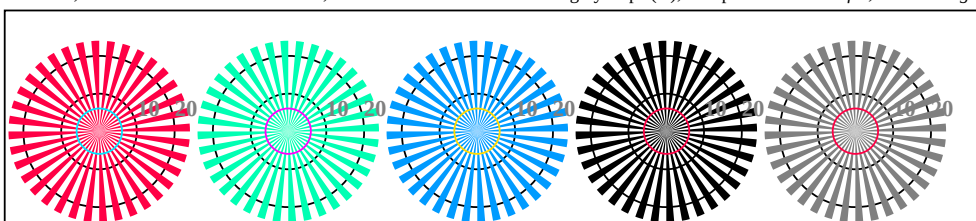


<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /.PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /.PS in File (F)



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

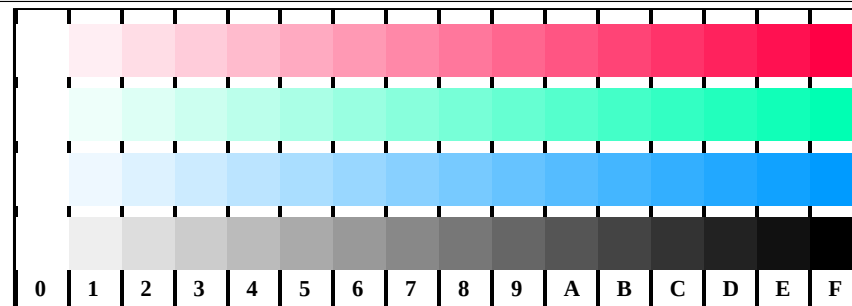
OE680-5, Picture D2W-130-0: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



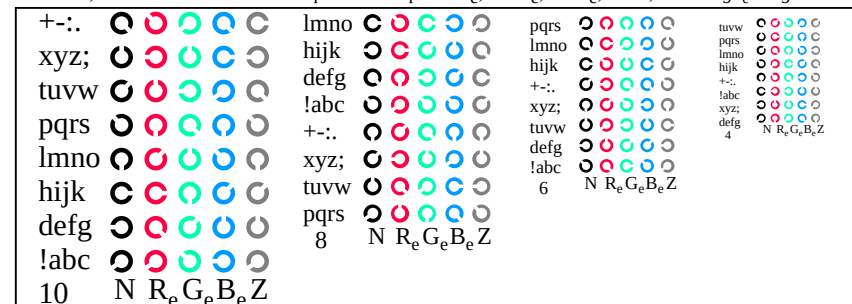
OE680-7, Picture D3W-130-0: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



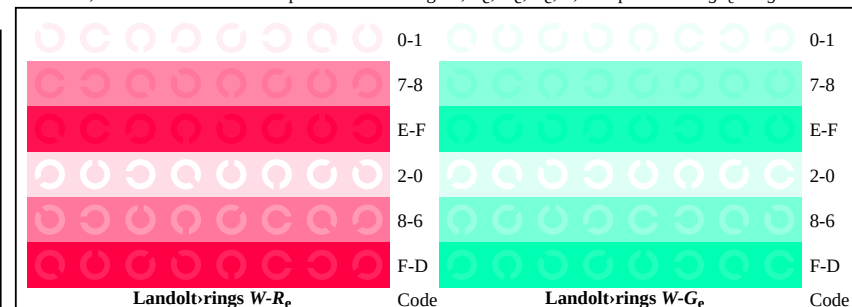
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=1.0$



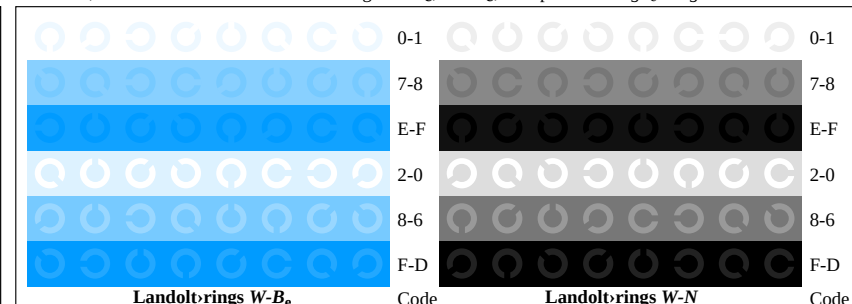
OE681-1, Picture D4W-L-130-0: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



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

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$
$W-R_d$ 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:
 either according to DIN 6160:1996 with Anomaloskop of Nagel **underline Yes/No**
 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/OE68F1N2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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/OE68F1N2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.PS> **or underline Yes/No**
picture A7-130-2 **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 OE681-7N-130-1

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	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

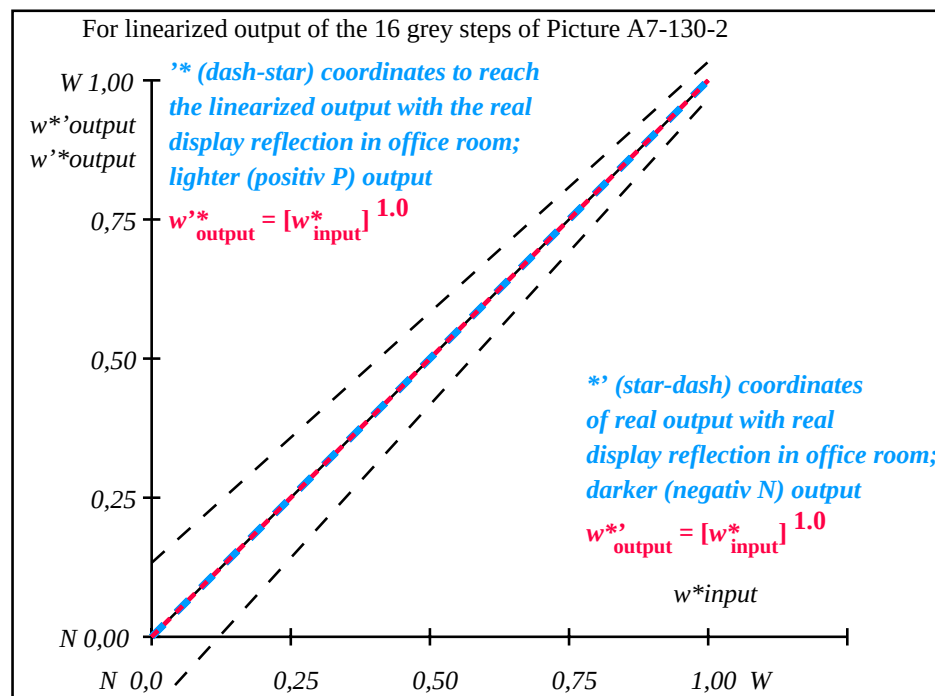
Start output S1
Specification according to
ISO/IEC 15775 Annex G
and DIN 33866-1 Annex G

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

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

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

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
$w^*=l^*_{CIELAB, r}$ (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

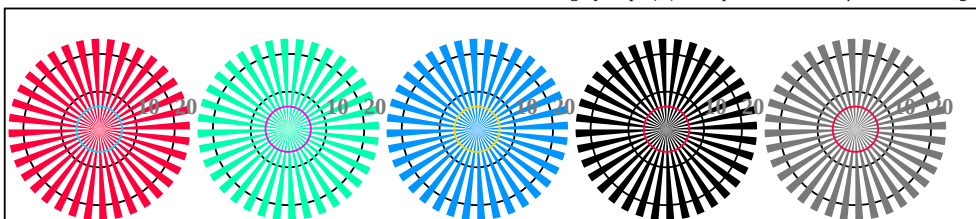
input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 130-2: $g_P=1.0$; $g_N=1.0$

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 B1-130-1: 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

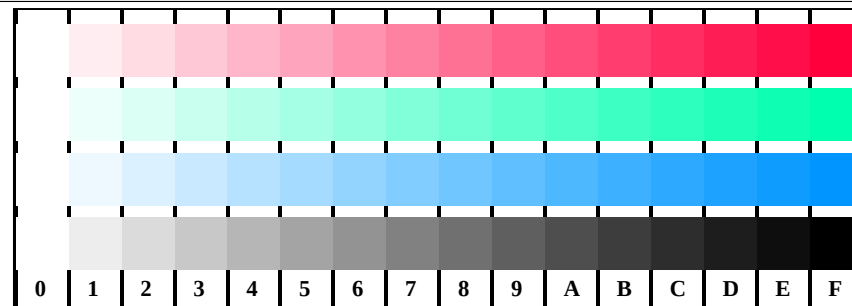
OE680-5, Picture D2W-130-1: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



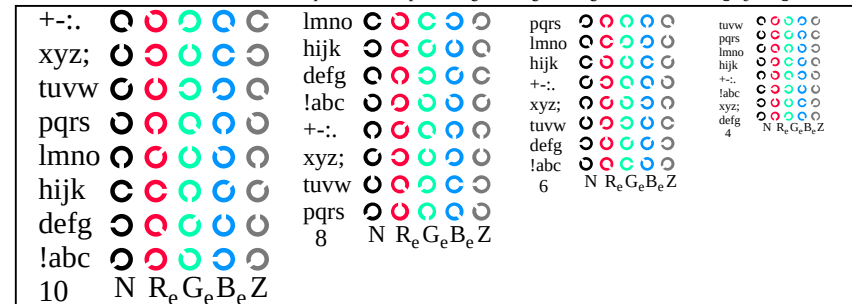
OE680-7, Picture D3W-130-1: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

OE680-7E-130-1DPage 1/3

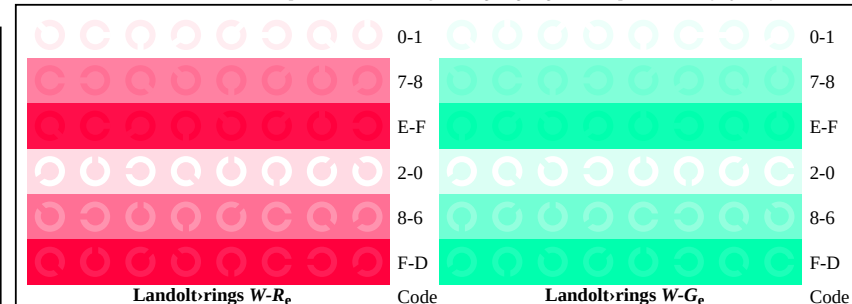
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=1.08$



