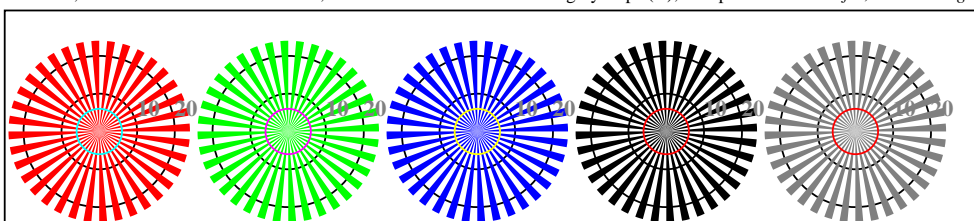




AE180-3, Picture D1W\*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

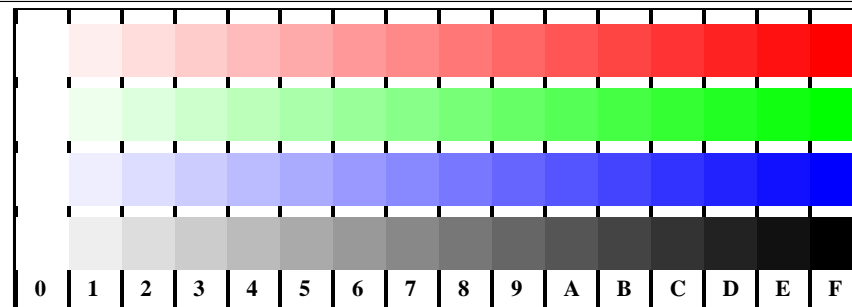
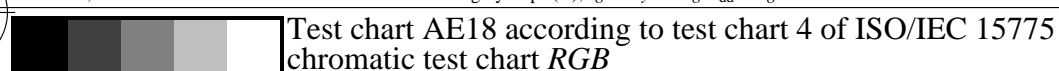


radial gratings  $W-R_d$  radial gratings  $W-G_d$  radial gratings  $W-B_d$  radial gratings  $W-N$  radial gratings  $W-Z$

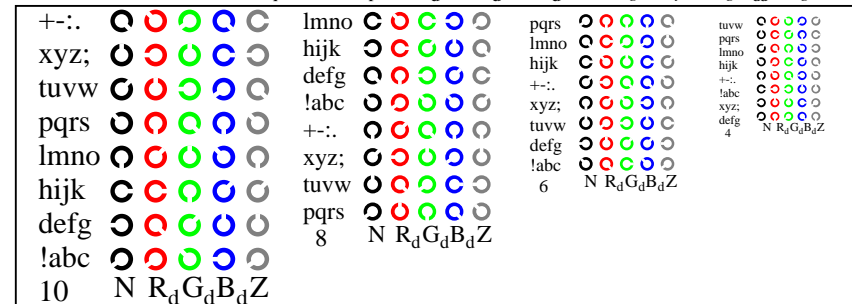
AE180-5, Picture D2W\*dd: radial gratings  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ; PS operator *rgb*->*rgb\*dd* *setrgbcolor*



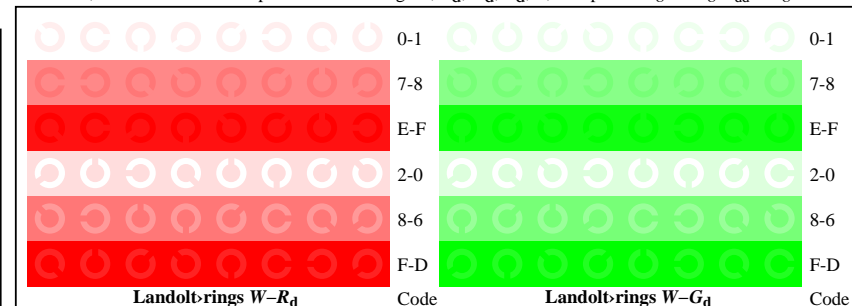
AE180-7, Picture D3W\*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0*->*rgb\*dd* *setrgbcolor*



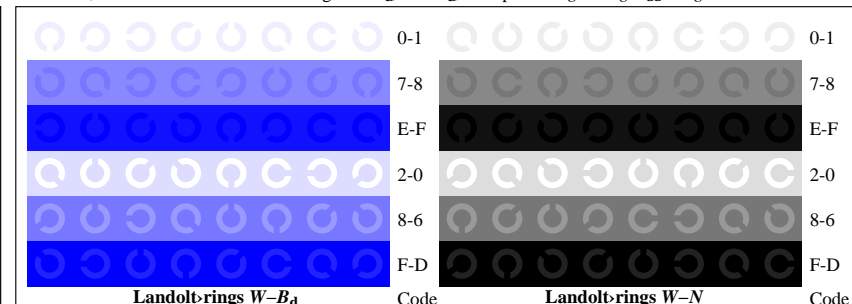
AE181-1, Picture D4W\*dd: 16 equidistant steps  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ; *rgb/cmy0*->*rgb\*dd* *setrgbcolor*



AE181-3, Picture D5W\*dd: Sript and Landolt-rings  $N$ ;  $R_d$ ;  $G_d$ ;  $B_d$ ;  $Z$ ; PS operator *rgb*->*rgb\*dd* *setrgbcolor*



AE181-5, Picture D6W\*dd: Landolt-rings  $W-R_d$ ;  $W-G_d$ ; PS operator *rgb*->*rgb\*dd* *setrgbcolor*



AE181-7, Picture D7W\*dd: Landolt-rings  $W-B_d$ ;  $W-N$ ; PS operator *rgb*->*rgb\*dd* *setrgbcolor*

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

Test for the visual linearized output of pictures D1Wdd to D3Wdd

Output test with the computer display ( ) or the external display ( ) please mark by (x)!

**Test of the (flower) image according to picture D1Wdd**

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 D2Wdd**

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wdd**

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 D3Wdd**

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 AE180-3dd: 01001

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

**PDF file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY8\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY8_1.PDF) **underline Yes/No**

**PS-File:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY8\\_1.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY8_1.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 AE18F0PX\_CY8\_1.PDF**

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

**For device output with PS-file AE18F0PX\_CY8\_1.PS**

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

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

part 3 AE180-7N\*dd-01001

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 D4Wdd

Colour row	Test	Are all the 16 steps distinguishable?	Yes/No
$W-R_d$ White - Red:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-G_d$ White - Green:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-B_d$ White - Blue:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-N$ White - Black:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>

**Test of characters and Landolt-rings in four sizes according to picture D5Wdd**

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 D6Wdd, and D7Wdd**

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 AE181-3Ndd: 01001

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

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

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

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

**PDF file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY8\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY8_3.PDF) **underline Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY8\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY8_3.PS) **underline Yes/No**

**Picture A7dd contrast range:** (>F:0) (F: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://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY8\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY8_3.PDF)

**picture A7dd** **underline Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY8\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY8_3.PS)

**picture A7dd** **or underline Yes/No**

**colour measurement and specification for:**

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline Yes/No**

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

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

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline Yes/No**

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

part 4 AE181-7dd: 01001

see similar files: <http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> / .PS; 3D-linearization, page 3/24  
technical information: <http://farbe.li.tu-berlin.de/AE18/AE18LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print  
TUB material: code=th4ta

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

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

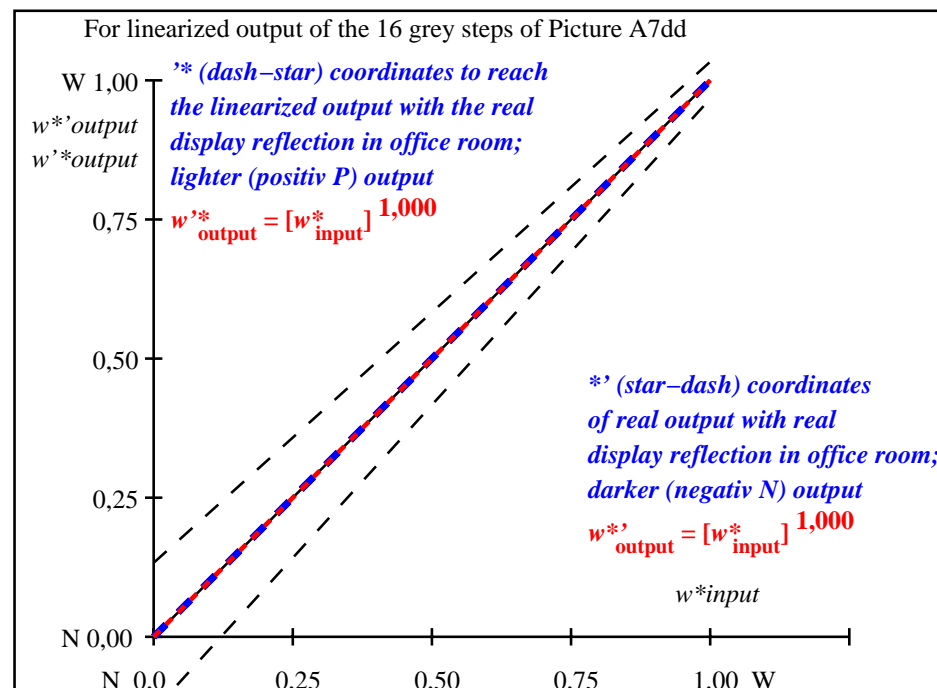
Mean lightness difference (16 steps)  
 $\Delta E^*_{CIELAB} = 0,0$

Mean lightness difference (5 steps)  
 $\Delta L^*_{CIELAB} = 0,0$

Mean colour reproduction index:  $R^*_{ab,m} = 99,9$

part 1; Measure: unknown; Device: unknown; Date: unknown

AE180-3dd: 01002



part 2; Measure: unknown; Device: unknown; Date: unknown

AE181-3dd: 01002

$L^*/Y_{intended}$ (absolute)	0.0/0.0	6.4/0.7	12.7/1.5	19.1/2.8	25.4/4.6	31.8/7.0	38.2/10.2	44.5/14.2	50.9/19.2	57.2/25.2	63.6/32.3	70.0/40.7	76.3/50.4	82.7/61.6	89.0/74.3	95.4/88.6
0 0 0 n*																
setcmyk																
gp=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

AE180-7N, Picture A7\*dd: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

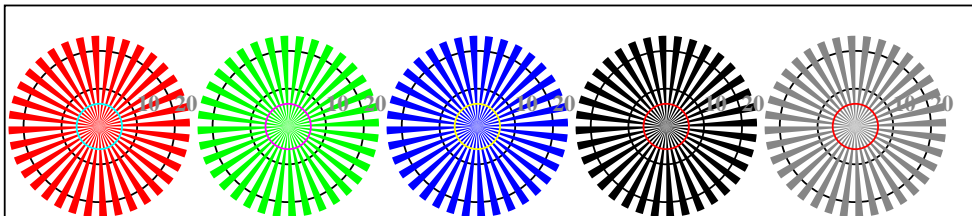
In-out: Test chart AE18 according to test chart 4 of ISO/IEC 15775  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$ -range 0,0 to <0,46

