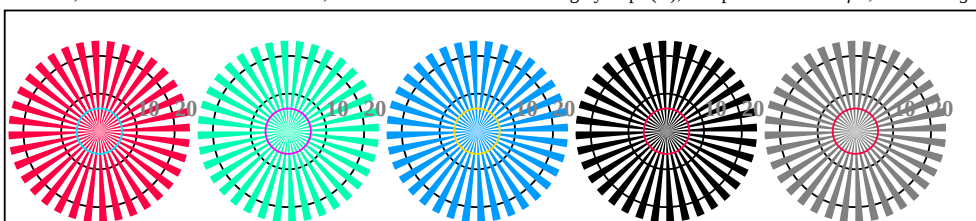


<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /.PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /.PS in File (F)



OE680-7, Picture B1-130-0: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



Radial grating W-Re Radial grating W-Ge Radial grating W-Be Radial grating W-N Radial grating W-Z

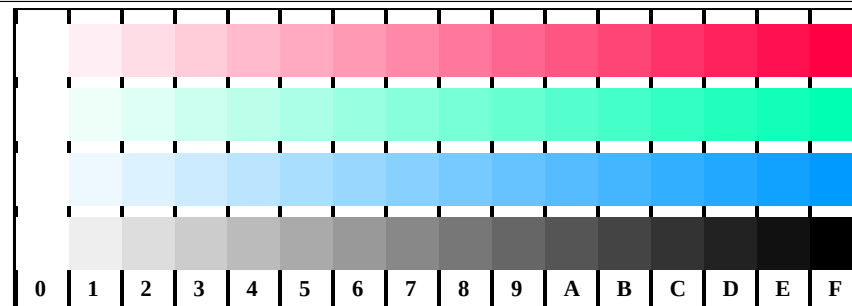
OE680-5, Picture D2W-130-0: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



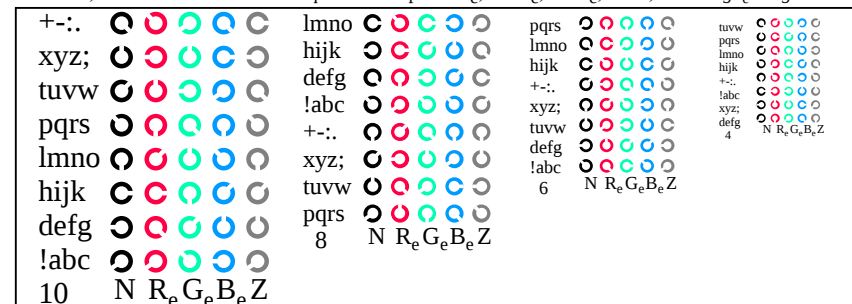
OE680-7, Picture D3W-130-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



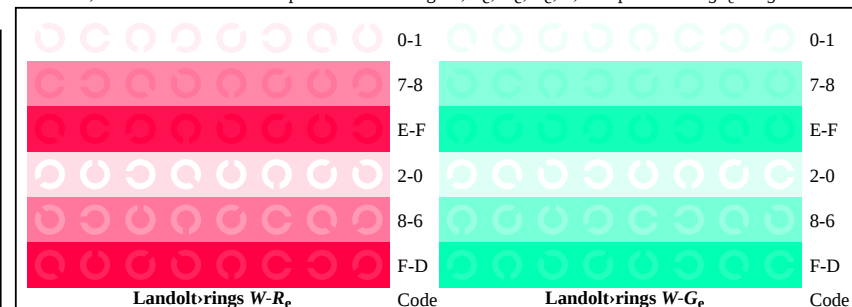
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=1.0$



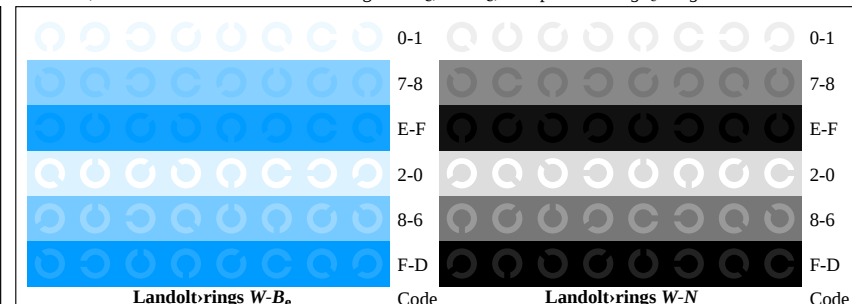
OE681-1, Picture D4W-L-130-0: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-3, Picture D5W-130-0: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-130-0: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-130-0: Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



Test for the visual linearized output of Pictures D1W-130-0 to D7W-130-0
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1W-130-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 Subjective remarks about the colour reproduction of the (flower) image, the CIE-test colours and the 16 grey steps within the image, for example "less contrast":

Test of the resolution of radial gratings $W-R_d$, $W-G_d$, $W-B_d$ according to picture D2W-130-0

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
Is the resolution diameter < 6 mm?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Test with magnifying glass (6x), Resolution diameter:	 mm	 mm	 mm	 mm	 mm

Test of the 14 CIE-test colours according to picture D3W-130-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 If Yes: How many colours have clear differences? of the given 14 steps: **Steps**

Test of 16 visual equidistant L^* -grey steps according to picture D3W-130-0
 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 OE680-3N-130-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NP.PDF> **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NA.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 OE68L0NP.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 OE68L0NA.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 OE680-7N-130-1

Test of 16 visually equally spaced steps of the colour rows $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to picture D4W-130-0

$W-R_d$ White - Orangered: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps **Steps**

$W-G_d$ White - Leafgreen: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps **Steps**

$W-B_d$ White - Violetblue: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps **Steps**

$W-N$ White - Black: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps **Steps**

Test of characters and Landolt-rings in four sizes according to picture D5W-130-0
 Is the recognition frequency > 50% for letters (17 from 32 at least) and for Landolt-rings (minimum 5 of 8)?

Relative size	Letters	Ring N	Ring R_d	Ring G_d	Ring B_d
10	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Test of recognition frequency of Landolt-rings $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to pictures D6W-130-0, and D7W-130-0
 Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$ background - ring	Colour row $W-G_d$ background - ring	Colour row $W-B_d$ background - ring	Colour row $W-N$ background - ring
0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No
7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No
E - F Yes/No	E - F Yes/No	E - F Yes/No	E - F Yes/No
2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No
8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No
F - D Yes/No	F - D Yes/No	F - D Yes/No	F - D Yes/No

Part 2 OE681-3N-130-1

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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **underline Yes/No**
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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **or underline Yes/No**
picture A7-130-2

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 and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 OE681-7N-130-1

OE68: Form A for test chart 4 according to ISO 15775; 1MR, DEH input: $rgb (->rgb^*_{de})$ setrgbcolor
 Image, radial gratings, 16 step colour scales, Landolt-rings output 130-1: $g_P=1.0$; $g_N=1.0$

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

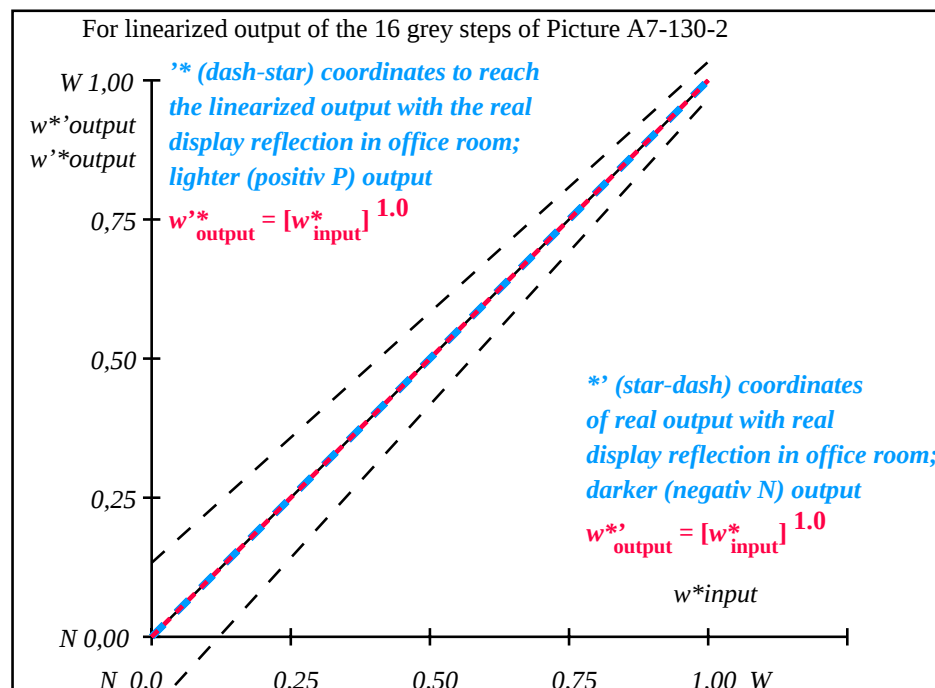
Start output S1
Specification according to
ISO/IEC 15775 Annex G
and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{\text{CIELAB}} = 0.0$

Mean lightness difference (5 steps)
 $\Delta L^*_{\text{CIELAB}} = 0.0$

Mean colour reproduction index: $R^*_{\text{ab,m}} = 100$

OE680-3N-130-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE681-3N-130-2: 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
$w^* w^* w^*$ 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
$w^* = l^*_{\text{CIELAB}, r}$ (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

OE680-7N, Picture A7-130-2: 16 visual equidistant L^* -grey steps; PS operator: $w^* w^* w^*$ setrgbcolor

OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:0,31$; Y_N range 0,0 to <0,46

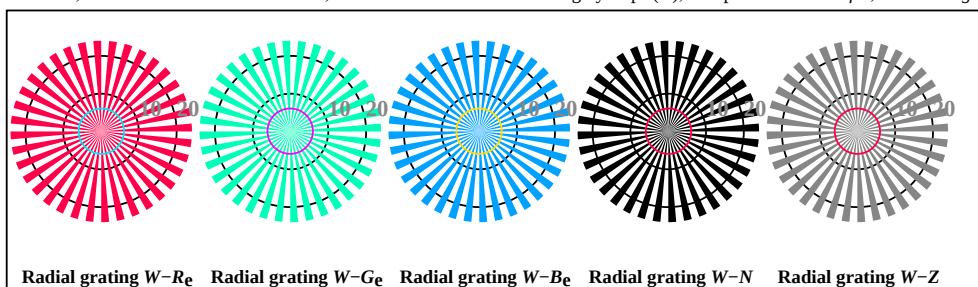
input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 130-2: $g_P=1.0$; $g_N=1.0$

TUB registration: 20110801-OE68/OE68L0NA.TXT /.PS
application for output of displays: monitor systems or data projector systems
TUB material: code=rh4ta

<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /.PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /.PS in File (F)



OE680-7, Picture B1-131-0: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 *colorimage*

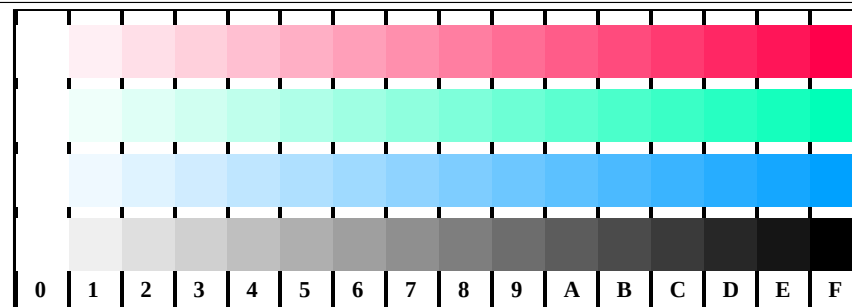


OE680-5, Picture D2W-131-0: Radial gratings $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS operator $\rightarrow rgb_e$ setrgbcolor

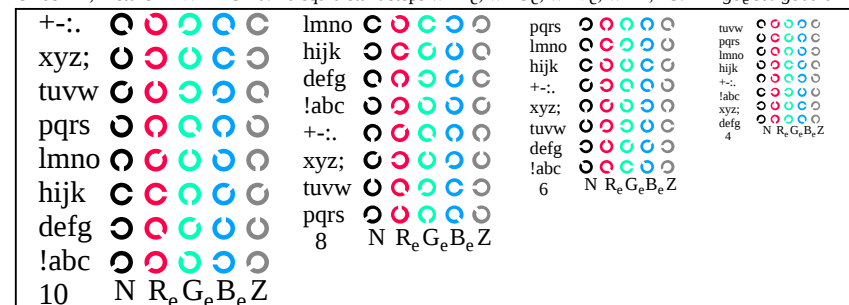


OE680-7, Picture D3W-131-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow rgb_e$ setrgbcolor