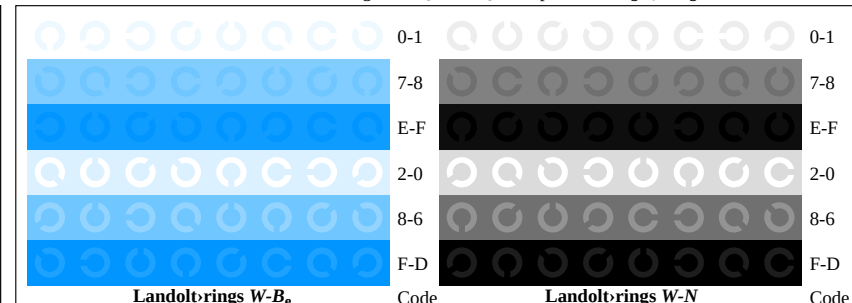
OE681-1, Picture D4W-L-130-1: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-3, Picture D5W-130-1: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-130-1: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-130-1: Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

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-138-1

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-138-1

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/OE68F1N2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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/OE68F1N2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.PS> **or underline Yes/No**
picture A7-131-2 **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:

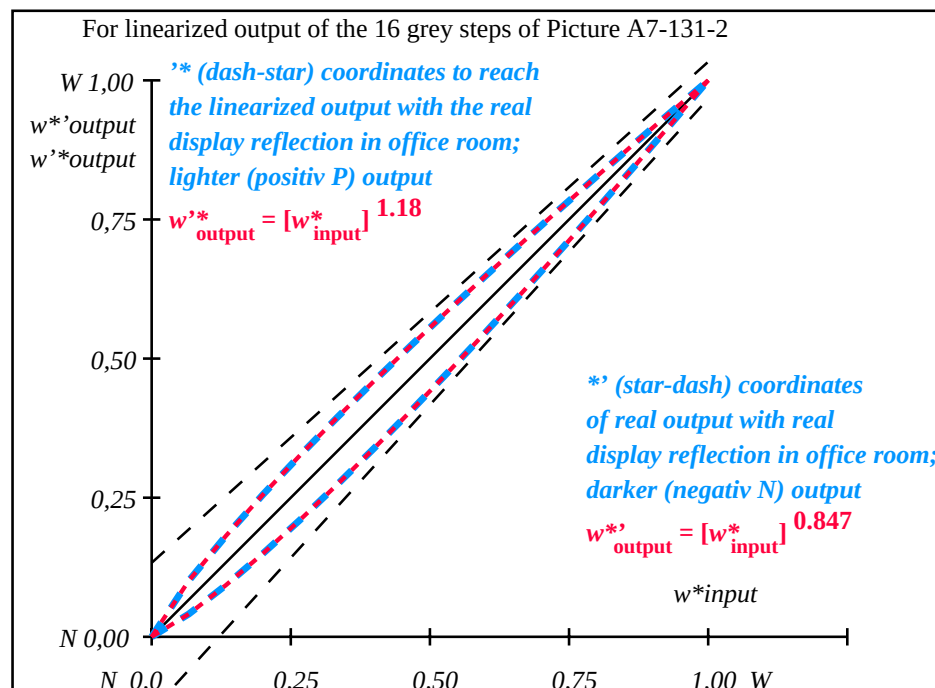
Colorimetric specification with PS file for colours in the columns A to T
 Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer
 of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF **underline Yes/No**
 If No, please describe other method:

Part 4 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	0.04 0.0 0.0	9.36 0.0 0.0	-2.3 0.0 0.0	2.31
3	17.65 0.0 0.0	0.09 0.0 0.0	14.01 0.0 0.0	-3.63 0.0 0.0	3.64
4	23.63 0.0 0.0	0.15 0.0 0.0	19.12 0.0 0.0	-4.5 0.0 0.0	4.51
5	29.62 0.0 0.0	0.21 0.0 0.0	24.55 0.0 0.0	-5.06 0.0 0.0	5.07
6	35.6 0.0 0.0	0.27 0.0 0.0	30.23 0.0 0.0	-5.36 0.0 0.0	5.37
7	41.58 0.0 0.0	0.34 0.0 0.0	36.12 0.0 0.0	-5.45 0.0 0.0	5.46
8	47.56 0.0 0.0	0.41 0.0 0.0	42.19 0.0 0.0	-5.36 0.0 0.0	5.37
9	53.54 0.0 0.0	0.48 0.0 0.0	48.42 0.0 0.0	-5.11 0.0 0.0	5.12
10	59.52 0.0 0.0	0.55 0.0 0.0	54.79 0.0 0.0	-4.72 0.0 0.0	4.73
11	65.5 0.0 0.0	0.62 0.0 0.0	61.29 0.0 0.0	-4.2 0.0 0.0	4.21
12	71.48 0.0 0.0	0.69 0.0 0.0	67.91 0.0 0.0	-3.56 0.0 0.0	3.57
13	77.47 0.0 0.0	0.77 0.0 0.0	74.64 0.0 0.0	-2.82 0.0 0.0	2.83
14	83.45 0.0 0.0	0.84 0.0 0.0	81.47 0.0 0.0	-1.97 0.0 0.0	1.98
15	89.43 0.0 0.0	0.92 0.0 0.0	88.4 0.0 0.0	-1.02 0.0 0.0	1.03
16	95.41 0.0 0.0	1.0 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01
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	0.19 0.0 0.0	23.17 0.0 0.0	-4.94 0.0 0.0	4.95
19	50.55 0.0 0.0	0.44 0.0 0.0	45.29 0.0 0.0	-5.25 0.0 0.0	5.26
20	72.98 0.0 0.0	0.71 0.0 0.0	69.58 0.0 0.0	-3.39 0.0 0.0	3.4
21	95.41 0.0 0.0	1.0 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01
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 $g_N=1.18$ 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	0.041	0.093	0.15	0.211	0.273	0.339	0.407	0.476	0.547	0.62	0.693	0.769	0.845	0.921	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

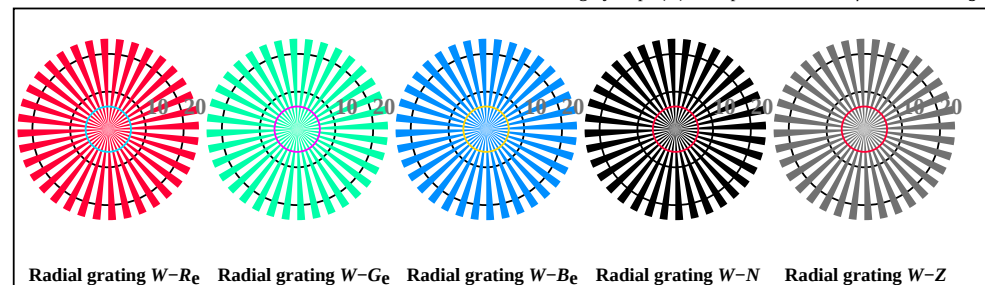
input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 130-2: $g_P=1.0$; $g_N=1.08$

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)



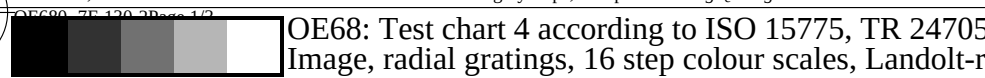
OE680-7, Picture B1-130-2: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



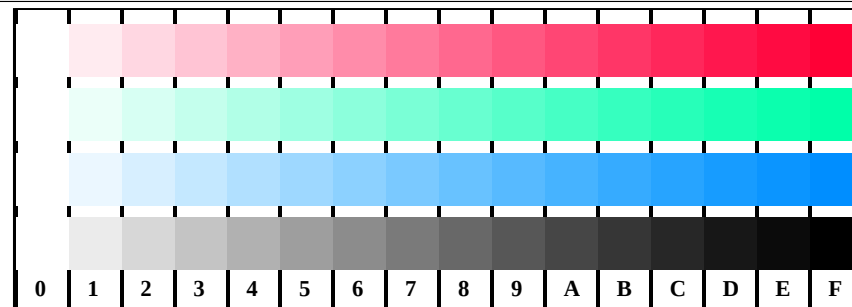
OE680-5, Picture D2W-130-2: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



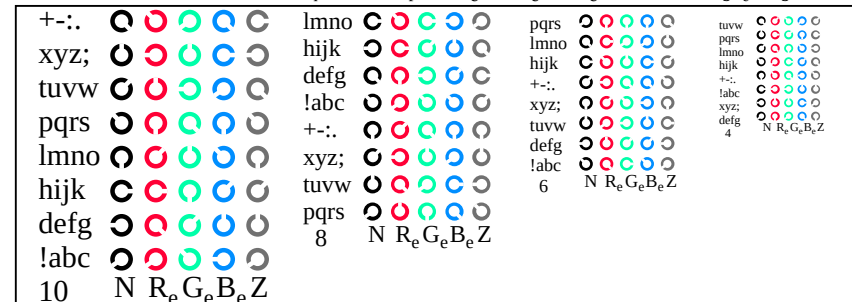
OE680-7, Picture D3W-130-2: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



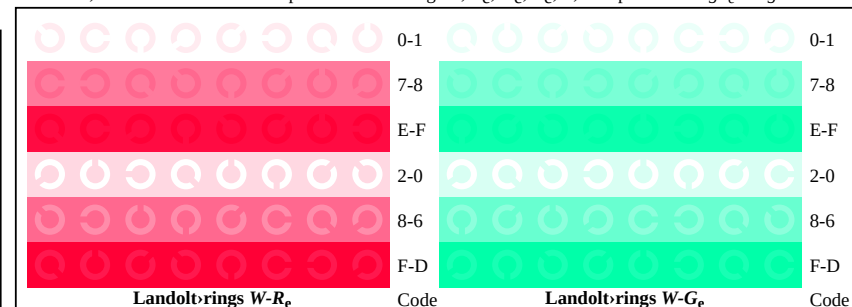
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=1.17$