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



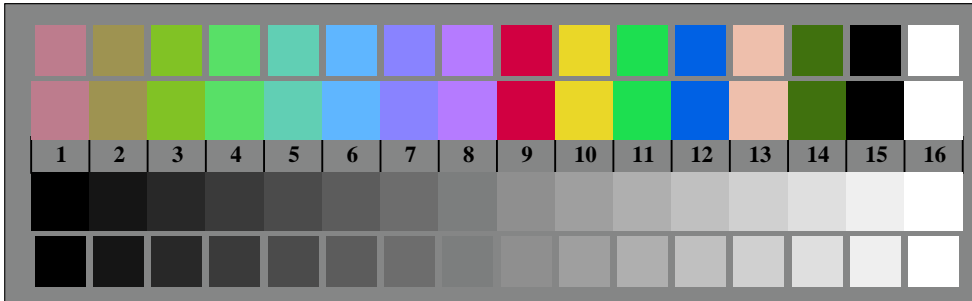


AE180-3, Picture D1W\*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

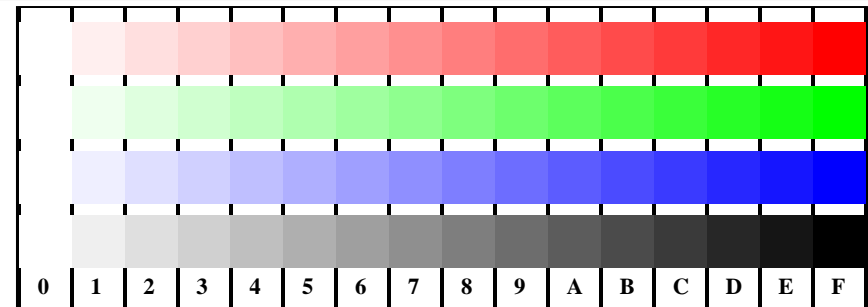
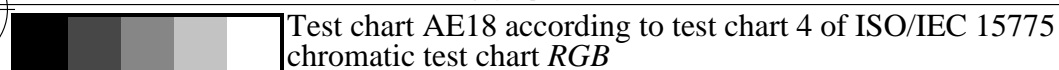


radial gratings  $W-R_d$  radial gratings  $W-G_d$  radial gratings  $W-B_d$  radial gratings  $W-N$  radial gratings  $W-Z$

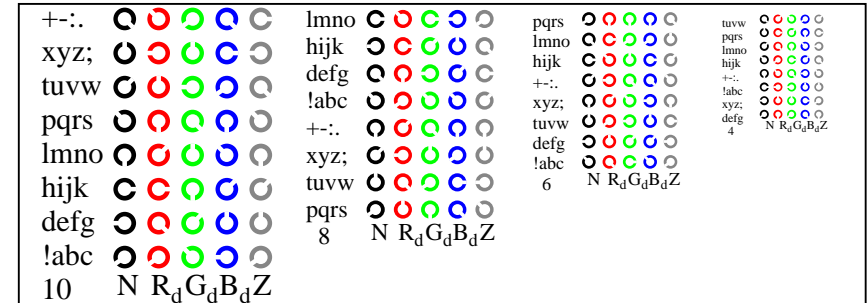
AE180-5, Picture D2W\*dd: radial gratings  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



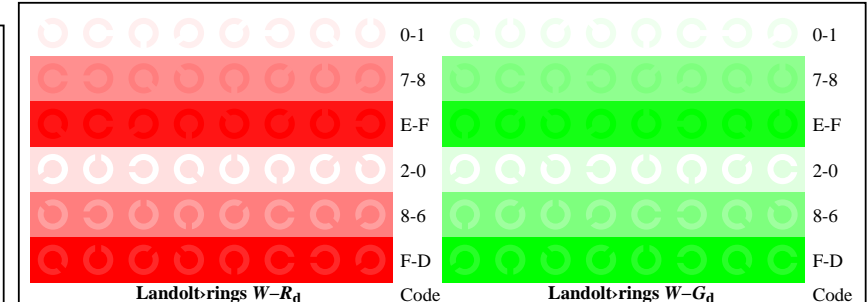
AE180-7, Picture D3W\*dd: 14 CIE-test colours and 2 + 16 grey steps (sf);  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



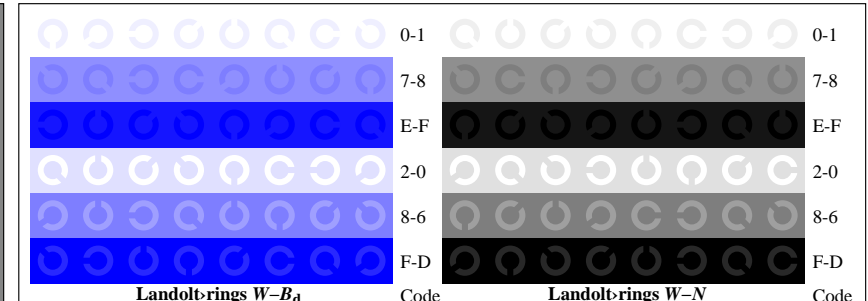
AE181-1, Picture D4W\*dd: 16 equidistant steps  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ;  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-3, Picture D5W\*dd: Sript and Landolt-rings  $N$ ;  $R_d$ ;  $G_d$ ;  $B_d$ ;  $Z$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-5, Picture D6W\*dd: Landolt-rings  $W-R_d$ ;  $W-G_d$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-7, Picture D7W\*dd: Landolt-rings  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*

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



Test for the visual linearized output of pictures D1Wdd to D3Wdd

Output test with the computer display ( ) or the external display ( ) please mark by (x)!

#### Test of the (flower) image according to picture D1Wdd

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 D2Wdd

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wdd

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 D3Wdd

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

AE180-3dd: 01011

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

PDF file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY7\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY7_1.PDF) **underline Yes/No**

PS-File: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY7\\_1.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY7_1.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 AE18F0PX\_CY7\_1.PDF

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

#### For device output with PS-file AE18F0PX\_CY7\_1.PS

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

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

part 3

AE180-7N\*dd:01011

Form A: Test chart AE18 according to test chart 4 of ISO/IEC 15775 input:  $rgb/cmy0/000n/w$  set...  
chromatic test chart RGB output:  $->rgb_{dd}$  setrgbcolor

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 D4Wdd

Colour row	Test	Are all the 16 steps distinguishable?	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
$W-R_d$ White - Red:	Are all the 16 steps distinguishable?	<b>Yes/No</b>			
$W-G_d$ White - Green:	Are all the 16 steps distinguishable?	<b>Yes/No</b>			
$W-B_d$ White - Blue:	Are all the 16 steps distinguishable?	<b>Yes/No</b>			
$W-N$ White - Black:	Are all the 16 steps distinguishable?	<b>Yes/No</b>			

#### Test of characters and Landolt-rings in four sizes according to picture D5Wdd

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 D6Wdd, and D7Wdd

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

Colour row $W-R_d$	Colour row $W-G_d$	Colour row $W-B_d$	Colour row $W-N$
background - ring	background - ring	background - ring	background - ring
0 - 1	0 - 1	0 - 1	0 - 1
7 - 8	7 - 8	7 - 8	7 - 8
E - F	E - F	E - F	E - F
2 - 0	2 - 0	2 - 0	2 - 0
8 - 6	8 - 6	8 - 6	8 - 6
F - D	F - D	F - D	F - D

part 2

AE181-3Ndd: 01011

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

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

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

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

PDF file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY7\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY7_3.PDF) **underline Yes/No**

PS file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY7\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY7_3.PS) **underline Yes/No**

Picture A7dd contrast range: (>F:0) (F: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://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY7\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY7_3.PDF)

picture A7dd **underline Yes/No**

PS file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY7\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY7_3.PS)

picture A7dd **or underline Yes/No**

#### colour measurement and specification for:

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline Yes/No**

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

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

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline Yes/No**

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

part 4

AE181-7dd: 01011

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print

TUB material: code=th4ta

see similar files: <http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> / .PS; 3D-linearization, page 6/24  
technical information: <http://farbe.li.tu-berlin.de/AE18/AE18LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print  
TUB material: code=thata4ta

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

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

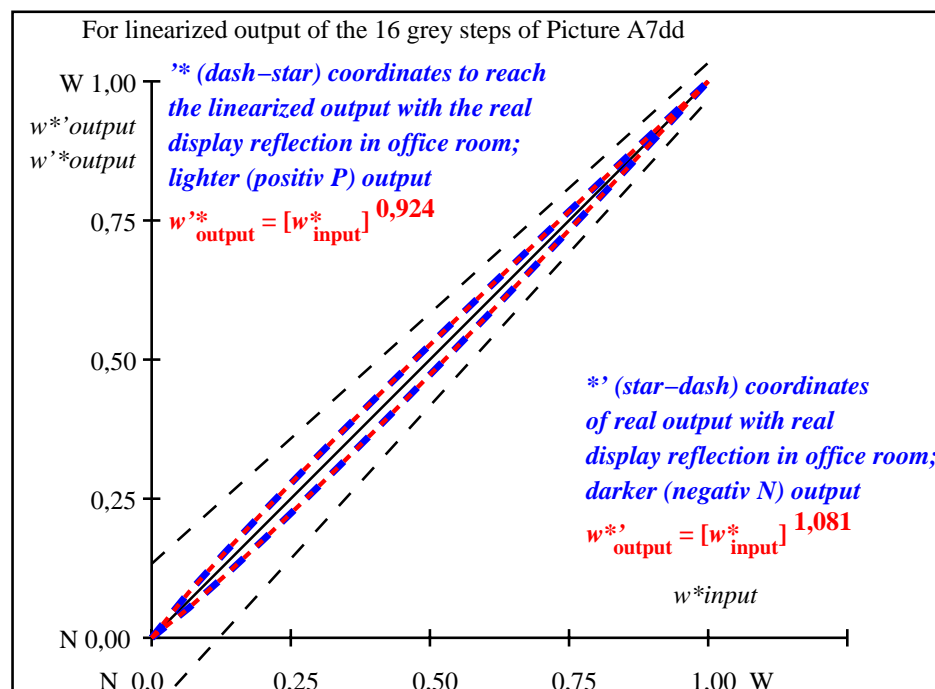
Mean lightness difference (16 steps)  
 $\Delta E^*_{CIELAB} = 3,4$

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

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

part 1; Measure: unknown; Device: unknown; Date: unknown

AE180-3dd: 01012



part 2; Measure: unknown; Device: unknown; Date: unknown

AE181-3dd: 01012

$L^*/Y_{intended}$ (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
0 0 0 n*																
setcmyk																
gp=0.92																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{CIELAB, r}$ (relative)																
$w^*_{intended}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{out}$	0,0	0,082	0,155	0,226	0,295	0,362	0,428	0,494	0,559	0,623	0,688	0,75	0,814	0,876	0,938	1,0

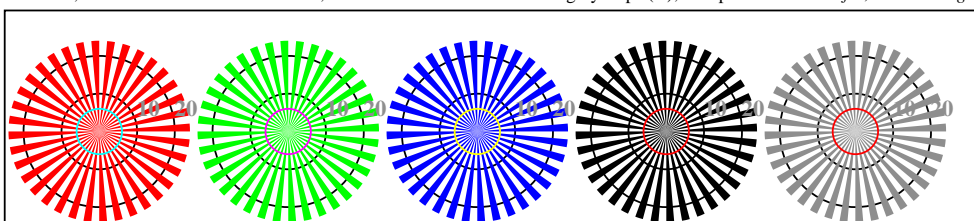
AE180-7N, Picture A7\*dd: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

In-out: Test chart AE18 according to test chart 4 of ISO/IEC 15775  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$ -range 0,46 to <0,93

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

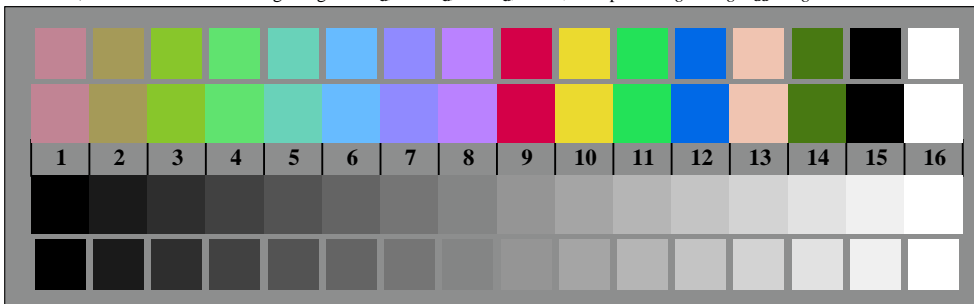


AE180-3, Picture D1W\*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

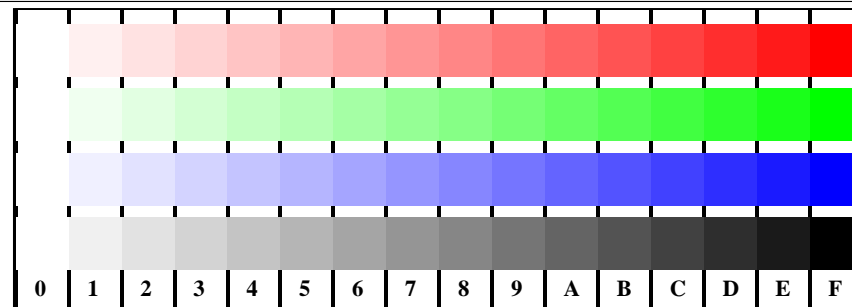
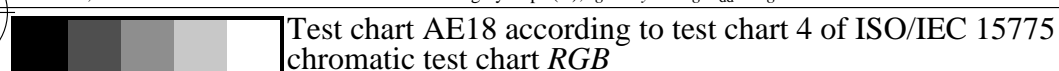


radial gratings  $W-R_d$  radial gratings  $W-G_d$  radial gratings  $W-B_d$  radial gratings  $W-N$  radial gratings  $W-Z$