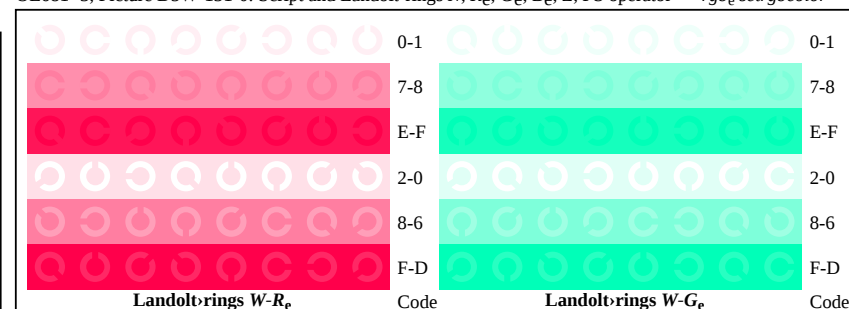
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: rgb ($\rightarrow rgb_{de}$) setrgbcolor
Image, radial gratings, 16 step colour scales, Landolt-rings
output 131-0: $g_P=0.92$; $g_N=1.0$



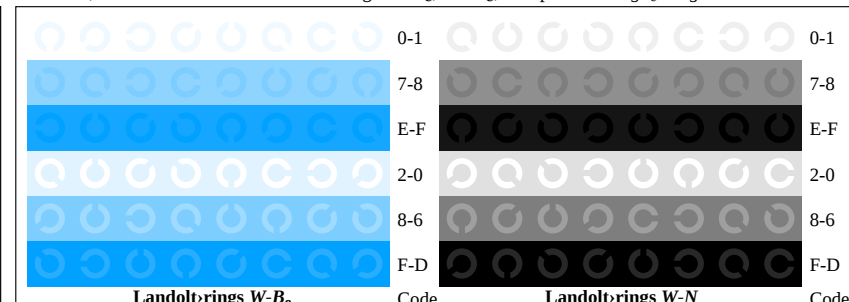
OE681-1, Picture D4W-L-131-0: 16 equidistant steps $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS: $\rightarrow rgb_e$ setrgbcolor



OE681-3, Picture D5W-131-0: Script and Landolt-rings N ; R_e ; G_e ; B_e ; Z ; PS operator $\rightarrow rgb_e$ setrgbcolor



OE681-5, Picture D6W-L-131-0: Landolt-rings $W-R_e$; $W-G_e$; PS operator $\rightarrow rgb_e$ setrgbcolor



OE681-7, Picture D7W-L-131-0: Landolt-rings $W-B_e$; $W-N$; PS operator $\rightarrow rgb_e$ setrgbcolor

Test for the visual linearized output of Pictures D1W-131-0 to D7W-131-0
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1W-131-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 Subjective remarks about the colour reproduction of the (flower) image, the CIE-test colours and the 16 grey steps within the image, for example "less contrast":

Test of the resolution of radial gratings $W-R_d$, $W-G_d$, $W-B_d$ according to picture D2W-131-0

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
Is the resolution diameter < 6 mm?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Test with magnifying glass (6x), Resolution diameter:	 mm	 mm	 mm	 mm	 mm

Test of the 14 CIE-test colours according to picture D3W-131-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 If Yes: How many colours have clear differences? of the given 14 steps: Steps

Test of 16 visual equidistant L^* -grey steps according to picture D3W-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 OE680-3N-131-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NP.PDF> **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NA.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 OE68L0NP.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 OE68L0NA.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 OE680-7N-131-1

Test of 16 visually equally spaced steps of the colour rows $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to picture D4W-131-0

$W-R_d$ White - Orangered: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-G_d$ White - Leafgreen: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-B_d$ White - Violetblue: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-N$ White - Black: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

Test of characters and Landolt-rings in four sizes according to picture D5W-131-0
 Is the recognition frequency > 50% for letters (17 from 32 at least) and for Landolt-rings (minimum 5 of 8)?

Relative size	Letters	Ring N	Ring R_d	Ring G_d	Ring B_d
10	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Test of recognition frequency of Landolt-rings $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to pictures D6W-131-0, and D7W-131-0
 Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$ background - ring	Colour row $W-G_d$ background - ring	Colour row $W-B_d$ background - ring	Colour row $W-N$ background - ring
0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No
7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No
E - F Yes/No	E - F Yes/No	E - F Yes/No	E - F Yes/No
2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No
8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No
F - D Yes/No	F - D Yes/No	F - D Yes/No	F - D Yes/No

Part 2 OE681-3N-131-1

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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **or underline Yes/No**
picture A7-131-2

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 and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 OE681-7N-131-1

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	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
2	11.67 0.0 0.0	0.1 14.73 0.0	0.0 0.0 0.0	3.06 0.0 0.0	3.06
3	17.65 0.0 0.0	0.18 21.96 0.0	0.0 0.0 0.0	4.3 0.0 0.0	4.3
4	23.63 0.0 0.0	0.26 28.63 0.0	0.0 0.0 0.0	4.99 0.0 0.0	4.99
5	29.62 0.0 0.0	0.33 34.96 0.0	0.0 0.0 0.0	5.34 0.0 0.0	5.34
6	35.6 0.0 0.0	0.39 41.05 0.0	0.0 0.0 0.0	5.46 0.0 0.0	5.46
7	41.58 0.0 0.0	0.46 46.96 0.0	0.0 0.0 0.0	5.38 0.0 0.0	5.38
8	47.56 0.0 0.0	0.52 52.72 0.0	0.0 0.0 0.0	5.16 0.0 0.0	5.16
9	53.54 0.0 0.0	0.59 58.36 0.0	0.0 0.0 0.0	4.82 0.0 0.0	4.82
10	59.52 0.0 0.0	0.65 63.88 0.0	0.0 0.0 0.0	4.36 0.0 0.0	4.36
11	65.5 0.0 0.0	0.71 69.32 0.0	0.0 0.0 0.0	3.82 0.0 0.0	3.82
12	71.48 0.0 0.0	0.77 74.67 0.0	0.0 0.0 0.0	3.19 0.0 0.0	3.19
13	77.47 0.0 0.0	0.83 79.95 0.0	0.0 0.0 0.0	2.49 0.0 0.0	2.49
14	83.45 0.0 0.0	0.89 85.16 0.0	0.0 0.0 0.0	1.72 0.0 0.0	1.72
15	89.43 0.0 0.0	0.94 90.31 0.0	0.0 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	0.01
17	5.69 0.0 0.0	0.0 5.69 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	28.12 0.0 0.0	0.31 33.4 0.0	0.0 0.0 0.0	5.28 0.0 0.0	5.28
19	50.55 0.0 0.0	0.56 55.55 0.0	0.0 0.0 0.0	5.0 0.0 0.0	5.0
20	72.98 0.0 0.0	0.78 76.0 0.0	0.0 0.0 0.0	3.02 0.0 0.0	3.02
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

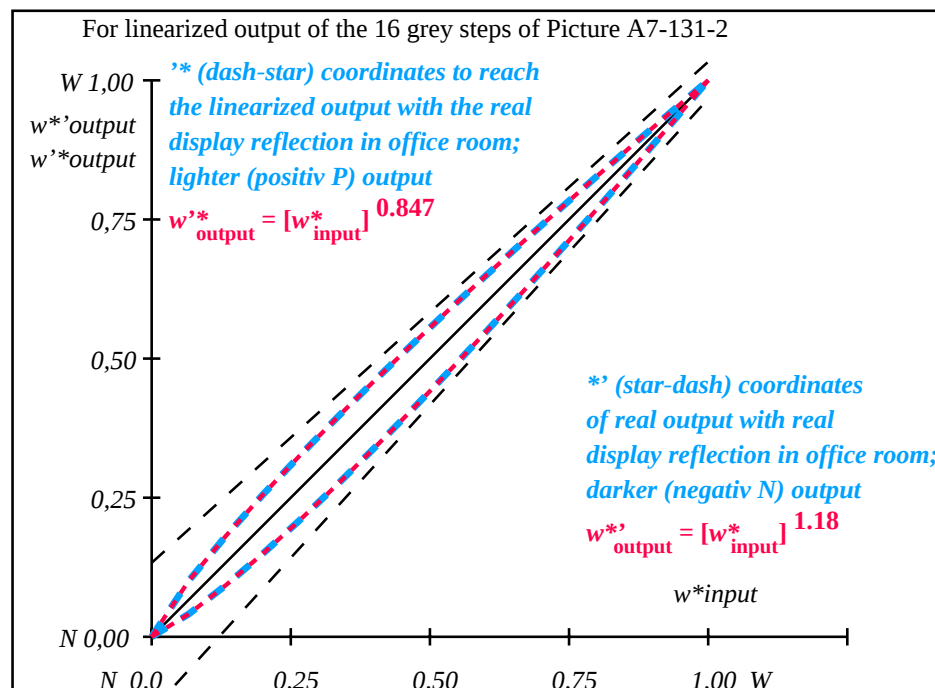
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 3.4$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 2.7$

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

OE680-3N-131-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE681-3N-131-2: 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 $g_P=0.85$ 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)																
$w^*_{intended}$	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	0.101	0.181	0.256	0.327	0.394	0.46	0.525	0.587	0.649	0.71	0.769	0.828	0.886	0.943	1.0

OE680-7N, Picture A7-131-2: 16 visual equidistant L^* -grey steps; PS operator: $w^* w^* w^*$ setrgbcolor

OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:0,62$; Y_N range 0,46 to <0,93

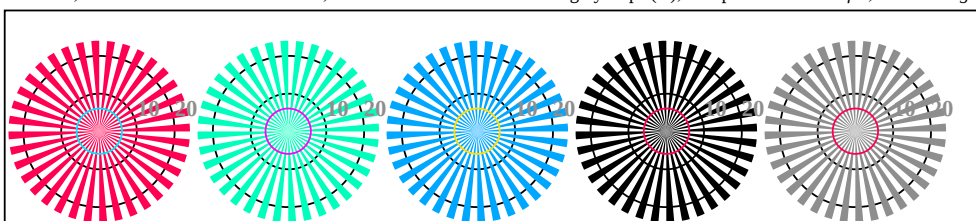
input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 131-2: $g_P=0.92$; $g_N=1.0$

TUB registration: 20110801-OE68/OE68L0NA.TXT /.PS
application for output of displays: monitor systems or data projector systems
TUB material: code=rh4ta

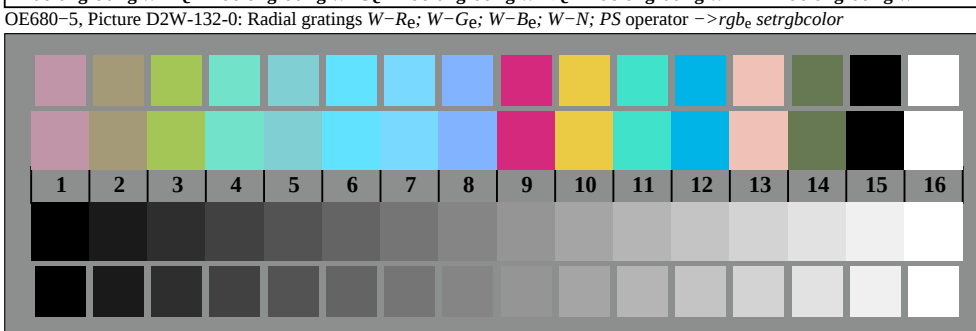
<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /.PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /.PS in File (F)