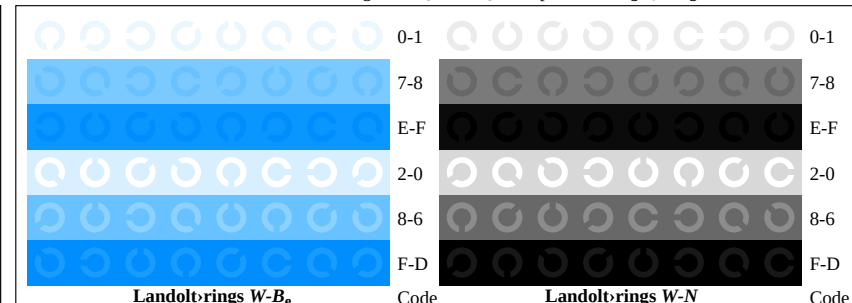
OE681-1, Picture D4W-L-130-2: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



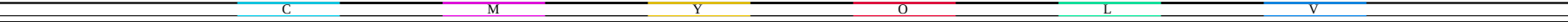
OE681-3, Picture D5W-130-2: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-130-2: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-130-2: Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



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-1316-1

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-1316-1

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/OE68F1N2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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/OE68F1N2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.PS> **or underline Yes/No**
picture A7-132-2 **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 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	0.03 13.12 0.0	0.0 0.0 -3.49	0.0 0.0 0.0	3.5
3	22.25 0.0 0.0	0.06 16.44 0.0	0.0 0.0 -5.8	0.0 0.0 0.0	5.81
4	27.88 0.0 0.0	0.11 20.45 0.0	0.0 0.0 -7.41	0.0 0.0 0.0	7.42
5	33.5 0.0 0.0	0.17 24.98 0.0	0.0 0.0 -8.51	0.0 0.0 0.0	8.52
6	39.13 0.0 0.0	0.22 29.94 0.0	0.0 0.0 -9.18	0.0 0.0 0.0	9.19
7	44.76 0.0 0.0	0.29 35.27 0.0	0.0 0.0 -9.48	0.0 0.0 0.0	9.49
8	50.39 0.0 0.0	0.35 40.93 0.0	0.0 0.0 -9.44	0.0 0.0 0.0	9.45
9	56.02 0.0 0.0	0.43 46.9 0.0	0.0 0.0 -9.11	0.0 0.0 0.0	9.12
10	61.64 0.0 0.0	0.5 53.13 0.0	0.0 0.0 -8.5	0.0 0.0 0.0	8.51
11	67.27 0.0 0.0	0.58 59.63 0.0	0.0 0.0 -7.63	0.0 0.0 0.0	7.64
12	72.9 0.0 0.0	0.66 66.36 0.0	0.0 0.0 -6.53	0.0 0.0 0.0	6.54
13	78.53 0.0 0.0	0.74 73.31 0.0	0.0 0.0 -5.2	0.0 0.0 0.0	5.21
14	84.15 0.0 0.0	0.82 80.48 0.0	0.0 0.0 -3.66	0.0 0.0 0.0	3.67
15	89.78 0.0 0.0	0.91 87.85 0.0	0.0 0.0 -1.92	0.0 0.0 0.0	1.93
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	0.15 23.81 0.0	0.0 0.0 -8.28	0.0 0.0 0.0	8.29
19	53.2 0.0 0.0	0.39 43.88 0.0	0.0 0.0 -9.31	0.0 0.0 0.0	9.32
20	74.31 0.0 0.0	0.68 68.08 0.0	0.0 0.0 -6.22	0.0 0.0 0.0	6.23
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

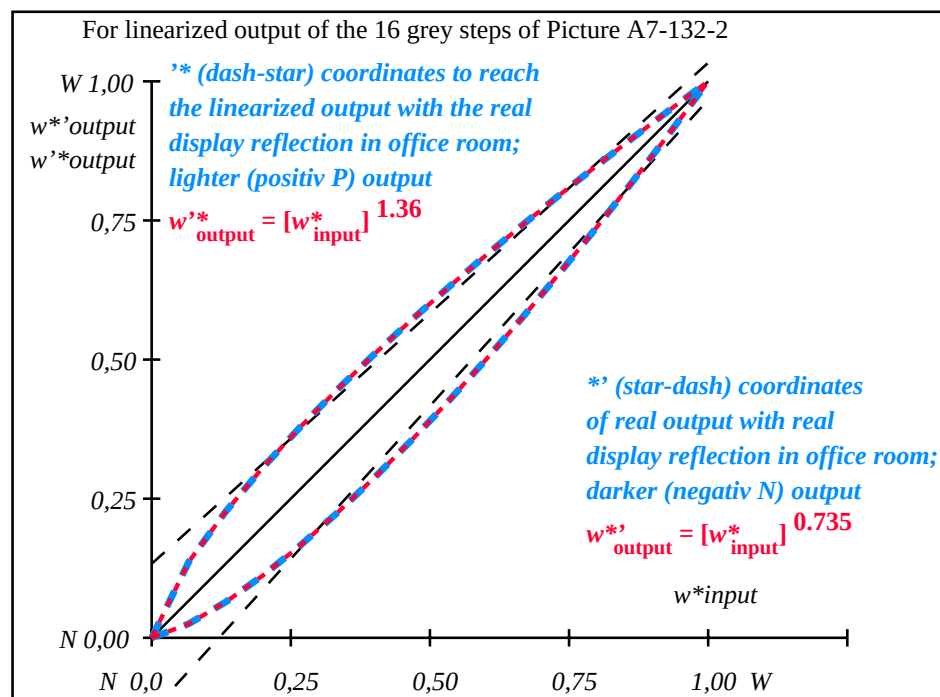
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

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

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 4.8$

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																
$g_N=1.36$ 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	0.025	0.064	0.112	0.166	0.224	0.288	0.355	0.425	0.499	0.577	0.655	0.738	0.824	0.91	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

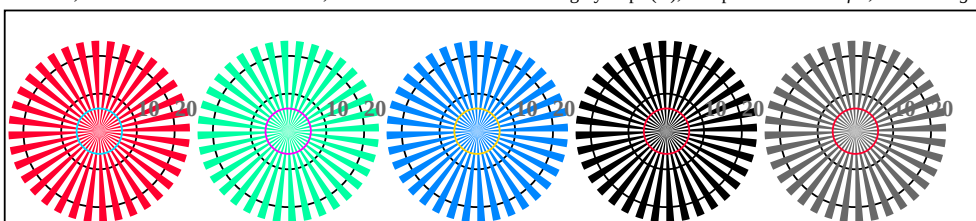
input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 130-2: $g_P=1.0$; $g_N=1.17$

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)

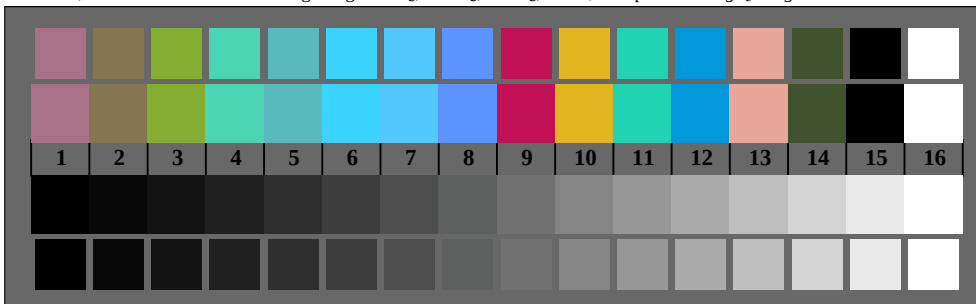


OE680-7, Picture B1-130-3: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



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

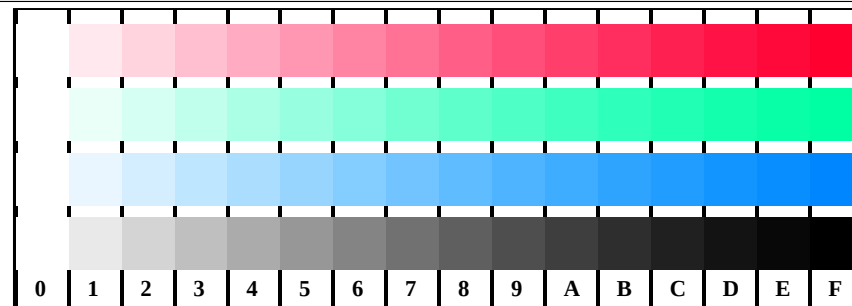
OE680-5, Picture D2W-130-3: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



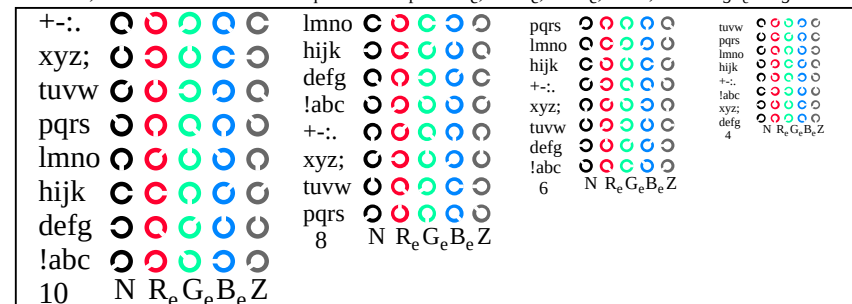
OE680-7, Picture D3W-130-3: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

OE680-7E-130-2Page 1/3

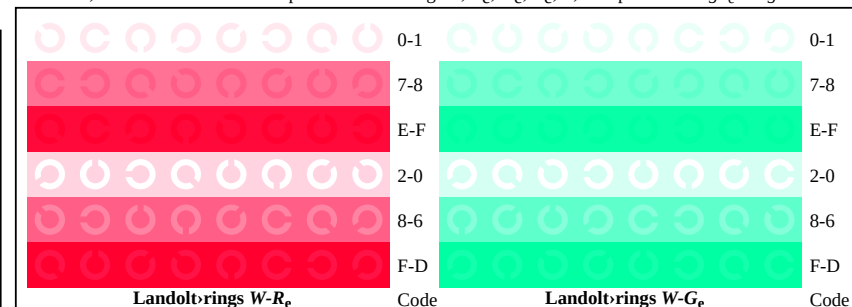
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}^*_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=1.29$