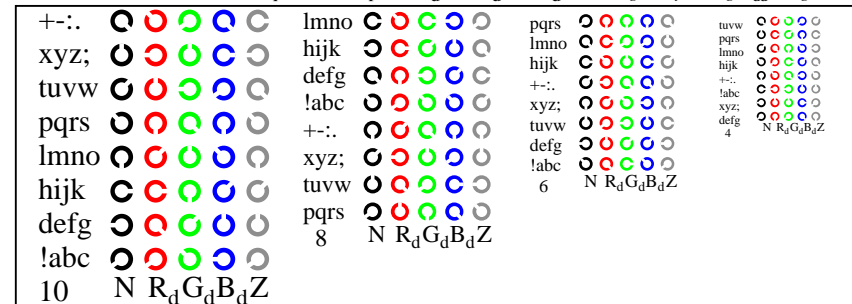
AE180-5, Picture D2W\*dd: radial gratings  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



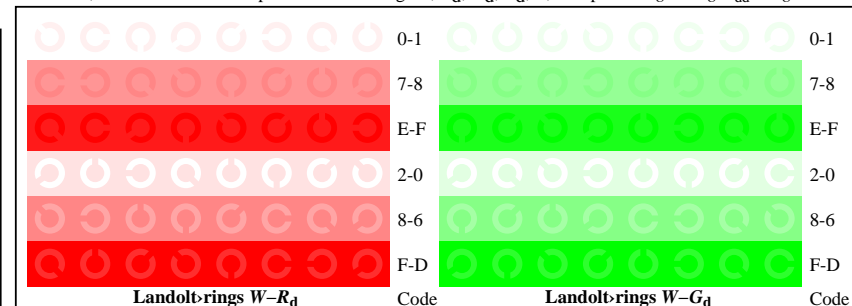
AE180-7, Picture D3W\*dd: 14 CIE-test colours and 2 + 16 grey steps (sf);  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



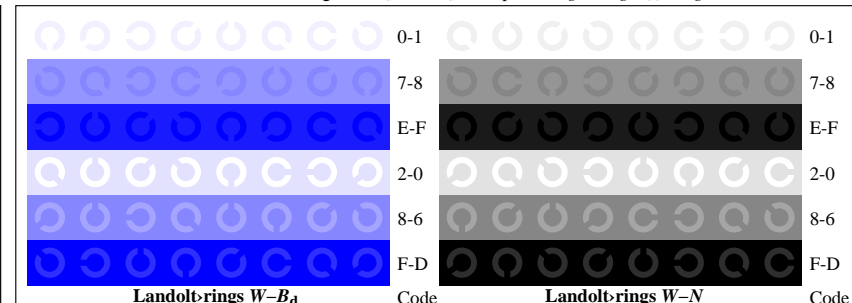
AE181-1, Picture D4W\*dd: 16 equidistant steps  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ;  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-3, Picture D5W\*dd: Sript and Landolt-rings  $N$ ;  $R_d$ ;  $G_d$ ;  $B_d$ ;  $Z$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-5, Picture D6W\*dd: Landolt-rings  $W-R_d$ ;  $W-G_d$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-7, Picture D7W\*dd: Landolt-rings  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*

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



Test for the visual linearized output of pictures D1Wdd to D3Wdd

Output test with the computer display ( ) or the external display ( ) please mark by (x)!

**Test of the (flower) image according to picture D1Wdd**

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 D2Wdd**

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wdd**

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 D3Wdd**

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 AE180-3dd: 01021

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

**PDF file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY6\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY6_1.PDF) **underline Yes/No**

**PS-File:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY6\\_1.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY6_1.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 AE18F0PX\_CY6\_1.PDF**

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

**For device output with PS-file AE18F0PX\_CY6\_1.PS**

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

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

part 3 AE180-7N\*dd-01021

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 D4Wdd

Colour row	Test	Are all the 16 steps distinguishable?	Yes/No
$W-R_d$ White - Red:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-G_d$ White - Green:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-B_d$ White - Blue:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-N$ White - Black:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>

**Test of characters and Landolt-rings in four sizes according to picture D5Wdd**

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 D6Wdd, and D7Wdd**

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

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

part 2 AE181-3Ndd: 01021

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

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

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

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

**PDF file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY6\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY6_3.PDF) **underline Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY6\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY6_3.PS) **underline Yes/No**

**Picture A7dd 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://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY6\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY6_3.PDF)

**picture A7dd** **underline Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY6\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY6_3.PS)

**picture A7dd** **or underline Yes/No**

**colour measurement and specification for:**

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline Yes/No**

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

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

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline Yes/No**

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

part 4 AE181-7dd: 01021

see similar files: <http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> / .PS; 3D-linearization, page 9/24  
technical information: <http://farbe.li.tu-berlin.de/AE18/AE18LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print  
TUB material: code=th4ta

i	LAB*ref	l*out	LAB*out	LAB*out-ref	ΔE*	Start output S1
1	10,99	0,00	0,00	0,00	0,00	0,01
2	16,62	0,00	0,13	22,51	0,00	0,00
3	22,24	0,00	0,22	30,17	0,00	0,00
4	27,87	0,00	0,30	36,84	0,00	0,00
5	33,50	0,00	0,37	42,93	0,00	0,00
6	39,13	0,00	0,44	48,62	0,00	0,00
7	44,75	0,00	0,50	54,02	0,00	0,00
8	50,38	0,00	0,57	59,19	0,00	0,00
9	56,01	0,00	0,62	64,16	0,00	0,00
10	61,64	0,00	0,68	68,97	0,00	0,00
11	67,27	0,00	0,74	73,64	0,00	0,00
12	72,89	0,00	0,79	78,19	0,00	0,00
13	78,52	0,00	0,84	82,63	0,00	0,00
14	84,15	0,00	0,90	86,97	0,00	0,00
15	89,78	0,00	0,95	91,23	0,00	0,00
16	95,41	0,00	1,00	95,41	0,00	0,01
17	10,99	0,00	0,00	10,99	0,00	0,01
18	32,09	0,00	0,36	41,45	0,00	0,00
19	53,20	0,00	0,60	61,70	0,00	0,00
20	74,30	0,00	0,80	79,31	0,00	0,00
21	95,41	0,00	1,00	95,41	0,00	0,01

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

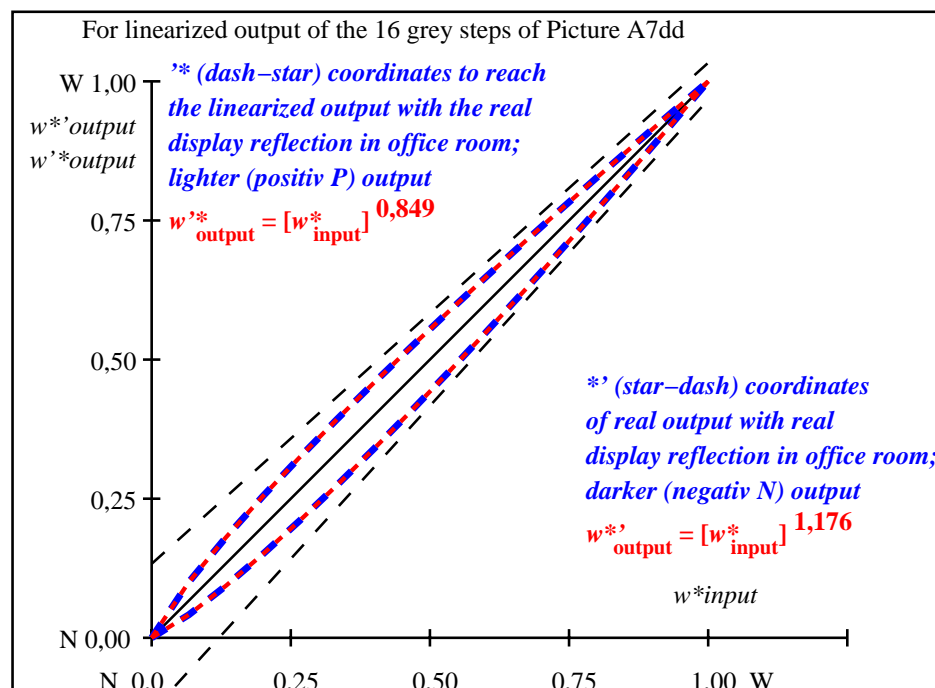
Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 5,9$

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

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

part 1; Measure: unknown; Device: unknown; Date: unknown

AE180-3dd: 01022



part 2; Measure: unknown; Device: unknown; Date: unknown

AE181-3dd: 01022

$L^*/Y_{\text{intended}}$ (absolute)	11.0/1.3	16.6/2.2	22.2/3.6	27.9/5.4	33.5/7.8	39.1/10.7	44.8/14.4	50.4/18.7	56.0/23.9	61.6/30.0	67.3/37.0	72.9/45.0	78.5/54.1	84.2/64.4	89.8/75.8	95.4/88.6
0 0 0 n* setcmyk gp=0.85 No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{\text{CIELAB}, r}$ (relative)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{\text{intended}}$ $w^*_{\text{out}}$	0,000 0,0	0,067 0,1	0,133 0,18	0,200 0,255	0,267 0,325	0,333 0,393	0,400 0,459	0,467 0,524	0,533 0,586	0,600 0,648	0,667 0,709	0,733 0,768	0,800 0,827	0,867 0,886	0,933 0,943	1,000 1,0

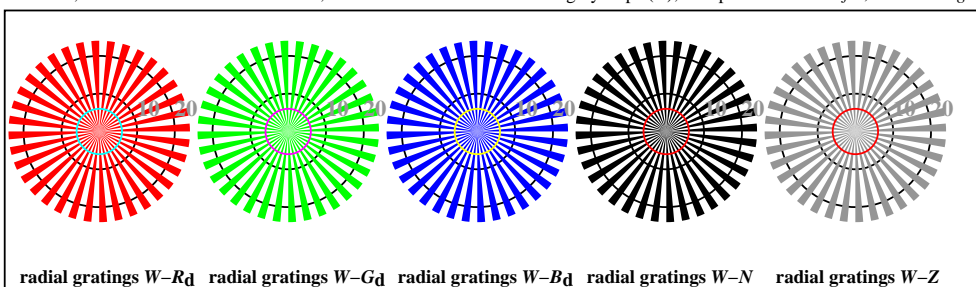
AE180-7N, Picture A7\*dd: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

In-out: Test chart AE18 according to test chart 4 of ISO/IEC 15775  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$ -range 0,93 to <1,87

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



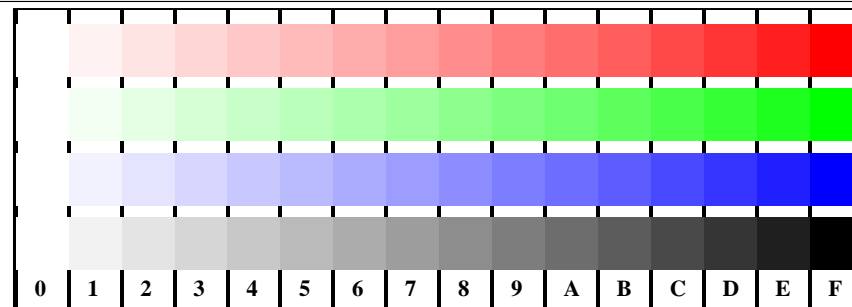
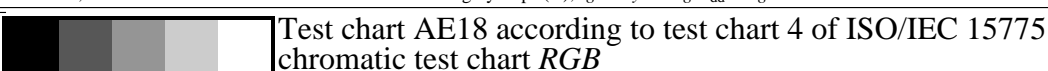
AE180-3, Picture D1W\*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



