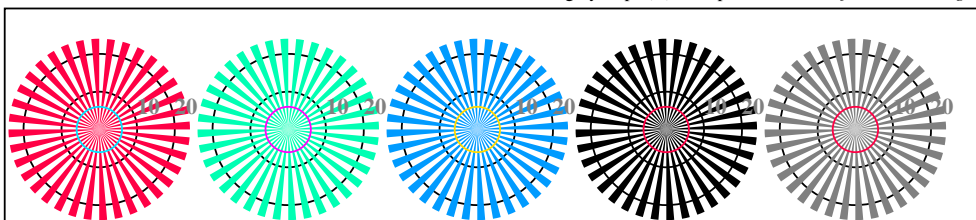


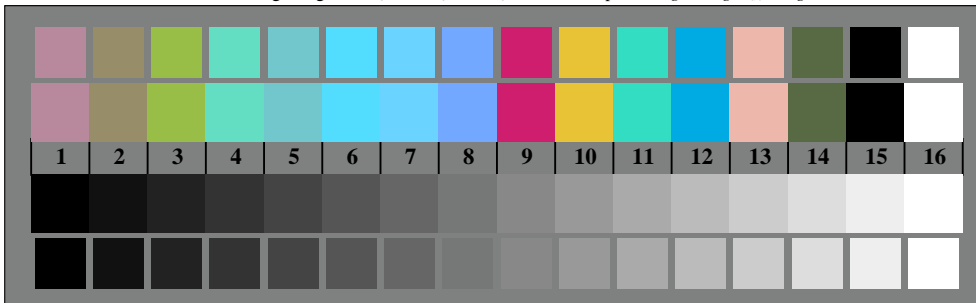


AE170-3, Picture D1W*de: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

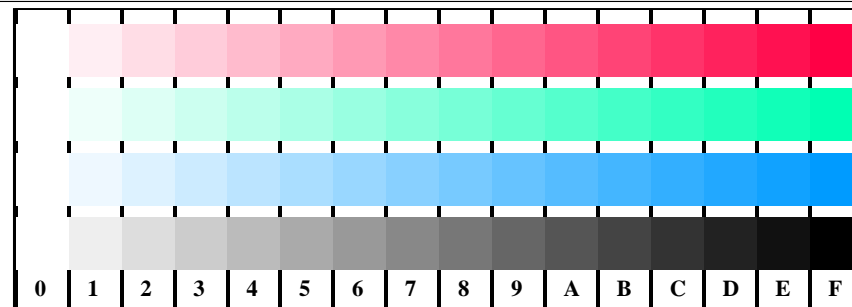
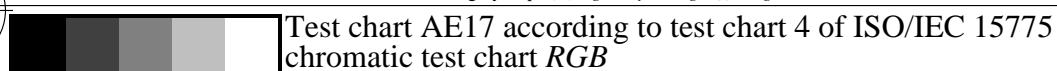


radial gratings $W-R_e$ radial gratings $W-G_e$ radial gratings $W-B_e$ radial gratings $W-N$ radial gratings $W-Z$

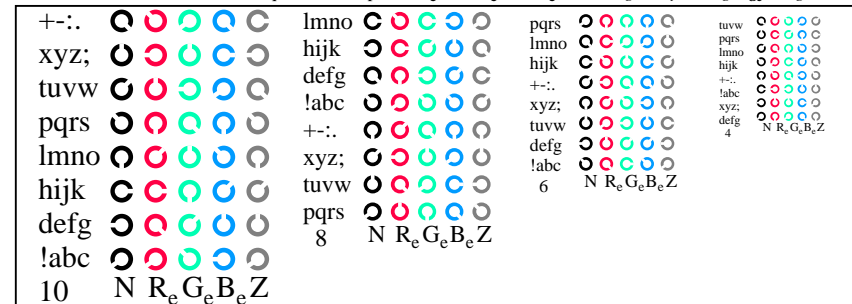
AE170-5, Picture D2W*de: radial gratings $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



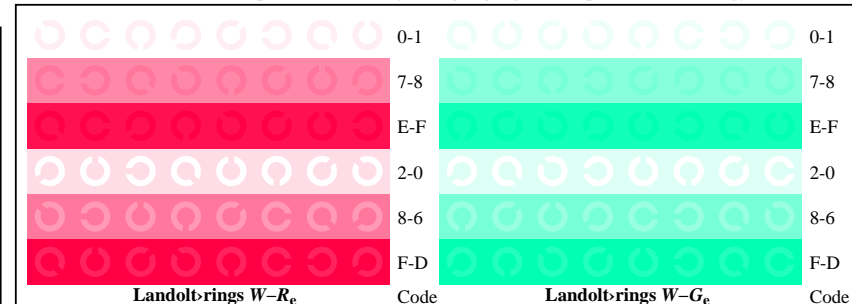
AE170-7, Picture D3W*de: 14 CIE-test colours and 2 + 16 grey steps (sf); $rgb/cmy0 \rightarrow rgb_{de}$ *setrgbcolor*