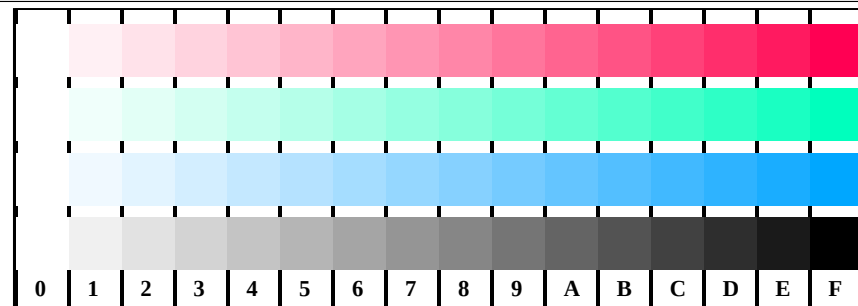
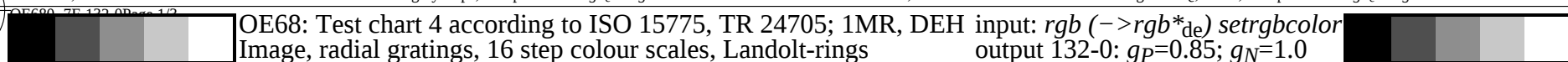
OE680-7, Picture B1-132-0: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



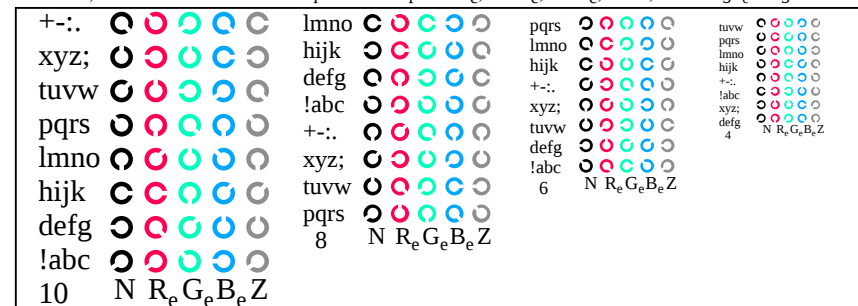
OE680-5, Picture D2W-132-0: Radial gratings $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS operator $\rightarrow rgb_e$ setrgbcolor



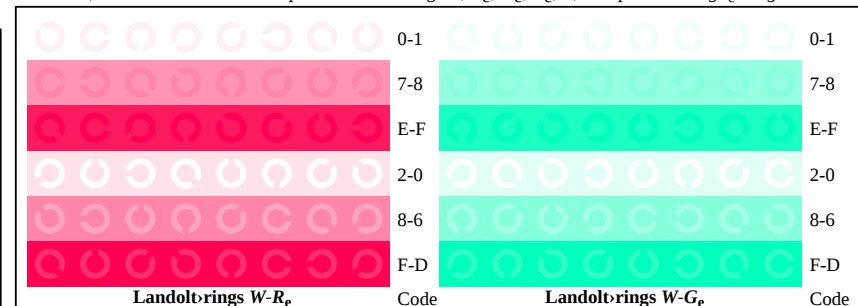
OE680-7, Picture D3W-132-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow rgb_e$ setrgbcolor



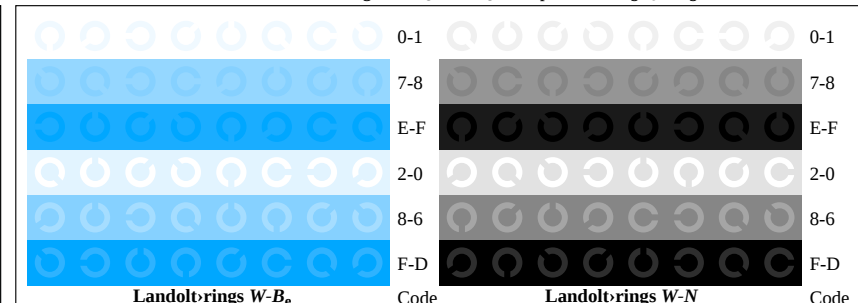
OE681-1, Picture D4W-L-132-0: 16 equidistant steps $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS: $\rightarrow rgb_e$ setrgbcolor



OE681-3, Picture D5W-132-0: Script and Landolt-rings N ; R_e ; G_e ; B_e ; Z ; PS operator $\rightarrow rgb_e$ setrgbcolor



OE681-5, Picture D6W-L-132-0: Landolt-rings $W-R_e$; $W-G_e$; PS operator $\rightarrow rgb_e$ setrgbcolor



OE681-7, Picture D7W-L-132-0: Landolt-rings $W-B_e$; $W-N$; PS operator $\rightarrow rgb_e$ setrgbcolor

Test for the visual linearized output of Pictures D1W-132-0 to D7W-132-0
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1W-132-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 Subjective remarks about the colour reproduction of the (flower) image, the CIE-test colours and the 16 grey steps within the image, for example "less contrast":

Test of the resolution of radial gratings $W-R_d$, $W-G_d$, $W-B_d$ according to picture D2W-132-0

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
Is the resolution diameter < 6 mm?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Test with magnifying glass (6x), Resolution diameter:	 mm	 mm	 mm	 mm	 mm

Test of the 14 CIE-test colours according to picture D3W-132-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 If Yes: How many colours have clear differences? of the given 14 steps: Steps

Test of 16 visual equidistant L^* -grey steps according to picture D3W-132-0
 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 OE680-3N-132-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NP.PDF> **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NA.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 OE68L0NP.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 OE68L0NA.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 OE680-7N-132-1

Test of 16 visually equally spaced steps of the colour rows $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to picture D4W-132-0

$W-R_d$ White - Orangered: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-G_d$ White - Leafgreen: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-B_d$ White - Violetblue: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-N$ White - Black: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

Test of characters and Landolt-rings in four sizes according to picture D5W-132-0
 Is the recognition frequency > 50% for letters (17 from 32 at least) and for Landolt-rings (minimum 5 of 8)?

Relative size	Letters	Ring N	Ring R_d	Ring G_d	Ring B_d
10	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Test of recognition frequency of Landolt-rings $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to pictures D6W-132-0, and D7W-132-0
 Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$ background - ring	Colour row $W-G_d$ background - ring	Colour row $W-B_d$ background - ring	Colour row $W-N$ background - ring
0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No
7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No
E - F Yes/No	E - F Yes/No	E - F Yes/No	E - F Yes/No
2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No
8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No
F - D Yes/No	F - D Yes/No	F - D Yes/No	F - D Yes/No

Part 2 OE681-3N-132-1

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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **underline Yes/No**
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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **or underline Yes/No**
picture A7-132-2

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 and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 OE681-7N-132-1

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	10.99 0.0 0.0	0.0 10.99 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	16.62 0.0 0.0	0.14 22.52 0.0	0.0 0.0 0.0	5.9 0.0 0.0	5.9
3	22.25 0.0 0.0	0.23 30.18 0.0	0.0 0.0 0.0	7.93 0.0 0.0	7.93
4	27.88 0.0 0.0	0.31 36.84 0.0	0.0 0.0 0.0	8.97 0.0 0.0	8.97
5	33.5 0.0 0.0	0.38 42.93 0.0	0.0 0.0 0.0	9.43 0.0 0.0	9.43
6	39.13 0.0 0.0	0.45 48.63 0.0	0.0 0.0 0.0	9.5 0.0 0.0	9.5
7	44.76 0.0 0.0	0.51 54.03 0.0	0.0 0.0 0.0	9.27 0.0 0.0	9.27
8	50.39 0.0 0.0	0.57 59.19 0.0	0.0 0.0 0.0	8.81 0.0 0.0	8.81
9	56.02 0.0 0.0	0.63 64.17 0.0	0.0 0.0 0.0	8.15 0.0 0.0	8.15
10	61.64 0.0 0.0	0.69 68.98 0.0	0.0 0.0 0.0	7.33 0.0 0.0	7.33
11	67.27 0.0 0.0	0.74 73.65 0.0	0.0 0.0 0.0	6.38 0.0 0.0	6.38
12	72.9 0.0 0.0	0.8 78.2 0.0	0.0 0.0 0.0	5.3 0.0 0.0	5.3
13	78.53 0.0 0.0	0.85 82.64 0.0	0.0 0.0 0.0	4.11 0.0 0.0	4.11
14	84.15 0.0 0.0	0.9 86.98 0.0	0.0 0.0 0.0	2.82 0.0 0.0	2.82
15	89.78 0.0 0.0	0.95 91.23 0.0	0.0 0.0 0.0	1.45 0.0 0.0	1.45
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	10.99 0.0 0.0	0.0 10.99 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	32.1 0.0 0.0	0.36 41.45 0.0	0.0 0.0 0.0	9.36 0.0 0.0	9.36
19	53.2 0.0 0.0	0.6 61.7 0.0	0.0 0.0 0.0	8.5 0.0 0.0	8.5
20	74.31 0.0 0.0	0.81 79.32 0.0	0.0 0.0 0.0	5.01 0.0 0.0	5.01
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

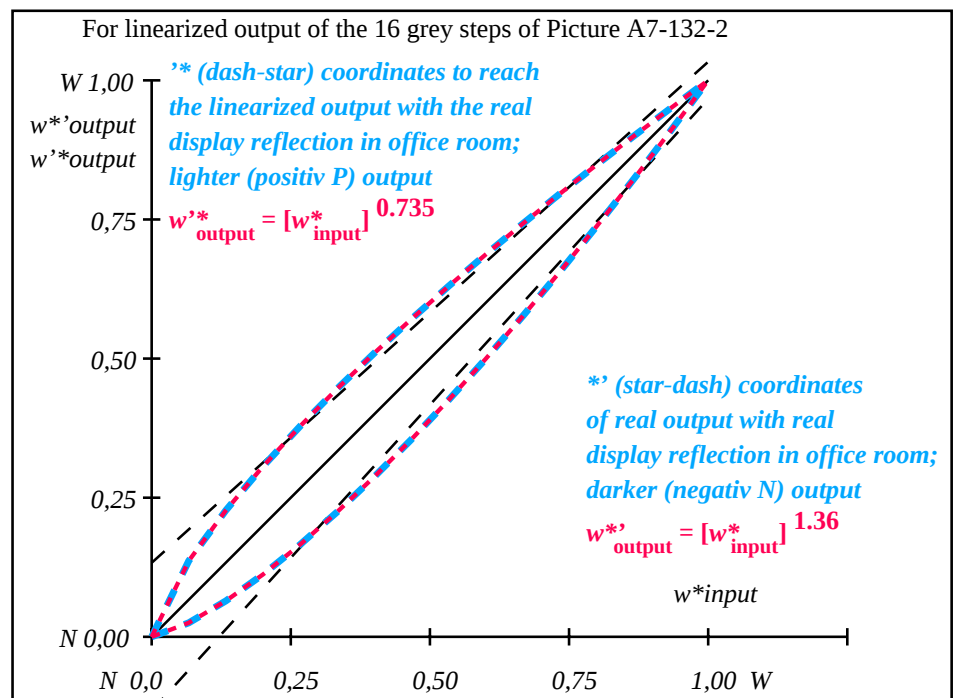
Start output S1
Specification according to
ISO/IEC 15775 Annex G
and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 6.0$

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

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

OE680-3N-132-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE681-3N-132-2: 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
$w^* w^* w^*$ setrgb $g_P=0.74$ 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	0.137	0.227	0.306	0.379	0.446	0.51	0.571	0.63	0.687	0.742	0.796	0.849	0.9	0.95	1.0

OE680-7N, Picture A7-132-2: 16 visual equidistant L^* -grey steps; PS operator: $w^* w^* w^* setrgbcolor$

OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:1,25$; Y_N range 0,93 to <1,87

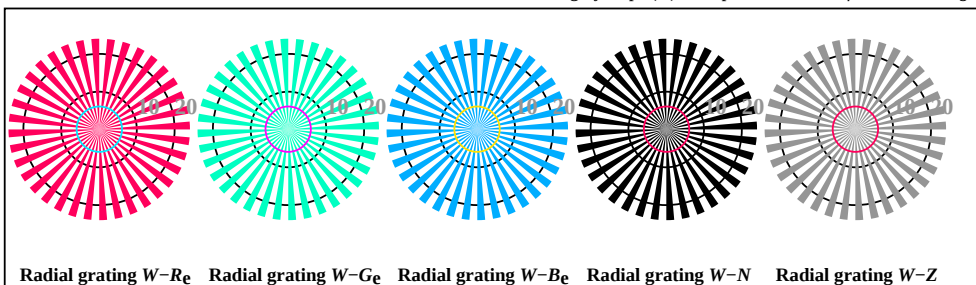
input: $rgb (->rgb^*_{de}) setrgbcolor$
output 132-2: $g_P=0.85$; $g_N=1.0$

TUB registration: 20110801-OE68/OE68L0NA.TXT /.PS
application for output of displays: monitor systems or data projector systems
TUB material: code=rh4ta