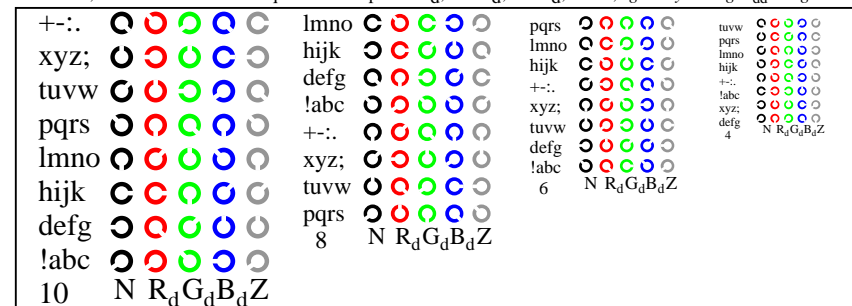
AE180-5, Picture D2W\*dd: radial gratings  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



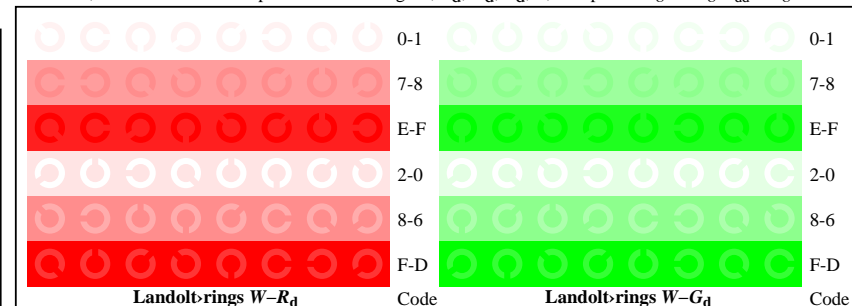
AE180-7, Picture D3W\*dd: 14 CIE-test colours and 2 + 16 grey steps (sf);  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



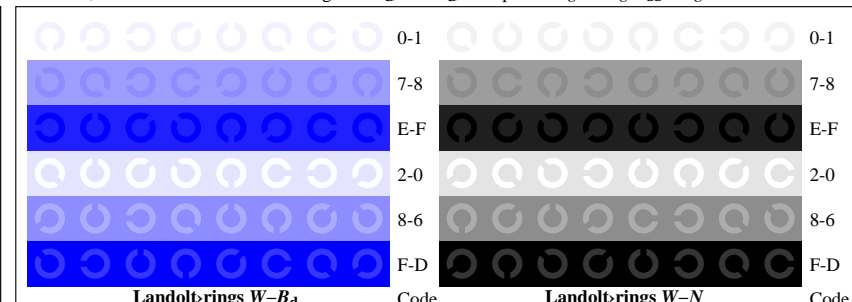
AE181-1, Picture D4W\*dd: 16 equidistant steps  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ;  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-3, Picture D5W\*dd: Sript and Landolt-rings  $N$ ;  $R_d$ ;  $G_d$ ;  $B_d$ ;  $Z$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-5, Picture D6W\*dd: Landolt-rings  $W-R_d$ ;  $W-G_d$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-7, Picture D7W\*dd: Landolt-rings  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*

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



Test for the visual linearized output of pictures D1Wdd to D3Wdd

Output test with the computer display ( ) or the external display ( ) please mark by (x)!

#### Test of the (flower) image according to picture D1Wdd

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 D2Wdd

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wdd

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 D3Wdd

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

AE180-3dd: 01031

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

PDF file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY5\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY5_1.PDF) **underline Yes/No**

PS-File: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY5\\_1.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY5_1.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 AE18F0PX\_CY5\_1.PDF

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

#### For device output with PS-file AE18F0PX\_CY5\_1.PS

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

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

part 3

AE180-7N\*dd-01031

Form A: Test chart AE18 according to test chart 4 of ISO/IEC 15775 input:  $rgb/cmy0/000n/w$  set...  
chromatic test chart RGB output:  $->rgb_{dd}$  setrgbcolor

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 D4Wdd

Colour row	Test	Are all the 16 steps distinguishable?	Yes/No
$W-R_d$ White - Red:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-G_d$ White - Green:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-B_d$ White - Blue:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-N$ White - Black:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	<b>Yes/No</b>

#### Test of characters and Landolt-rings in four sizes according to picture D5Wdd

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 D6Wdd, and D7Wdd

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

Colour row $W-R_d$	Colour row $W-G_d$	Colour row $W-B_d$	Colour row $W-N$
background - ring	background - ring	background - ring	background - ring
0 - 1	0 - 1	0 - 1	0 - 1
7 - 8	7 - 8	7 - 8	7 - 8
E - F	E - F	E - F	E - F
2 - 0	2 - 0	2 - 0	2 - 0
8 - 6	8 - 6	8 - 6	8 - 6
F - D	F - D	F - D	F - D

part 2

AE181-3Ndd: 01031

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

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

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

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

Office workplace illumination is daylight (clouded/north sky)

PDF file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY5\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY5_3.PDF)

PS file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY5\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY5_3.PS)

Picture A7dd contrast range: (>F:0) (F: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://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY5\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY5_3.PDF)

picture A7dd

**underline Yes/No**

PS file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY5\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY5_3.PS)

picture A7dd

**or underline Yes/No**

#### colour measurement and specification for:

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

**underline Yes/No**

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

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

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

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

**underline Yes/No**

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

part 4

AE181-7dd: 01031

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print

TUB material: code=th4ta

see similar files: <http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> / .PS; 3D-linearization, page 12/24  
technical information: <http://farbe.li.tu-berlin.de/AE18/AE18LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print  
TUB material: code=th4ta

i	LAB*ref	l*out	LAB*out	LAB*out-ref	ΔE*	Start output S1
1	18,00	0,00	0,00	0,00	0,00	0,01
2	23,16	0,00	0,00	0,17	31,34	0,00
3	28,32	0,00	0,00	0,27	38,92	0,00
4	33,48	0,00	0,00	0,35	45,22	0,00
5	38,64	0,00	0,00	0,42	50,81	0,00
6	43,80	0,00	0,00	0,48	55,93	0,00
7	48,96	0,00	0,00	0,55	60,70	0,00
8	54,12	0,00	0,00	0,60	65,19	0,00
9	59,28	0,00	0,00	0,66	69,46	0,00
10	64,44	0,00	0,00	0,71	73,55	0,00
11	69,60	0,00	0,00	0,76	77,49	0,00
12	74,76	0,00	0,00	0,81	81,29	0,00
13	79,92	0,00	0,00	0,86	84,96	0,00
14	85,08	0,00	0,00	0,91	88,54	0,00
15	90,24	0,00	0,00	0,95	92,01	0,00
16	95,41	0,00	0,00	1,00	95,41	0,00
17	18,00	0,00	0,00	0,00	18,00	0,00
18	37,35	0,00	0,00	0,40	49,47	0,00
19	56,70	0,00	0,00	0,63	67,35	0,00
20	76,05	0,00	0,00	0,82	82,22	0,00
21	95,41	0,00	0,00	1,00	95,41	0,00

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

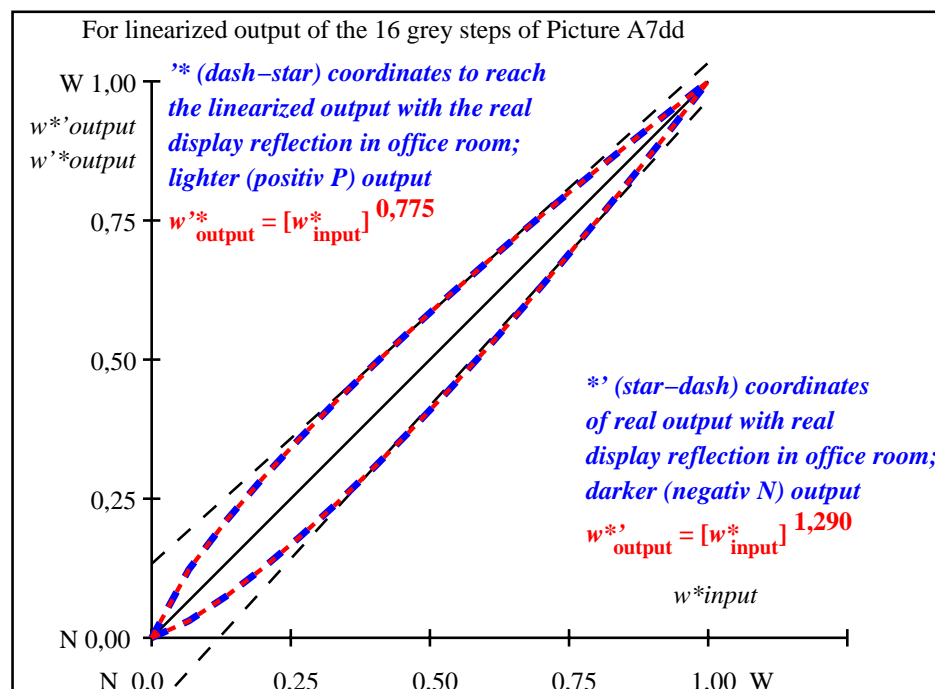
Mean lightness difference (16 steps)  
 $\Delta E^*_{CIELAB} = 7,5$

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

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

part 1; Measure: unknown; Device: unknown; Date: unknown

AE180-3dd: 01032



part 2; Measure: unknown; Device: unknown; Date: unknown

AE181-3dd: 01032

$L^*/Y_{intended}$ (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
0 0 0 n*																
setcmyk																
gp=0.78																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB, r}$ (relative)																
$w^*_{intended}$	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	0,123	0,209	0,287	0,359	0,426	0,492	0,554	0,614	0,673	0,731	0,786	0,841	0,895	0,948	1,0

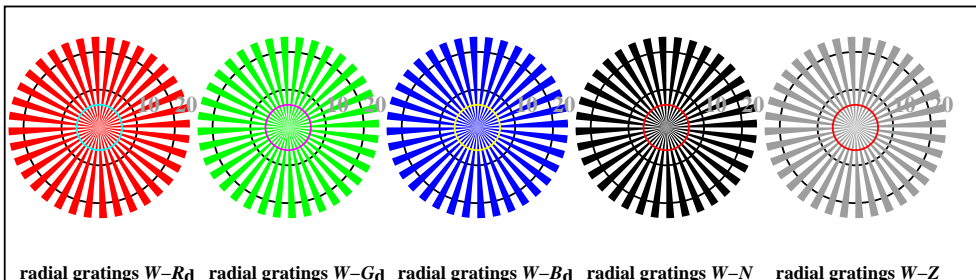
AE180-7N, Picture A7\*dd: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

In-out: Test chart AE18 according to test chart 4 of ISO/IEC 15775  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$ -range 1,87 to <3,75

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



AE180-3, Picture D1W\*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

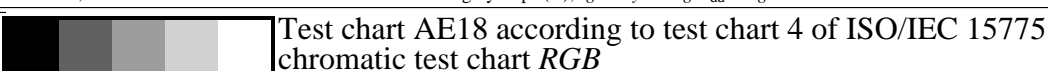


radial gratings  $W-R_d$  radial gratings  $W-G_d$  radial gratings  $W-B_d$  radial gratings  $W-N$  radial gratings  $W-Z$

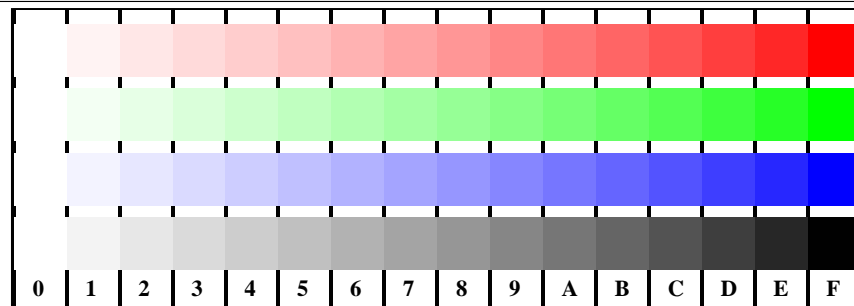
AE180-5, Picture D2W\*dd: radial gratings  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