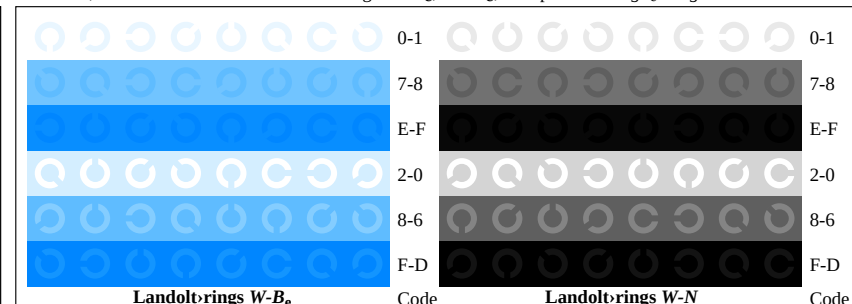
OE681-1, Picture D4W-L-130-3: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



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



OE681-5, Picture D6W-L-130-3: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-130-3: Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

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-1324-1

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

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: $g_P=1.0$; $g_N=1.29$

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

Colour row	Are all the 16 steps distinguishable?	Yes/No
$W-R_d$ White - Orangered:	If No: How many steps can be distinguished? of the given 16 steps	 Steps
$W-G_d$ White - Leafgreen:	If No: How many steps can be distinguished? of the given 16 steps	 Steps
$W-B_d$ White - Violetblue:	If No: How many steps can be distinguished? of the given 16 steps	 Steps
$W-N$ White - Black:	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-1324-1

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/OE68F1N2.PDF> **underline** Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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/OE68F1N2.PDF>

picture A7-133-2 **underline** Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.PS>

picture A7-133-2 **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

OE681-7N-133-1

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	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	0.02 19.2 0.0	0.0 -3.95 0.0	0.0 0.0 0.0	3.96
3	28.33 0.0 0.0	0.04 21.49 0.0	0.0 -6.83 0.0	0.0 0.0 0.0	6.84
4	33.49 0.0 0.0	0.08 24.5 0.0	0.0 -8.98 0.0	0.0 0.0 0.0	8.99
5	38.65 0.0 0.0	0.13 28.12 0.0	0.0 -10.52 0.0	0.0 0.0 0.0	10.53
6	43.81 0.0 0.0	0.18 32.26 0.0	0.0 -11.53 0.0	0.0 0.0 0.0	11.54
7	48.97 0.0 0.0	0.24 36.89 0.0	0.0 -12.07 0.0	0.0 0.0 0.0	12.08
8	54.13 0.0 0.0	0.31 41.94 0.0	0.0 -12.18 0.0	0.0 0.0 0.0	12.19
9	59.29 0.0 0.0	0.38 47.41 0.0	0.0 -11.87 0.0	0.0 0.0 0.0	11.88
10	64.45 0.0 0.0	0.46 53.25 0.0	0.0 -11.19 0.0	0.0 0.0 0.0	11.2
11	69.61 0.0 0.0	0.54 59.46 0.0	0.0 -10.14 0.0	0.0 0.0 0.0	10.15
12	74.77 0.0 0.0	0.62 66.02 0.0	0.0 -8.74 0.0	0.0 0.0 0.0	8.75
13	79.93 0.0 0.0	0.71 72.9 0.0	0.0 -7.02 0.0	0.0 0.0 0.0	7.03
14	85.09 0.0 0.0	0.8 80.1 0.0	0.0 -4.98 0.0	0.0 0.0 0.0	4.99
15	90.25 0.0 0.0	0.9 87.61 0.0	0.0 -2.63 0.0	0.0 0.0 0.0	2.64
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	0.12 27.16 0.0	0.0 -10.19 0.0	0.0 0.0 0.0	10.2
19	56.71 0.0 0.0	0.34 44.63 0.0	0.0 -12.07 0.0	0.0 0.0 0.0	12.08
20	76.06 0.0 0.0	0.64 67.71 0.0	0.0 -8.34 0.0	0.0 0.0 0.0	8.35
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

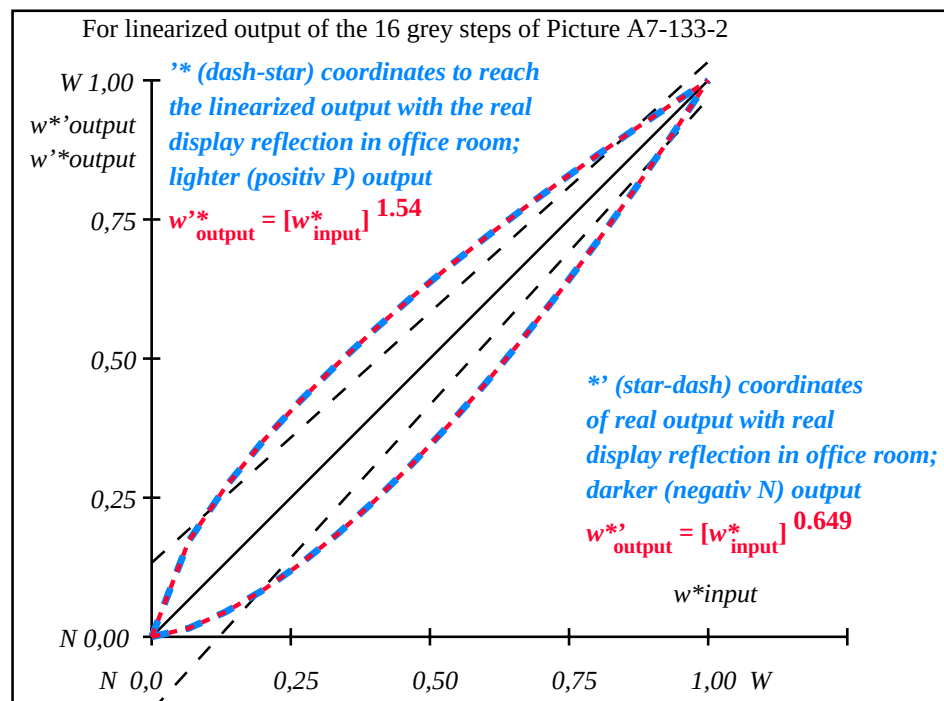
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 7.7$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 6.1$

Mean colour reproduction index: $R^*_{ab,m} = 66$

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 $g_N=1.54$ 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	0.016	0.045	0.084	0.131	0.184	0.244	0.31	0.379	0.455	0.536	0.62	0.709	0.803	0.899	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

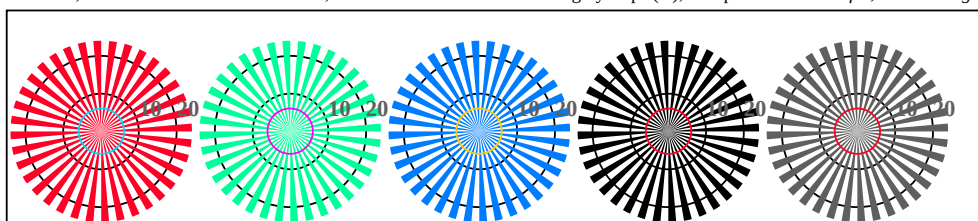
input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 130-2: $g_P=1.0$; $g_N=1.29$

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)

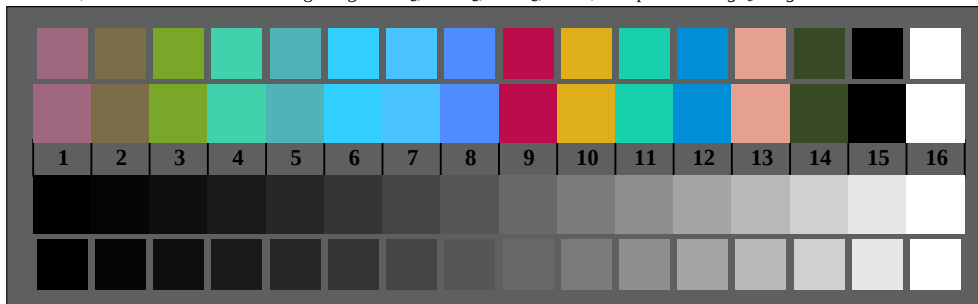


OE680-7, Picture B1-130-4; Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



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

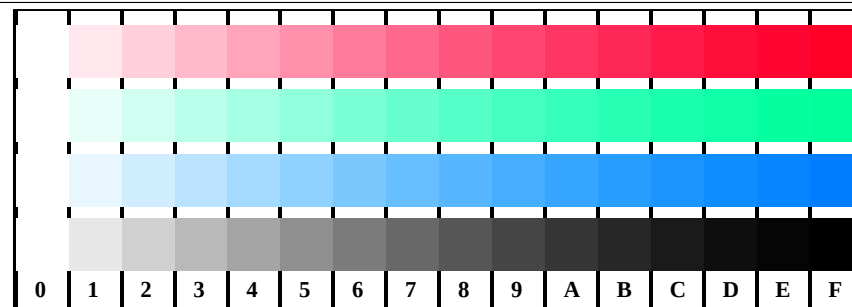
OE680-5, Picture D2W-130-4; Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



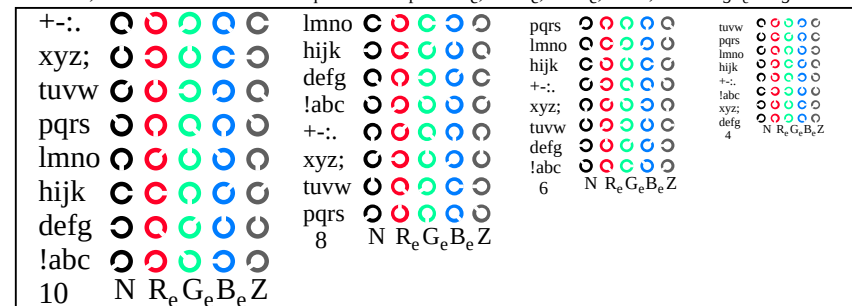
OE680-7, Picture D3W-130-4; 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