<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /PS in File (F)



OE680-7, Picture B1-133-0: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



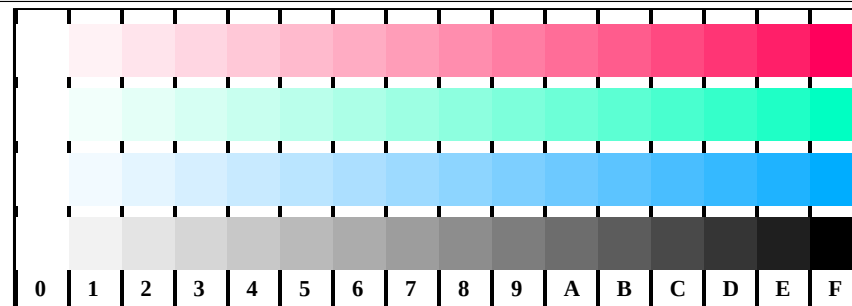
OE680-5, Picture D2W-133-0: Radial gratings $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS operator $\rightarrow rgb_e$ setrgbcolor



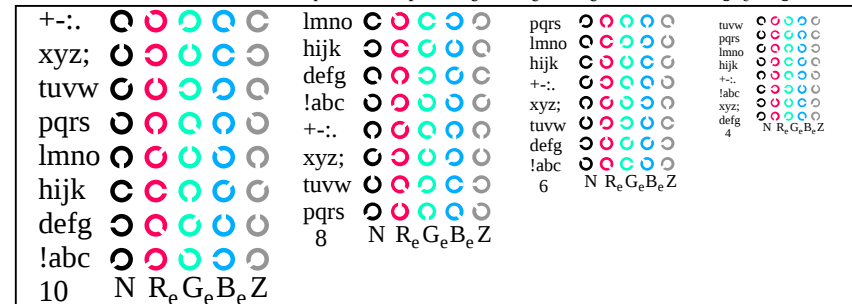
OE680-7, Picture D3W-133-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow rgb_e$ setrgbcolor



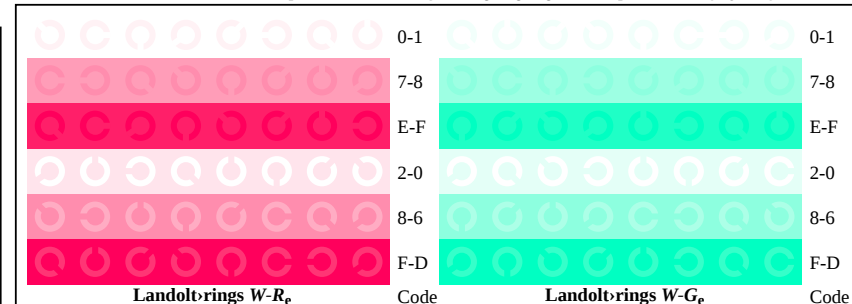
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: rgb ($\rightarrow rgb_{de}^*$) setrgbcolor
Image, radial gratings, 16 step colour scales, Landolt-rings
output 133-0: $g_P=0.77$; $g_N=1.0$



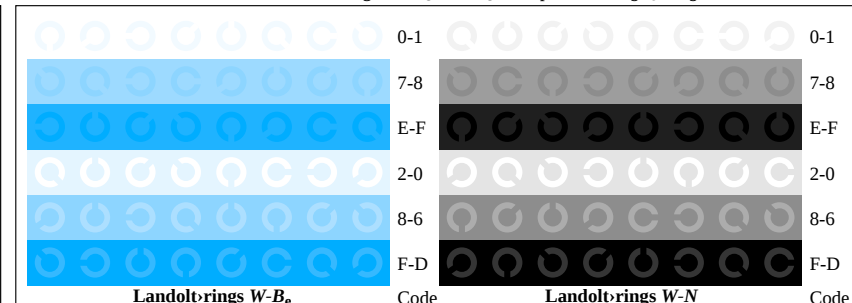
OE681-1, Picture D4W-L-133-0: 16 equidistant steps $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS: $\rightarrow rgb_e$ setrgbcolor



OE681-3, Picture D5W-133-0: Script and Landolt-rings N ; R_e ; G_e ; B_e ; Z ; PS operator $\rightarrow rgb_e$ setrgbcolor



OE681-5, Picture D6W-L-133-0: Landolt-rings $W-R_e$; $W-G_e$; PS operator $\rightarrow rgb_e$ setrgbcolor



OE681-7, Picture D7W-L-133-0: Landolt-rings $W-B_e$; $W-N$; PS operator $\rightarrow rgb_e$ setrgbcolor



Test for the visual linearized output of Pictures D1W-133-0 to D7W-133-0
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1W-133-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 Subjective remarks about the colour reproduction of the (flower) image, the CIE-test colours and the 16 grey steps within the image, for example "less contrast":

Test of the resolution of radial gratings $W-R_d$, $W-G_d$, $W-B_d$ according to picture D2W-133-0

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
Is the resolution diameter < 6 mm?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Test with magnifying glass (6x), Resolution diameter:	 mm	 mm	 mm	 mm	 mm

Test of the 14 CIE-test colours according to picture D3W-133-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 If Yes: How many colours have clear differences? of the given 14 steps: Steps

Test of 16 visual equidistant L^* -grey steps according to picture D3W-133-0
 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 OE680-3N-133-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NP.PDF> **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NA.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 OE68L0NP.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 OE68L0NA.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 OE680-7N-133-1

Test of 16 visually equally spaced steps of the colour rows $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to picture D4W-133-0

$W-R_d$ White - Orangered: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-G_d$ White - Leafgreen: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-B_d$ White - Violetblue: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-N$ White - Black: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

Test of characters and Landolt-rings in four sizes according to picture D5W-133-0
 Is the recognition frequency > 50% for letters (17 from 32 at least) and for Landolt-rings (minimum 5 of 8)?

Relative size	Letters	Ring N	Ring R_d	Ring G_d	Ring B_d
10	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Test of recognition frequency of Landolt-rings $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to pictures D6W-133-0, and D7W-133-0
 Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$ background - ring	Colour row $W-G_d$ background - ring	Colour row $W-B_d$ background - ring	Colour row $W-N$ background - ring
0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No
7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No
E - F Yes/No	E - F Yes/No	E - F Yes/No	E - F Yes/No
2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No
8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No
F - D Yes/No	F - D Yes/No	F - D Yes/No	F - D Yes/No

Part 2 OE681-3N-133-1

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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **underline Yes/No**
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 **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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **or underline Yes/No**
picture A7-133-2

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 and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 OE681-7N-133-1

OE68: Form A for test chart 4 according to ISO 15775; 1MR, DEH input: $rgb (->rgb^*_{de})$ setrgbcolor
 Image, radial gratings, 16 step colour scales, Landolt-rings output 133-1: $g_P=0.77$; $g_N=1.0$

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

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*
1	18.01 0.0 0.0	0.0 18.01 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	23.17 0.0 0.0	0.17 31.35 0.0	0.0 0.0 0.0	8.18 0.0 0.0	8.18
3	28.33 0.0 0.0	0.27 38.93 0.0	0.0 0.0 0.0	10.6 0.0 0.0	10.6
4	33.49 0.0 0.0	0.35 45.23 0.0	0.0 0.0 0.0	11.74 0.0 0.0	11.74
5	38.65 0.0 0.0	0.42 50.82 0.0	0.0 0.0 0.0	12.17 0.0 0.0	12.17
6	43.81 0.0 0.0	0.49 55.93 0.0	0.0 0.0 0.0	12.12 0.0 0.0	12.12
7	48.97 0.0 0.0	0.55 60.7 0.0	0.0 0.0 0.0	11.73 0.0 0.0	11.73
8	54.13 0.0 0.0	0.61 65.2 0.0	0.0 0.0 0.0	11.07 0.0 0.0	11.07
9	59.29 0.0 0.0	0.66 69.47 0.0	0.0 0.0 0.0	10.18 0.0 0.0	10.18
10	64.45 0.0 0.0	0.72 73.56 0.0	0.0 0.0 0.0	9.11 0.0 0.0	9.11
11	69.61 0.0 0.0	0.77 77.49 0.0	0.0 0.0 0.0	7.88 0.0 0.0	7.88
12	74.77 0.0 0.0	0.82 81.29 0.0	0.0 0.0 0.0	6.52 0.0 0.0	6.52
13	79.93 0.0 0.0	0.87 84.97 0.0	0.0 0.0 0.0	5.04 0.0 0.0	5.04
14	85.09 0.0 0.0	0.91 88.54 0.0	0.0 0.0 0.0	3.45 0.0 0.0	3.45
15	90.25 0.0 0.0	0.96 92.02 0.0	0.0 0.0 0.0	1.77 0.0 0.0	1.77
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	18.01 0.0 0.0	0.0 18.01 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	37.36 0.0 0.0	0.41 49.47 0.0	0.0 0.0 0.0	12.11 0.0 0.0	12.11
19	56.71 0.0 0.0	0.64 67.36 0.0	0.0 0.0 0.0	10.65 0.0 0.0	10.65
20	76.06 0.0 0.0	0.83 82.22 0.0	0.0 0.0 0.0	6.16 0.0 0.0	6.16
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

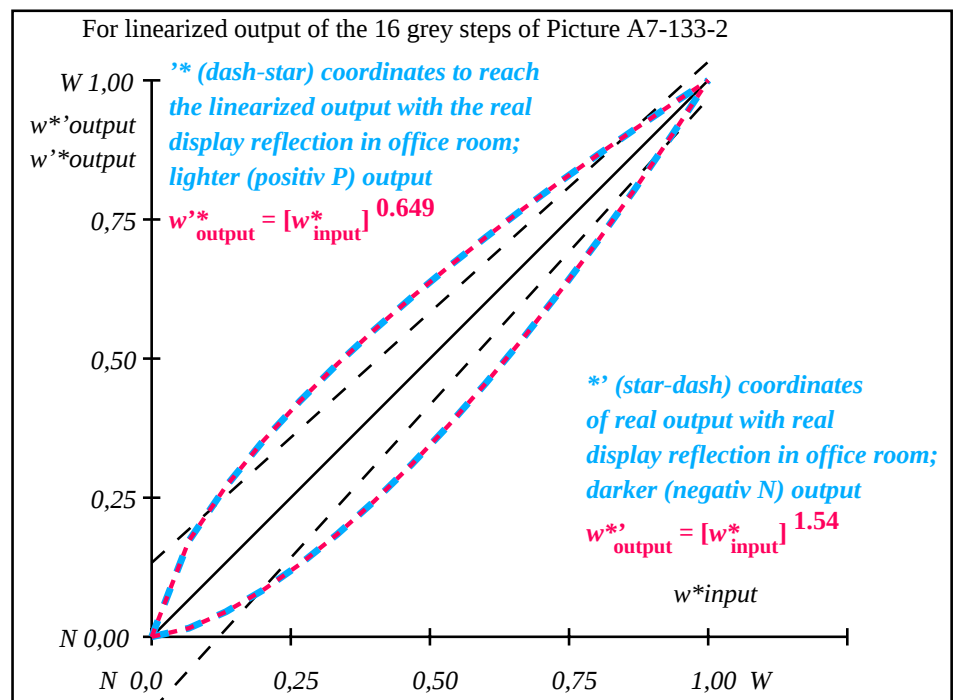
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 7.6$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 5.8$

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

OE680-3N-133-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE681-3N-133-2: 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 $g_P=0.65$ 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}	0.0	0.173	0.27	0.352	0.424	0.49	0.552	0.61	0.665	0.718	0.769	0.817	0.865	0.911	0.956	1.0

OE680-7N, Picture A7-133-2: 16 visual equidistant L^* -grey steps; PS operator: $w^* w^* w^*$ setrgbcolor

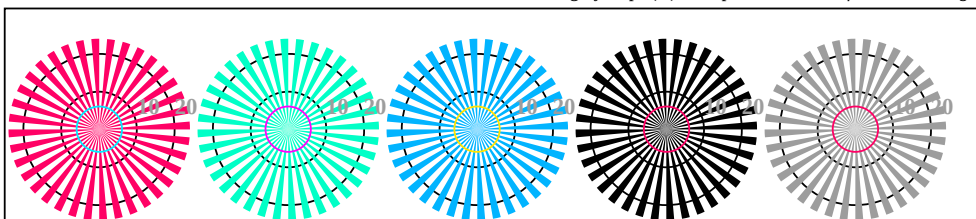
OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:2,5$; Y_N range 1,87 to <3,75

input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 133-2: $g_P=0.77$; $g_N=1.0$

