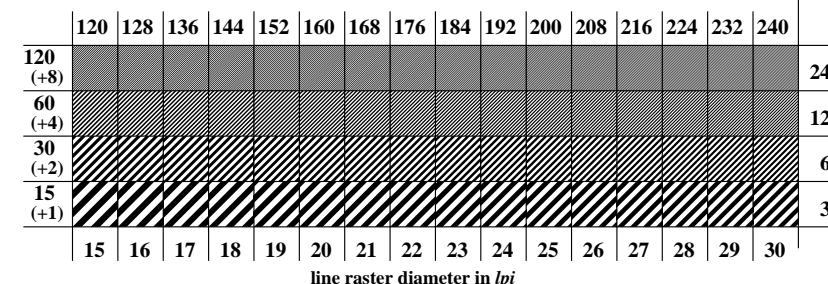
input: all ( $\rightarrow \text{rgb}_d$ )  $\text{setrgbcolor}$   
output 135-9:  $g_p=0.62$ ;  $g_N=1.0$



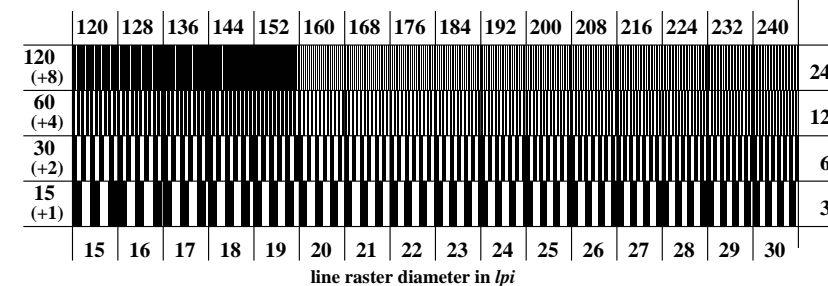
Landolt-rings W-N

code: background-ring

OE541-1N, Picture A4-135-9: Landolt-rings W-N; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-3N, Picture A5-135-9: Line raster under 45° (or 135°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE541-5N, Picture A6-135-9: Line raster under 90° (or 0°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

**Test for the best visual linearized output of Picture A7-135-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the radial grating according to picture A1-135-0**  
**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 A2-135-0**  
 Are the 5 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 5 steps: ..... Steps  
**Test of 16 visual equidistant L\*-grey steps according to picture A3-135-0**  
 Are the 16 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 16 steps: .... Steps

Part 1

OE540-3N-135-10

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

**PDF-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-135-10

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: all (->rgb\*d) setrgbcolor  
 Viewing Y contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15 output 135-10:  $g_P=0.62$ ;  $g_N=1.0$

**Test for the best visual linearized output of Picture A7-135-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the Landolt-rings N-W according to picture A4-135-0**  
**N-W-radial grating:**  
 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 A5-135-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi  
**Test of the radial grating under 90° according to picture A6-135-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi

Part 2

OE541-3N-135-10

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

underline Yes/No

**PS file:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

underline Yes/No

**Picture A7-135-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

underline Yes/No

**picture A7-135-2**

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE541-7N-135-10

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$
1	37.99 0.0 0.0	0.0 0.0 0.0	37.99 0.0 0.0	0.0 0.0 0.0	0.01
2	41.81 0.0 0.0	0.18 48.55 0.0	0.0 0.0 0.0	6.74 0.0 0.0	6.74
3	45.64 0.0 0.0	0.28 54.29 0.0	0.0 0.0 0.0	8.64 0.0 0.0	8.64
4	49.47 0.0 0.0	0.37 58.99 0.0	0.0 0.0 0.0	9.52 0.0 0.0	9.52
5	53.3 0.0 0.0	0.44 63.12 0.0	0.0 0.0 0.0	9.82 0.0 0.0	9.82
6	57.13 0.0 0.0	0.5 66.89 0.0	0.0 0.0 0.0	9.76 0.0 0.0	9.76
7	60.96 0.0 0.0	0.56 70.37 0.0	0.0 0.0 0.0	9.42 0.0 0.0	9.42
8	64.78 0.0 0.0	0.62 73.65 0.0	0.0 0.0 0.0	8.87 0.0 0.0	8.87
9	68.61 0.0 0.0	0.68 76.75 0.0	0.0 0.0 0.0	8.14 0.0 0.0	8.14
10	72.44 0.0 0.0	0.73 79.71 0.0	0.0 0.0 0.0	7.27 0.0 0.0	7.27
11	76.27 0.0 0.0	0.78 82.56 0.0	0.0 0.0 0.0	6.29 0.0 0.0	6.29
12	80.1 0.0 0.0	0.82 85.29 0.0	0.0 0.0 0.0	5.19 0.0 0.0	5.19
13	83.93 0.0 0.0	0.87 87.93 0.0	0.0 0.0 0.0	4.01 0.0 0.0	4.01
14	87.75 0.0 0.0	0.91 90.5 0.0	0.0 0.0 0.0	2.74 0.0 0.0	2.74
15	91.58 0.0 0.0	0.96 92.99 0.0	0.0 0.0 0.0	1.4 0.0 0.0	1.4
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
17	37.99 0.0 0.0	0.0 0.0 0.0	37.99 0.0 0.0	0.0 0.0 0.0	0.01
18	52.34 0.0 0.0	0.42 62.13 0.0	0.0 0.0 0.0	9.79 0.0 0.0	9.79
19	66.7 0.0 0.0	0.65 75.22 0.0	0.0 0.0 0.0	8.52 0.0 0.0	8.52
20	81.05 0.0 0.0	0.84 85.96 0.0	0.0 0.0 0.0	4.91 0.0 0.0	4.91
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01

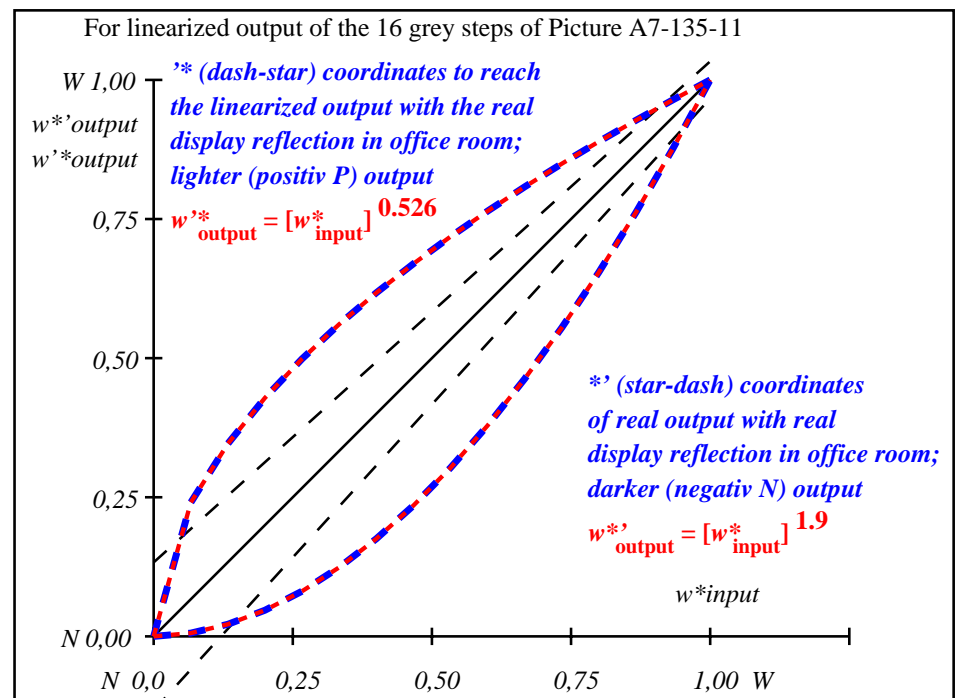
**Start output S1**  
**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 6.1$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 4.6$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 73$

OE540-3N-135-11: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-135-11: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{\text{intended}}$ (absolute)	38.0/10.1	41.8/12.4	45.6/15.0	49.5/18.0	53.3/21.3	57.1/25.1	61.0/29.2	64.8/33.8	68.6/38.8	72.4/44.3	76.3/50.3	80.1/56.9	83.9/63.9	87.8/71.6	91.6/79.8	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=0.63$																
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
$w^*_{\text{out}}$	0.0	0.185	0.283	0.366	0.438	0.503	0.564	0.621	0.675	0.727	0.776	0.824	0.87	0.915	0.958	1.0

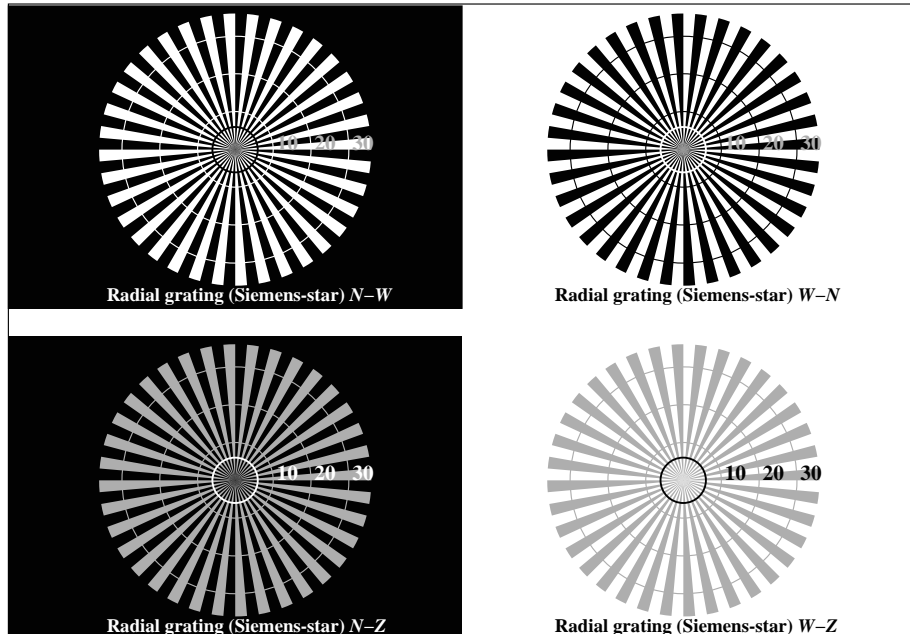
OE540-7N, Picture A7-135-11: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

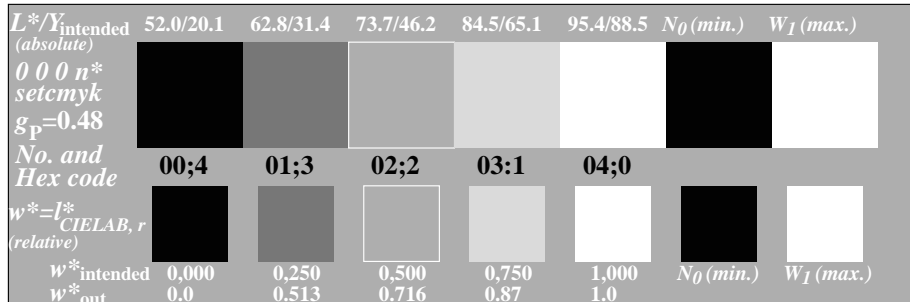
input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcolor  
output 135-11:  $g_P=0.62$ ;  $g_N=1.0$



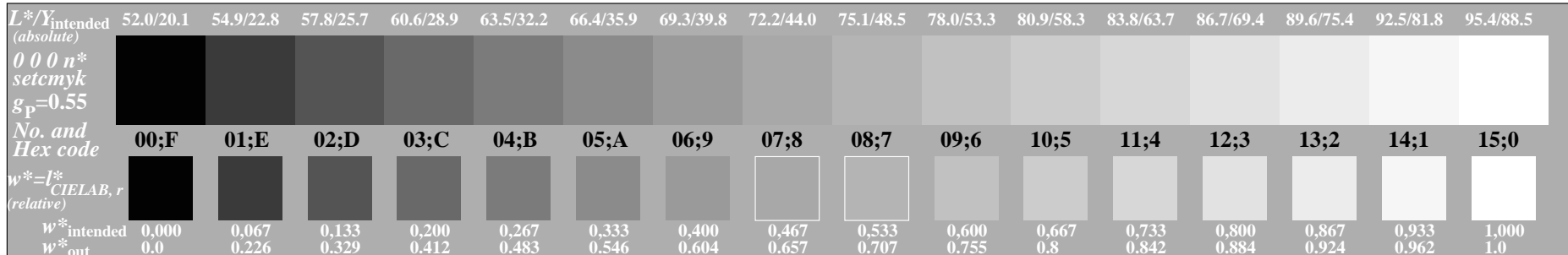
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-106-0: Radial grating N-W, W-N, N-Z, W-Z; PS operator: 0 0 0 n\* setcmykcolor



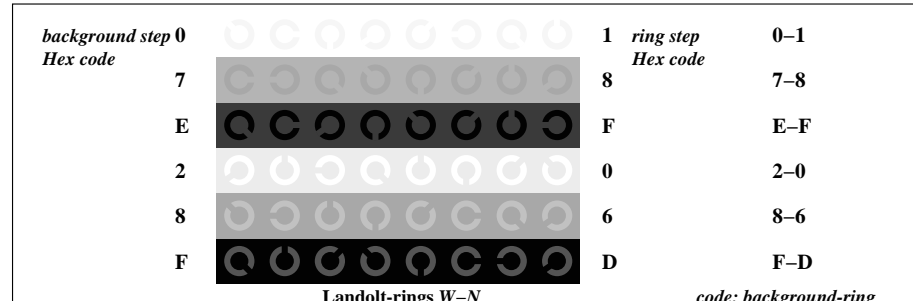
OE540-5N, Picture A2-106-0: 5 equidistant  $L^*$ -grey steps+N0+W1; PS operator: 0 0 0 n\* setcmykcolor



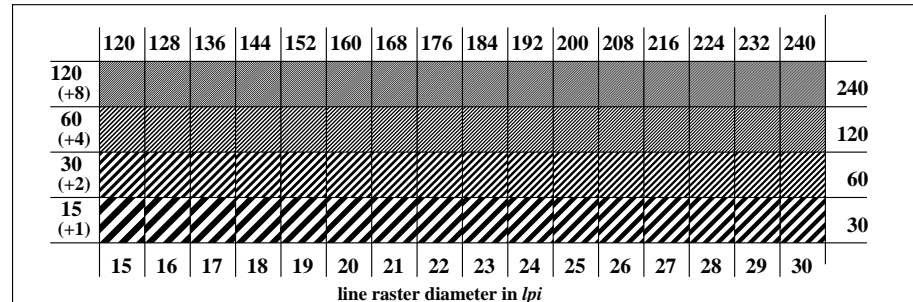
OE540-7N, Picture A3-106-0: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30

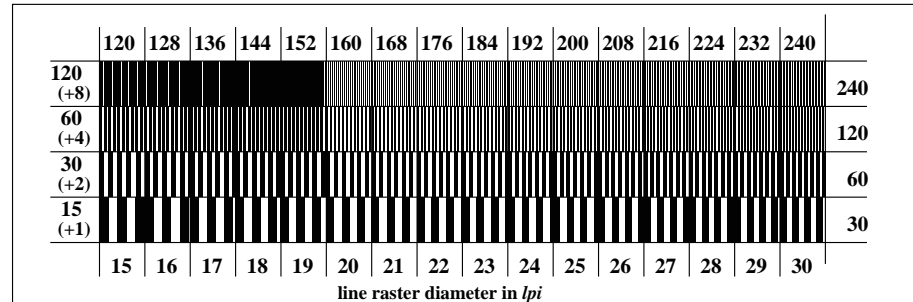
input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 136-0:  $g_p=0.55$ ;  $g_N=1.0$



OE541-1N, Picture A4-106-0: Landolt-rings W-N; PS operator: 0 0 0 n\* setcmykcolor



OE541-3N, Picture A5-106-0: Line raster under 45° (or 135°); PS operator: 0 0 0 n\* setcmykcolor



OE541-5N, Picture A6-106-0: Line raster under 90° (or 0°); PS operator: 0 0 0 n\* setcmykcolor

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta

<b>Test for the best visual linearized output of Picture A7-106-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-106-0</b>		
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
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-106-0</b>		
Are the 5 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		
of the given 5 steps:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-106-0</b>		
Are the 16 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		
of the given 16 steps:		.... Steps

Part 1 OE540-3N-106-1

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF>            Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS>            or underline Yes/No

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)  
.....  
.....