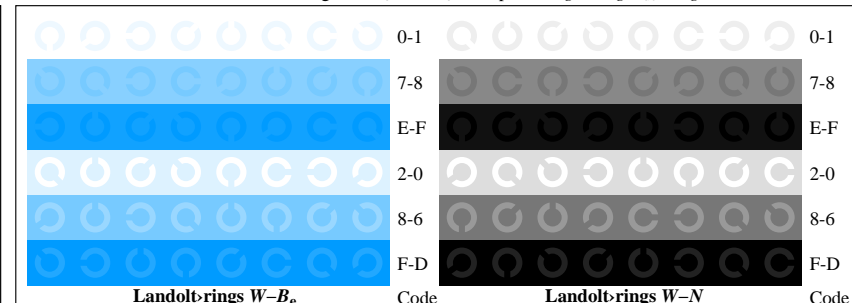
AE171-1, Picture D4W*de: 16 equidistant steps $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; $rgb/cmy0 \rightarrow rgb_{de}$ *setrgbcolor*



AE171-3, Picture D5W*de: Sript and Landolt-rings N ; R_e ; G_e ; B_e ; Z ; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



AE171-5, Picture D6W*de: Landolt-rings $W-R_e$; $W-G_e$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



AE171-7, Picture D7W*de: Landolt-rings $W-B_e$; $W-N$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*

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

Test for the visual linearized output of pictures D1Wde to D3Wde

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

Test of the (flower) image according to picture D1Wde

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 D2Wde

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wde

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 D3Wde

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 AE170-3de: 11001

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

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY8_1.PDF **underline Yes/No**

PS-File: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_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 AE17F0PX_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 AE17F0PX_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 AE170-7N*de-11001

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 D4Wde

	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:	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 D5Wde

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 D6Wde, and D7Wde

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 AE171-3Nde: 11001

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/AE17/AE17F0PX_CY8_3.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY8_3.PS **underline Yes/No**

Picture A7de 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/AE17/AE17F0PX_CY8_3.PDF

picture A7de **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY8_3.PS

picture A7de **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 AE171-7de: 11001

Form A: Test chart AE17 according to test chart 4 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*
chromatic test chart RGB output: *->rgb_{de} setrgbcolor*

TUB Registration: 20191001-AE17/AE17L0FA.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/AE17/AE17F0PX.PDF> / .PS; 3D-linearization, page 3/24
technical information: <http://farbe.li.tu-berlin.de/AE17/AE17LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE17/AE17L0FA.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	0,01
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	0,01
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

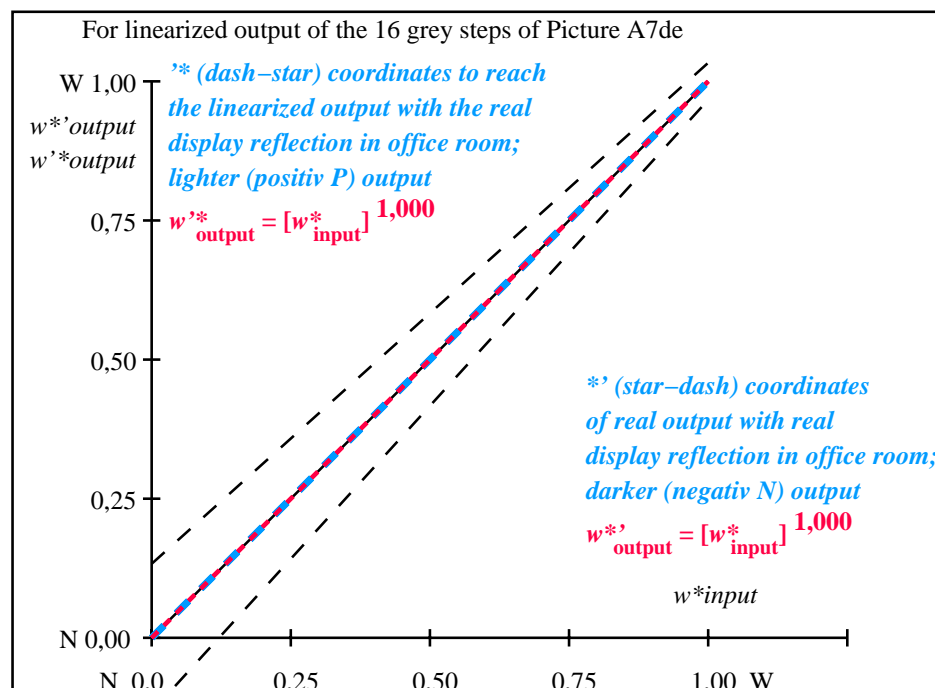
Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 0,0$