<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /PS in File (F)



OE680-7, Picture B1-134-0: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



Radial grating W-Re Radial grating W-Ge Radial grating W-Be Radial grating W-N Radial grating W-Z

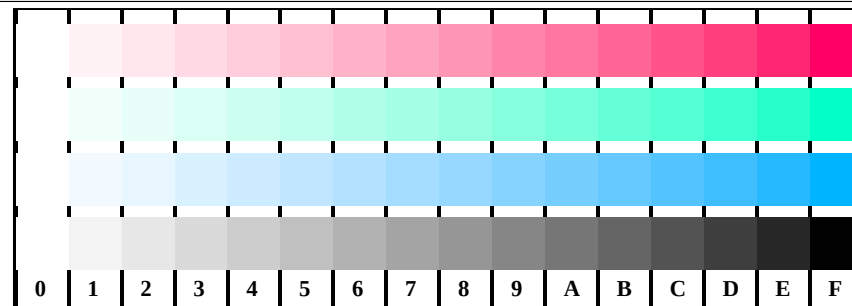
OE680-5, Picture D2W-134-0: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



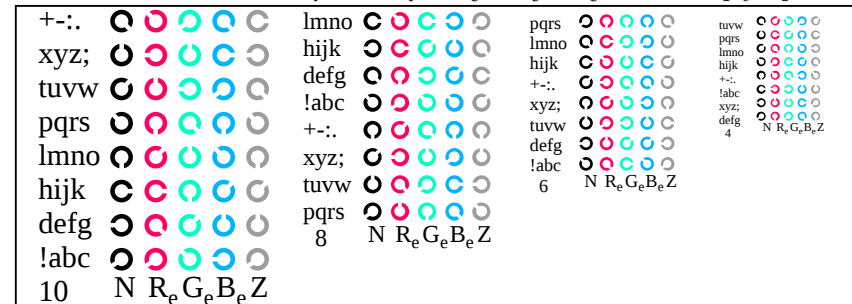
OE680-7, Picture D3W-134-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



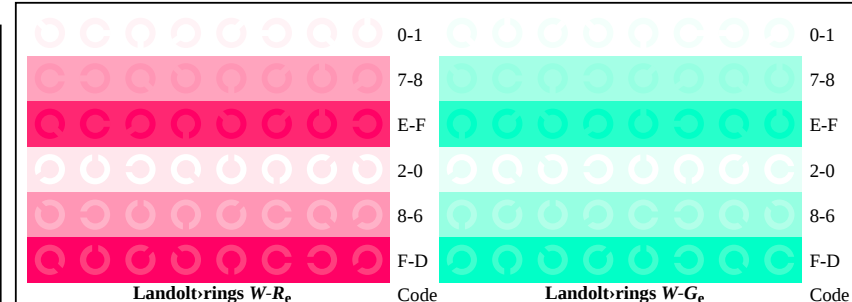
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 134-0: $g_P=0.7$; $g_N=1.0$



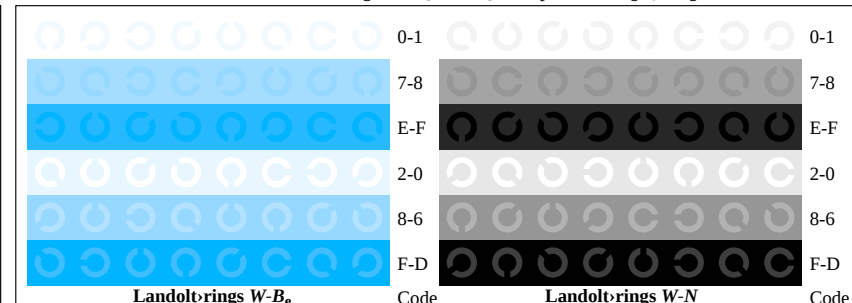
OE681-1, Picture D4W-L-134-0: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-3, Picture D5W-134-0: Script and Landolt-rings N; R_e; G_e; B_e; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-134-0: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-134-0: Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



Test for the visual linearized output of Pictures D1W-134-0 to D7W-134-0
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1W-134-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 Subjective remarks about the colour reproduction of the (flower) image, the CIE-test colours and the 16 grey steps within the image, for example "less contrast":

Test of the resolution of radial gratings $W-R_d$, $W-G_d$, $W-B_d$ according to picture D2W-134-0

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
Is the resolution diameter < 6 mm?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Test with magnifying glass (6x), Resolution diameter:	 mm	 mm	 mm	 mm	 mm

Test of the 14 CIE-test colours according to picture D3W-134-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 If Yes: How many colours have clear differences? of the given 14 steps: Steps

Test of 16 visual equidistant L^* -grey steps according to picture D3W-134-0
 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 OE680-3N-134-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NP.PDF> **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NA.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 OE68L0NP.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 OE68L0NA.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 OE680-7N-134-1

Test of 16 visually equally spaced steps of the colour rows $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to picture D4W-134-0

$W-R_d$ White - Orangered: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-G_d$ White - Leafgreen: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-B_d$ White - Violetblue: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-N$ White - Black: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

Test of characters and Landolt-rings in four sizes according to picture D5W-134-0
 Is the recognition frequency > 50% for letters (17 from 32 at least) and for Landolt-rings (minimum 5 of 8)?

Relative size	Letters	Ring N	Ring R_d	Ring G_d	Ring B_d
10	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Test of recognition frequency of Landolt-rings $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to pictures D6W-134-0, and D7W-134-0
 Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$ background - ring	Colour row $W-G_d$ background - ring	Colour row $W-B_d$ background - ring	Colour row $W-N$ background - ring
0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No
7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No
E - F Yes/No	E - F Yes/No	E - F Yes/No	E - F Yes/No
2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No
8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No
F - D Yes/No	F - D Yes/No	F - D Yes/No	F - D Yes/No

Part 2 OE681-3N-134-1

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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **underline Yes/No**
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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **or underline Yes/No**
picture A7-134-2

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 and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 OE681-7N-134-1

OE68: Form A for test chart 4 according to ISO 15775; 1MR, DEH input: $rgb (->rgb^*_{de})$ setrgbcolor
 Image, radial gratings, 16 step colour scales, Landolt-rings output 134-1: $g_P=0.7$; $g_N=1.0$

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

i	LAB*ref	l*out	LAB*out	LAB*out/c-ref	ΔE*
1	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
2	31.42 0.0 0.0	0.21 41.05 0.0	0.0 0.0 9.63	0.0 0.0 9.63	9.63
3	35.99 0.0 0.0	0.31 48.1 0.0	0.0 0.0 12.11	0.0 0.0 12.11	12.11
4	40.56 0.0 0.0	0.39 53.75 0.0	0.0 0.0 13.18	0.0 0.0 13.18	13.18
5	45.13 0.0 0.0	0.46 58.64 0.0	0.0 0.0 13.51	0.0 0.0 13.51	13.51
6	49.7 0.0 0.0	0.53 63.05 0.0	0.0 0.0 13.34	0.0 0.0 13.34	13.34
7	54.27 0.0 0.0	0.59 67.09 0.0	0.0 0.0 12.82	0.0 0.0 12.82	12.82
8	58.84 0.0 0.0	0.64 70.87 0.0	0.0 0.0 12.02	0.0 0.0 12.02	12.02
9	63.41 0.0 0.0	0.69 74.42 0.0	0.0 0.0 11.01	0.0 0.0 11.01	11.01
10	67.99 0.0 0.0	0.74 77.79 0.0	0.0 0.0 9.81	0.0 0.0 9.81	9.81
11	72.56 0.0 0.0	0.79 81.01 0.0	0.0 0.0 8.46	0.0 0.0 8.46	8.46
12	77.13 0.0 0.0	0.84 84.1 0.0	0.0 0.0 6.97	0.0 0.0 6.97	6.97
13	81.7 0.0 0.0	0.88 87.07 0.0	0.0 0.0 5.37	0.0 0.0 5.37	5.37
14	86.27 0.0 0.0	0.92 89.94 0.0	0.0 0.0 3.67	0.0 0.0 3.67	3.67
15	90.84 0.0 0.0	0.96 92.71 0.0	0.0 0.0 1.88	0.0 0.0 1.88	1.88
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	0.45 57.47 0.0	0.0 0.0 13.48	0.0 0.0 13.48	13.48
19	61.13 0.0 0.0	0.67 72.67 0.0	0.0 0.0 11.54	0.0 0.0 11.54	11.54
20	78.27 0.0 0.0	0.85 84.85 0.0	0.0 0.0 6.58	0.0 0.0 6.58	6.58
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

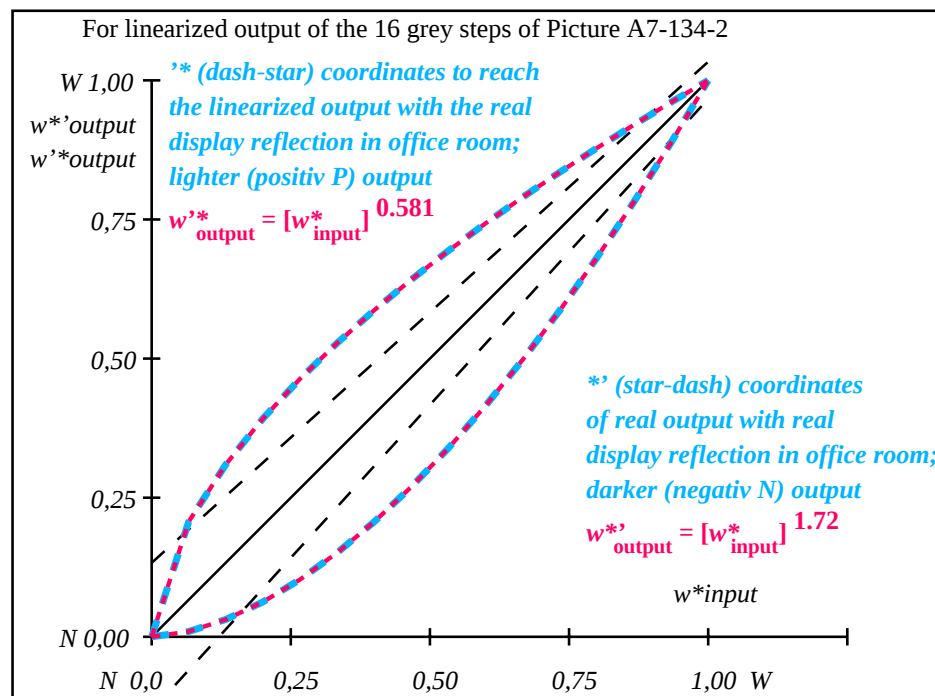
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{\text{CIELAB}} = 8.4$

Mean lightness difference (5 steps)
 $\Delta L^*_{\text{CIELAB}} = 6.3$

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

OE680-3N-134-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE681-3N-134-2: 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
$w^* w^* w^*$ setrgb $g_P=0.58$ 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^*_{intended} w^*_{out}	0.000 0.0	0.067 0.208	0.133 0.309	0.200 0.392	0.267 0.464	0.333 0.528	0.400 0.587	0.467 0.642	0.533 0.694	0.600 0.743	0.667 0.79	0.733 0.835	0.800 0.878	0.867 0.92	0.933 0.96	1.000 1.0

OE680-7N, Picture A7-134-2: 16 visual equidistant L^* -grey steps; PS operator: $w^* w^* w^* \text{setrgbcolor}$

OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:5$; Y_N range 3,75 to <7,5

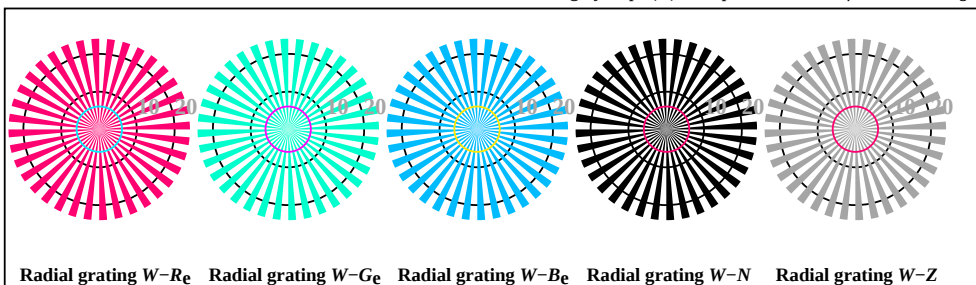
input: $rgb \rightarrow rgb^*_{\text{de}}$ setrgbcolor
output 134-2: $g_P=0.7$; $g_N=1.0$