Part 3 OE540-7N-106-1

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30 output 136-1:  $g_P=0.55$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-106-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-106-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-106-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		
Test with a magnifying glass (e.g. 6x): – from 15 lpi: <u>          </u> to ..... lpi		
<b>Test of the radial grating under 90° according to picture A6-106-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		
Test with a magnifying glass (e.g. 6x): – from 15 lpi: <u>          </u> to ..... lpi		

Part 2 OE541-3N-106-1

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

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

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

Office workplace illumination is daylight (clouded/north sky)            Yes/No

**PDF file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>            Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>            Yes/No

**Picture A7-106-2: 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            range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>            Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>            Yes/No

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

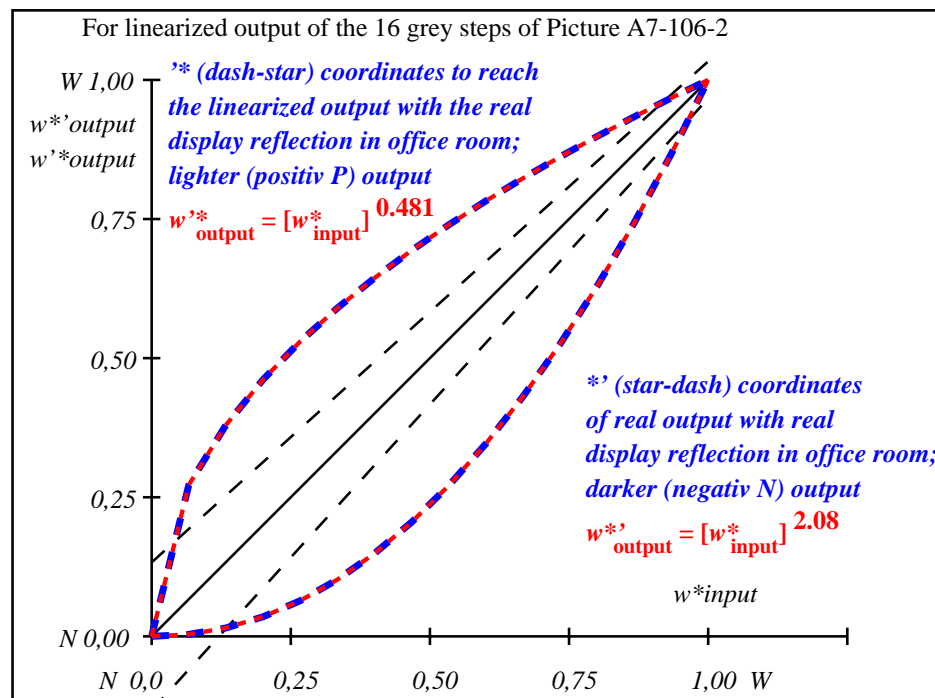
**Colorimetric specification with PS file for colours in the columns A to T**  
Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer  
of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF            Yes/No  
If No, please describe other method: .....

Part 4 OE541-7N-106-1

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	Start output S1
1	52.02 0.0 0.0	0.0 52.02 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01	Specification according to
2	54.91 0.0 0.0	0.23 61.8 0.0	0.0 0.0 0.0	6.89 0.0 0.0	6.89	ISO/IEC 15775 Annex G
3	57.8 0.0 0.0	0.33 66.34 0.0	0.0 0.0 0.0	8.54 0.0 0.0	8.54	and DIN 33866-1 Annex G
4	60.7 0.0 0.0	0.41 69.92 0.0	0.0 0.0 0.0	9.23 0.0 0.0	9.23	
5	63.59 0.0 0.0	0.48 72.99 0.0	0.0 0.0 0.0	9.4 0.0 0.0	9.4	
6	66.48 0.0 0.0	0.55 75.73 0.0	0.0 0.0 0.0	9.25 0.0 0.0	9.25	
7	69.37 0.0 0.0	0.6 78.23 0.0	0.0 0.0 0.0	8.86 0.0 0.0	8.86	
8	72.27 0.0 0.0	0.66 80.55 0.0	0.0 0.0 0.0	8.28 0.0 0.0	8.28	
9	75.16 0.0 0.0	0.71 82.73 0.0	0.0 0.0 0.0	7.57 0.0 0.0	7.57	
10	78.05 0.0 0.0	0.76 84.78 0.0	0.0 0.0 0.0	6.73 0.0 0.0	6.73	
11	80.95 0.0 0.0	0.8 86.74 0.0	0.0 0.0 0.0	5.79 0.0 0.0	5.79	
12	83.84 0.0 0.0	0.84 88.6 0.0	0.0 0.0 0.0	4.77 0.0 0.0	4.77	
13	86.73 0.0 0.0	0.88 90.4 0.0	0.0 0.0 0.0	3.67 0.0 0.0	3.67	
14	89.62 0.0 0.0	0.92 92.13 0.0	0.0 0.0 0.0	2.5 0.0 0.0	2.5	
15	92.52 0.0 0.0	0.96 93.79 0.0	0.0 0.0 0.0	1.28 0.0 0.0	1.28	Mean lightness difference (16 steps)
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01	$\Delta E^*_{\text{CIELAB}} = 5.8$
17	52.02 0.0 0.0	0.0 52.02 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01	
18	62.87 0.0 0.0	0.47 72.26 0.0	0.0 0.0 0.0	9.4 0.0 0.0	9.4	
19	73.71 0.0 0.0	0.68 81.66 0.0	0.0 0.0 0.0	7.94 0.0 0.0	7.94	
20	84.56 0.0 0.0	0.85 89.06 0.0	0.0 0.0 0.0	4.5 0.0 0.0	4.5	Mean lightness difference (5 steps)
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01	$\Delta L^*_{\text{CIELAB}} = 4.4$
Mean colour reproduction index:					$R^*_{\text{ab,m}} = 75$	

OE540-3N-106-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-106-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

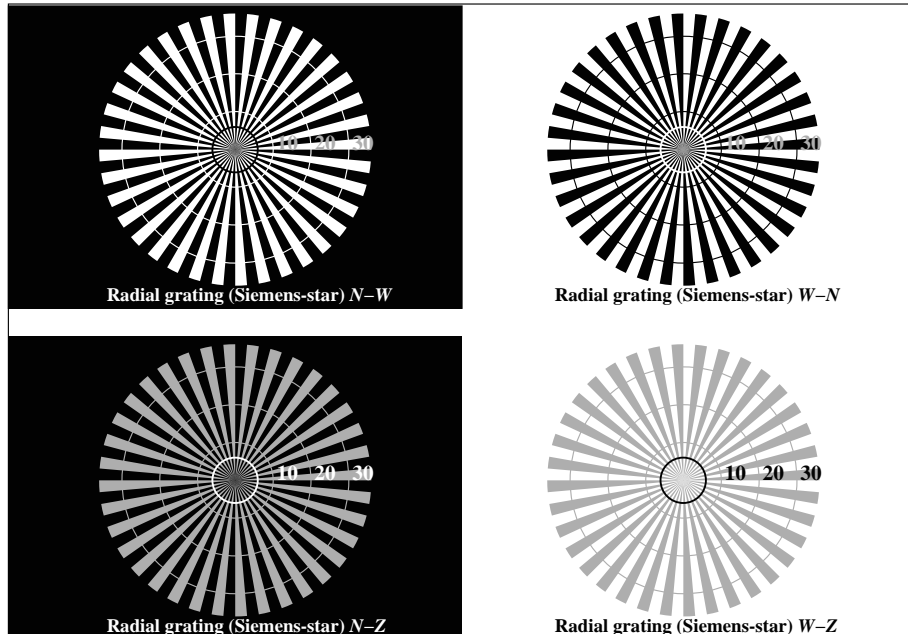
$L^*/Y_{\text{intended}}$ (absolute)	52.0/20.2	54.9/22.8	57.8/25.8	60.7/28.9	63.6/32.3	66.5/36.0	69.4/39.9	72.3/44.1	75.2/48.5	78.1/53.3	80.9/58.4	83.8/63.8	86.7/69.5	89.6/75.5	92.5/81.9	95.4/88.6
0 0 0 n* setcmyk g <sub>p</sub> =0.55																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	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
$w^*_{\text{out}}$	0.0	0.226	0.33	0.413	0.484	0.546	0.604	0.658	0.707	0.755	0.8	0.843	0.885	0.925	0.963	1.0

OE540-7N, Picture A7-106-2: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

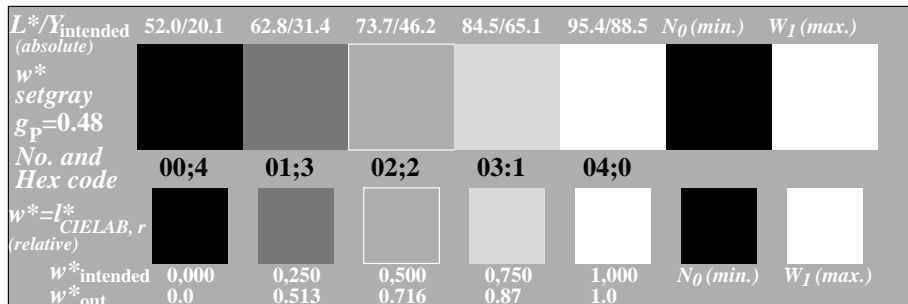
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30

input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcolor  
output 136-2:  $g_P=0.55$ ;  $g_N=1.0$

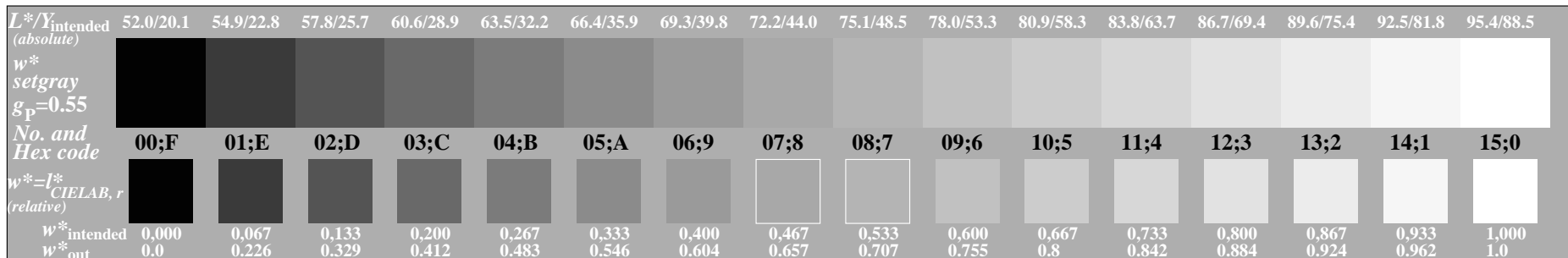
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-116-3: Radial grating N-W, W-N, N-Z, W-Z; PS operator: w\* setgray

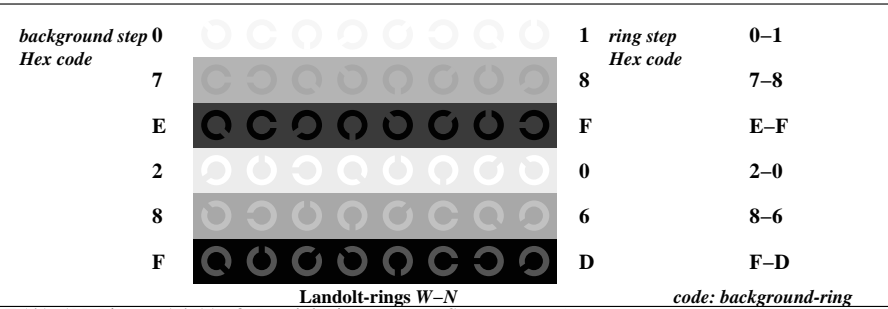


OE540-5N, Picture A2-116-3: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator: w\* setgray

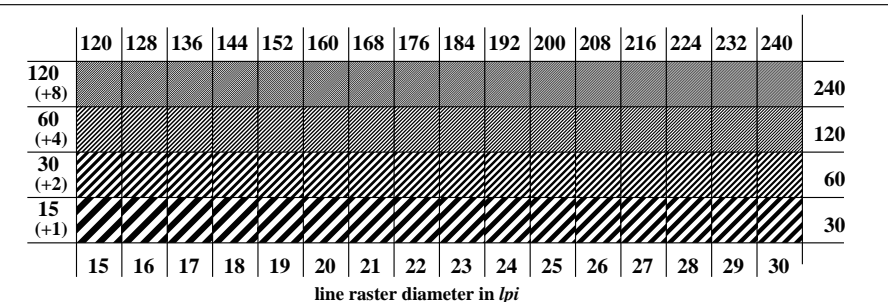


OE540-7N, Picture A3-116-3: 16 visual equidistant  $L^*$ -grey steps; PS operator: w\* setgray