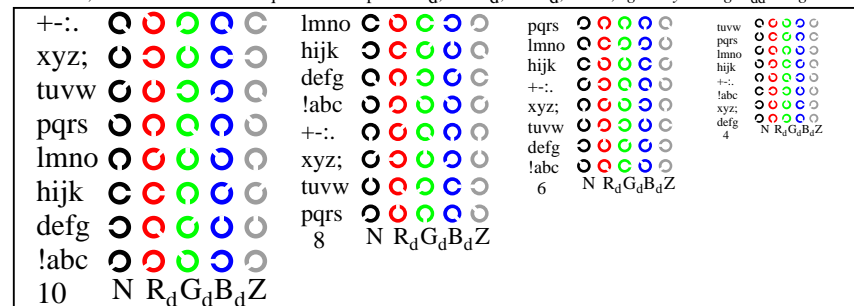
AE180-7, Picture D3W\*dd: 14 CIE-test colours and 2 + 16 grey steps (sf);  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



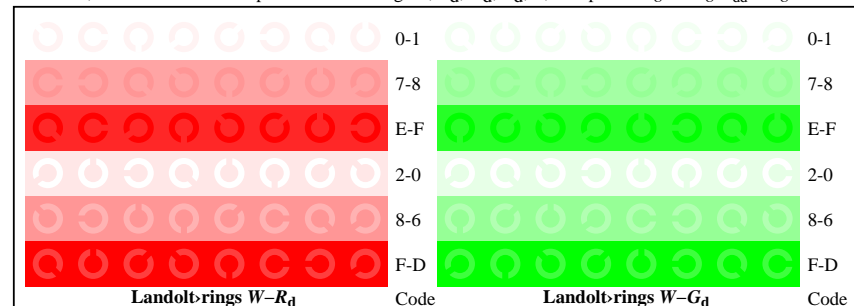
Test chart AE18 according to test chart 4 of ISO/IEC 15775  
chromatic test chart *RGB*



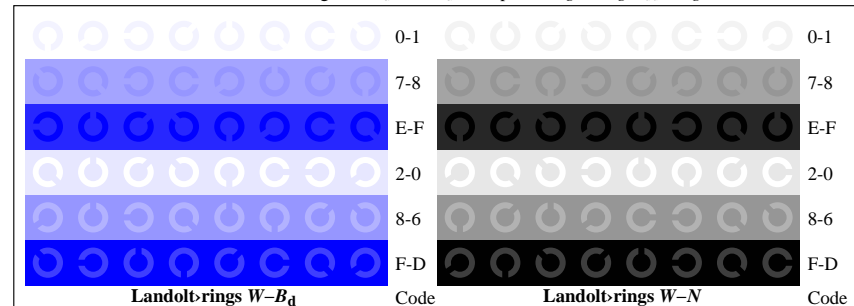
AE181-1, Picture D4W\*dd: 16 equidistant steps  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ;  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-3, Picture D5W\*dd: Sript and Landolt-rings  $N$ ;  $R_d$ ;  $G_d$ ;  $B_d$ ;  $Z$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-5, Picture D6W\*dd: Landolt-rings  $W-R_d$ ;  $W-G_d$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-7, Picture D7W\*dd: Landolt-rings  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*

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



Test for the visual linearized output of pictures D1Wdd to D3Wdd

Output test with the computer display ( ) or the external display ( ) please mark by (x)!

#### Test of the (flower) image according to picture D1Wdd

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 D2Wdd

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wdd

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 D3Wdd

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 AE180-3dd: 01041

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

PDF file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY4\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY4_1.PDF) **underline Yes/No**

PS-File: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY4\\_1.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY4_1.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 AE18F0PX\_CY4\_1.PDF

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

#### For device output with PS-file AE18F0PX\_CY4\_1.PS

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

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

part 3 AE180-7N\*dd-01041

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 D4Wdd

Colour row	Test	Are all the 16 steps distinguishable?	Yes/No
$W-R_d$	White - Red:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps
$W-G_d$	White - Green:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps
$W-B_d$	White - Blue:	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 D5Wdd

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 D6Wdd, and D7Wdd

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

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

part 2 AE181-3Ndd: 01041

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

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

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

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

PDF file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY4\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY4_3.PDF) **underline Yes/No**

PS file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY4\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY4_3.PS) **underline Yes/No**

Picture A7dd 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://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY4\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY4_3.PDF)

picture A7dd **underline Yes/No**

PS file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY4\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY4_3.PS)

picture A7dd **or underline Yes/No**

#### colour measurement and specification for:

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline Yes/No**

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

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

Exchange of CIELAB data in file <http://farbe.li.tu-berlin.de/AE82/AE82L0NP.TXT> and transfer of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline Yes/No**

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

part 4 AE181-7dd: 01041

see similar files: <http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> / .PS; 3D-linearization, page 15/24  
technical information: <http://farbe.li.tu-berlin.de/AE18/AE18LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print  
TUB material: code=thata4ta

i	LAB*ref	l*out	LAB*out	LAB*out-ref	ΔE*	Start output S1
1	26,84	0,00	0,00	0,00	0,00	0,01
2	31,41	0,00	0,00	0,20	41,04	0,00
3	35,98	0,00	0,00	0,30	48,09	0,00
4	40,56	0,00	0,00	0,39	53,74	0,00
5	45,13	0,00	0,00	0,46	58,64	0,00
6	49,70	0,00	0,00	0,52	63,04	0,00
7	54,27	0,00	0,00	0,58	67,09	0,00
8	58,84	0,00	0,00	0,64	70,86	0,00
9	63,41	0,00	0,00	0,69	74,42	0,00
10	67,98	0,00	0,00	0,74	77,79	0,00
11	72,55	0,00	0,00	0,78	81,01	0,00
12	77,12	0,00	0,00	0,83	84,09	0,00
13	81,69	0,00	0,00	0,87	87,06	0,00
14	86,26	0,00	0,00	0,92	89,93	0,00
15	90,83	0,00	0,00	0,96	92,71	0,00
16	95,41	0,00	0,00	1,00	95,41	0,00
17	26,84	0,00	0,00	0,00	26,84	0,00
18	43,98	0,00	0,00	0,44	57,47	0,00
19	61,12	0,00	0,00	0,66	72,66	0,00
20	78,26	0,00	0,00	0,84	84,85	0,00
21	95,41	0,00	0,00	1,00	95,41	0,00

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

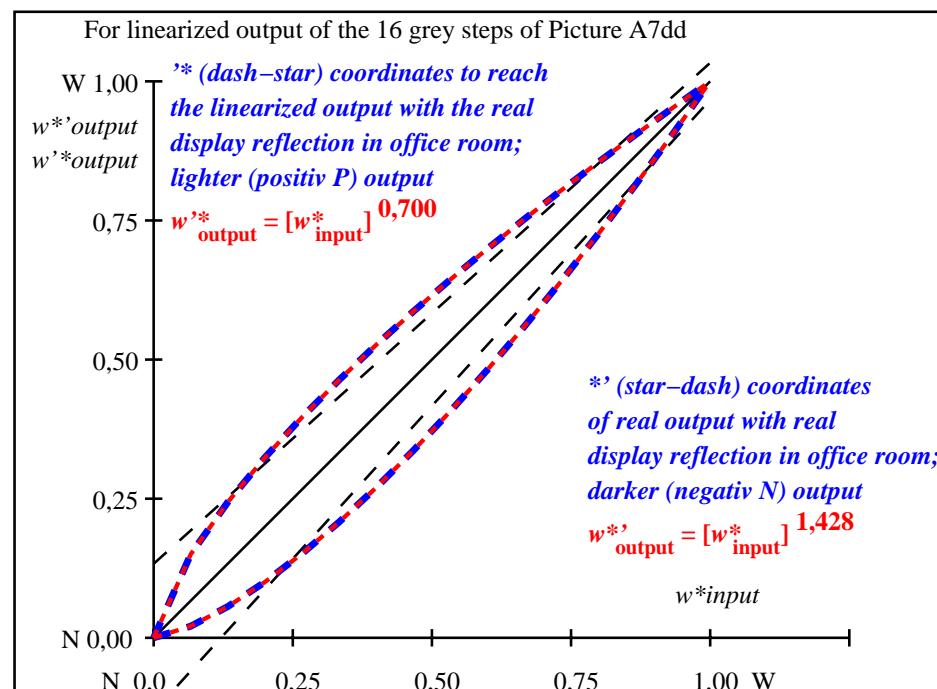
Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 8,3$

Mean lightness difference (5 steps)  
 $\Delta L^*_{\text{CIELAB}} = 6,3$

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

part 1; Measure: unknown; Device: unknown; Date: unknown

AE180-3dd: 01042



part 2; Measure: unknown; Device: unknown; Date: unknown

AE181-3dd: 01042

$L^*/Y_{\text{intended}}$ (absolute)	26.8/5.0	31.4/6.8	36.0/9.0	40.6/11.6	45.1/14.6	49.7/18.2	54.3/22.2	58.8/26.9	63.4/32.1	68.0/38.0	72.6/44.5	77.1/51.7	81.7/59.7	86.3/68.5	90.8/78.1	95.4/88.6
0 0 0 n*																
setcmyk																
gp=0.7																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{\text{CIELAB}, r}$ (relative)																
$w^*_{\text{intended}}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{\text{out}}$	0,0	0,151	0,244	0,324	0,397	0,463	0,527	0,587	0,644	0,699	0,753	0,805	0,855	0,905	0,953	1,0

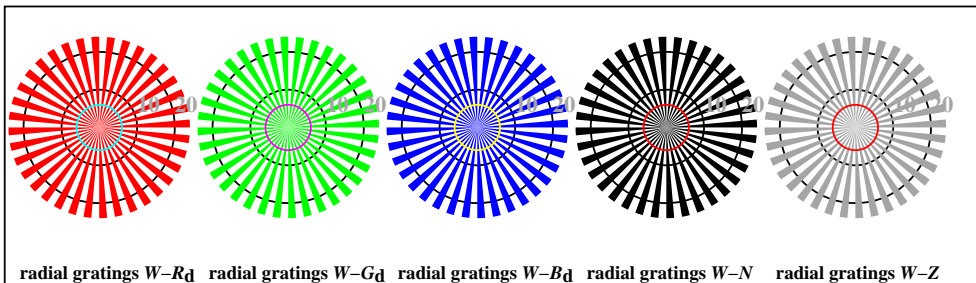
AE180-7N, Picture A7\*dd: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

In-out: Test chart AE18 according to test chart 4 of ISO/IEC 15775  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$ -range 3,75 to <7,5

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



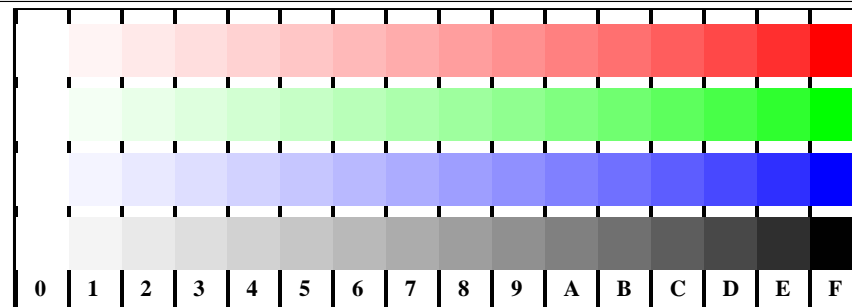
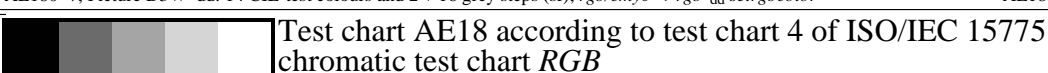
AE180-3, Picture D1W\*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