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

AE170-3de: 11002



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

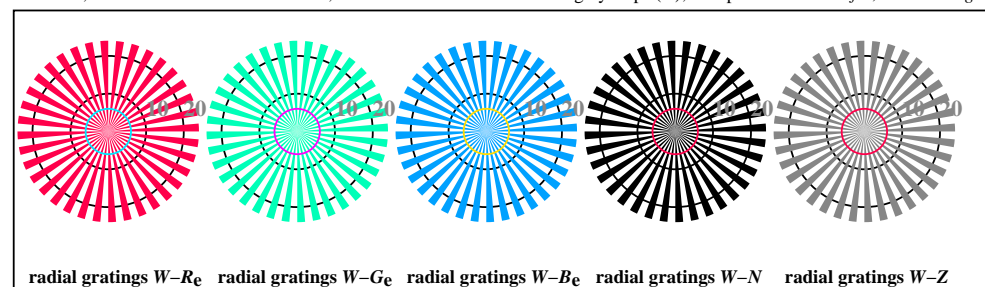
AE171-3de: 11002

$L^*/Y_{intended}$ (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)	0.000	0.067	0.133	0.200	0.267	0.333	0.400	0.467	0.533	0.600	0.667	0.733	0.800	0.867	0.933	1.000
$w^*_{intended}$	0.000	0.067	0.133	0.200	0.267	0.333	0.400	0.467	0.533	0.600	0.667	0.733	0.800	0.867	0.933	1.000
w^*_{out}	0.0	0.067	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

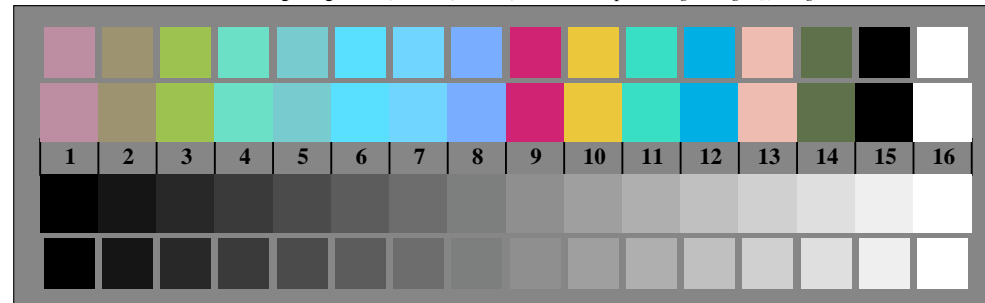
AE170-7N, Picture A7*de: 16 visual equidistant L^* -grey steps; PS operator: 0 0 0 n* setcmykcolor

In-out: Test chart AE17 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

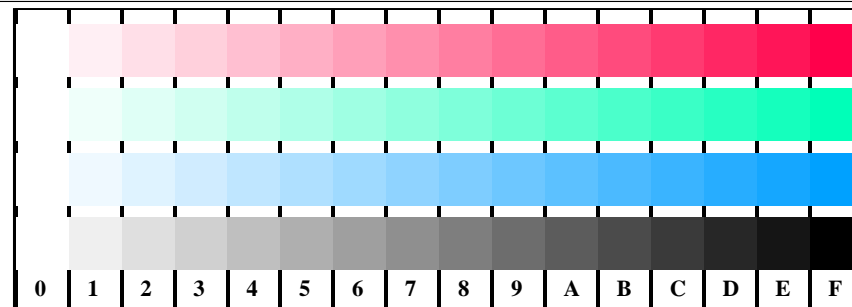
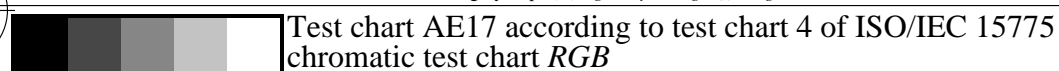
input: $rgb/cmy0/000n/w$ set...
output: $->rgb_{de}$ setrgbcolor