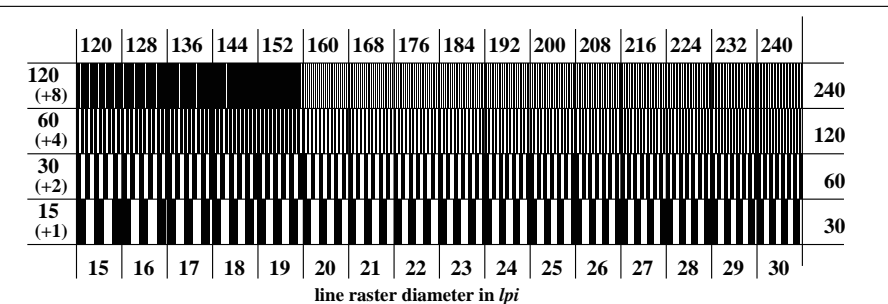
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30



OE541-1N, Picture A4-116-3: Landolt-rings W-N; PS operator: w\* setgray



OE541-3N, Picture A5-116-3: Line raster under 45° (or 135°); PS operator: w\* setgray



OE541-5N, Picture A6-116-3: Line raster under 90° (or 0°); PS operator: w\* setgray

input: all (->rgb\*\_d) setrgbcolor  
output 136-3:  $g_p=0.55$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta



**Test for the best visual linearized output of Picture A7-116-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the radial grating according to picture A1-116-0**  
**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 A2-116-0**  
 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 A3-116-0**  
 Are the 16 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? .... Steps

Part 1 OE540-3N-116-4

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

Part 3

OE540-7N-116-4

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
 Viewing Y contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30 output 136-4:  $g_P=0.55$ ;  $g_N=1.0$

**Test for the best visual linearized output of Picture A7-116-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the Landolt-rings N-W according to picture A4-116-0**  
**N-W-radial grating:**  
 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 A5-116-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi to ..... lpi  
**Test of the radial grating under 90° according to picture A6-116-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi to ..... lpi

Part 2 OE541-3N-116-4

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

underline Yes/No

**Picture A7-116-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**picture A7-116-2**

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

or underline Yes/No

**picture A7-116-2**

**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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE541-7N-116-4

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	
1	52.02	0.0	0.0	52.02	0.0	0.0
2	54.91	0.0	0.23	61.8	0.0	6.89
3	57.8	0.0	0.33	66.34	0.0	8.54
4	60.7	0.0	0.41	69.92	0.0	9.23
5	63.59	0.0	0.48	72.99	0.0	9.4
6	66.48	0.0	0.55	75.73	0.0	9.25
7	69.37	0.0	0.6	78.23	0.0	8.86
8	72.27	0.0	0.66	80.55	0.0	8.28
9	75.16	0.0	0.71	82.73	0.0	7.57
10	78.05	0.0	0.76	84.78	0.0	6.73
11	80.95	0.0	0.8	86.74	0.0	5.79
12	83.84	0.0	0.84	88.6	0.0	4.77
13	86.73	0.0	0.88	90.4	0.0	3.67
14	89.62	0.0	0.92	92.13	0.0	2.5
15	92.52	0.0	0.96	93.79	0.0	1.28
16	95.41	0.0	1.0	95.41	0.0	0.01
17	52.02	0.0	0.0	52.02	0.0	0.01
18	62.87	0.0	0.47	72.26	0.0	9.4
19	73.71	0.0	0.68	81.66	0.0	7.94
20	84.56	0.0	0.85	89.06	0.0	4.5
21	95.41	0.0	1.0	95.41	0.0	0.01

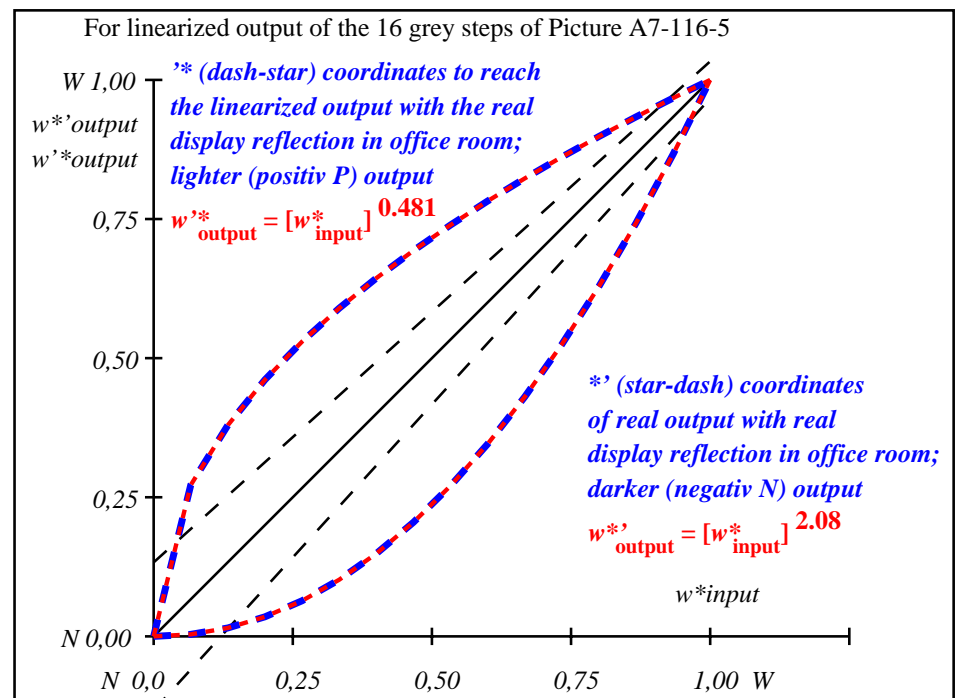
**Start output S1**  
**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 5.8$

Mean lightness difference (5 steps)  
 $\Delta E^*_{\text{CIELAB}} = 4.4$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 75$

OE540-3N-116-5: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-116-5: File: Measure unknown; Device: Device unknown; Date: Date unknown

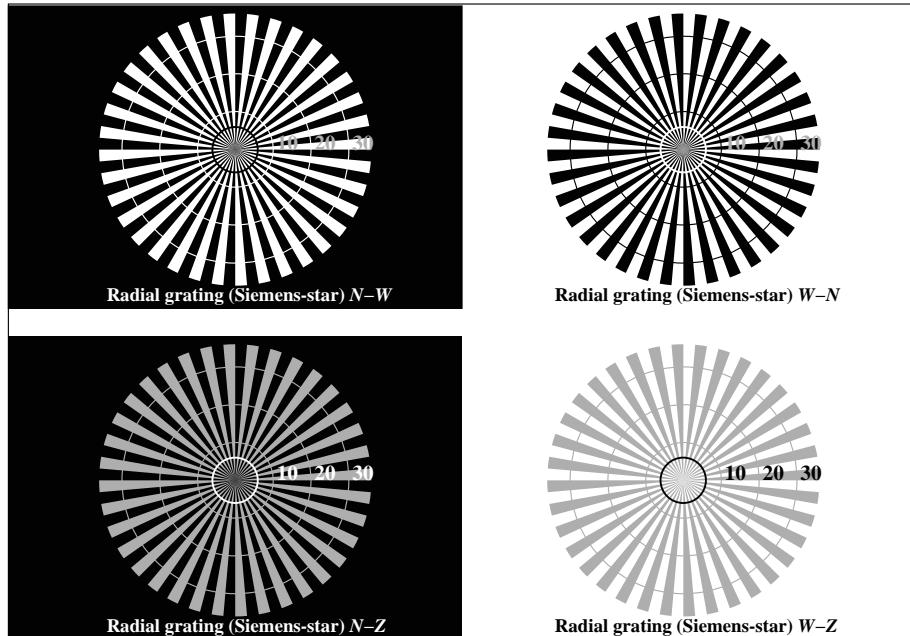
$L^*/Y_{\text{intended}}$ (absolute)	52.0/20.2	54.9/22.8	57.8/25.8	60.7/28.9	63.6/32.3	66.5/36.0	69.4/39.9	72.3/44.1	75.2/48.5	78.1/53.3	80.9/58.4	83.8/63.8	86.7/69.5	89.6/75.5	92.5/81.9	95.4/88.6
$w^*$ setgray $g_P=0.55$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	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
$w^*_{\text{out}}$	0.0	0.226	0.33	0.413	0.484	0.546	0.604	0.658	0.707	0.755	0.8	0.843	0.885	0.925	0.963	1.0

OE540-7N, Picture A7-116-5: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

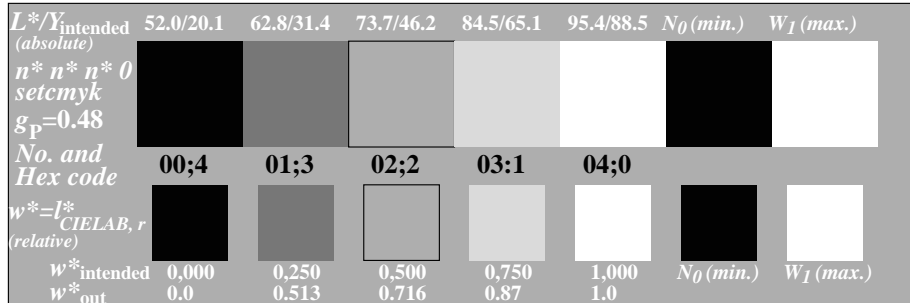
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30

input: all ( $\rightarrow rgb_d$ ) setrgbcOLOR  
output 136-5:  $g_P=0.55$ ;  $g_N=1.0$

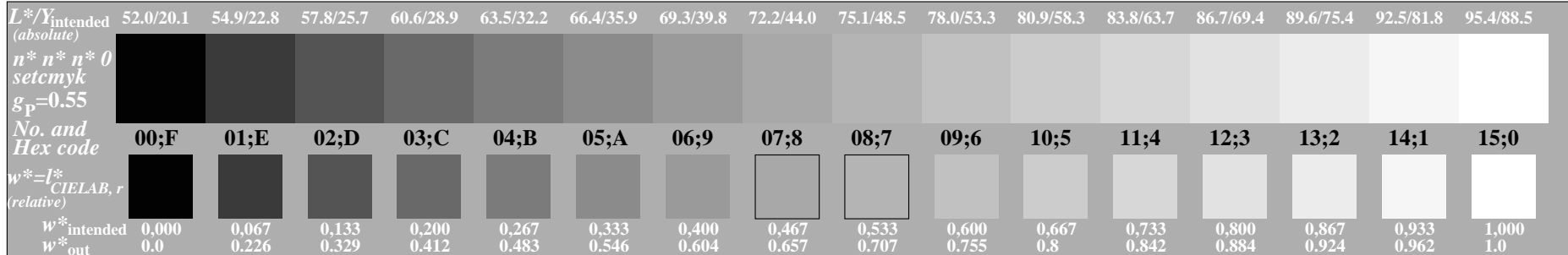
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-126-6: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $n^*n^*n^*0$  setcmkcolor

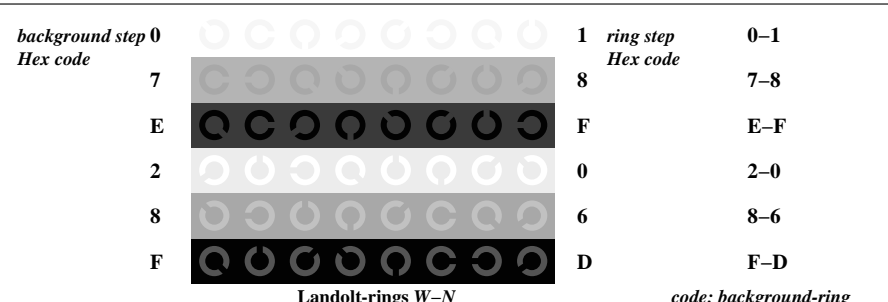


OE540-5N, Picture A2-126-6: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $n^*n^*n^*0$  setcmkcolor

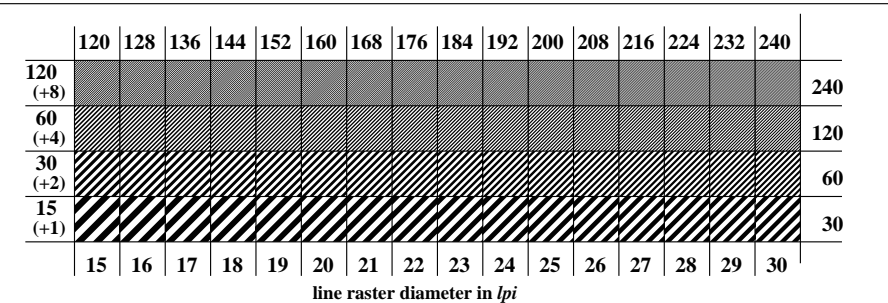


OE540-7N, Picture A3-126-6: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0$  setcmkcolor

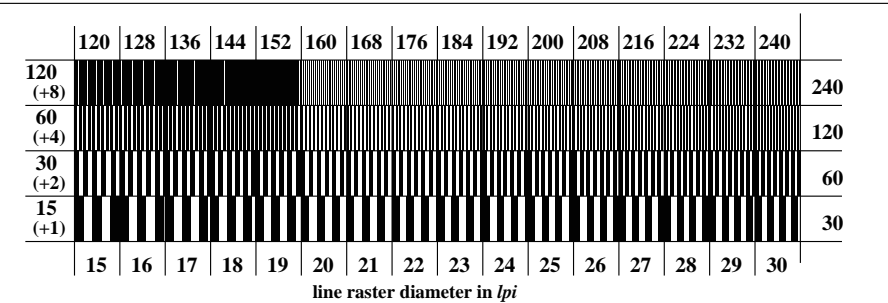
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30



OE541-1N, Picture A4-126-6: Landolt-rings W-N; PS operator:  $n^*n^*n^*0$  setcmkcolor



OE541-3N, Picture A5-126-6: Line raster under 45° (or 135°); PS operator:  $n^*n^*n^*0$  setcmkcolor



OE541-5N, Picture A6-126-6: Line raster under 90° (or 0°); PS operator:  $n^*n^*n^*0$  setcmkcolor

input: all (->rgb<sub>d</sub>) setrgbcolor  
output 136-6:  $g_p=0.55$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-126-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-126-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	..... mm
	Test with magnifying glass (e.g. 6x)	Yes/No
	resolution diameter	..... mm
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	..... mm
	Test with magnifying glass (e.g. 6x)	Yes/No
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-126-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-126-0</b>		
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:		..... Steps

Part 1 OE540-3N-126-7

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)  
.....  
.....  
.....