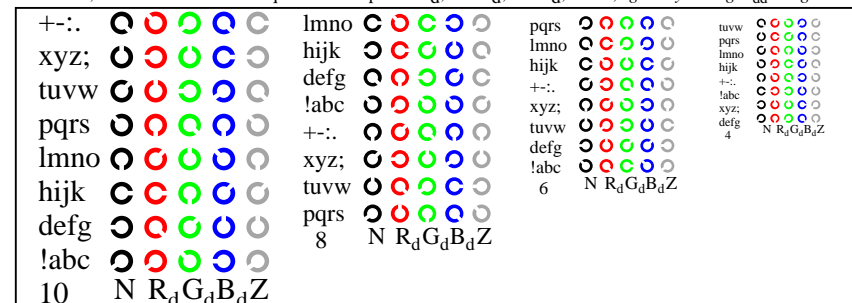
AE180-5, Picture D2W\*dd: radial gratings W-Rd; W-Gd; W-Bd; W-N; PS operator *rgb->rgb\*dd setrgbcolor*



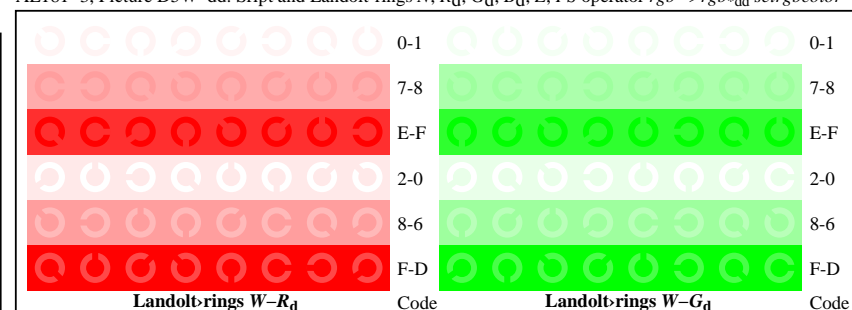
AE180-7, Picture D3W\*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0->rgb\*dd setrgbcolor*



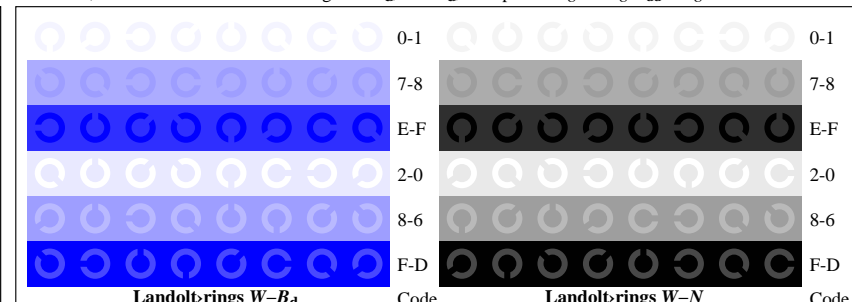
AE181-1, Picture D4W\*dd: 16 equidistant steps W-Rd; W-Gd; W-Bd; W-N; *rgb/cmy0->rgb\*dd setrgbcolor*



AE181-3, Picture D5W\*dd: Sript and Landolt-rings N; Rd; Gd; Bd; Z; PS operator *rgb->rgb\*dd setrgbcolor*



AE181-5, Picture D6W\*dd: Landolt-rings W-Rd; W-Gd; PS operator *rgb->rgb\*dd setrgbcolor*



AE181-7, Picture D7W\*dd: Landolt-rings W-Bd; W-N; PS operator *rgb->rgb\*dd setrgbcolor*

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



see similar files: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY3\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY3_1.PDF) /PS; 3D-linearization, page 17/24  
technical information: <http://farbe.li.tu-berlin.de/> or [http://farbe.li.tu-berlin.de/AE18F0PX\\_CY3\\_1.PS](http://farbe.li.tu-berlin.de/AE18F0PX_CY3_1.PS) in file (F)

<http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> /PS; 3D-linearization, page 17/24  
F: 3D-linearization AE18/AE18LF0PX.PDF /PS in file (F)

**Test for the visual linearized output of pictures D1Wdd to D3Wdd**  
**Output test with the computer display ( ) or the external display ( )** please mark by (x)!

**Test of the (flower) image according to picture D1Wdd**  
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 D2Wdd**  
Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (6x),  
Resolution diameter: ..... mm ..... mm ..... mm ..... mm ..... mm

**Test of the 14 CIE-test colours according to picture D3Wdd**  
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 D3Wdd**  
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 AE180-3dd: 01051

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

**PDF file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY3\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY3_1.PDF) **underline Yes/No**

**PS-File:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY3\\_1.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY3_1.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 AE18F0PX\_CY3\_1.PDF

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

### For device output with PS-file AE18F0PX\_CY3\_1.PS

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

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

part 3 AE180-7N\*dd-01051

Form A: Test chart AE18 according to test chart 4 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*  
chromatic test chart *RGB* output: *->rgb<sub>dd</sub> setrgbcolor*

**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 D4Wdd**  
 **$W-R_d$  White – Red:** 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 – Green:** 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 – Blue:** 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 D5Wdd**  
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 D6Wdd, and D7Wdd**  
Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

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

part 2 AE181-3Ndd: 01051

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

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

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

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

**PDF file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY3\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY3_3.PDF) **underline Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY3\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY3_3.PS) **underline Yes/No**

**Picture A7dd 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://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY3\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY3_3.PDF)

**picture A7dd** **underline Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY3\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY3_3.PS)

**picture A7dd** **or underline Yes/No**

### colour measurement and specification for:

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline Yes/No**

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

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

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

of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline Yes/No**

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

part 4 AE181-7dd: 01051

TUB Registration: 20191001-AE18/AE18L0FA.TXT /PS  
application for measurement or viewing of the output on display and print  
TUB material: code=th4ta

see similar files: <http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> / .PS; 3D-linearization, page 18/24  
technical information: <http://farbe.li.tu-berlin.de/AE18/AE18LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print  
TUB material: code=thata4ta

i	LAB*ref	l*out	LAB*out	LAB*out-ref	ΔE*	Start output S1
1	37,98	0,00	0,00	37,98	0,00	0,00
2	41,81	0,00	0,00	41,81	0,00	0,00
3	45,64	0,00	0,00	45,64	0,00	0,00
4	49,47	0,00	0,00	49,47	0,00	0,00
5	53,29	0,00	0,00	53,29	0,00	0,00
6	57,12	0,00	0,00	57,12	0,00	0,00
7	60,95	0,00	0,00	60,95	0,00	0,00
8	64,78	0,00	0,00	64,78	0,00	0,00
9	68,61	0,00	0,00	68,61	0,00	0,00
10	72,44	0,00	0,00	72,44	0,00	0,00
11	76,26	0,00	0,00	76,26	0,00	0,00
12	80,09	0,00	0,00	80,09	0,00	0,00
13	83,92	0,00	0,00	83,92	0,00	0,00
14	87,75	0,00	0,00	87,75	0,00	0,00
15	91,58	0,00	0,00	91,58	0,00	0,00
16	95,41	0,00	0,00	95,41	0,00	0,00
17	37,98	0,00	0,00	37,98	0,00	0,00
18	52,34	0,00	0,00	52,34	0,00	0,00
19	66,69	0,00	0,00	66,69	0,00	0,00
20	81,05	0,00	0,00	81,05	0,00	0,00
21	95,41	0,00	0,00	95,41	0,00	0,00

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

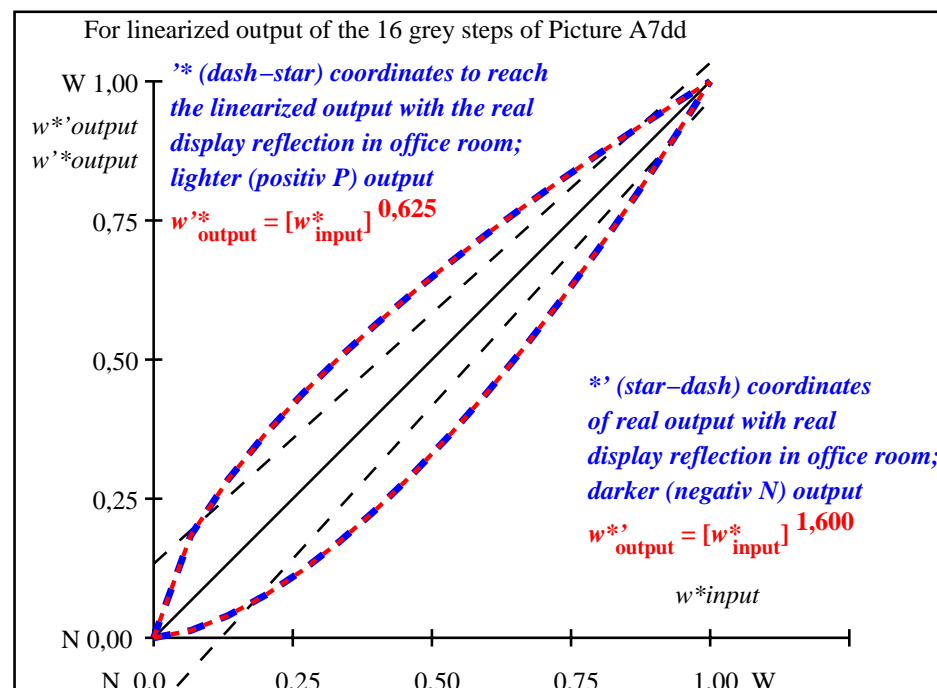
Mean lightness difference (16 steps)  
 $\Delta E^*_{CIELAB} = 8,1$

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

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

part 1; Measure: unknown; Device: unknown; Date: unknown

AE180-3dd: 01052



part 2; Measure: unknown; Device: unknown; Date: unknown

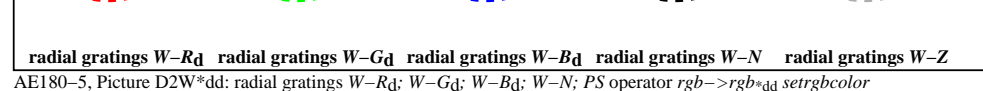
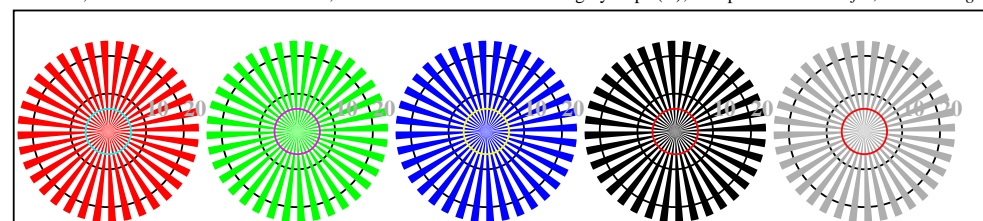
AE181-3dd: 01052

$L^*/Y_{intended}$ (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
0 0 0 n*																
setcmyk																
gp=0.63																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{CIELAB, r}$ (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	0,185	0,283	0,366	0,438	0,503	0,564	0,621	0,675	0,727	0,776	0,824	0,87	0,915	0,958	1,0

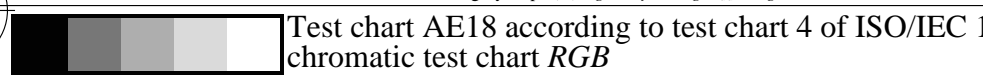
AE180-7N, Picture A7\*dd: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

In-out: Test chart AE18 according to test chart 4 of ISO/IEC 15775  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$ -range 7,5 to <15

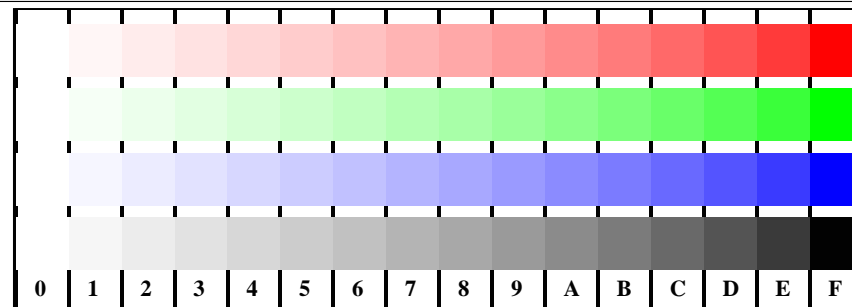
input:  $rgb/cmy0/000n/w$  set...  
output:  $->rgb_{dd}$  setrgbcolor