OE680-7E-130-4BPage 1/3

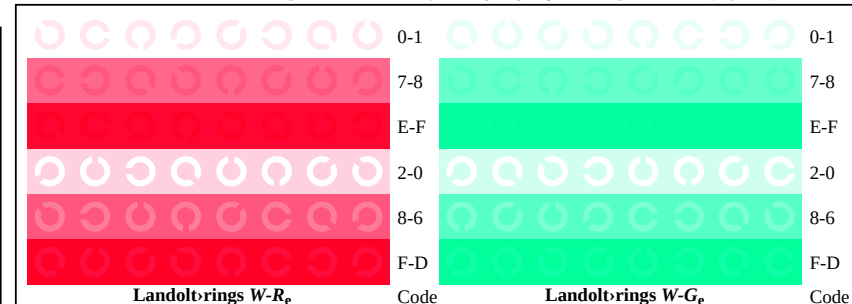
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}^*_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=1.42$



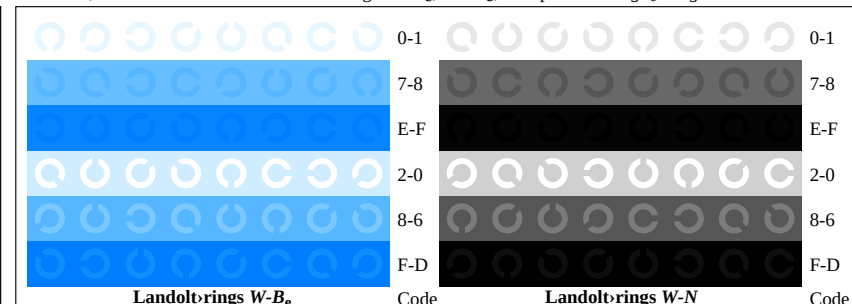
OE681-1, Picture D4W-L-130-4; 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-3, Picture D5W-130-4; Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-130-4; Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-130-4; Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

OE680-7E-130-4BPage 1/3

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-1332-1

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

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*=1.42

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

Colour row	Are all the 16 steps distinguishable?	Yes/No
W-R _d White - Orangered:	If No: How many steps can be distinguished? of the given 16 steps	 Steps
W-G _d White - Leafgreen:	If No: How many steps can be distinguished? of the given 16 steps	 Steps
W-B _d White - Violetblue:	If No: How many steps can be distinguished? of the given 16 steps	 Steps
W-N White - Black:	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-1332-1

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/OE68F1N2.PDF> **underline Yes/No**

PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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/OE68F1N2.PDF>

picture A7-134-2 **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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: **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

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	0.01 27.5 0.0	0.0 -3.91 0.0	0.0 0.0 0.0	3.92
3	35.99 0.0 0.0	0.03 28.99 0.0	0.0 -6.99 0.0	0.0 0.0 0.0	7.0
4	40.56 0.0 0.0	0.06 31.15 0.0	0.0 -9.4 0.0	0.0 0.0 0.0	9.41
5	45.13 0.0 0.0	0.1 33.91 0.0	0.0 -11.21 0.0	0.0 0.0 0.0	11.22
6	49.7 0.0 0.0	0.15 37.21 0.0	0.0 -12.48 0.0	0.0 0.0 0.0	12.49
7	54.27 0.0 0.0	0.21 41.03 0.0	0.0 -13.24 0.0	0.0 0.0 0.0	13.25
8	58.84 0.0 0.0	0.27 45.33 0.0	0.0 -13.5 0.0	0.0 0.0 0.0	13.51
9	63.41 0.0 0.0	0.34 50.1 0.0	0.0 -13.3 0.0	0.0 0.0 0.0	13.31
10	67.99 0.0 0.0	0.42 55.33 0.0	0.0 -12.65 0.0	0.0 0.0 0.0	12.66
11	72.56 0.0 0.0	0.5 60.98 0.0	0.0 -11.56 0.0	0.0 0.0 0.0	11.57
12	77.13 0.0 0.0	0.59 67.06 0.0	0.0 -10.05 0.0	0.0 0.0 0.0	10.06
13	81.7 0.0 0.0	0.68 73.56 0.0	0.0 -8.13 0.0	0.0 0.0 0.0	8.14
14	86.27 0.0 0.0	0.78 80.45 0.0	0.0 -5.81 0.0	0.0 0.0 0.0	5.82
15	90.84 0.0 0.0	0.89 87.74 0.0	0.0 -3.09 0.0	0.0 0.0 0.0	3.1
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	0.09 33.17 0.0	0.0 -10.81 0.0	0.0 0.0 0.0	10.82
19	61.13 0.0 0.0	0.3 47.66 0.0	0.0 -13.46 0.0	0.0 0.0 0.0	13.47
20	78.27 0.0 0.0	0.61 68.65 0.0	0.0 -9.61 0.0	0.0 0.0 0.0	9.62
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

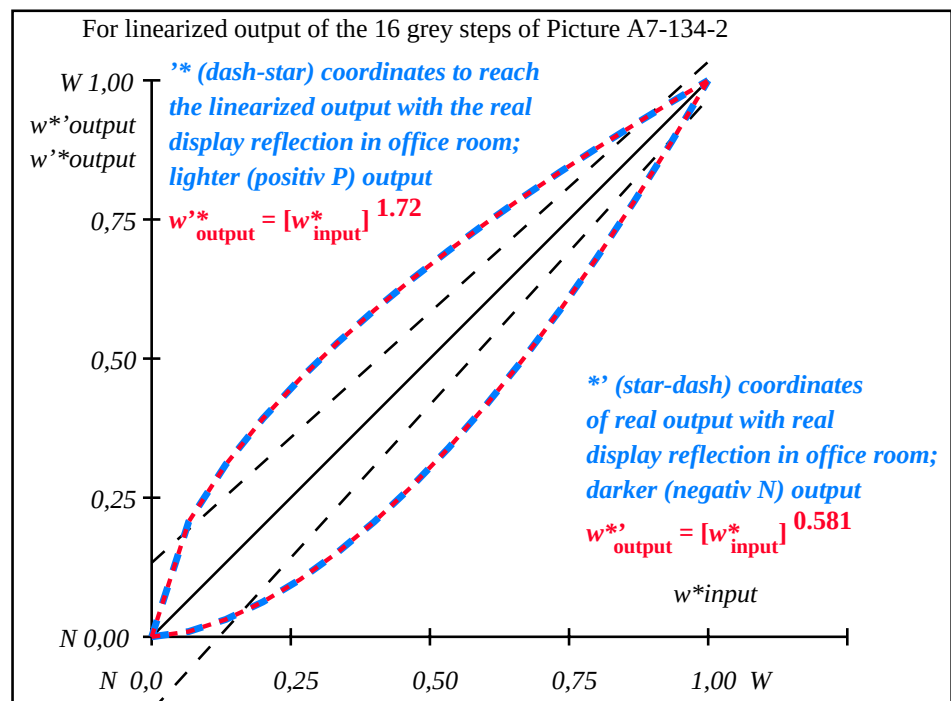
Start output S1
Specification according to
ISO/IEC 15775 Annex G
and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 8.5$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 6.8$

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

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 $g_N=1.72$ 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	0.01	0.031	0.063	0.103	0.151	0.207	0.27	0.339	0.415	0.498	0.586	0.681	0.782	0.888	1.0

OE680-7N, Picture A7-134-2: 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 $Y_W:Y_N=88,9:5$; Y_N range 3,75 to <7,5

input: $rgb (->rgb^*_{de})$ setrgbcolor
output 130-2: $g_P=1.0$; $g_N=1.42$

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

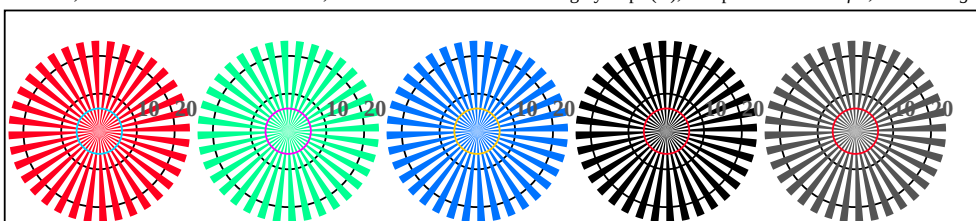
<http://130.149.60.45/~farbmetrik/OE68/OE68L0NA.TXT> /PS; linearized output, Page 1/3
F: Output Linearization (OL) data OE68/OE68L0NA.TXT /PS in File (F)



image pixel: 192 x 128
384 x 256
768 x 512
1536 x 1024
3072 x 2048

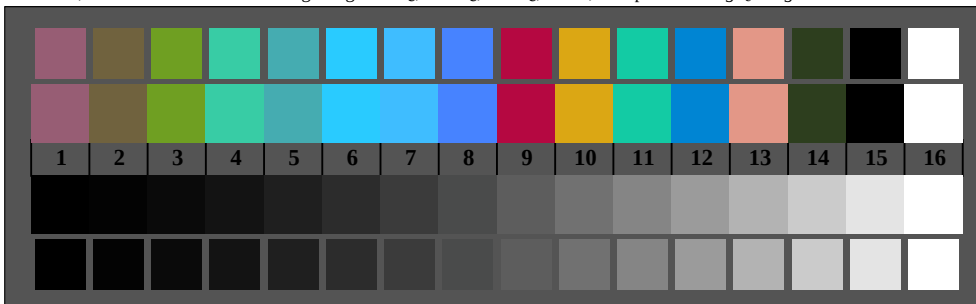


OE680-7, Picture B1-130-5: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



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

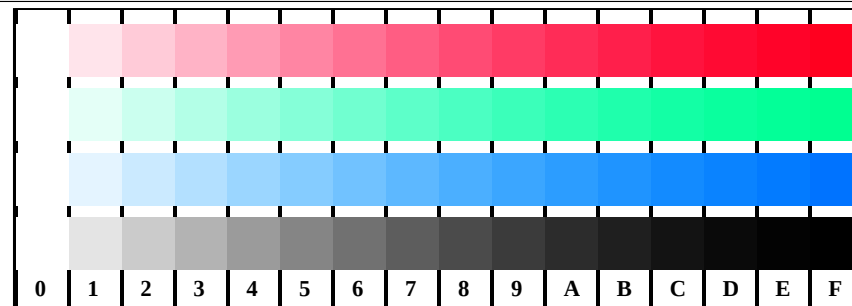
OE680-5, Picture D2W-130-5: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