Part 3 OE540-7N-126-7

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: all (->rgb\*d) setrgbcolor  
Viewing Y contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30  
output 136-7:  $g_P=0.55$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-126-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-126-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-126-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-126-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-126-7

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> underline Yes/No

**Picture A7-126-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**picture A7-126-2** underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> or underline Yes/No

**picture A7-126-2** 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 with PS file for colours in the columns A to T**  
Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer  
of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF underline Yes/No  
If No, please describe other method: .....

Part 4 OE541-7N-126-7



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	
1	52.02	0.0	0.0	52.02	0.0	0.0
2	54.91	0.0	0.23	61.8	0.0	6.89
3	57.8	0.0	0.33	66.34	0.0	8.54
4	60.7	0.0	0.41	69.92	0.0	9.23
5	63.59	0.0	0.48	72.99	0.0	9.4
6	66.48	0.0	0.55	75.73	0.0	9.25
7	69.37	0.0	0.6	78.23	0.0	8.86
8	72.27	0.0	0.66	80.55	0.0	8.28
9	75.16	0.0	0.71	82.73	0.0	7.57
10	78.05	0.0	0.76	84.78	0.0	6.73
11	80.95	0.0	0.8	86.74	0.0	5.79
12	83.84	0.0	0.84	88.6	0.0	4.77
13	86.73	0.0	0.88	90.4	0.0	3.67
14	89.62	0.0	0.92	92.13	0.0	2.5
15	92.52	0.0	0.96	93.79	0.0	1.28
16	95.41	0.0	1.0	95.41	0.0	0.01
17	52.02	0.0	0.0	52.02	0.0	0.01
18	62.87	0.0	0.47	72.26	0.0	9.4
19	73.71	0.0	0.68	81.66	0.0	7.94
20	84.56	0.0	0.85	89.06	0.0	4.5
21	95.41	0.0	1.0	95.41	0.0	0.01

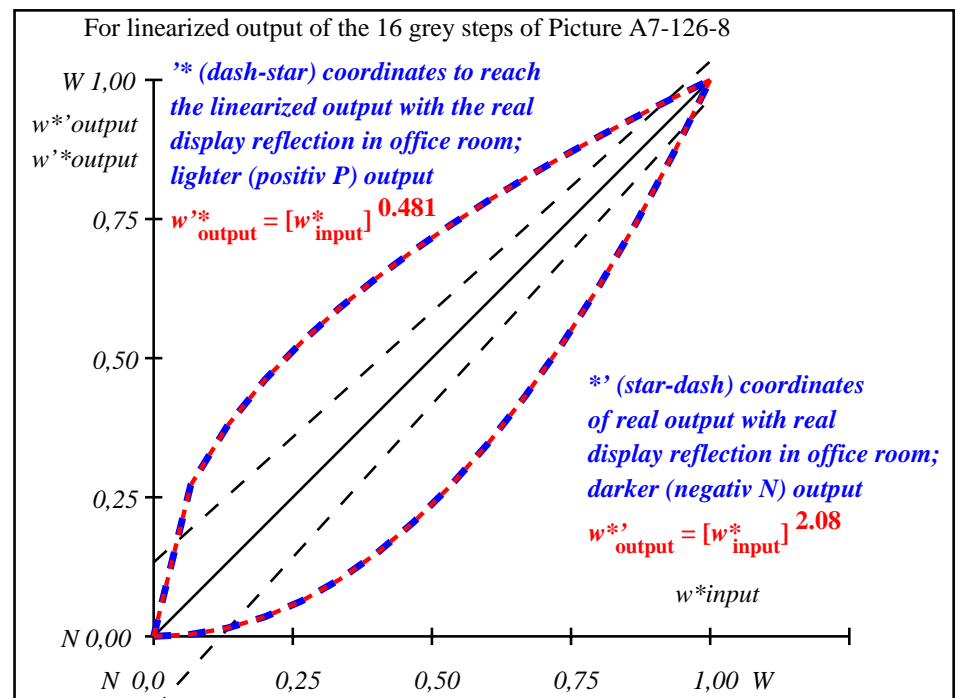
**Start output S1**  
**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 5.8$

Mean lightness difference (5 steps)  
 $\Delta E^*_{\text{CIELAB}} = 4.4$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 75$

OE540-3N-126-8: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-126-8: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	52.0/20.2	54.9/22.8	57.8/25.8	60.7/28.9	63.6/32.3	66.5/36.0	69.4/39.9	72.3/44.1	75.2/48.5	78.1/53.3	80.9/58.4	83.8/63.8	86.7/69.5	89.6/75.5	92.5/81.9	95.4/88.6
$n^* n^* n^* 0$ setcmk $g_P=0.55$ 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
$w^*_{\text{out}}$	0.0	0.226	0.333	0.413	0.484	0.546	0.604	0.658	0.707	0.755	0.8	0.843	0.885	0.925	0.963	1.0

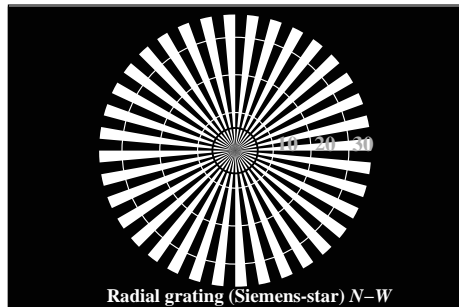
OE540-7N, Picture A7-126-8: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^* n^* n^* 0$  setcmkcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30

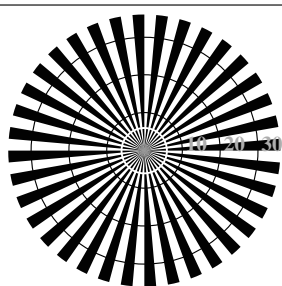
input: all ( $\rightarrow rgb_d$ ) setrgbcOLOR  
output 136-8:  $g_P=0.55$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

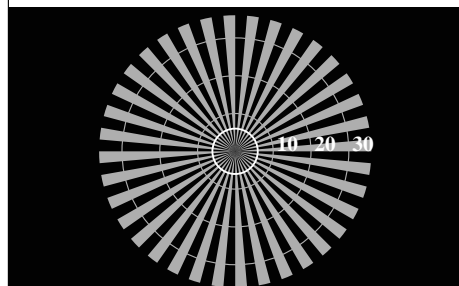
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



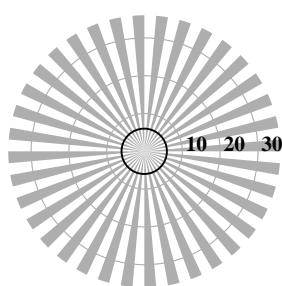
Radial grating (Siemens-star) N-W



Radial grating (Siemens-star) W-N

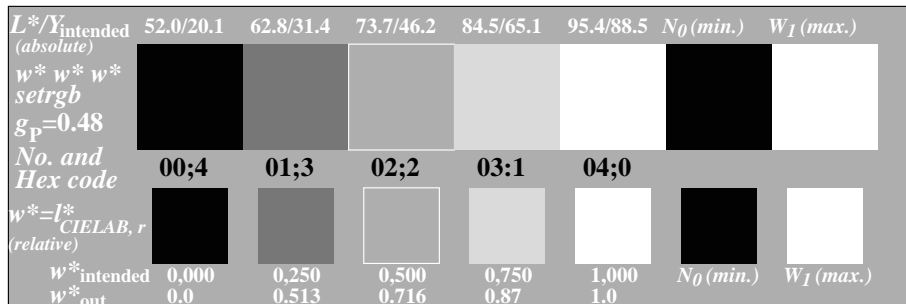


Radial grating (Siemens-star) N-Z

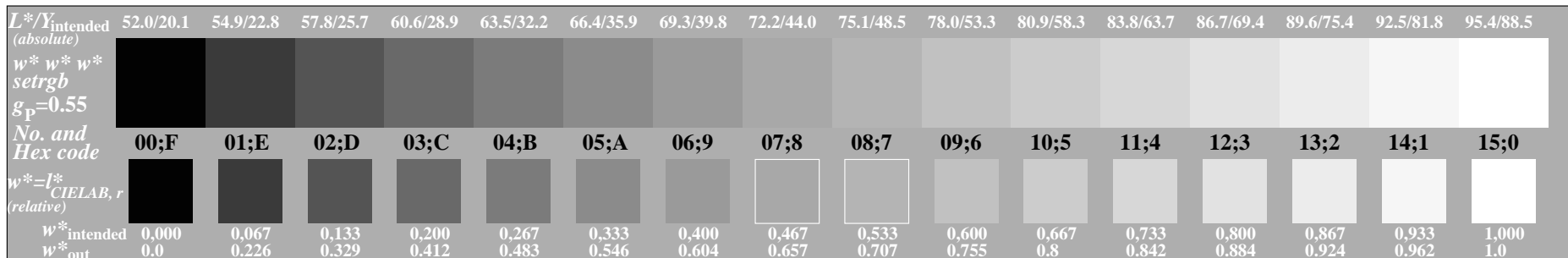


Radial grating (Siemens-star) W-Z

OE540-3N, Picture A1-136-9: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

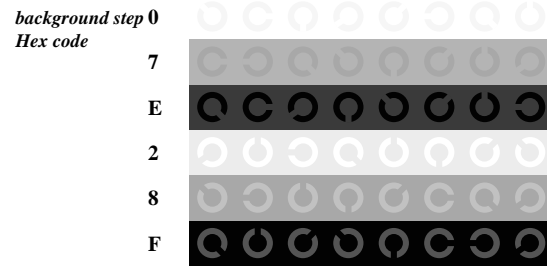


OE540-5N, Picture A2-136-9: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



OE540-7N, Picture A3-136-9: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30

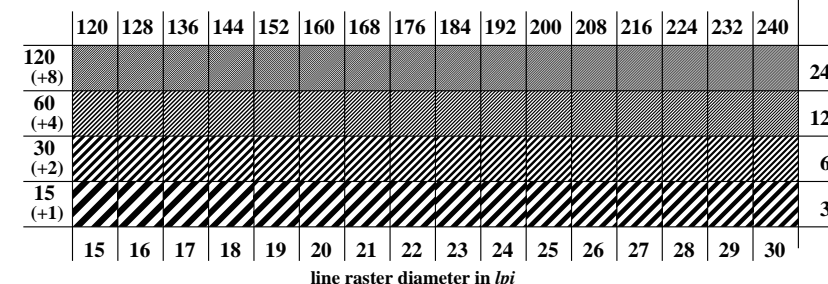


Landolt-rings W-N

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

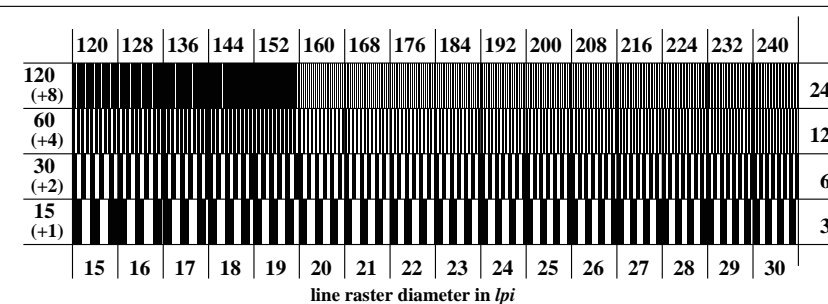
code: background-ring

OE541-1N, Picture A4-136-9: Landolt-rings W-N; PS operator:  $w^* w^* w^* \text{setrgbcolor}$



line raster diameter in  $lpi$

OE541-3N, Picture A5-136-9: Line raster under 45° (or 135°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$



line raster diameter in  $lpi$

OE541-5N, Picture A6-136-9: Line raster under 90° (or 0°); PS operator:  $w^* w^* w^* \text{setrgbcolor}$

input: all ( $\rightarrow \text{rgb}_d$ )  $\text{setrgbcolor}$   
output 136-9:  $g_p=0.55$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

<b>Test for the best visual linearized output of Picture A7-136-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-136-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-136-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-136-0</b>		
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:		..... Steps

Part 1

OE540-3N-136-10

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-136-10

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30 output 136-10:  $g_P=0.55$ ;  $g_N=1.0$

<b>Test for the best visual linearized output of Picture A7-136-0</b>		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-136-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-136-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-136-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2

OE541-3N-136-10

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**Picture A7-136-2: 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 range

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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**picture A7-136-2**

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**picture A7-136-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