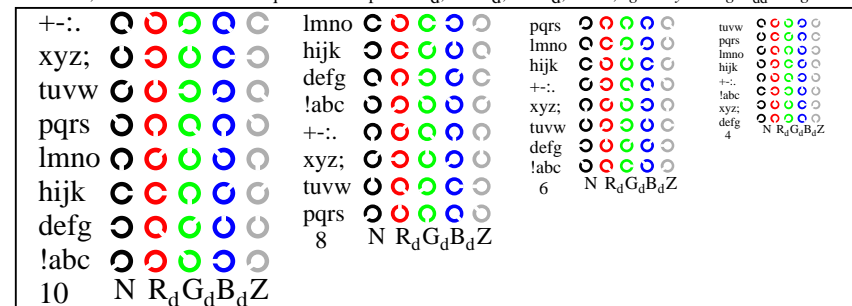
AE180-7, Picture D3W\*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0->rgb\*dd setrgbcolor*



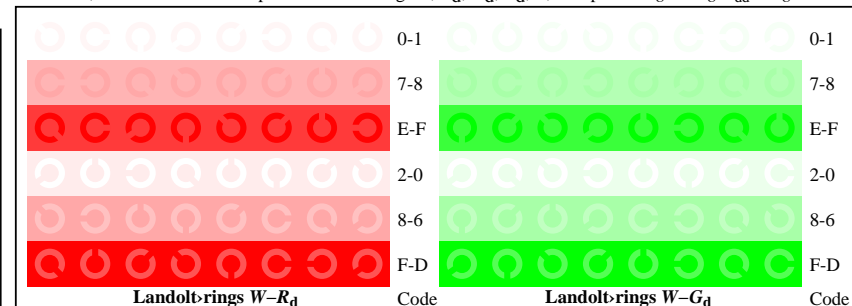
Test chart AE18 according to test chart 4 of ISO/IEC 15775  
chromatic test chart RGB



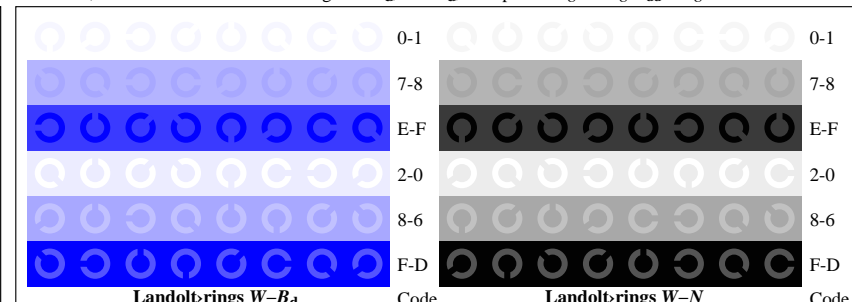
AE181-1, Picture D4W\*dd: 16 equidistant steps  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ; *rgb/cmy0->rgb\*dd setrgbcolor*



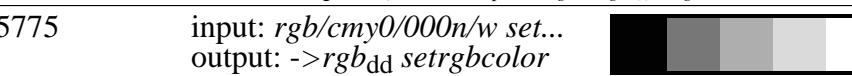
AE181-3, Picture D5W\*dd: Sript and Landolt-rings  $N$ ;  $R_d$ ;  $G_d$ ;  $B_d$ ;  $Z$ ; PS operator *rgb->rgb\*dd setrgbcolor*



AE181-5, Picture D6W\*dd: Landolt-rings  $W-R_d$ ;  $W-G_d$ ; PS operator *rgb->rgb\*dd setrgbcolor*



AE181-7, Picture D7W\*dd: Landolt-rings  $W-B_d$ ;  $W-N$ ; PS operator *rgb->rgb\*dd setrgbcolor*





see similar files: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY2\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY2_1.PDF) /PS; 3D-linearization, page 20/24  
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE18.HTM>

<http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> /PS; 3D-linearization, page 20/24  
F: 3D-linearization AE18/AE18LF0PX.PDF /PS in file (F)

**Test for the visual linearized output of pictures D1Wdd to D3Wdd**  
**Output test with the computer display ( ) or the external display ( )** please mark by (x)!

**Test of the (flower) image according to picture D1Wdd**  
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 D2Wdd**  
Is the resolution diameter < 6 mm? **Yes/No**  
Test with magnifying glass (6x),  
Resolution diameter: ..... mm ..... mm ..... mm ..... mm ..... mm

**Test of the 14 CIE-test colours according to picture D3Wdd**  
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 D3Wdd**  
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 AE180-3dd: 01061

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

**PDF file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY2\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY2_1.PDF) **underline Yes/No**

**PS-File:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY2\\_1.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY2_1.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 AE18F0PX\_CY2\_1.PDF

either PDF-file transfer "download, copy" to PDF device:.....

or with computer system interpretation by "Display-PDF":.....

or with software. e. g. Adobe-Reader/-Acrobat and version:.....

or with software e. g. Ghostscript and version:.....

#### For device output with PS-file AE18F0PX\_CY2\_1.PS

either PS-file transfer "download, copy" to PS device:.....

or with computer system interpretation by "Display-PS":.....

or with software e. g. Ghostscript and version:.....

or with software e. g. Mac-Yap and version:.....

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

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

part 3 AE180-7N\*dd:01061

**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 D4Wdd**  
 **$W-R_d$  White – Red:** 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 – Green:** 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 – Blue:** 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 D5Wdd**  
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 D6Wdd, and D7Wdd**  
Is the recognition frequency of the Landolt-rings > 50% (min. 5 of 8 at least)?

Colour row $W-R_d$	Colour row $W-G_d$	Colour row $W-B_d$	Colour row $W-N$
background – ring	background – ring	background – ring	background – ring
0 – 1	0 – 1	0 – 1	0 – 1
7 – 8	7 – 8	7 – 8	7 – 8
E – F	E – F	E – F	E – F
2 – 0	2 – 0	2 – 0	2 – 0
8 – 6	8 – 6	8 – 6	8 – 6
F – D	F – D	F – D	F – D

part 2 AE181-3Ndd: 01061

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

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

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

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

**PDF file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY2\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY2_3.PDF) **underline Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY2\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY2_3.PS) **underline Yes/No**

**Picture A7dd contrast range:** (>F:0) (F: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://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY2\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY2_3.PDF)

**picture A7dd** **underline Yes/No**

**PS file:** [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY2\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY2_3.PS)

**picture A7dd** **or underline Yes/No**

#### colour measurement and specification for:

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline Yes/No**

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

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

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

of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline Yes/No**

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

part 4 AE181-7dd: 01061

Form A: Test chart AE18 according to test chart 4 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*  
chromatic test chart RGB output: *->rgb<sub>dd</sub> setrgbcolor*

TUB Registration: 20191001-AE18/AE18L0FA.TXT /PS  
application for measurement or viewing of the output on display and print  
TUB material: code=th4ta

see similar files: <http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> / .PS; 3D-linearization, page 21/24  
technical information: <http://farbe.li.tu-berlin.de/AE18/AE18LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print  
TUB material: code=thata4ta

i	LAB*ref	l*out	LAB*out	LAB*out-ref	ΔE*	Start output S1
1	52,01	0,00	0,00	52,01	0,00	0,00
2	54,91	0,00	0,00	63,82	0,00	0,00
3	57,80	0,00	0,00	68,48	0,00	0,00
4	60,69	0,00	0,00	72,03	0,00	0,00
5	63,58	0,00	0,00	75,00	0,00	0,00
6	66,48	0,00	0,00	77,60	0,00	0,00
7	69,37	0,00	0,00	79,94	0,00	0,00
8	72,26	0,00	0,00	82,09	0,00	0,00
9	75,16	0,00	0,00	84,09	0,00	0,00
10	78,05	0,00	0,00	85,96	0,00	0,00
11	80,94	0,00	0,00	87,72	0,00	0,00
12	83,83	0,00	0,00	89,39	0,00	0,00
13	86,73	0,00	0,00	90,99	0,00	0,00
14	89,62	0,00	0,00	92,52	0,00	0,00
15	92,51	0,00	0,00	93,99	0,00	0,00
16	95,41	0,00	0,00	95,41	0,00	0,00
17	52,01	0,00	0,00	52,01	0,00	0,00
18	62,86	0,00	0,00	74,30	0,00	0,00
19	73,71	0,00	0,00	83,11	0,00	0,00
20	84,56	0,00	0,00	89,80	0,00	0,00
21	95,41	0,00	0,00	95,41	0,00	0,00

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

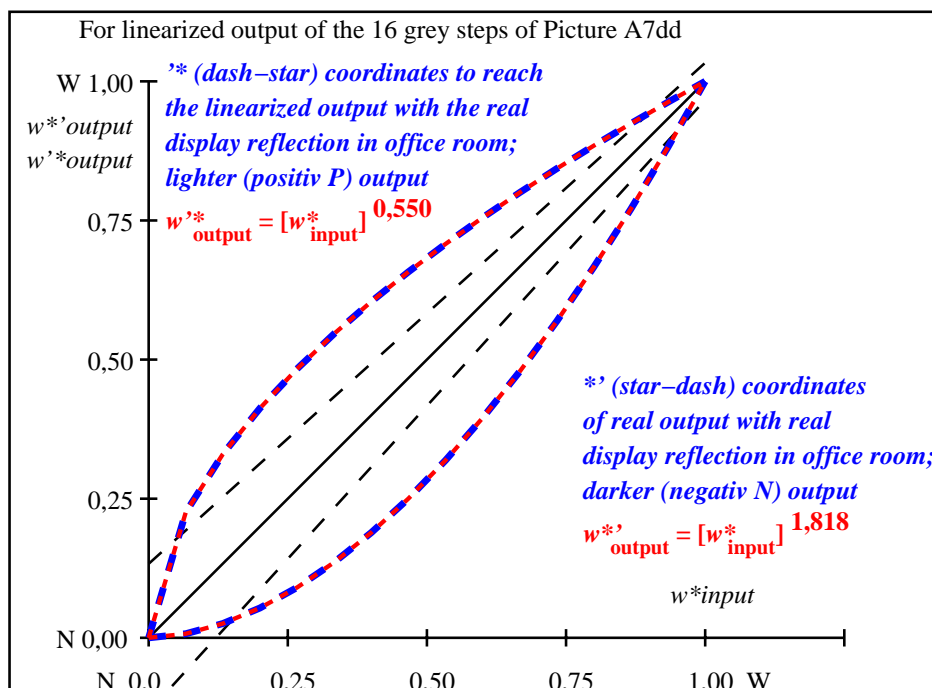
Mean lightness difference (16 steps)  
 $\Delta E^*_{\text{CIELAB}} = 6,9$

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

Mean colour reproduction index:  
 $R^*_{\text{ab,m}} = 69,8$

part 1; Measure: unknown; Device: unknown; Date: unknown

AE180-3dd: 01062



part 2; Measure: unknown; Device: unknown; Date: unknown

AE181-3dd: 01062

$L^*/Y_{\text{intended}}$ (absolute)	52.0/20.2	54.9/22.8	57.8/25.8	60.7/28.9	63.6/32.3	66.5/36.0	69.4/39.9	72.3/44.1	75.2/48.5	78.1/53.3	80.9/58.4	83.8/63.8	86.7/69.5	89.6/75.5	92.5/81.9	95.4/88.6
0 0 0 n*																
setcmyk																
gp=0.55																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{\text{CIELAB}, r}$ (relative)																
$w^*_{\text{intended}}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{\text{out}}$	0,0	0,226	0,33	0,413	0,484	0,546	0,604	0,658	0,707	0,755	0,8	0,843	0,885	0,925	0,963	1,0