TUB registration: 20110801-OE68/OE68L0NA.TXT /.PS
application for output of displays: monitor systems or data projector systems
TUB material: code=rh4ta

<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /PS in File (F)



OE680-7, Picture B1-135-0: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



Radial grating W-Re Radial grating W-Ge Radial grating W-Be Radial grating W-N Radial grating W-Z

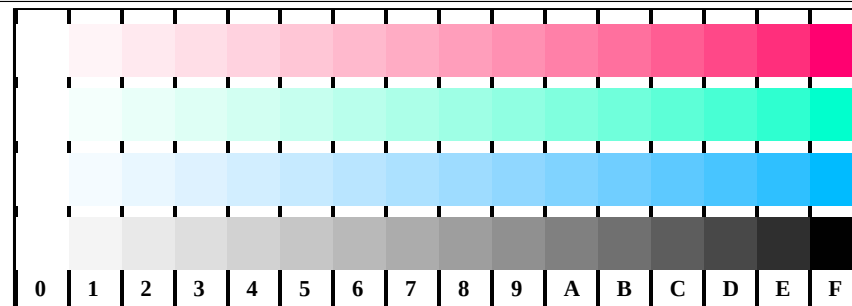
OE680-5, Picture D2W-135-0: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow rgb_e \text{ setrgbcolor}$



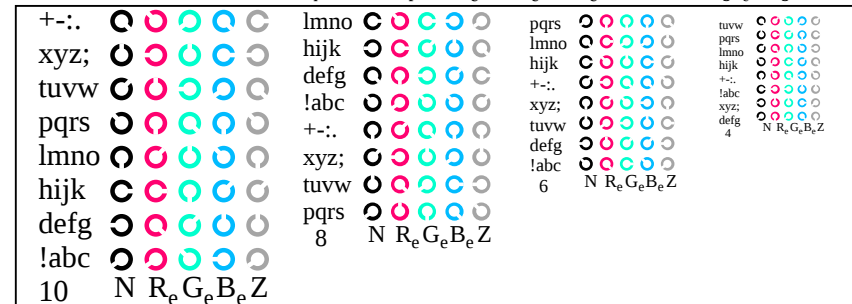
OE680-7, Picture D3W-135-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow rgb_e \text{ setrgbcolor}$



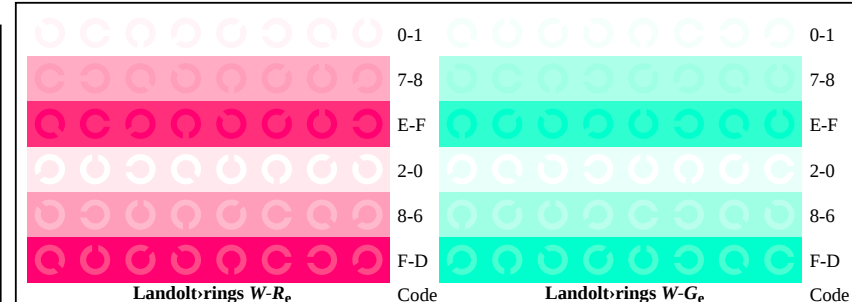
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: $rgb \rightarrow rgb_{de} \text{ setrgbcolor}$
Image, radial gratings, 16 step colour scales, Landolt-rings
output 135-0: $g_P=0.62$; $g_N=1.0$



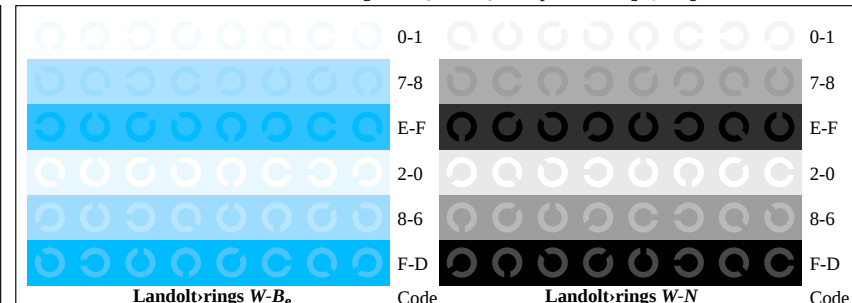
OE681-1, Picture D4W-L-135-0: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow rgb_e \text{ setrgbcolor}$



OE681-3, Picture D5W-135-0: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow rgb_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-135-0: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow rgb_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-135-0: Landolt-rings W-Be; W-N; PS operator $\rightarrow rgb_e \text{ setrgbcolor}$



Test for the visual linearized output of Pictures D1W-135-0 to D7W-135-0
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1W-135-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 Subjective remarks about the colour reproduction of the (flower) image, the CIE-test colours and the 16 grey steps within the image, for example "less contrast":

Test of the resolution of radial gratings $W-R_d$, $W-G_d$, $W-B_d$ according to picture D2W-135-0

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
Is the resolution diameter < 6 mm?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Test with magnifying glass (6x), Resolution diameter:	 mm	 mm	 mm	 mm	 mm

Test of the 14 CIE-test colours according to picture D3W-135-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 If Yes: How many colours have clear differences? of the given 14 steps: Steps

Test of 16 visual equidistant L^* -grey steps according to picture D3W-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 OE680-3N-135-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NP.PDF> **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NA.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 OE68L0NP.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 OE68L0NA.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 OE680-7N-135-1

Test of 16 visually equally spaced steps of the colour rows $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to picture D4W-135-0

$W-R_d$ White - Orangered: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-G_d$ White - Leafgreen: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-B_d$ White - Violetblue: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-N$ White - Black: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

Test of characters and Landolt-rings in four sizes according to picture D5W-135-0
 Is the recognition frequency > 50% for letters (17 from 32 at least) and for Landolt-rings (minimum 5 of 8)?

Relative size	Letters	Ring N	Ring R_d	Ring G_d	Ring B_d
10	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Test of recognition frequency of Landolt-rings $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to pictures D6W-135-0, and D7W-135-0
 Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$ background - ring	Colour row $W-G_d$ background - ring	Colour row $W-B_d$ background - ring	Colour row $W-N$ background - ring
0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No
7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No
E - F Yes/No	E - F Yes/No	E - F Yes/No	E - F Yes/No
2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No
8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No
F - D Yes/No	F - D Yes/No	F - D Yes/No	F - D Yes/No

Part 2 OE681-3N-135-1

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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **or underline Yes/No**
picture A7-135-2

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 and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 OE681-7N-135-1

OE68: Form A for test chart 4 according to ISO 15775; 1MR, DEH input: $rgb (->rgb^*_{de})$ setrgbcolor
 Image, radial gratings, 16 step colour scales, Landolt-rings output 135-1: $g_P=0.62$; $g_N=1.0$

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

i	LAB*ref	l*out	LAB*out	LAB*out/c-ref	ΔE*
1	37.99 0.0 0.0	0.0 37.99 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	41.81 0.0 0.0	0.24 51.79 0.0	0.0 0.0 0.0	9.98 0.0 0.0	9.98
3	45.64 0.0 0.0	0.35 57.87 0.0	0.0 0.0 0.0	12.23 0.0 0.0	12.23
4	49.47 0.0 0.0	0.43 62.6 0.0	0.0 0.0 0.0	13.13 0.0 0.0	13.13
5	53.3 0.0 0.0	0.5 66.63 0.0	0.0 0.0 0.0	13.33 0.0 0.0	13.33
6	57.13 0.0 0.0	0.56 70.19 0.0	0.0 0.0 0.0	13.07 0.0 0.0	13.07
7	60.96 0.0 0.0	0.62 73.44 0.0	0.0 0.0 0.0	12.48 0.0 0.0	12.48
8	64.78 0.0 0.0	0.67 76.44 0.0	0.0 0.0 0.0	11.65 0.0 0.0	11.65
9	68.61 0.0 0.0	0.72 79.23 0.0	0.0 0.0 0.0	10.62 0.0 0.0	10.62
10	72.44 0.0 0.0	0.76 81.87 0.0	0.0 0.0 0.0	9.43 0.0 0.0	9.43
11	76.27 0.0 0.0	0.81 84.37 0.0	0.0 0.0 0.0	8.11 0.0 0.0	8.11
12	80.1 0.0 0.0	0.85 86.76 0.0	0.0 0.0 0.0	6.66 0.0 0.0	6.66
13	83.93 0.0 0.0	0.89 89.05 0.0	0.0 0.0 0.0	5.12 0.0 0.0	5.12
14	87.75 0.0 0.0	0.93 91.24 0.0	0.0 0.0 0.0	3.49 0.0 0.0	3.49
15	91.58 0.0 0.0	0.96 93.36 0.0	0.0 0.0 0.0	1.78 0.0 0.0	1.78
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 37.99 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	52.34 0.0 0.0	0.48 65.67 0.0	0.0 0.0 0.0	13.33 0.0 0.0	13.33
19	66.7 0.0 0.0	0.69 77.86 0.0	0.0 0.0 0.0	11.16 0.0 0.0	11.16
20	81.05 0.0 0.0	0.86 87.34 0.0	0.0 0.0 0.0	6.29 0.0 0.0	6.29
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

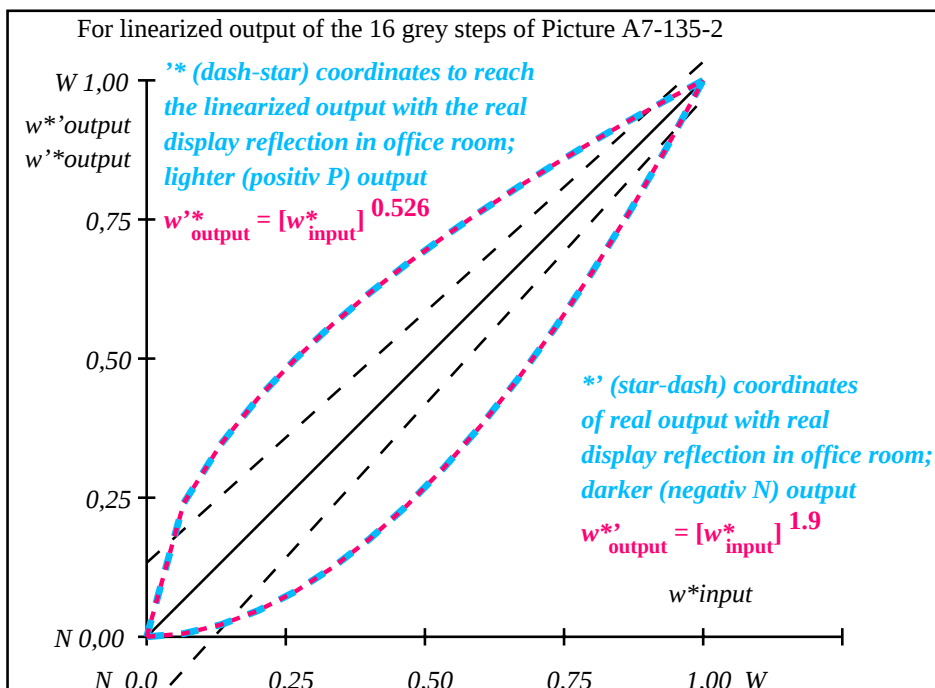
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 8.2$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 6.2$

Mean colour reproduction index: $R^*_{ab,m} = 65$

OE680-3N-135-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE681-3N-135-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{intended}$ (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 $g_P=0.53$ 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	0.241	0.346	0.429	0.499	0.561	0.617	0.67	0.718	0.764	0.808	0.849	0.889	0.928	0.964	1.0

OE680-7N, Picture A7-135-2: 16 visual equidistant L^* -grey steps; PS operator: $w^* w^* w^* setrgbcolor$