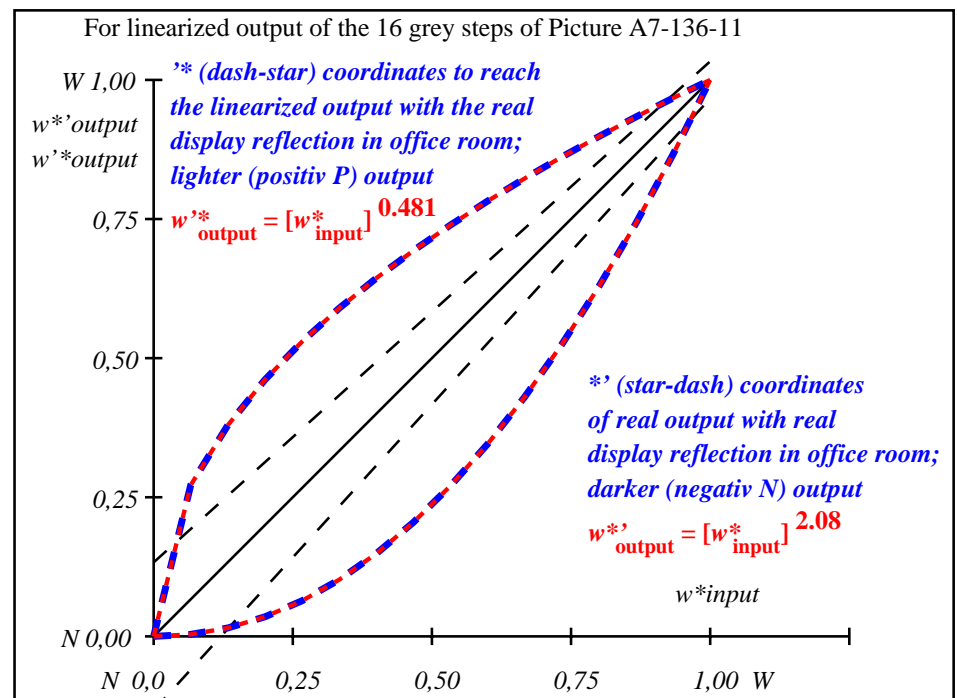
Part 4

OE541-7N-136-10

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	$\Delta E^*$	
1	52.02 0.0 0.0	0.0 52.02 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01	<b>Start output S1</b>
2	54.91 0.0 0.0	0.23 61.8 0.0	0.0 0.0 0.0	6.89 0.0 0.0	6.89	<b>Specification according to</b>
3	57.8 0.0 0.0	0.33 66.34 0.0	0.0 0.0 0.0	8.54 0.0 0.0	8.54	<b>ISO/IEC 15775 Annex G</b>
4	60.7 0.0 0.0	0.41 69.92 0.0	0.0 0.0 0.0	9.23 0.0 0.0	9.23	<b>and DIN 33866-1 Annex G</b>
5	63.59 0.0 0.0	0.48 72.99 0.0	0.0 0.0 0.0	9.4 0.0 0.0	9.4	
6	66.48 0.0 0.0	0.55 75.73 0.0	0.0 0.0 0.0	9.25 0.0 0.0	9.25	
7	69.37 0.0 0.0	0.6 78.23 0.0	0.0 0.0 0.0	8.86 0.0 0.0	8.86	
8	72.27 0.0 0.0	0.66 80.55 0.0	0.0 0.0 0.0	8.28 0.0 0.0	8.28	
9	75.16 0.0 0.0	0.71 82.73 0.0	0.0 0.0 0.0	7.57 0.0 0.0	7.57	
10	78.05 0.0 0.0	0.76 84.78 0.0	0.0 0.0 0.0	6.73 0.0 0.0	6.73	
11	80.95 0.0 0.0	0.8 86.74 0.0	0.0 0.0 0.0	5.79 0.0 0.0	5.79	
12	83.84 0.0 0.0	0.84 88.6 0.0	0.0 0.0 0.0	4.77 0.0 0.0	4.77	
13	86.73 0.0 0.0	0.88 90.4 0.0	0.0 0.0 0.0	3.67 0.0 0.0	3.67	
14	89.62 0.0 0.0	0.92 92.13 0.0	0.0 0.0 0.0	2.5 0.0 0.0	2.5	
15	92.52 0.0 0.0	0.96 93.79 0.0	0.0 0.0 0.0	1.28 0.0 0.0	1.28	Mean lightness difference (16 steps)
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01	$\Delta E^*_{\text{CIELAB}} = 5.8$
17	52.02 0.0 0.0	0.0 52.02 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01	
18	62.87 0.0 0.0	0.47 72.26 0.0	0.0 0.0 0.0	9.4 0.0 0.0	9.4	
19	73.71 0.0 0.0	0.68 81.66 0.0	0.0 0.0 0.0	7.94 0.0 0.0	7.94	
20	84.56 0.0 0.0	0.85 89.06 0.0	0.0 0.0 0.0	4.5 0.0 0.0	4.5	Mean lightness difference (5 steps)
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01	$\Delta L^*_{\text{CIELAB}} = 4.4$
Mean colour reproduction index:					$R^*_{\text{ab,m}} = 75$	

OE540-3N-136-11: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-136-11: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{\text{intended}}$ (absolute)	52.0/20.2	54.9/22.8	57.8/25.8	60.7/28.9	63.6/32.3	66.5/36.0	69.4/39.9	72.3/44.1	75.2/48.5	78.1/53.3	80.9/58.4	83.8/63.8	86.7/69.5	89.6/75.5	92.5/81.9	95.4/88.6
$w^* w^* w^*$ setrgb $g_p=0.55$																
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
$w^*_{\text{out}}$	0.0	0.226	0.33	0.413	0.484	0.546	0.604	0.658	0.707	0.755	0.8	0.843	0.885	0.925	0.963	1.0

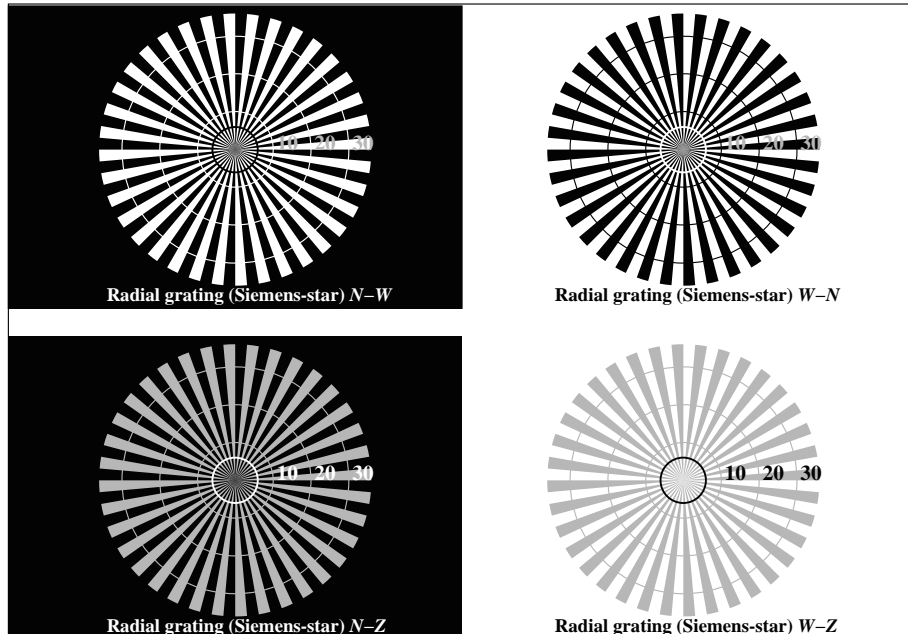
OE540-7N, Picture A7-136-11: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30

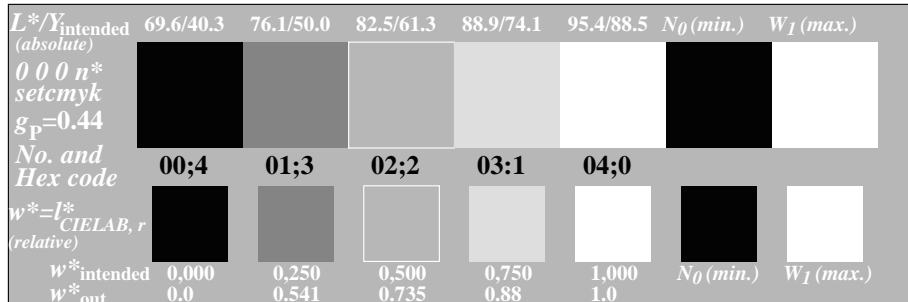
input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcolor  
output 136-11:  $g_p=0.55$ ;  $g_N=1.0$



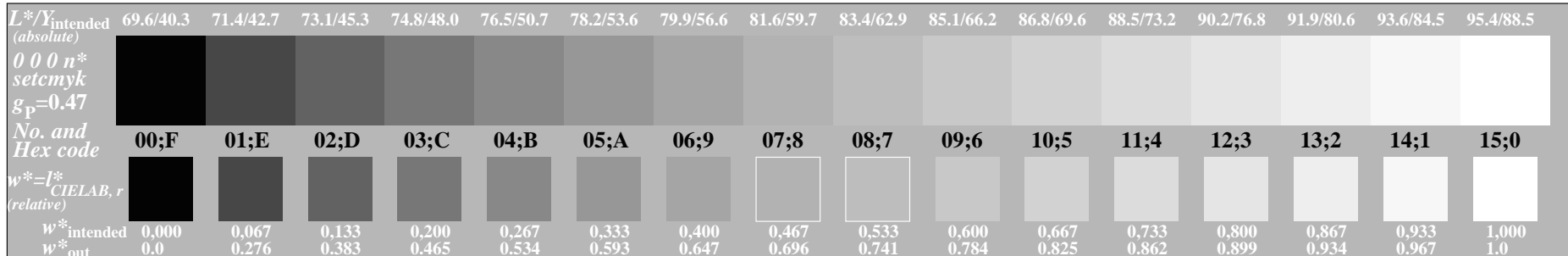
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-107-0: Radial grating N-W, W-N, N-Z, W-Z; PS operator: 0 0 0 n\* setcmykcolor



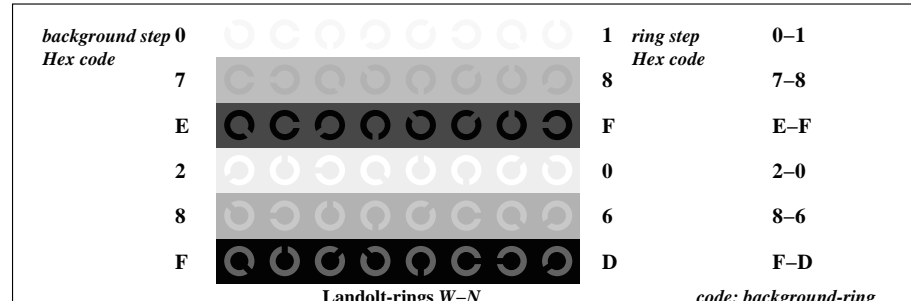
OE540-5N, Picture A2-107-0: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator: 0 0 0 n\* setcmykcolor



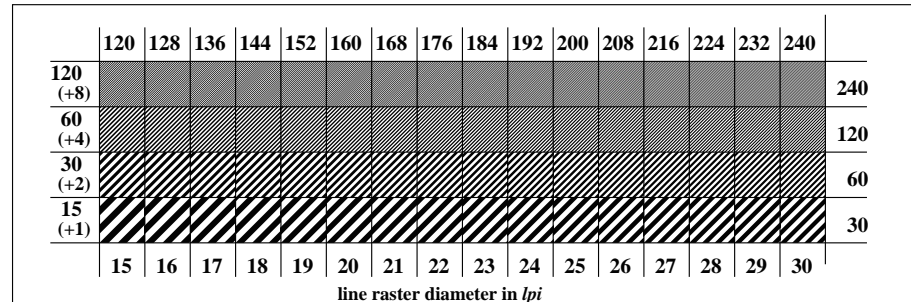
OE540-7N, Picture A3-107-0: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60

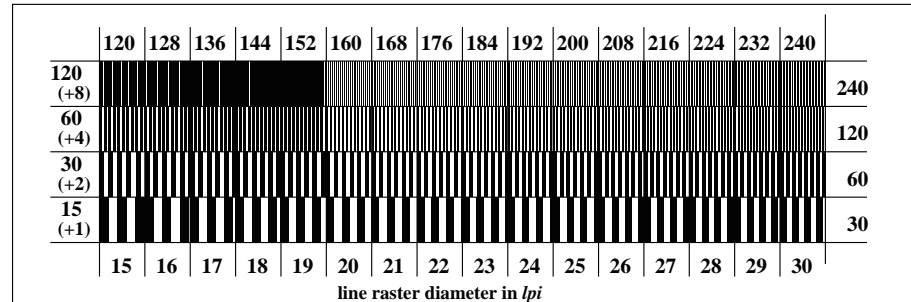
input: all (->rgb\*\_d) setrgbcolor  
output 137-0:  $g_p=0.47$ ;  $g_N=1.0$



OE541-1N, Picture A4-107-0: Landolt-rings W-N; PS operator: 0 0 0 n\* setcmykcolor



OE541-3N, Picture A5-107-0: Line raster under 45° (or 135°); PS operator: 0 0 0 n\* setcmykcolor



OE541-5N, Picture A6-107-0: Line raster under 90° (or 0°); PS operator: 0 0 0 n\* setcmykcolor

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

Test for the best visual linearized output of Picture A7-107-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-107-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-107-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-107-0</b>		
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:		..... Steps

Part 1

OE540-3N-107-1

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

**PDF-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

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

Part 3

OE540-7N-107-1

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: all (->rgb\*d) setrgbcolor  
Viewing Y contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60  
output 137-1:  $g_P=0,47$ ;  $g_N=1,0$

Test for the best visual linearized output of Picture A7-107-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-107-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-107-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-107-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2

OE541-3N-107-1

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**PS file:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**Picture A7-107-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF

**picture A7-107-2**

underline Yes/No

**PS-File:** http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS

**picture A7-107-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

Part 4

OE541-7N-107-1

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*
1	69.7 0.0 0.0	69.7 0.0 0.0	69.7 0.0 0.0	0.0 0.0 0.0	0.01
2	71.41 0.0 0.0	0.28 76.8 0.0 0.0	5.39 0.0 0.0	5.39 0.0 0.0	5.39
3	73.13 0.0 0.0	0.38 79.57 0.0 0.0	6.45 0.0 0.0	6.45 0.0 0.0	6.45
4	74.84 0.0 0.0	0.47 81.67 0.0 0.0	6.83 0.0 0.0	6.83 0.0 0.0	6.83
5	76.55 0.0 0.0	0.53 83.42 0.0 0.0	6.87 0.0 0.0	6.87 0.0 0.0	6.87
6	78.27 0.0 0.0	0.59 84.96 0.0 0.0	6.69 0.0 0.0	6.69 0.0 0.0	6.69
7	79.98 0.0 0.0	0.65 86.34 0.0 0.0	6.35 0.0 0.0	6.35 0.0 0.0	6.35
8	81.7 0.0 0.0	0.7 87.6 0.0 0.0	5.9 0.0 0.0	5.9 0.0 0.0	5.9
9	83.41 0.0 0.0	0.74 88.77 0.0 0.0	5.36 0.0 0.0	5.36 0.0 0.0	5.36
10	85.12 0.0 0.0	0.78 89.87 0.0 0.0	4.75 0.0 0.0	4.75 0.0 0.0	4.75
11	86.84 0.0 0.0	0.82 90.91 0.0 0.0	4.07 0.0 0.0	4.07 0.0 0.0	4.07
12	88.55 0.0 0.0	0.86 91.89 0.0 0.0	3.33 0.0 0.0	3.33 0.0 0.0	3.33
13	90.27 0.0 0.0	0.9 92.82 0.0 0.0	2.56 0.0 0.0	2.56 0.0 0.0	2.56
14	91.98 0.0 0.0	0.93 93.72 0.0 0.0	1.74 0.0 0.0	1.74 0.0 0.0	1.74
15	93.7 0.0 0.0	0.97 94.58 0.0 0.0	0.89 0.0 0.0	0.89 0.0 0.0	0.89
16	95.41 0.0 0.0	1.0 95.41 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
17	69.7 0.0 0.0	69.7 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	76.13 0.0 0.0	0.52 83.01 0.0 0.0	6.88 0.0 0.0	6.88 0.0 0.0	6.88
19	82.55 0.0 0.0	0.72 88.2 0.0 0.0	5.64 0.0 0.0	5.64 0.0 0.0	5.64
20	88.98 0.0 0.0	0.87 92.13 0.0 0.0	3.14 0.0 0.0	3.14 0.0 0.0	3.14
21	95.41 0.0 0.0	1.0 95.41 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01