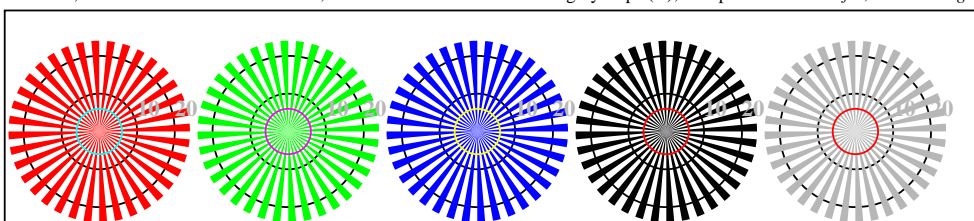
AE180-7N, Picture A7\*dd: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

In-out: Test chart AE18 according to test chart 4 of ISO/IEC 15775  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$ -range 15 to <30

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



AE180-3, Picture D1W\*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

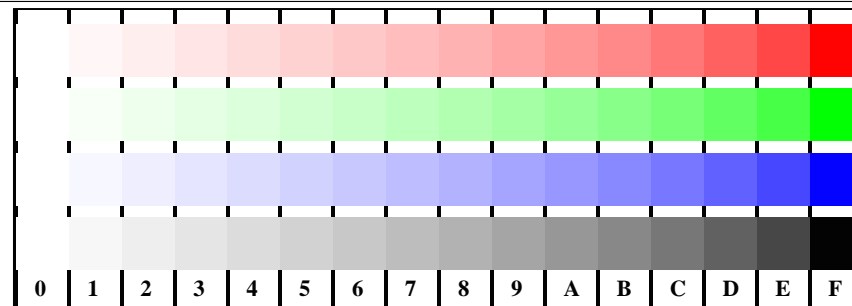
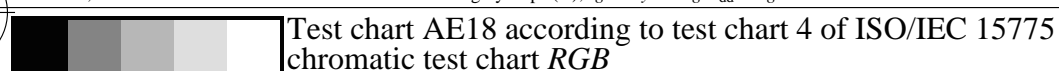


radial gratings  $W-R_d$  radial gratings  $W-G_d$  radial gratings  $W-B_d$  radial gratings  $W-N$  radial gratings  $W-Z$

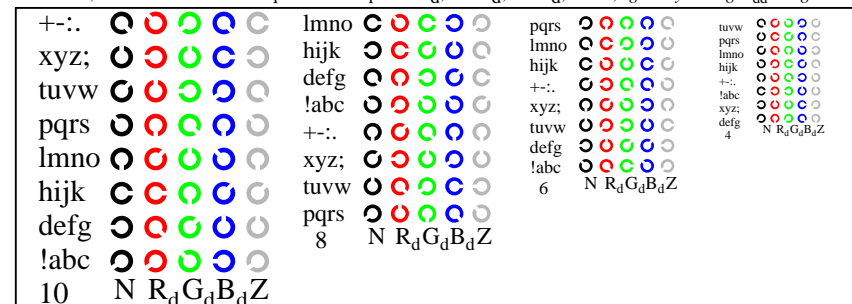
AE180-5, Picture D2W\*dd: radial gratings  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



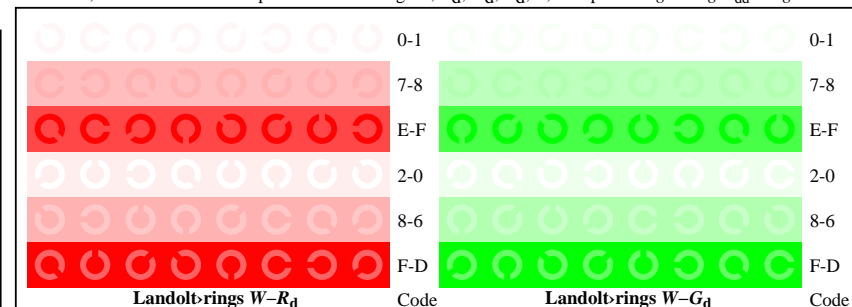
AE180-7, Picture D3W\*dd: 14 CIE-test colours and 2 + 16 grey steps (sf);  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



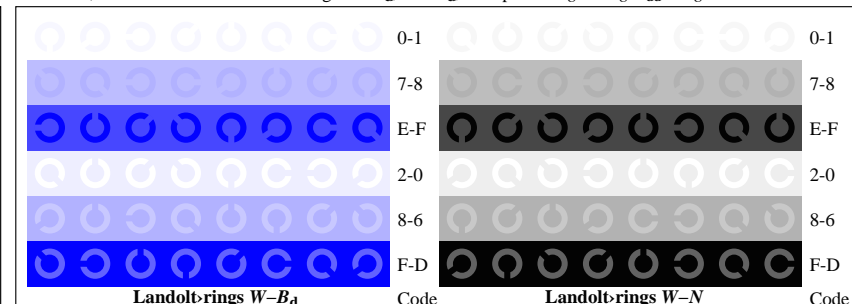
AE181-1, Picture D4W\*dd: 16 equidistant steps  $W-R_d$ ;  $W-G_d$ ;  $W-B_d$ ;  $W-N$ ;  $rgb/cmy0 \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-3, Picture D5W\*dd: Sript and Landolt-rings  $N$ ;  $R_d$ ;  $G_d$ ;  $B_d$ ;  $Z$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-5, Picture D6W\*dd: Landolt-rings  $W-R_d$ ;  $W-G_d$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*



AE181-7, Picture D7W\*dd: Landolt-rings  $W-B_d$ ;  $W-N$ ; PS operator  $rgb \rightarrow rgb_{dd}$  *setrgbcolor*

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



Test for the visual linearized output of pictures D1Wdd to D3Wdd

Output test with the computer display ( ) or the external display ( ) please mark by (x)!

#### Test of the (flower) image according to picture D1Wdd

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 D2Wdd

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wdd

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 D3Wdd

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

AE180-3dd: 01071

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

PDF file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY1\\_1.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY1_1.PDF) **underline Yes/No**

PS-File: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY1\\_1.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY1_1.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 AE18F0PX\_CY1\_1.PDF

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

#### For device output with PS-file AE18F0PX\_CY1\_1.PS

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

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

part 3

AE180-7N\*dd-01071

Form A: Test chart AE18 according to test chart 4 of ISO/IEC 15775 input:  $rgb/cmy0/000n/w$  set...  
chromatic test chart RGB output:  $->rgb_{dd}$  setrgbcolor

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 D4Wdd

Colour row	Test	Are all the 16 steps distinguishable?	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-R_d$	White - Red:	Are all the 16 steps distinguishable?	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-G_d$	White - Green:	Are all the 16 steps distinguishable?	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-B_d$	White - Blue:	Are all the 16 steps distinguishable?	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps	<b>Yes/No</b>
$W-N$	White - Black:	Are all the 16 steps distinguishable?	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps	<b>Yes/No</b>

#### Test of characters and Landolt-rings in four sizes according to picture D5Wdd

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 D6Wdd, and D7Wdd

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

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

part 2

AE181-3Ndd: 01071

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

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

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

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

PDF file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY1\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY1_3.PDF) **underline Yes/No**

PS file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY1\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY1_3.PS) **underline Yes/No**

Picture A7dd 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://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY1\\_3.PDF](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY1_3.PDF)

picture A7dd **underline Yes/No**

PS file: [http://farbe.li.tu-berlin.de/AE18/AE18F0PX\\_CY1\\_3.PS](http://farbe.li.tu-berlin.de/AE18/AE18F0PX_CY1_3.PS)

picture A7dd **or underline Yes/No**

#### colour measurement and specification for:

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: **underline Yes/No**

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

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

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

of the PS file AE82L0NP.PS (= .TXT) to the PDF-file AE82L0NP.PDF **underline Yes/No**

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

part 4

AE181-7dd: 01071

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print

TUB material: code=th4ta

see similar files: <http://farbe.li.tu-berlin.de/AE18/AE18F0PX.PDF> / .PS; 3D-linearization, page 24/24  
technical information: <http://farbe.li.tu-berlin.de/AE18/AE18LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE18/AE18L0FA.TXT /.PS  
application for measurement or viewing of the output on display and print  
TUB material: code=thata4ta

i	LAB*ref	l*out	LAB*out	LAB*out-ref	ΔE*
1	69,69	0,00	0,00	69,69	0,00
2	71,41	0,00	0,30	77,45	0,00
3	73,12	0,00	0,41	80,23	0,00
4	74,83	0,00	0,49	82,31	0,00
5	76,55	0,00	0,55	84,02	0,00
6	78,26	0,00	0,61	85,51	0,00
7	79,98	0,00	0,66	86,83	0,00
8	81,69	0,00	0,71	88,04	0,00
9	83,41	0,00	0,75	89,16	0,00
10	85,12	0,00	0,79	90,20	0,00
11	86,83	0,00	0,83	91,18	0,00
12	88,55	0,00	0,87	92,11	0,00
13	90,26	0,00	0,90	92,99	0,00
14	91,98	0,00	0,93	93,83	0,00
15	93,69	0,00	0,96	94,63	0,00
16	95,41	0,00	1,00	95,41	0,00
17	69,69	0,00	0,00	69,69	0,00
18	76,12	0,00	0,54	83,62	0,00
19	82,55	0,00	0,73	88,61	0,00
20	88,98	0,00	0,88	92,33	0,00
21	95,41	0,00	1,00	95,41	0,00

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

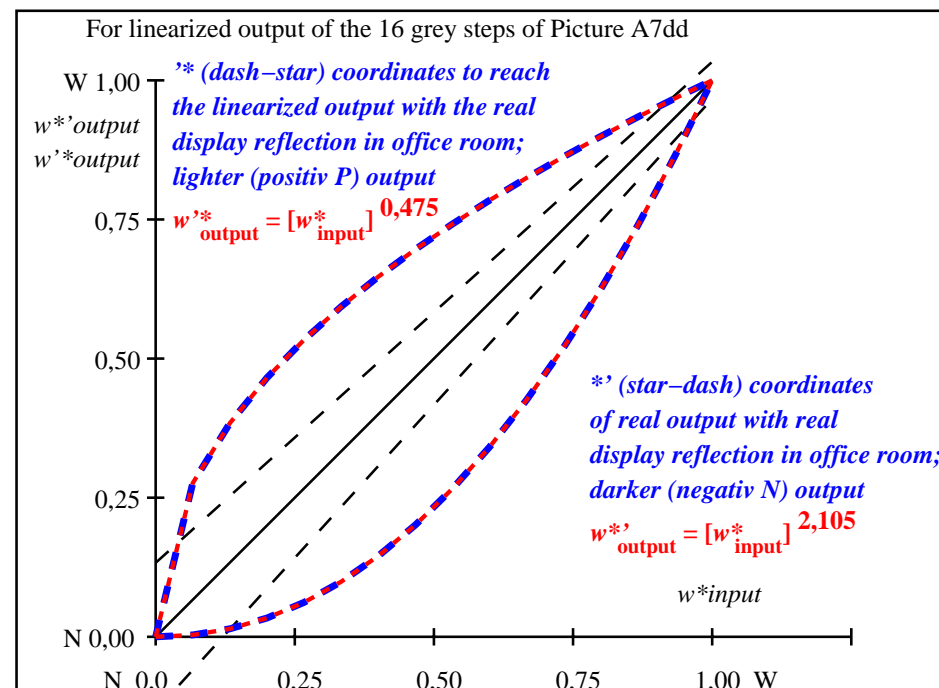
Mean lightness difference (16 steps)  
 $\Delta E^*_{CIELAB} = 4,5$

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

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

part 1; Measure: unknown; Device: unknown; Date: unknown

AE180-3dd: 01072



part 2; Measure: unknown; Device: unknown; Date: unknown

AE181-3dd: 01072

$L^*/Y_{intended}$ (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
0 0 0 n*																
setcmyk																
gp=0.48																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB, r}$ (relative)																
$w^*_{intended}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{out}$	0,0	0,277	0,384	0,466	0,534	0,593	0,647	0,697	0,742	0,785	0,825	0,863	0,899	0,934	0,968	1,0

AE180-7N, Picture A7\*dd: 16 visual equidistant  $L^*$ -grey steps; PS operator: 0 0 0 n\* setcmykcolor

In-out: Test chart AE18 according to test chart 4 of ISO/IEC 15775  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$ -range 30 to <60

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