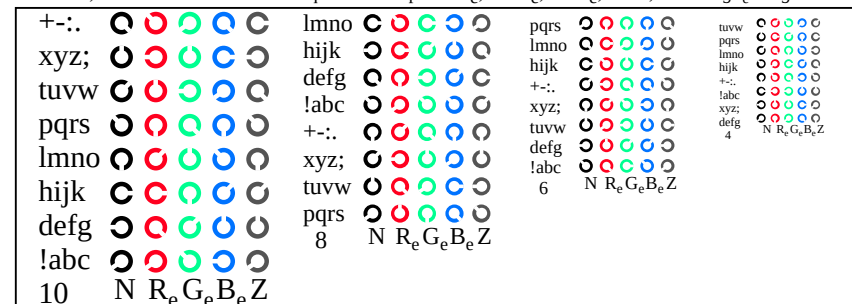
OE680-7, Picture D3W-130-5: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

OE680-7E-130-5 Page 1/3

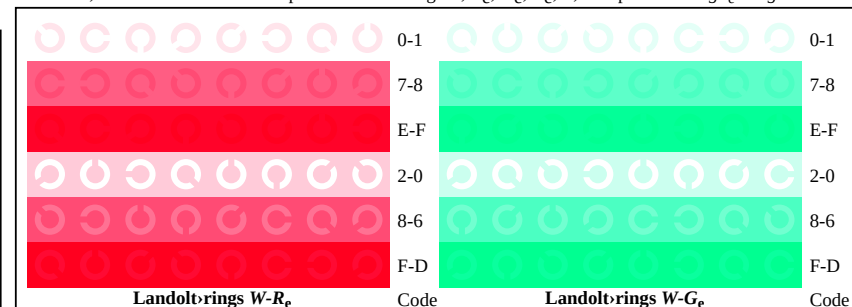
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=1.6$



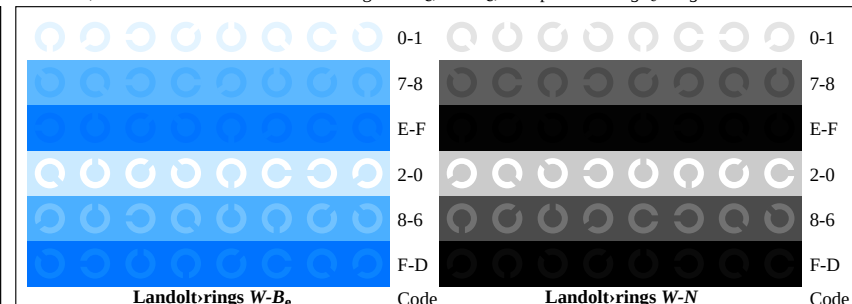
OE681-1, Picture D4W-L-130-5: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-3, Picture D5W-130-5: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



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



OE681-7, Picture D7W-L-130-5: Landolt-rings W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

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-1340-1

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

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$
$W-R_d$ 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-1340-1

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 **underline Yes/No**
 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/OE68F1N2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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/OE68F1N2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.PS> **or underline Yes/No**
picture A7-135-2 **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 OE681-7N-135-1

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	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	0.01 38.32 0.0	0.0 -3.48 0.0	0.0 0.0 0.0	3.49
3	45.64 0.0 0.0	0.02 39.23 0.0	0.0 -6.4 0.0	0.0 0.0 0.0	6.41
4	49.47 0.0 0.0	0.05 40.68 0.0	0.0 -8.78 0.0	0.0 0.0 0.0	8.79
5	53.3 0.0 0.0	0.08 42.65 0.0	0.0 -10.64 0.0	0.0 0.0 0.0	10.65
6	57.13 0.0 0.0	0.12 45.11 0.0	0.0 -12.01 0.0	0.0 0.0 0.0	12.02
7	60.96 0.0 0.0	0.18 48.06 0.0	0.0 -12.89 0.0	0.0 0.0 0.0	12.9
8	64.78 0.0 0.0	0.24 51.48 0.0	0.0 -13.29 0.0	0.0 0.0 0.0	13.3
9	68.61 0.0 0.0	0.3 55.38 0.0	0.0 -13.22 0.0	0.0 0.0 0.0	13.23
10	72.44 0.0 0.0	0.38 59.74 0.0	0.0 -12.69 0.0	0.0 0.0 0.0	12.7
11	76.27 0.0 0.0	0.46 64.56 0.0	0.0 -11.69 0.0	0.0 0.0 0.0	11.7
12	80.1 0.0 0.0	0.55 69.84 0.0	0.0 -10.25 0.0	0.0 0.0 0.0	10.26
13	83.93 0.0 0.0	0.65 75.57 0.0	0.0 -8.35 0.0	0.0 0.0 0.0	8.36
14	87.75 0.0 0.0	0.76 81.74 0.0	0.0 -6.0 0.0	0.0 0.0 0.0	6.01
15	91.58 0.0 0.0	0.88 88.35 0.0	0.0 -3.22 0.0	0.0 0.0 0.0	3.23
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	0.07 42.11 0.0	0.0 -10.22 0.0	0.0 0.0 0.0	10.23
19	66.7 0.0 0.0	0.27 53.37 0.0	0.0 -13.32 0.0	0.0 0.0 0.0	13.33
20	81.05 0.0 0.0	0.58 71.23 0.0	0.0 -9.81 0.0	0.0 0.0 0.0	9.82
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

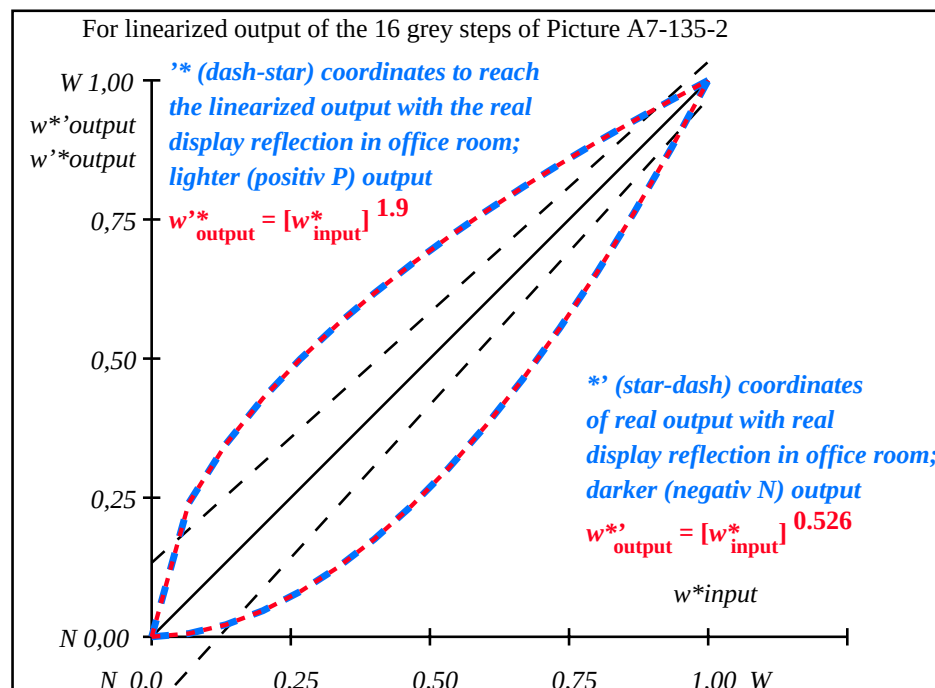
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 8.3$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 6.7$

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

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 $g_N=1.9$ 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	0.006	0.022	0.047	0.081	0.124	0.175	0.235	0.303	0.379	0.463	0.554	0.654	0.762	0.877	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

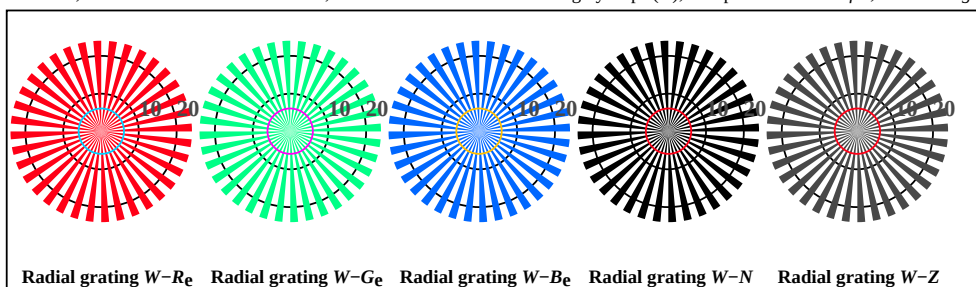
input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 130-2: $g_P=1.0$; $g_N=1.6$

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

<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 B1-130-6: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