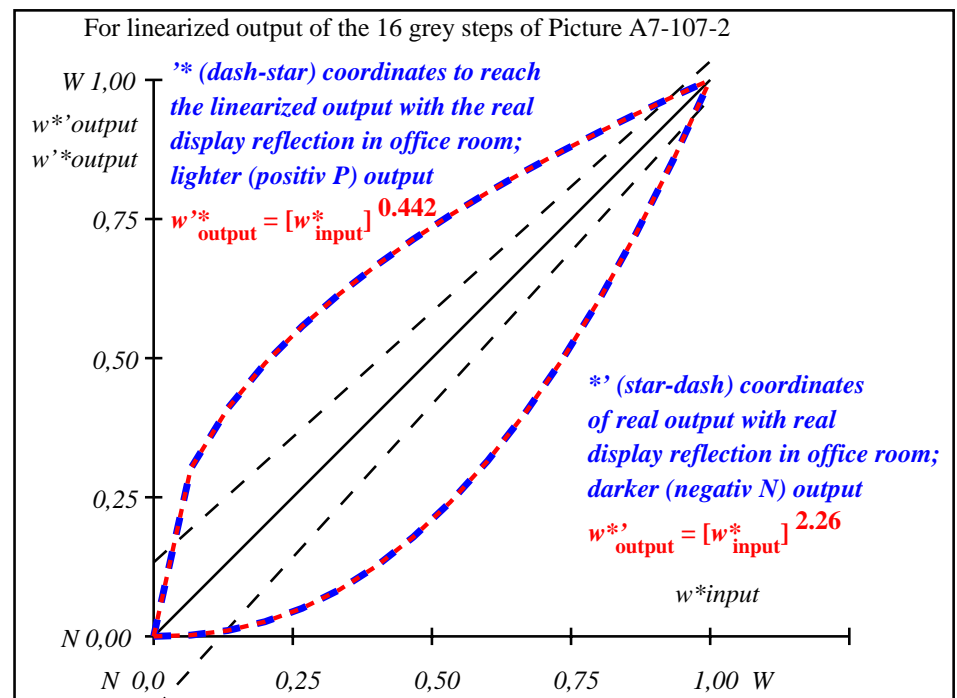
**Start output S1**  
**Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G**

Mean lightness difference (16 steps)  $\Delta E^*_{\text{CIELAB}} = 4.2$

Mean lightness difference (5 steps)  $\Delta E^*_{\text{CIELAB}} = 3.1$

Mean colour reproduction index:  $R^*_{\text{ab,m}} = 82$

OE540-3N-107-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-107-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

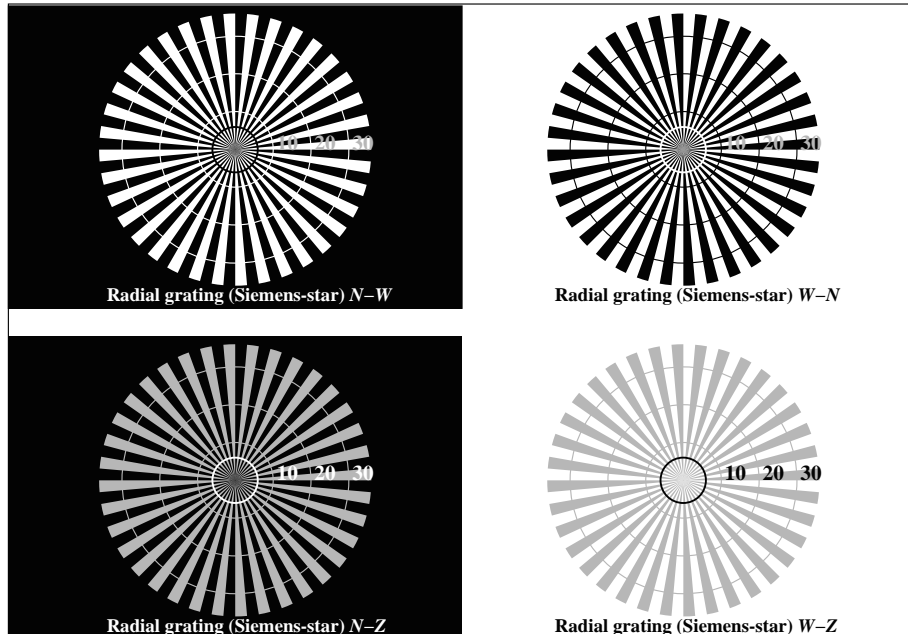
$L^*/Y_{\text{intended}}$ (absolute)	69.7/40.3	71.4/42.8	73.1/45.4	74.8/48.0	76.6/50.8	78.3/53.7	80.0/56.6	81.7/59.7	83.4/62.9	85.1/66.3	86.8/69.7	88.6/73.2	90.3/76.9	92.0/80.7	93.7/84.6	95.4/88.6
0 0 0 n* setcmyk gp=0.48																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	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
$w^*_{\text{out}}$	0.0	0.277	0.384	0.466	0.534	0.593	0.647	0.697	0.742	0.785	0.825	0.863	0.899	0.934	0.968	1.0

OE540-7N, Picture A7-107-2: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

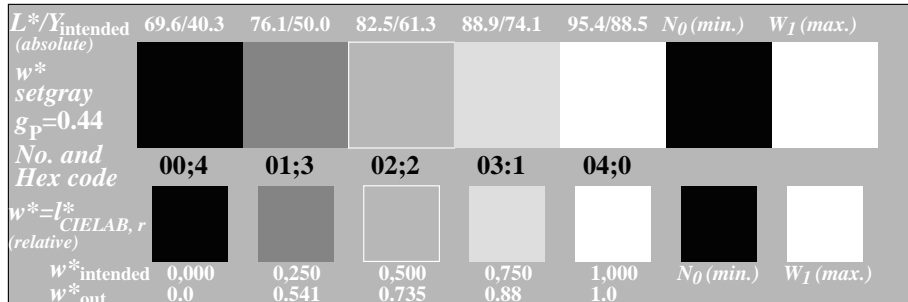
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60

input: all ( $\rightarrow \text{rgb}_d$ ) setrgbcolor  
output 137-2:  $g_P=0.47$ ;  $g_N=1.0$

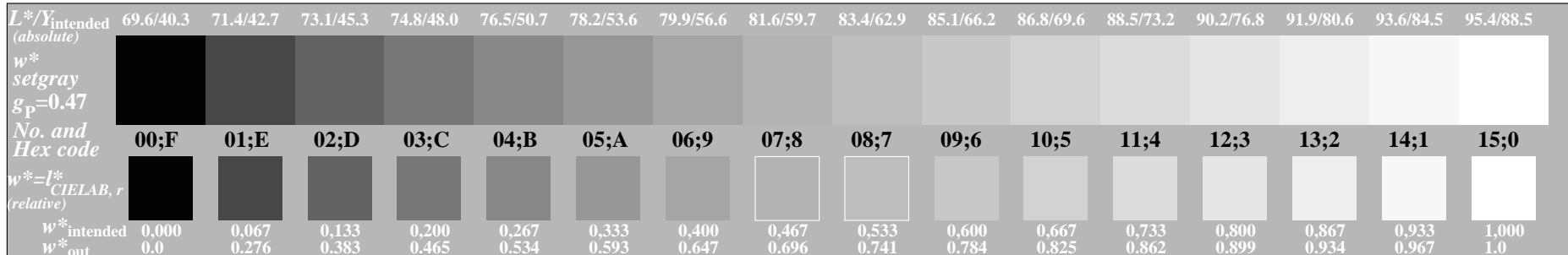
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-117-3: Radial grating N-W, W-N, N-Z, W-Z; PS operator: w\* setgray

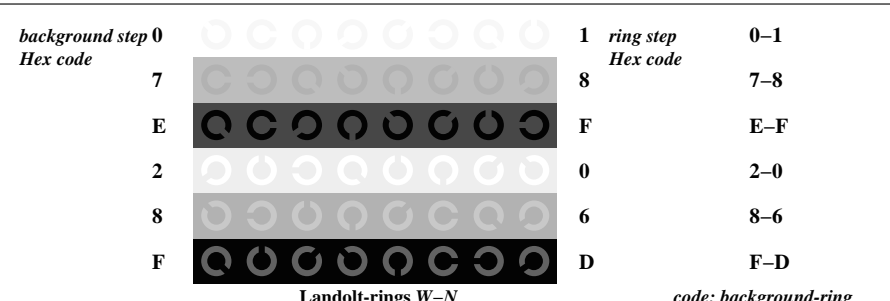


OE540-5N, Picture A2-117-3: 5 equidistant L\*-gray steps+N0+W1; PS operator: w\* setgray

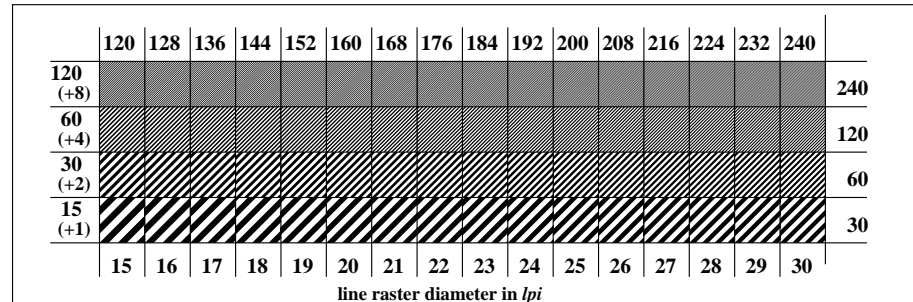


OE540-7N, Picture A3-117-3: 16 visual equidistant L\*-gray steps; PS operator: w\* setgray

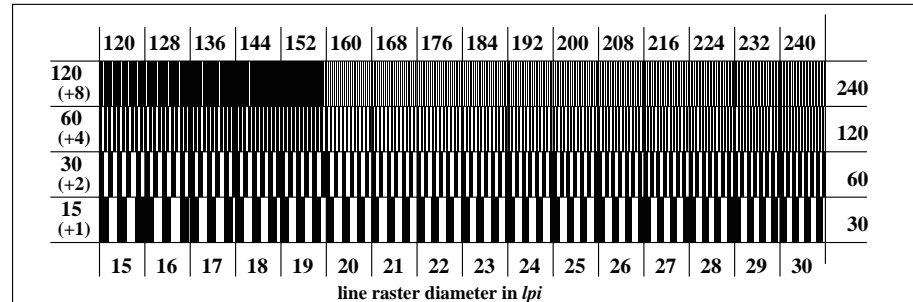
OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing Y contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60



OE541-1N, Picture A4-117-3: Landolt-rings W-N; PS operator: w\* setgray



OE541-3N, Picture A5-117-3: Line raster under 45° (or 135°); PS operator: w\* setgray



OE541-5N, Picture A6-117-3: Line raster under 90° (or 0°); PS operator: w\* setgray

input: all (->rgb\*\_d) setrgbcolor  
output 137-3:  $g_P=0.47$ ;  $g_N=1.0$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=rh4ta



**Test for the best visual linearized output of Picture A7-117-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the radial grating according to picture A1-117-0**  
**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 A2-117-0**  
 Are the 5 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 5 steps: ..... Steps  
**Test of 16 visual equidistant L\*-grey steps according to picture A3-117-0**  
 Are the 16 steps on the upper rows distinguishable? Yes/No  
 If No: How many steps can be distinguished? of the given 16 steps: .... Steps

Part 1 OE540-3N-117-4

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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:Special remarks, e. g. output of Landscape (L)

Part 3

OE540-7N-117-4

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
 Viewing Y contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60 output 137-4:  $g_P=0.47$ ;  $g_N=1.0$

**Test for the best visual linearized output of Picture A7-117-0** Yes/No  
**Output test with the computer display ( ) or the external display ( )**  
**Test of the Landolt-rings N-W according to picture A4-117-0**  
**N-W-radial grating:**  
 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 A5-117-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi  
**Test of the radial grating under 90° according to picture A6-117-0**  
 Can equally spaced lines be seen?  
 Visual testing: for radial diameter from 15 to 60 lpi Yes/No  
 Test with a magnifying glass (e.g. 6x): – from 15 lpi: to ..... lpi