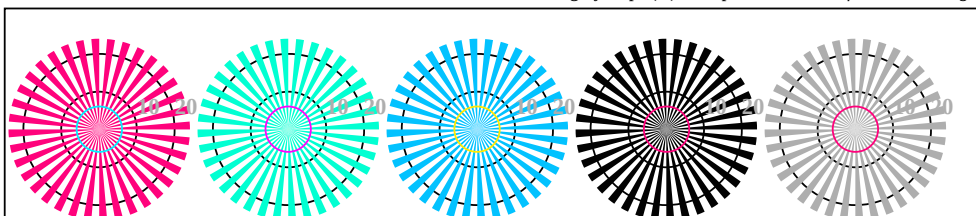
OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:10$; Y_N range 7,5 to <15

input: $rgb (->rgb^*_{de}) setrgbcolor$
output 135-2: $g_P=0.62$; $g_N=1.0$

<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /PS in File (F)



OE680-7, Picture B1-136-0: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



Radial grating W-Re Radial grating W-Ge Radial grating W-Be Radial grating W-N Radial grating W-Z

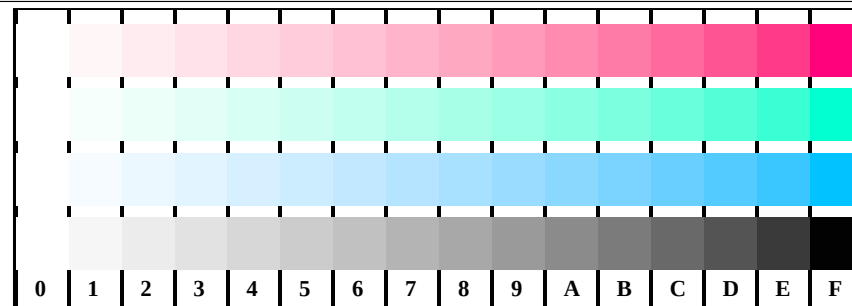
OE680-5, Picture D2W-136-0: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



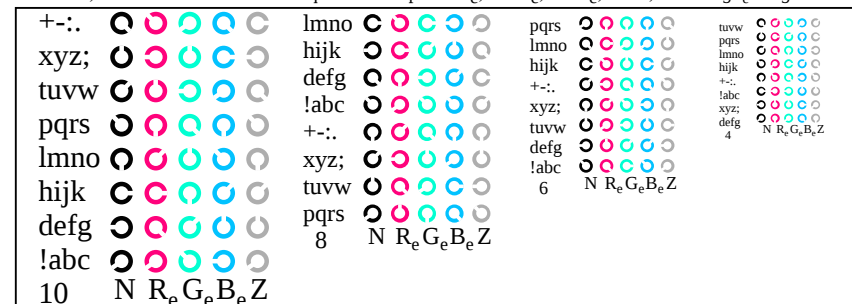
OE680-7, Picture D3W-136-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

OE680-7, Picture D3W-136-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

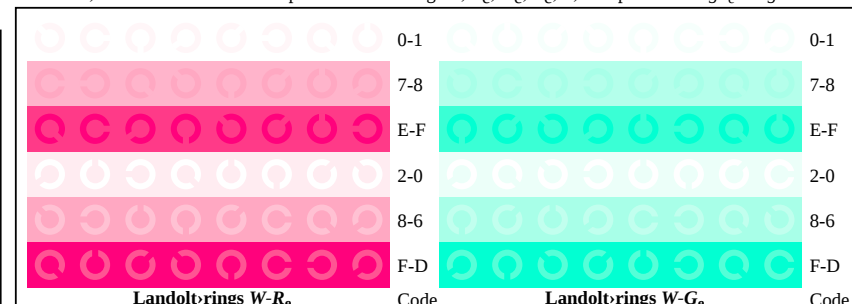
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 136-0: $g_P=0.55$; $g_N=1.0$



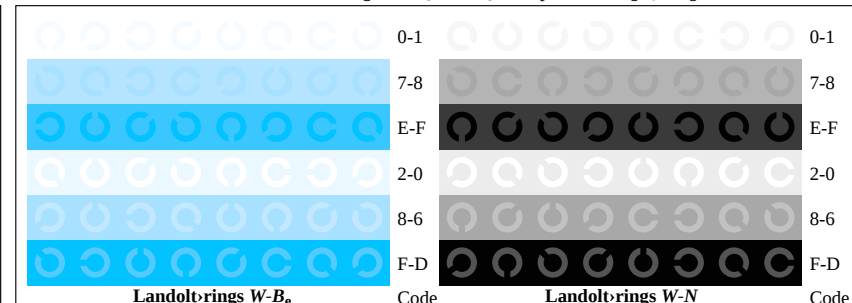
OE681-1, Picture D4W-L-136-0: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-3, Picture D5W-136-0: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-136-0: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-136-0: Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

Test for the visual linearized output of Pictures D1W-136-0 to D7W-136-0
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1W-136-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 Subjective remarks about the colour reproduction of the (flower) image, the CIE-test colours and the 16 grey steps within the image, for example "less contrast":

Test of the resolution of radial gratings $W-R_d$, $W-G_d$, $W-B_d$ according to picture D2W-136-0

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
Is the resolution diameter < 6 mm?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Test with magnifying glass (6x), Resolution diameter:	 mm	 mm	 mm	 mm	 mm

Test of the 14 CIE-test colours according to picture D3W-136-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 If Yes: How many colours have clear differences? of the given 14 steps: **Steps**

Test of 16 visual equidistant L^* -grey steps according to picture D3W-136-0
 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 OE680-3N-136-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NP.PDF> **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NA.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 OE68L0NP.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 OE68L0NA.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 OE680-7N-136-1

Test of 16 visually equally spaced steps of the colour rows $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to picture D4W-136-0

$W-R_d$ White - Orangered: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps **Steps**

$W-G_d$ White - Leafgreen: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps **Steps**

$W-B_d$ White - Violetblue: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps **Steps**

$W-N$ White - Black: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps **Steps**

Test of characters and Landolt-rings in four sizes according to picture D5W-136-0
 Is the recognition frequency > 50% for letters (17 from 32 at least) and for Landolt-rings (minimum 5 of 8)?

Relative size	Letters	Ring N	Ring R_d	Ring G_d	Ring B_d
10	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Test of recognition frequency of Landolt-rings $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to pictures D6W-136-0, and D7W-136-0
 Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$ background - ring	Colour row $W-G_d$ background - ring	Colour row $W-B_d$ background - ring	Colour row $W-N$ background - ring
0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No
7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No
E - F Yes/No	E - F Yes/No	E - F Yes/No	E - F Yes/No
2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No
8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No
F - D Yes/No	F - D Yes/No	F - D Yes/No	F - D Yes/No

Part 2 OE681-3N-136-1

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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **underline Yes/No**
Picture A7-136-2: contrast range: (>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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **or underline Yes/No**
picture A7-136-2

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 and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 OE681-7N-136-1

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	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
2	54.91 0.0 0.0	0.27 63.82 0.0	0.0 0.0 0.0	8.91 0.0 0.0	8.91
3	57.8 0.0 0.0	0.38 68.49 0.0	0.0 0.0 0.0	10.69 0.0 0.0	10.69
4	60.7 0.0 0.0	0.46 72.03 0.0	0.0 0.0 0.0	11.34 0.0 0.0	11.34
5	63.59 0.0 0.0	0.53 75.0 0.0	0.0 0.0 0.0	11.41 0.0 0.0	11.41
6	66.48 0.0 0.0	0.59 77.61 0.0	0.0 0.0 0.0	11.12 0.0 0.0	11.12
7	69.37 0.0 0.0	0.64 79.95 0.0	0.0 0.0 0.0	10.57 0.0 0.0	10.57
8	72.27 0.0 0.0	0.69 82.1 0.0	0.0 0.0 0.0	9.83 0.0 0.0	9.83
9	75.16 0.0 0.0	0.74 84.09 0.0	0.0 0.0 0.0	8.93 0.0 0.0	8.93
10	78.05 0.0 0.0	0.78 85.96 0.0	0.0 0.0 0.0	7.91 0.0 0.0	7.91
11	80.95 0.0 0.0	0.82 87.72 0.0	0.0 0.0 0.0	6.78 0.0 0.0	6.78
12	83.84 0.0 0.0	0.86 89.4 0.0	0.0 0.0 0.0	5.56 0.0 0.0	5.56
13	86.73 0.0 0.0	0.9 91.0 0.0	0.0 0.0 0.0	4.26 0.0 0.0	4.26
14	89.62 0.0 0.0	0.93 92.53 0.0	0.0 0.0 0.0	2.9 0.0 0.0	2.9
15	92.52 0.0 0.0	0.97 93.99 0.0	0.0 0.0 0.0	1.48 0.0 0.0	1.48
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	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	0.51 74.3 0.0	0.0 0.0 0.0	11.43 0.0 0.0	11.43
19	73.71 0.0 0.0	0.72 83.11 0.0	0.0 0.0 0.0	9.4 0.0 0.0	9.4
20	84.56 0.0 0.0	0.87 89.81 0.0	0.0 0.0 0.0	5.24 0.0 0.0	5.24
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

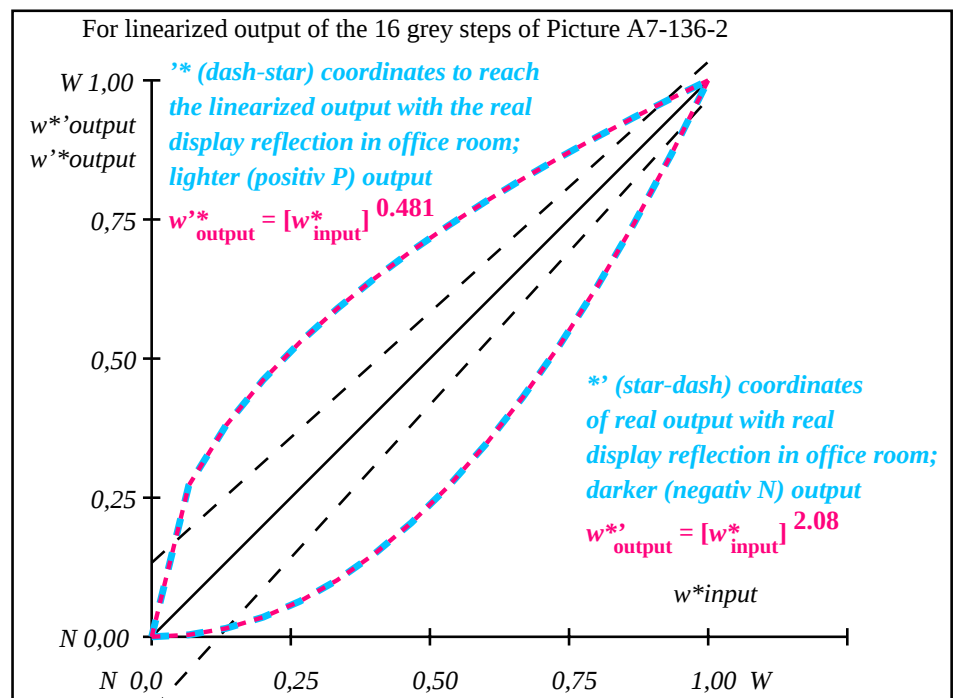
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 7.0$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 5.2$

Mean colour reproduction index: $R^*_{ab,m} = 70$

OE680-3N-136-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE681-3N-136-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{intended}$ (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 $g_P=0.48$ 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)	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 0.0	0.067 0.273	0.133 0.379	0.200 0.461	0.267 0.53	0.333 0.589	0.400 0.644	0.467 0.693	0.533 0.739	0.600 0.782	0.667 0.823	0.733 0.861	0.800 0.898	0.867 0.934	0.933 0.967	1.000 1.0

OE680-7N, Picture A7-136-2: 16 visual equidistant L^* -grey steps; PS operator: $w^* w^* w^*$ setrgbcolor

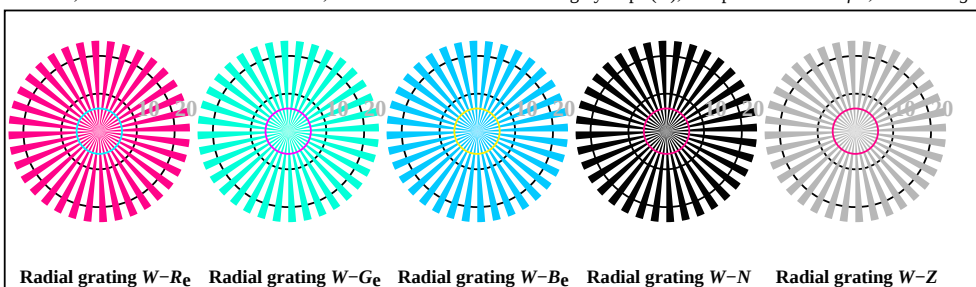
OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:20$; Y_N range 15 to <30

input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 136-2: $g_P=0.55$; $g_N=1.0$