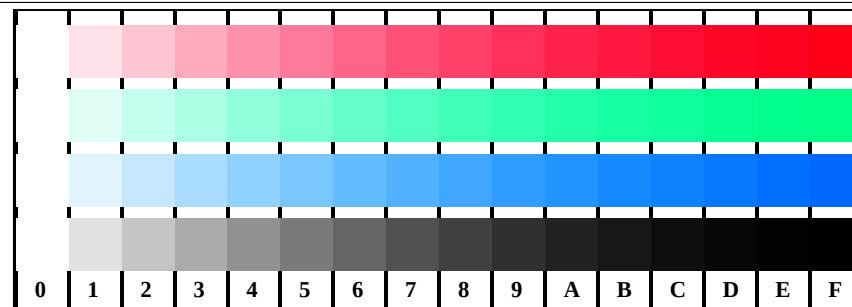


OE680-5, Picture D2W-130-6: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

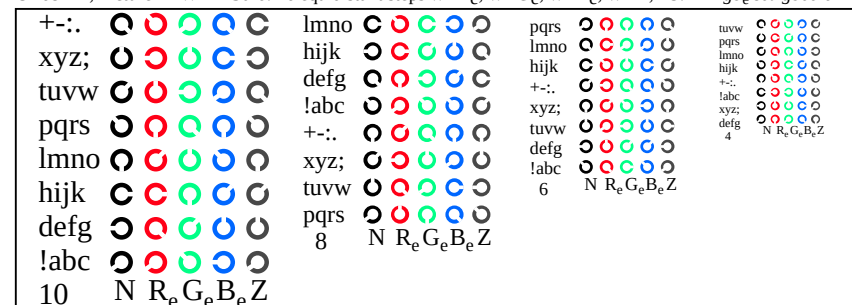


OE680-7, Picture D3W-130-6: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

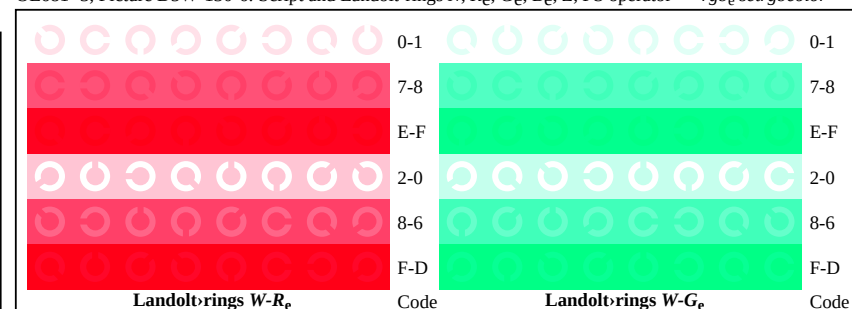
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=1.81$



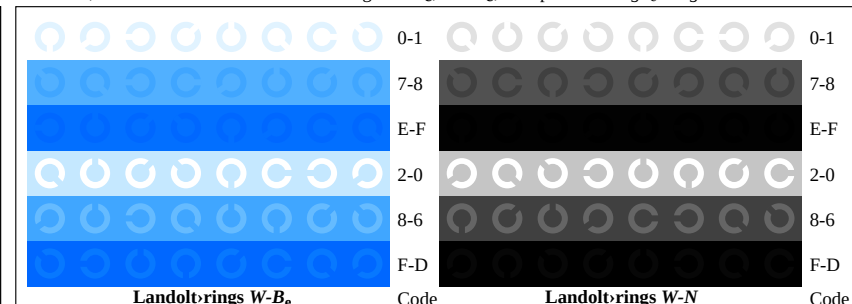
OE681-1, Picture D4W-L-130-6: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-3, Picture D5W-130-6: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-5, Picture D6W-L-130-6: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



OE681-7, Picture D7W-L-130-6: 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-1348-1

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

OE68: Form A for test chart 4 according to ISO 15775; 1MR, DEH input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
Image, radial gratings, 16 step colour scales, Landolt-rings output 130-1: $g_P=1.0$; $g_N=1.81$

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

Colour row	Test	Are all the 16 steps distinguishable?	Yes/No
$W-R_d$ White - Orangered:	If No: How many steps can be distinguished? of the given 16 steps	 Steps	Yes/No
$W-G_d$ White - Leafgreen:	If No: How many steps can be distinguished? of the given 16 steps	 Steps	Yes/No
$W-B_d$ White - Violetblue:	If No: How many steps can be distinguished? of the given 16 steps	 Steps	Yes/No
$W-N$ White - Black:	If No: How many steps can be distinguished? of the given 16 steps	 Steps	Yes/No

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-1348-1

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/OE68F1N2.PDF> **underline Yes/No**

PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.PS> **underline Yes/No**

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/OE68/OE68F1N2.PDF>

picture A7-136-2 **underline Yes/No**

PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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: **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	0.0 52.17 0.0	0.0 -2.73 0.0	0.0 0.0 0.0	2.74
3	57.8 0.0 0.0	0.02 52.67 0.0	0.0 -5.12 0.0	0.0 0.0 0.0	5.13
4	60.7 0.0 0.0	0.04 53.54 0.0	0.0 -7.14 0.0	0.0 0.0 0.0	7.15
5	63.59 0.0 0.0	0.06 54.79 0.0	0.0 -8.79 0.0	0.0 0.0 0.0	8.8
6	66.48 0.0 0.0	0.1 56.43 0.0	0.0 -10.04 0.0	0.0 0.0 0.0	10.05
7	69.37 0.0 0.0	0.15 58.47 0.0	0.0 -10.89 0.0	0.0 0.0 0.0	10.9
8	72.27 0.0 0.0	0.2 60.91 0.0	0.0 -11.35 0.0	0.0 0.0 0.0	11.36
9	75.16 0.0 0.0	0.27 63.75 0.0	0.0 -11.4 0.0	0.0 0.0 0.0	11.41
10	78.05 0.0 0.0	0.35 67.01 0.0	0.0 -11.03 0.0	0.0 0.0 0.0	11.04
11	80.95 0.0 0.0	0.43 70.69 0.0	0.0 -10.25 0.0	0.0 0.0 0.0	10.26
12	83.84 0.0 0.0	0.52 74.78 0.0	0.0 -9.05 0.0	0.0 0.0 0.0	9.06
13	86.73 0.0 0.0	0.63 79.3 0.0	0.0 -7.42 0.0	0.0 0.0 0.0	7.43
14	89.62 0.0 0.0	0.74 84.24 0.0	0.0 -5.38 0.0	0.0 0.0 0.0	5.39
15	92.52 0.0 0.0	0.87 89.61 0.0	0.0 -2.9 0.0	0.0 0.0 0.0	2.91
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	0.06 54.44 0.0	0.0 -8.41 0.0	0.0 0.0 0.0	8.42
19	73.71 0.0 0.0	0.24 62.28 0.0	0.0 -11.42 0.0	0.0 0.0 0.0	11.43
20	84.56 0.0 0.0	0.55 75.87 0.0	0.0 -8.68 0.0	0.0 0.0 0.0	8.69
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

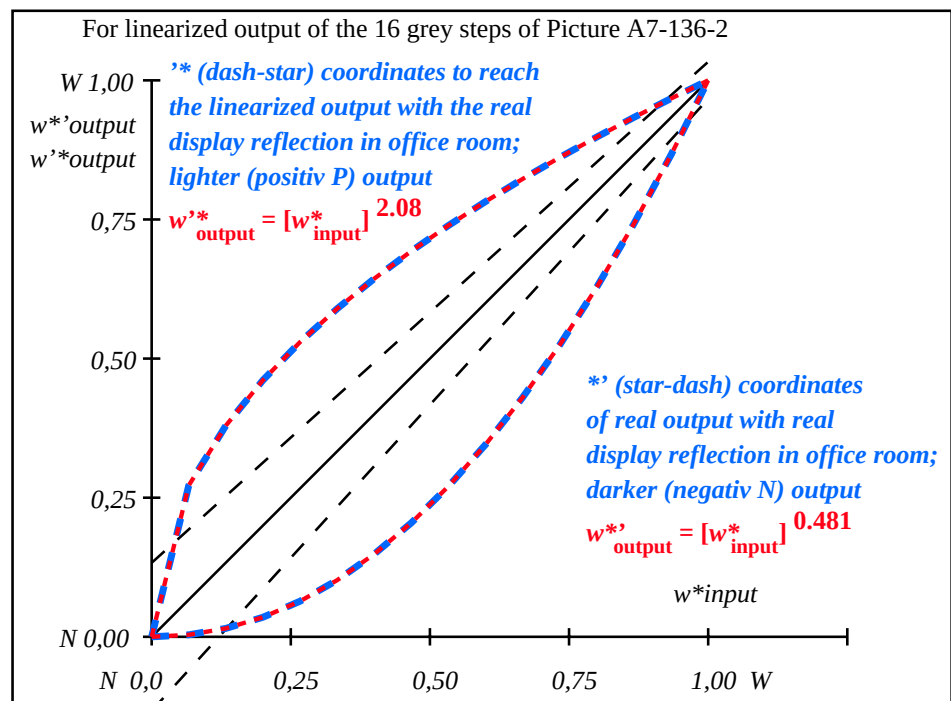
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 7.1$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 5.7$

Mean colour reproduction index: $R^*_{ab,m} = 69$

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																
$g_N=2.08$ 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	0.004	0.015	0.035	0.064	0.102	0.149	0.205	0.27	0.346	0.431	0.524	0.629	0.743	0.866	1.0

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

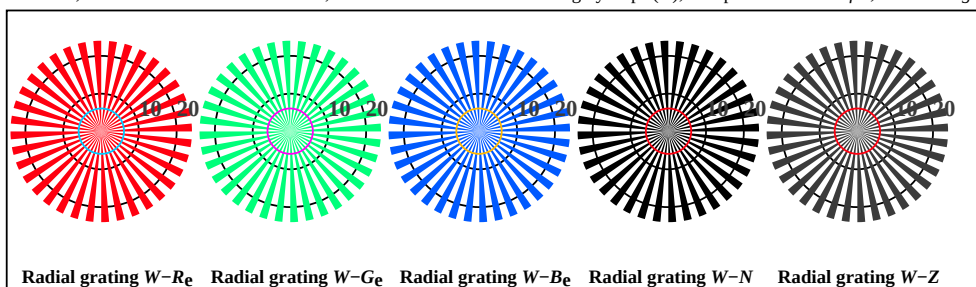
OE68: In-output relation according to ISO 9241-306; 1MR, DEH
Viewing Y contrast $Y_W:Y_N=88,9:20$; Y_N range 15 to <30

input: $rgb \rightarrow rgb^*_{de}$ setrgbcolor
output 130-2: $g_P=1.0$; $g_N=1.81$