Part 2 OE541-3N-117-4

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

underline Yes/No

**Picture A7-117-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

underline Yes/No

**picture A7-117-2**

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

or underline Yes/No

**picture A7-117-2**

**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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

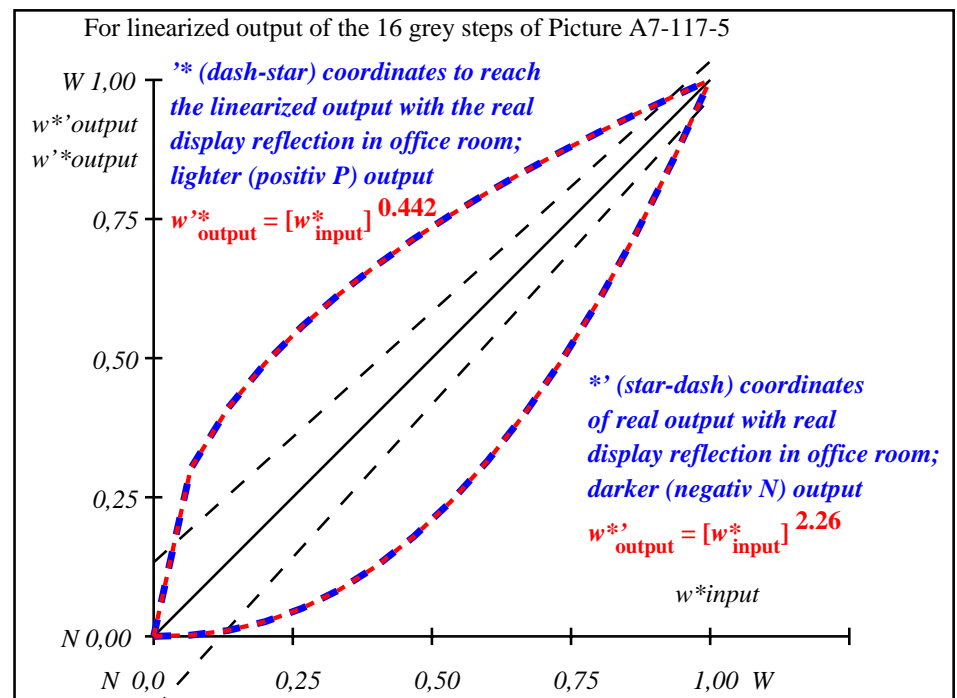
Part 4

OE541-7N-117-4

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref			l*out			LAB*out			LAB*out/c--ref			ΔE*	Start output S1
1	69.7	0.0	0.0	0.0	69.7	0.0	0.0	0.0	0.0	0.0	0.0	0.01	Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G	
2	71.41	0.0	0.0	0.28	76.8	0.0	0.0	5.39	0.0	0.0	5.39			
3	73.13	0.0	0.0	0.38	79.57	0.0	0.0	6.45	0.0	0.0	6.45			
4	74.84	0.0	0.0	0.47	81.67	0.0	0.0	6.83	0.0	0.0	6.83			
5	76.55	0.0	0.0	0.53	83.42	0.0	0.0	6.87	0.0	0.0	6.87			
6	78.27	0.0	0.0	0.59	84.96	0.0	0.0	6.69	0.0	0.0	6.69			
7	79.98	0.0	0.0	0.65	86.34	0.0	0.0	6.35	0.0	0.0	6.35			
8	81.7	0.0	0.0	0.7	87.6	0.0	0.0	5.9	0.0	0.0	5.9			
9	83.41	0.0	0.0	0.74	88.77	0.0	0.0	5.36	0.0	0.0	5.36			
10	85.12	0.0	0.0	0.78	89.87	0.0	0.0	4.75	0.0	0.0	4.75			
11	86.84	0.0	0.0	0.82	90.91	0.0	0.0	4.07	0.0	0.0	4.07			
12	88.55	0.0	0.0	0.86	91.89	0.0	0.0	3.33	0.0	0.0	3.33			
13	90.27	0.0	0.0	0.9	92.82	0.0	0.0	2.56	0.0	0.0	2.56			
14	91.98	0.0	0.0	0.93	93.72	0.0	0.0	1.74	0.0	0.0	1.74			
15	93.7	0.0	0.0	0.97	94.58	0.0	0.0	0.89	0.0	0.0	0.89	Mean lightness difference (16 steps)		
16	95.41	0.0	0.0	1.0	95.41	0.0	0.0	0.0	0.0	0.0	0.01	ΔE* <sub>CIELAB</sub> = 4.2		
17	69.7	0.0	0.0	0.0	69.7	0.0	0.0	0.0	0.0	0.0	0.01			
18	76.13	0.0	0.0	0.52	83.01	0.0	0.0	6.88	0.0	0.0	6.88			
19	82.55	0.0	0.0	0.72	88.2	0.0	0.0	5.64	0.0	0.0	5.64			
20	88.98	0.0	0.0	0.87	92.13	0.0	0.0	3.14	0.0	0.0	3.14	Mean lightness difference (5 steps)		
21	95.41	0.0	0.0	1.0	95.41	0.0	0.0	0.0	0.0	0.0	0.01	ΔL* <sub>CIELAB</sub> = 3.1		
Mean colour reproduction index:												R* <sub>ab,m</sub> = 82		

OE540-3N-117-5: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-117-5: File: Measure unknown; Device: Device unknown; Date: Date unknown

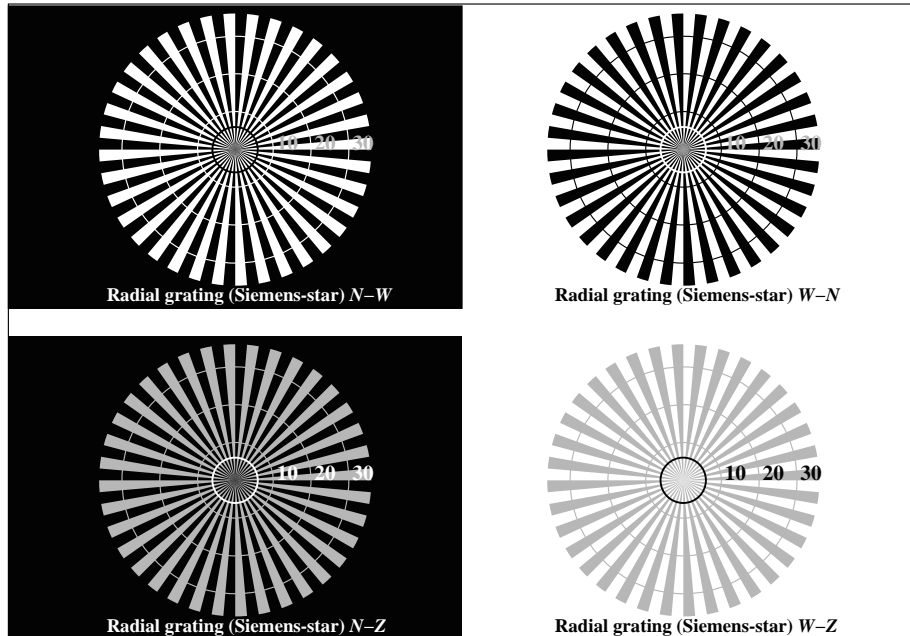
$L^*/Y_{\text{intended}}$ (absolute)	69.7/40.3	71.4/42.8	73.1/45.4	74.8/48.0	76.6/50.8	78.3/53.7	80.0/56.6	81.7/59.7	83.4/62.9	85.1/66.3	86.8/69.7	88.6/73.2	90.3/76.9	92.0/80.7	93.7/84.6	95.4/88.6
$w^*$ setgray																
$g_p=0.48$																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	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
$w^*_{\text{out}}$	0.0	0.277	0.384	0.466	0.534	0.593	0.647	0.697	0.742	0.785	0.825	0.863	0.899	0.934	0.968	1.0

OE540-7N, Picture A7-117-5: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*$  setgray

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60

input: all ( $\rightarrow rgb_d$ ) setrgbcOLOR  
output 137-5:  $g_p=0.47$ ;  $g_N=1.0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-127-6: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $n^*n^*n^*0$  setcmykcolor

$L^*/Y_{intended}$ (absolute)	69.6/40.3	76.1/50.0	82.5/61.3	88.9/74.1	95.4/88.5	$N_0$ (min.)	$W_1$ (max.)
$n^*n^*n^*0$ setcmyk $g_p=0.44$ No. and Hex code	00;4	01;3	02;2	03;1	04;0		
$w^*=l^*$ CIELAB, r (relative)							
$w^*_{intended}$	0.000	0.250	0.500	0.750	1.000	$N_0$ (min.)	$W_1$ (max.)
$w^*_{out}$	0.0	0.541	0.735	0.88	1.0		

OE540-5N, Picture A2-127-6: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $n^*n^*n^*0$  setcmykcolor

$L^*/Y_{intended}$ (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
$n^*n^*n^*0$ setcmyk $g_p=0.47$ 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
$w^*_{out}$	0.0	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	1.0

OE540-7N, Picture A3-127-6: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^*n^*n^*0$  setcmykcolor

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 137-6:  $g_p=0.47$ ;  $g_N=1.0$

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

OE541-1N, Picture A4-127-6: Landolt-rings W-N; PS operator:  $n^*n^*n^*0$  setcmykcolor

	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	

OE541-3N, Picture A5-127-6: Line raster under 45° (or 135°); PS operator:  $n^*n^*n^*0$  setcmykcolor

	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	

OE541-5N, Picture A6-127-6: Line raster under 90° (or 0°); PS operator:  $n^*n^*n^*0$  setcmykcolor

Test for the best visual linearized output of Picture A7-127-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-127-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	Yes/No
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
	resolution diameter	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-127-0</b>		
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:		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-127-0</b>		
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:		..... Steps

Part 1 OE540-3N-127-7

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)

Part 3 OE540-7N-127-7

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60 output 137-7:  $g_P=0.47$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-127-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-127-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-127-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-127-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-127-7

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> underline Yes/No

**Picture A7-127-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF> underline Yes/No

**picture A7-127-2**

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS> or underline Yes/No

**picture A7-127-2**

**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 with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer  
of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF underline Yes/No  
If No, please describe other method: .....

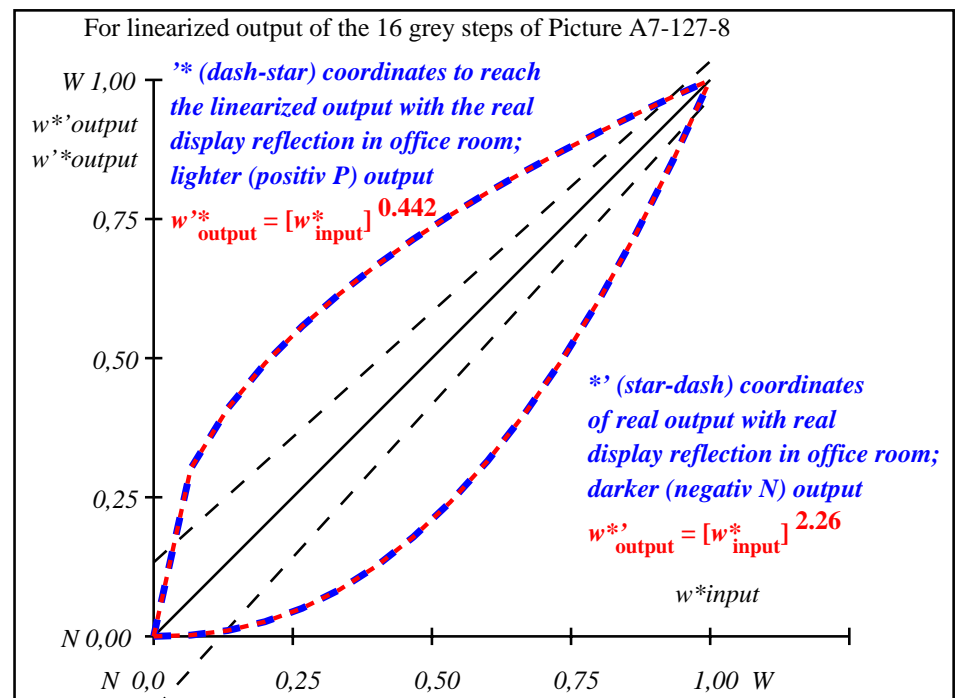
Part 4 OE541-7N-127-7



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref			l*out			LAB*out			LAB*out/c--ref			ΔE*	<div>Start output S1</div> <div>Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G</div>
1	69.7	0.0	0.0	0.0	69.7	0.0	0.0	0.0	0.0	0.0	0.01			
2	71.41	0.0	0.0	0.28	76.8	0.0	0.0	5.39	0.0	0.0	5.39			
3	73.13	0.0	0.0	0.38	79.57	0.0	0.0	6.45	0.0	0.0	6.45			
4	74.84	0.0	0.0	0.47	81.67	0.0	0.0	6.83	0.0	0.0	6.83			
5	76.55	0.0	0.0	0.53	83.42	0.0	0.0	6.87	0.0	0.0	6.87			
6	78.27	0.0	0.0	0.59	84.96	0.0	0.0	6.69	0.0	0.0	6.69			
7	79.98	0.0	0.0	0.65	86.34	0.0	0.0	6.35	0.0	0.0	6.35			
8	81.7	0.0	0.0	0.7	87.6	0.0	0.0	5.9	0.0	0.0	5.9			
9	83.41	0.0	0.0	0.74	88.77	0.0	0.0	5.36	0.0	0.0	5.36			
10	85.12	0.0	0.0	0.78	89.87	0.0	0.0	4.75	0.0	0.0	4.75			
11	86.84	0.0	0.0	0.82	90.91	0.0	0.0	4.07	0.0	0.0	4.07			
12	88.55	0.0	0.0	0.86	91.89	0.0	0.0	3.33	0.0	0.0	3.33			
13	90.27	0.0	0.0	0.9	92.82	0.0	0.0	2.56	0.0	0.0	2.56			
14	91.98	0.0	0.0	0.93	93.72	0.0	0.0	1.74	0.0	0.0	1.74			
15	93.7	0.0	0.0	0.97	94.58	0.0	0.0	0.89	0.0	0.0	0.89			
16	95.41	0.0	0.0	1.0	95.41	0.0	0.0	0.0	0.0	0.0	0.01			
17	69.7	0.0	0.0	0.0	69.7	0.0	0.0	0.0	0.0	0.0	0.01			
18	76.13	0.0	0.0	0.52	83.01	0.0	0.0	6.88	0.0	0.0	6.88			
19	82.55	0.0	0.0	0.72	88.2	0.0	0.0	5.64	0.0	0.0	5.64			
20	88.98	0.0	0.0	0.87	92.13	0.0	0.0	3.14	0.0	0.0	3.14			
21	95.41	0.0	0.0	1.0	95.41	0.0	0.0	0.0	0.0	0.0	0.01			
Mean colour reproduction index:													R* <sub>ab,m</sub> = 82	

OE540-3N-127-8: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-127-8: File: Measure unknown; Device: Device unknown; Date: Date unknown

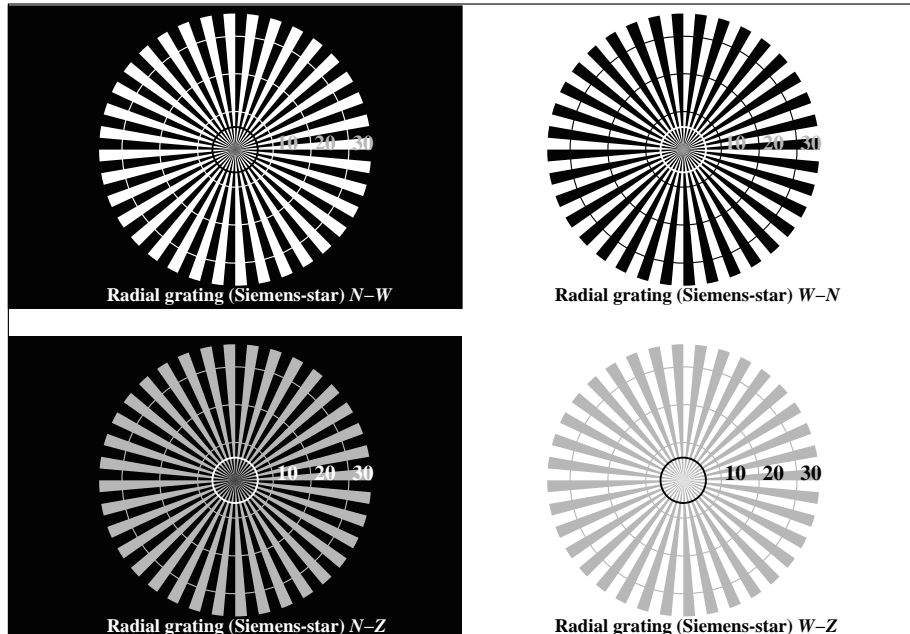
$L^*/Y_{\text{intended}}$ (absolute)	69.7/40.3	71.4/42.8	73.1/45.4	74.8/48.0	76.6/50.8	78.3/53.7	80.0/56.6	81.7/59.7	83.4/62.9	85.1/66.3	86.8/69.7	88.6/73.2	90.3/76.9	92.0/80.7	93.7/84.6	95.4/88.6
$n^* n^* n^* 0$ setcmk $g_P=0.48$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	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
$w^*_{\text{intended}}$ $w^*_{\text{out}}$	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