<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /PS in File (F)



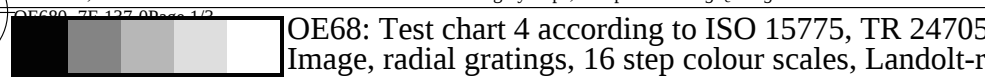
OE680-7, Picture B1-137-0: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



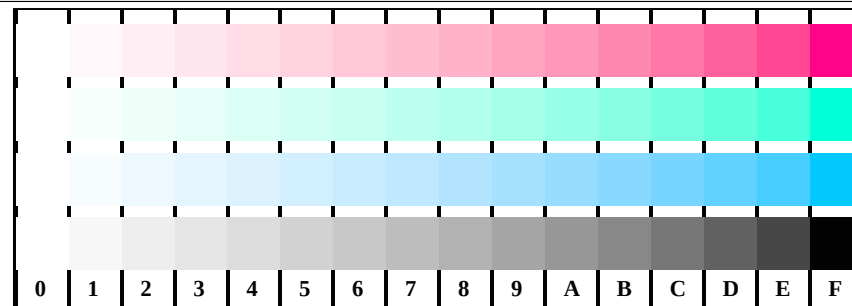
OE680-5, Picture D2W-137-0: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



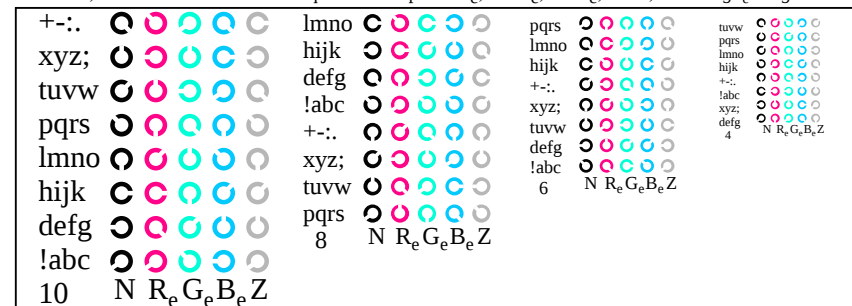
OE680-7, Picture D3W-137-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



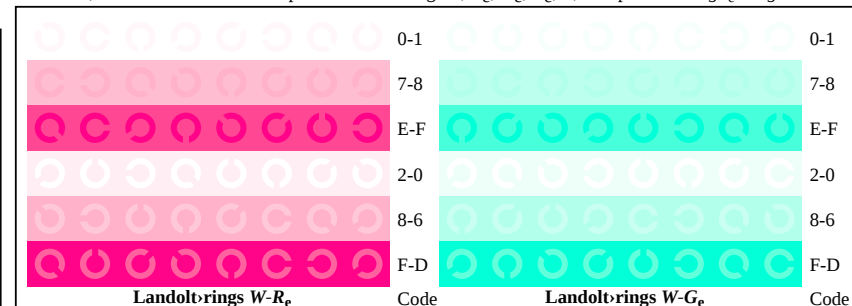
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 137-0: $g_P=0.47$; $g_N=1.0$



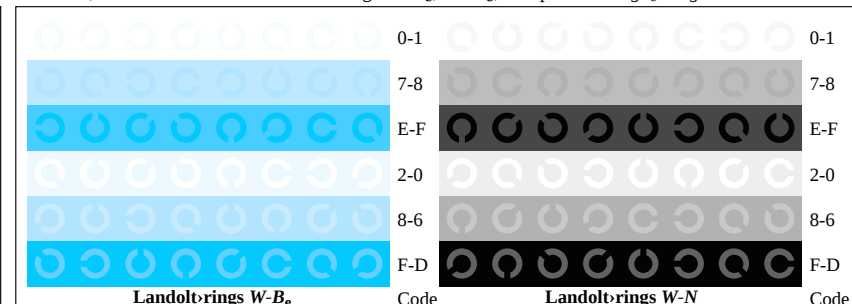
OE681-1, Picture D4W-L-137-0: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



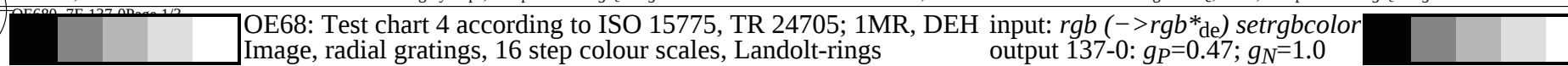
OE681-3, Picture D5W-137-0: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-137-0: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-137-0: Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



Test for the visual linearized output of Pictures D1W-137-0 to D7W-137-0
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1W-137-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 Subjective remarks about the colour reproduction of the (flower) image, the CIE-test colours and the 16 grey steps within the image, for example "less contrast":

Test of the resolution of radial gratings $W-R_d$, $W-G_d$, $W-B_d$ according to picture D2W-137-0

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
Is the resolution diameter < 6 mm?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Test with magnifying glass (6x), Resolution diameter:	 mm	 mm	 mm	 mm	 mm

Test of the 14 CIE-test colours according to picture D3W-137-0
 Are clear (immediately conspicuous) differences recognized between reproduction and test chart? **Yes/No**
 If Yes: How many colours have clear differences? of the given 14 steps: Steps

Test of 16 visual equidistant L^* -grey steps according to picture D3W-137-0
 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 OE680-3N-137-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NP.PDF> **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68L0NA.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 OE68L0NP.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 OE68L0NA.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 OE680-7N-137-1

Test of 16 visually equally spaced steps of the colour rows $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to picture D4W-137-0

$W-R_d$ White - Orangered: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-G_d$ White - Leafgreen: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-B_d$ White - Violetblue: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

$W-N$ White - Black: Are all the 16 steps distinguishable? **Yes/No**
 If No: How many steps can be distinguished? of the given 16 steps Steps

Test of characters and Landolt-rings in four sizes according to picture D5W-137-0
 Is the recognition frequency > 50% for letters (17 from 32 at least) and for Landolt-rings (minimum 5 of 8)?

Relative size	Letters	Ring N	Ring R_d	Ring G_d	Ring B_d
10	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Test of recognition frequency of Landolt-rings $W-R_d$, $W-G_d$, $W-B_d$ and $W-N$ according to pictures D6W-137-0, and D7W-137-0
 Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$ background - ring	Colour row $W-G_d$ background - ring	Colour row $W-B_d$ background - ring	Colour row $W-N$ background - ring
0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No	0 - 1 Yes/No
7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No	7 - 8 Yes/No
E - F Yes/No	E - F Yes/No	E - F Yes/No	E - F Yes/No
2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No	2 - 0 Yes/No
8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No	8 - 6 Yes/No
F - D Yes/No	F - D Yes/No	F - D Yes/No	F - D Yes/No

Part 2 OE681-3N-137-1

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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **underline Yes/No**
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/OE68/OE68F1P2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1P2.PS> **or underline Yes/No**
picture A7-137-2

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 and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 OE681-7N-137-1

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	0.0 69.7 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	71.41 0.0 0.0	0.3 77.46 0.0	0.0 0.0 0.0	6.04 0.0 0.0	6.04
3	73.13 0.0 0.0	0.41 80.24 0.0	0.0 0.0 0.0	7.11 0.0 0.0	7.11
4	74.84 0.0 0.0	0.49 82.31 0.0	0.0 0.0 0.0	7.47 0.0 0.0	7.47
5	76.55 0.0 0.0	0.56 84.02 0.0	0.0 0.0 0.0	7.47 0.0 0.0	7.47
6	78.27 0.0 0.0	0.62 85.51 0.0	0.0 0.0 0.0	7.24 0.0 0.0	7.24
7	79.98 0.0 0.0	0.67 86.84 0.0	0.0 0.0 0.0	6.86 0.0 0.0	6.86
8	81.7 0.0 0.0	0.71 88.05 0.0	0.0 0.0 0.0	6.35 0.0 0.0	6.35
9	83.41 0.0 0.0	0.76 89.17 0.0	0.0 0.0 0.0	5.76 0.0 0.0	5.76
10	85.12 0.0 0.0	0.8 90.21 0.0	0.0 0.0 0.0	5.08 0.0 0.0	5.08
11	86.84 0.0 0.0	0.84 91.19 0.0	0.0 0.0 0.0	4.35 0.0 0.0	4.35
12	88.55 0.0 0.0	0.87 92.11 0.0	0.0 0.0 0.0	3.56 0.0 0.0	3.56
13	90.27 0.0 0.0	0.91 92.99 0.0	0.0 0.0 0.0	2.73 0.0 0.0	2.73
14	91.98 0.0 0.0	0.94 93.83 0.0	0.0 0.0 0.0	1.85 0.0 0.0	1.85
15	93.7 0.0 0.0	0.97 94.64 0.0	0.0 0.0 0.0	0.94 0.0 0.0	0.94
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	69.7 0.0 0.0	0.0 69.7 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	76.13 0.0 0.0	0.54 83.62 0.0	0.0 0.0 0.0	7.5 0.0 0.0	7.5
19	82.55 0.0 0.0	0.74 88.62 0.0	0.0 0.0 0.0	6.06 0.0 0.0	6.06
20	88.98 0.0 0.0	0.88 92.34 0.0	0.0 0.0 0.0	3.35 0.0 0.0	3.35
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

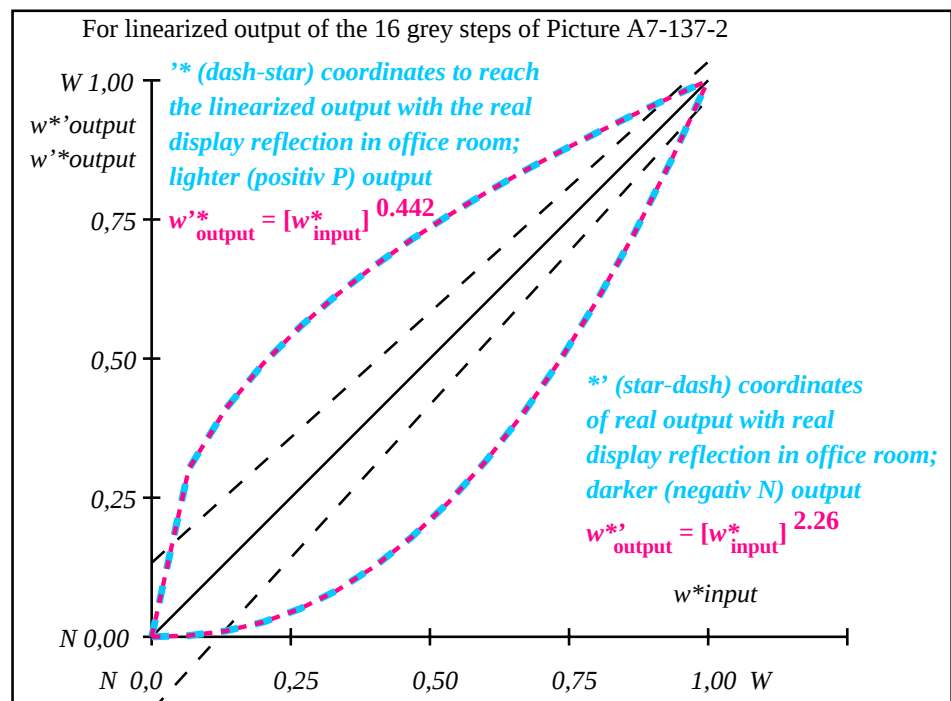
Start output S1
Specification according to
ISO/IEC 15775 Annex G
and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 4.6$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 3.4$

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

OE680-3N-137-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE681-3N-137-2: 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 $g_P=0.44$ 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	0.302	0.41	0.491	0.557	0.615	0.667	0.714	0.757	0.798	0.836	0.872	0.906	0.939	0.97	1.0

OE680-7N, Picture A7-137-2: 16 visual equidistant L^* -grey steps; PS operator: $w^* w^* w^*_{setrgbcolor}$

OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:40$; Y_N range 30 to <60

input: $rgb \rightarrow rgb^*_{de}$ $setrgbcolor$
output 137-2: $g_P=0.47$; $g_N=1.0$

TUB registration: 20110801-OE68/OE68L0NA.TXT /.PS
application for output of displays: monitor systems or data projector systems
TUB material: code=rh4ta