<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 B1-130-7: 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

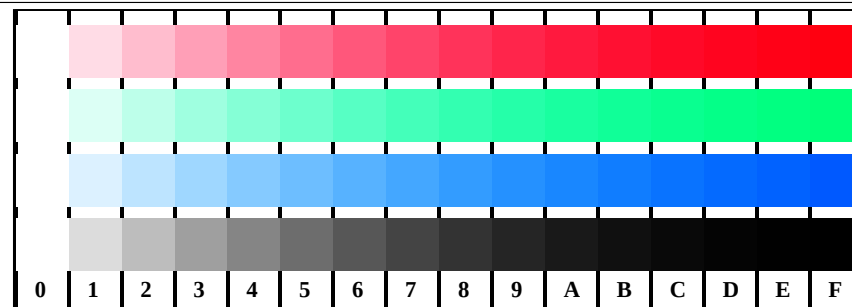
OE680-5, Picture D2W-130-7: Radial gratings W-Re; W-Ge; W-Be; W-N; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



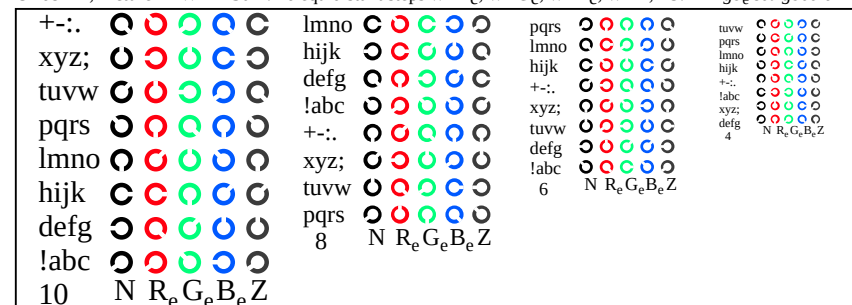
OE680-7, Picture D3W-130-7: 14 CIE-test colours and 2 + 16 grey steps; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

OE680-7E-130-7D Page 1/3

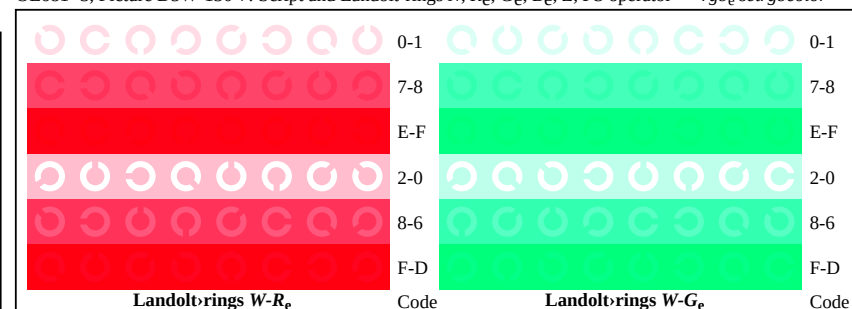
OE68: Test chart 4 according to ISO 15775, TR 24705; 1MR, DEH input: *rgb* ($\rightarrow \text{rgb}^*_{de}$) *setrgbcolor*
Image, radial gratings, 16 step colour scales, Landolt-rings
output 130-0: $g_P=1.0$; $g_N=2.1$



OE681-1, Picture D4W-L-130-7: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; PS: $\rightarrow \text{rgb}_e \text{ setrgbcolor}$

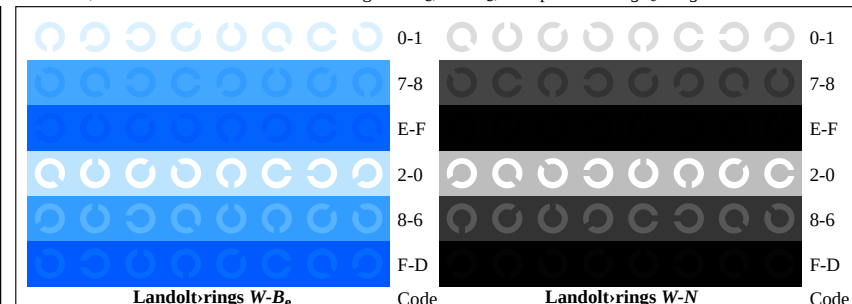


OE681-3, Picture D5W-130-7: Script and Landolt-rings N; Re; Ge; Be; Z; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



Landolt-rings W-Re Code Landolt-rings W-Ge Code

OE681-5, Picture D6W-L-130-7: Landolt-rings W-Re; W-Ge; PS operator $\rightarrow \text{rgb}_e \text{ setrgbcolor}$



Landolt-rings W-Be Code Landolt-rings W-N Code

OE681-7, Picture D7W-L-130-7: 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-1356-1

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-1356-1

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/OE68F1N2.PDF> **underline Yes/No**
PS file: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.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/OE68F1N2.PDF> **underline Yes/No**
PS-File: <http://130.149.60.45/farbmetrik/OE68/OE68F1N2.PS> **or underline Yes/No**
picture A7-137-2 **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 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	69.7 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	71.41 0.0 0.0	69.75 0.0 0.0	-1.65 0.0 0.0	0.0 0.0 0.0	1.66
3	73.13 0.0 0.0	69.97 0.0 0.0	-3.15 0.0 0.0	0.0 0.0 0.0	3.16
4	74.84 0.0 0.0	70.37 0.0 0.0	-4.46 0.0 0.0	0.0 0.0 0.0	4.47
5	76.55 0.0 0.0	70.99 0.0 0.0	-5.55 0.0 0.0	0.0 0.0 0.0	5.56
6	78.27 0.0 0.0	71.84 0.0 0.0	-6.41 0.0 0.0	0.0 0.0 0.0	6.42
7	79.98 0.0 0.0	72.94 0.0 0.0	-7.03 0.0 0.0	0.0 0.0 0.0	7.04
8	81.7 0.0 0.0	74.29 0.0 0.0	-7.4 0.0 0.0	0.0 0.0 0.0	7.41
9	83.41 0.0 0.0	75.91 0.0 0.0	-7.49 0.0 0.0	0.0 0.0 0.0	7.5
10	85.12 0.0 0.0	77.8 0.0 0.0	-7.31 0.0 0.0	0.0 0.0 0.0	7.32
11	86.84 0.0 0.0	79.98 0.0 0.0	-6.85 0.0 0.0	0.0 0.0 0.0	6.86
12	88.55 0.0 0.0	82.45 0.0 0.0	-6.09 0.0 0.0	0.0 0.0 0.0	6.1
13	90.27 0.0 0.0	85.23 0.0 0.0	-5.03 0.0 0.0	0.0 0.0 0.0	5.04
14	91.98 0.0 0.0	88.3 0.0 0.0	-3.67 0.0 0.0	0.0 0.0 0.0	3.68
15	93.7 0.0 0.0	91.7 0.0 0.0	-1.99 0.0 0.0	0.0 0.0 0.0	2.0
16	95.41 0.0 0.0	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	70.82 0.0 0.0	-5.3 0.0 0.0	0.0 0.0 0.0	5.31
19	82.55 0.0 0.0	75.07 0.0 0.0	-7.48 0.0 0.0	0.0 0.0 0.0	7.49
20	88.98 0.0 0.0	83.12 0.0 0.0	-5.85 0.0 0.0	0.0 0.0 0.0	5.86
21	95.41 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01

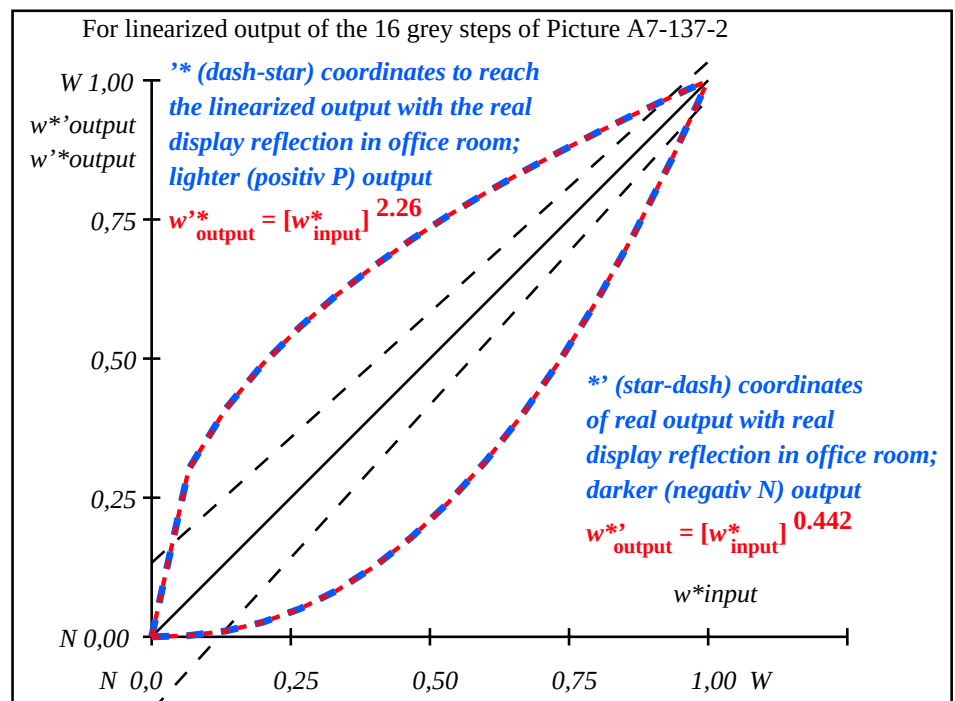
Start output S1
Specification according to
ISO/IEC 15775 Annex G
and DIN 33866-1 Annex G

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

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 3.7$

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																
$g_N=2.26$ 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	0.002	0.01	0.026	0.051	0.083	0.126	0.179	0.241	0.315	0.4	0.496	0.604	0.724	0.855	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 130-2: $g_P=1.0$; $g_N=2.1$

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