OE540-7N, Picture A7-127-8: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $n^* n^* n^* 0$  setcmkcolor

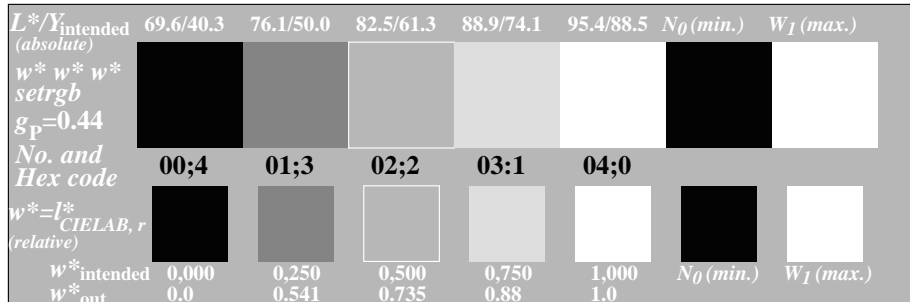
OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 137-8:  $g_P=0.47$ ;  $g_N=1.0$

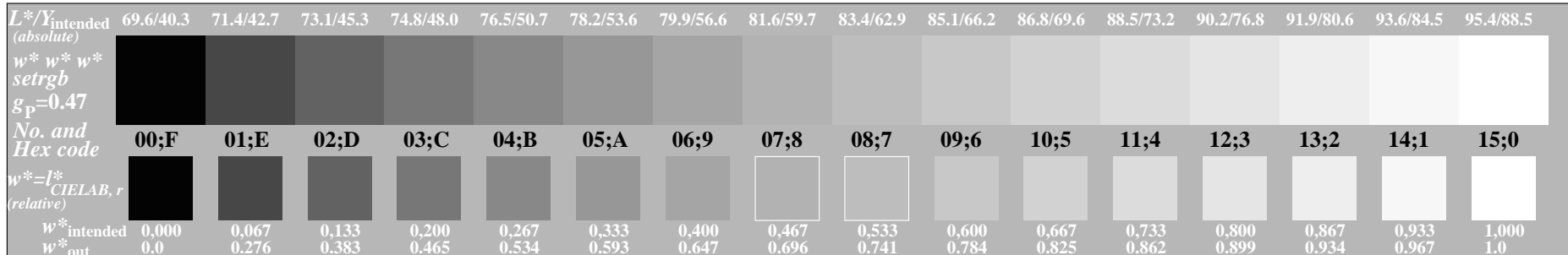
See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB



OE540-3N, Picture A1-137-9: Radial grating N-W, W-N, N-Z, W-Z; PS operator:  $w^*w^*w^* \text{setrgbcolor}$



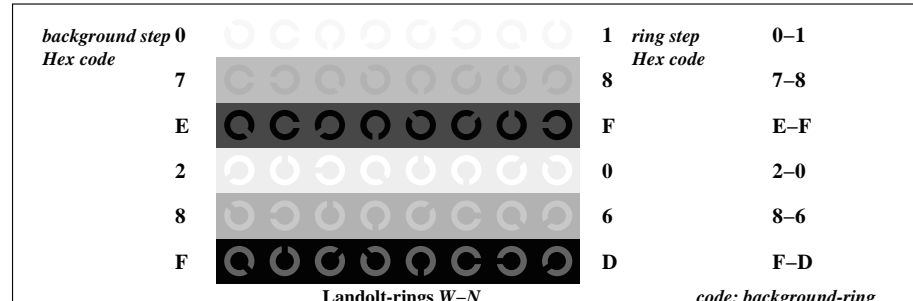
OE540-5N, Picture A2-137-9: 5 equidistant  $L^*$ -grey steps+ $N_0$ + $W_1$ ; PS operator:  $w^*w^*w^* \text{setrgbcolor}$



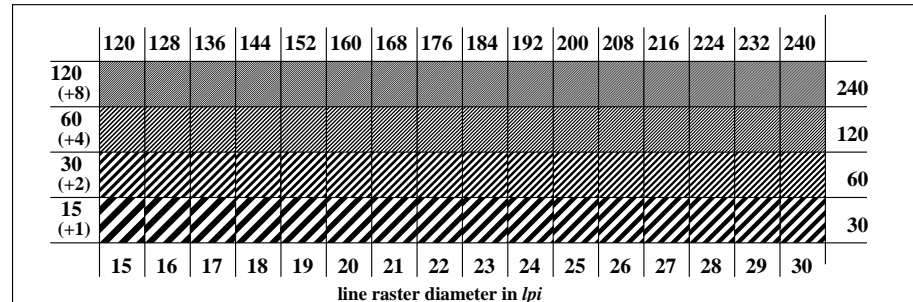
OE540-7N, Picture A3-137-9: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^*w^*w^* \text{setrgbcolor}$

OE54: similar ME16 according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60

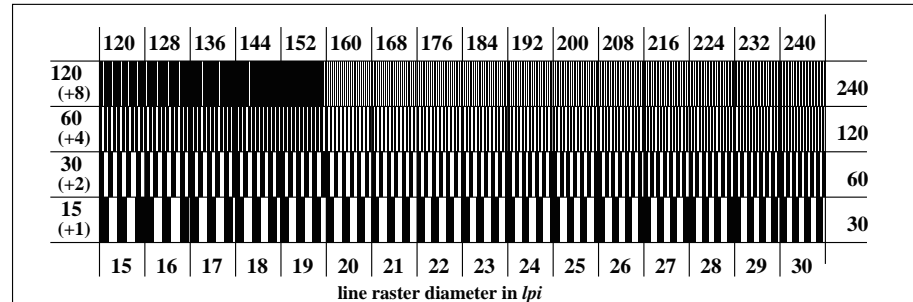
input: all ( $\rightarrow \text{rgb}_d$ )  $\text{setrgbcolor}$   
output 137-9:  $g_p=0.47$ ;  $g_N=1.0$



OE541-1N, Picture A4-137-9: Landolt-rings W-N; PS operator:  $w^*w^*w^* \text{setrgbcolor}$



OE541-3N, Picture A5-137-9: Line raster under 45° (or 135°); PS operator:  $w^*w^*w^* \text{setrgbcolor}$



OE541-5N, Picture A6-137-9: Line raster under 90° (or 0°); PS operator:  $w^*w^*w^* \text{setrgbcolor}$

TUB registration: 20110801-OE54/OE54L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

Test for the best visual linearized output of Picture A7-137-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the radial grating according to picture A1-137-0</b>		
N-W-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
W-N-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
N-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
W-Z-radial grating:	Is the resolution diameter < 6 mm?	Yes/No
	Test with magnifying glass (e.g. 6x)	..... mm
<b>Test of 5 visual equidistant L*-grey steps according to picture A2-137-0</b>		
Are the 5 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		..... Steps
<b>Test of 16 visual equidistant L*-grey steps according to picture A3-137-0</b>		
Are the 16 steps on the upper rows distinguishable?		Yes/No
If No: How many steps can be distinguished?		.... Steps

Part 1 OE540-3N-137-10

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54L0NA.PS> or underline Yes/No

**Used computer operating system:**

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

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

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

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

**For device output with PDF-file OE54L0NP.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 device output with PS-file OE54L0NA.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: Special remarks, e. g. output of Landscape (L)

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

Part 3 OE540-7N-137-10

OE54: Form A for test chart according to ISO 9241-306; 1MR, DH input: *all (->rgb\*d) setrgbcolor*  
Viewing Y contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60 output 137-10:  $g_P=0.47$ ;  $g_N=1.0$

Test for the best visual linearized output of Picture A7-137-0		Yes/No
<b>Output test with the computer display ( ) or the external display ( )</b>		
<b>Test of the Landolt-rings N-W according to picture A4-137-0</b>		
N-W-radial grating:		
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
<b>Test of the radial grating under 45° according to picture A5-137-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi
<b>Test of the radial grating under 90° according to picture A6-137-0</b>		
Can equally spaced lines be seen?		
Visual testing: for radial diameter from 15 to 60 lpi		Yes/No
Test with a magnifying glass (e.g. 6x): - from 15 lpi:		to ..... lpi

Part 2 OE541-3N-137-10

**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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**PS file:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**Picture A7-137-2: 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 range

*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://130.149.60.45/farbmetrik/OE54/OE54F1P2.PDF>

**picture A7-137-2**

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE54/OE54F1P2.PS>

**picture A7-137-2**

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: .....

underline Yes/No

**Colorimetric specification with PS file for colours in the columns A to T**

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

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

underline Yes/No

Part 4

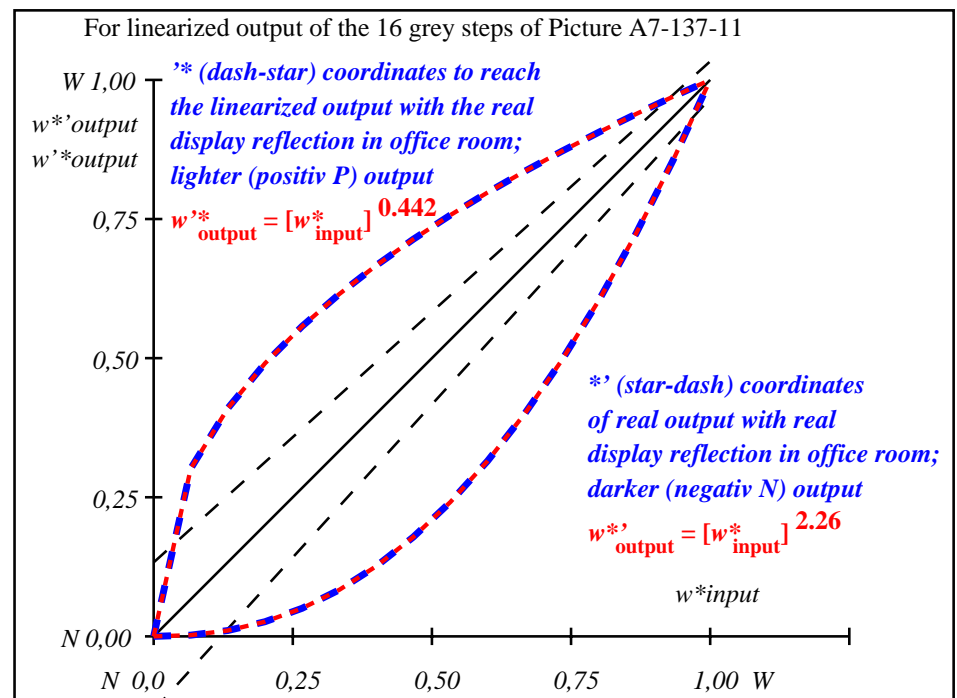
OE541-7N-137-10

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*
1	69.7 0.0 0.0	69.7 0.0 0.0	69.7 0.0 0.0	0.0 0.0 0.0	0.01
2	71.41 0.0 0.0	0.28 76.8 0.0 0.0	5.39 0.0 0.0	5.39	0.01
3	73.13 0.0 0.0	0.38 79.57 0.0 0.0	6.45 0.0 0.0	6.45	0.01
4	74.84 0.0 0.0	0.47 81.67 0.0 0.0	6.83 0.0 0.0	6.83	0.01
5	76.55 0.0 0.0	0.53 83.42 0.0 0.0	6.87 0.0 0.0	6.87	0.01
6	78.27 0.0 0.0	0.59 84.96 0.0 0.0	6.69 0.0 0.0	6.69	0.01
7	79.98 0.0 0.0	0.65 86.34 0.0 0.0	6.35 0.0 0.0	6.35	0.01
8	81.7 0.0 0.0	0.7 87.6 0.0 0.0	5.9 0.0 0.0	5.9	0.01
9	83.41 0.0 0.0	0.74 88.77 0.0 0.0	5.36 0.0 0.0	5.36	0.01
10	85.12 0.0 0.0	0.78 89.87 0.0 0.0	4.75 0.0 0.0	4.75	0.01
11	86.84 0.0 0.0	0.82 90.91 0.0 0.0	4.07 0.0 0.0	4.07	0.01
12	88.55 0.0 0.0	0.86 91.89 0.0 0.0	3.33 0.0 0.0	3.33	0.01
13	90.27 0.0 0.0	0.9 92.82 0.0 0.0	2.56 0.0 0.0	2.56	0.01
14	91.98 0.0 0.0	0.93 93.72 0.0 0.0	1.74 0.0 0.0	1.74	0.01
15	93.7 0.0 0.0	0.97 94.58 0.0 0.0	0.89 0.0 0.0	0.89	0.01
16	95.41 0.0 0.0	1.0 95.41 0.0 0.0	0.0 0.0 0.0	0.01	ΔE* <sub>CIELAB</sub> = 4.2
17	69.7 0.0 0.0	69.7 0.0 0.0	0.0 0.0 0.0	0.01	0.01
18	76.13 0.0 0.0	0.52 83.01 0.0 0.0	6.88 0.0 0.0	6.88	0.01
19	82.55 0.0 0.0	0.72 88.2 0.0 0.0	5.64 0.0 0.0	5.64	0.01
20	88.98 0.0 0.0	0.87 92.13 0.0 0.0	3.14 0.0 0.0	3.14	0.01
21	95.41 0.0 0.0	1.0 95.41 0.0 0.0	0.0 0.0 0.0	0.01	ΔE* <sub>CIELAB</sub> = 3.1

Mean lightness difference (16 steps)  
Mean lightness difference (5 steps)  
Mean colour reproduction index:  $R^*_{ab,m} = 82$

OE540-3N-137-11: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE541-3N-137-11: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y^*_{intended}$ (absolute)	69.7/40.3	71.4/42.8	73.1/45.4	74.8/48.0	76.6/50.8	78.3/53.7	80.0/56.6	81.7/59.7	83.4/62.9	85.1/66.3	86.8/69.7	88.6/73.2	90.3/76.9	92.0/80.7	93.7/84.6	95.4/88.6
$w^* w^* w^*$ setrgb gp=0.48																
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
$w^*_{out}$	0.0	0.277	0.384	0.466	0.534	0.593	0.647	0.697	0.742	0.785	0.825	0.863	0.899	0.934	0.968	1.0

OE540-7N, Picture A7-137-11: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE54: In-output relation according to ISO 9241-306; 1MR, DH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60

input: all ( $\rightarrow rgb_d$ ) setrgbcolor  
output 137-11:  $gp=0.47$ ;  $g_N=1.0$