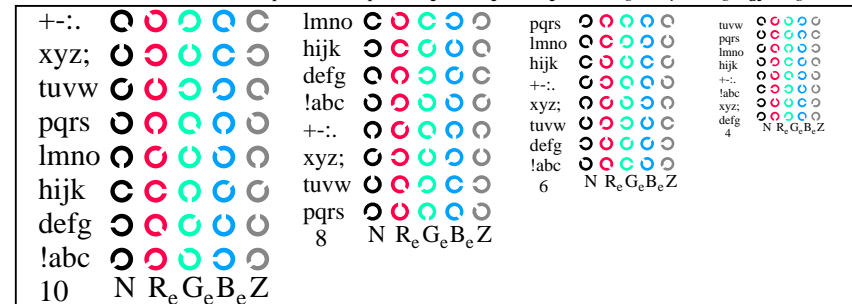
AE170-5, Picture D2W*de: radial gratings $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS operator *rgb*->*rgb*de setrgbcolor*



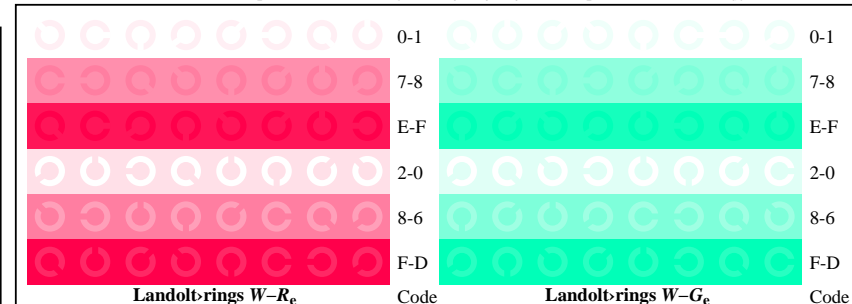
AE170-7, Picture D3W*de: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0*->*rgb*de setrgbcolor*



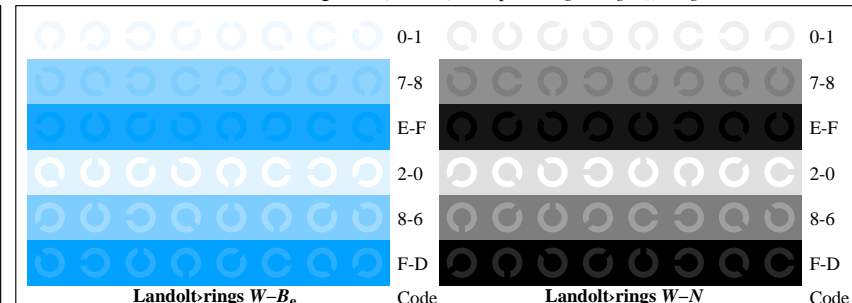
AE171-1, Picture D4W*de: 16 equidistant steps $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; *rgb/cmy0*->*rgb*de setrgbcolor*



AE171-3, Picture D5W*de: Sript and Landolt-rings N ; R_e ; G_e ; B_e ; Z ; PS operator *rgb*->*rgb*de setrgbcolor*



AE171-5, Picture D6W*de: Landolt-rings $W-R_e$; $W-G_e$; PS operator *rgb*->*rgb*de setrgbcolor*



AE171-7, Picture D7W*de: Landolt-rings $W-B_e$; $W-N$; PS operator *rgb*->*rgb*de setrgbcolor*

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

Test for the visual linearized output of pictures D1Wde to D3Wde

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

Test of the (flower) image according to picture D1Wde

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 D2Wde

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wde

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 D3Wde

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

AE170-3de: 11011

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

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY7_1.PDF **underline Yes/No**

PS-File: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_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 AE17F0PX_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 AE17F0PX_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

AE170-7N*de-11011

Form A: Test chart AE17 according to test chart 4 of ISO/IEC 15775 input: $rgb/cmy0/000n/w$ set...
chromatic test chart RGB output: $->rgb_{de}$ 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 D4Wde

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	Yes/No
$W-G_d$ White - Green:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No
$W-B_d$ White - Blue:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No
$W-N$ White - Black:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No

Test of characters and Landolt-rings in four sizes according to picture D5Wde

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 D6Wde, and D7Wde

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

AE171-3Nde: 11011

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/AE17/AE17F0PX_CY7_3.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY7_3.PS **underline Yes/No**

Picture A7de contrast range: (>F:0) (F:0) (D:0) (C:0) (A:0) (9:0) (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/AE17/AE17F0PX_CY7_3.PDF

picture A7de **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY7_3.PS

picture A7de **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

AE171-7de: 11011

TUB Registration: 20191001-AE17/AE17L0FA.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/AE17/AE17F0PX.PDF> / .PS; 3D-linearization, page 6/24
technical information: <http://farbe.li.tu-berlin.de/AE17/AE17LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE17/AE17L0FA.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	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

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

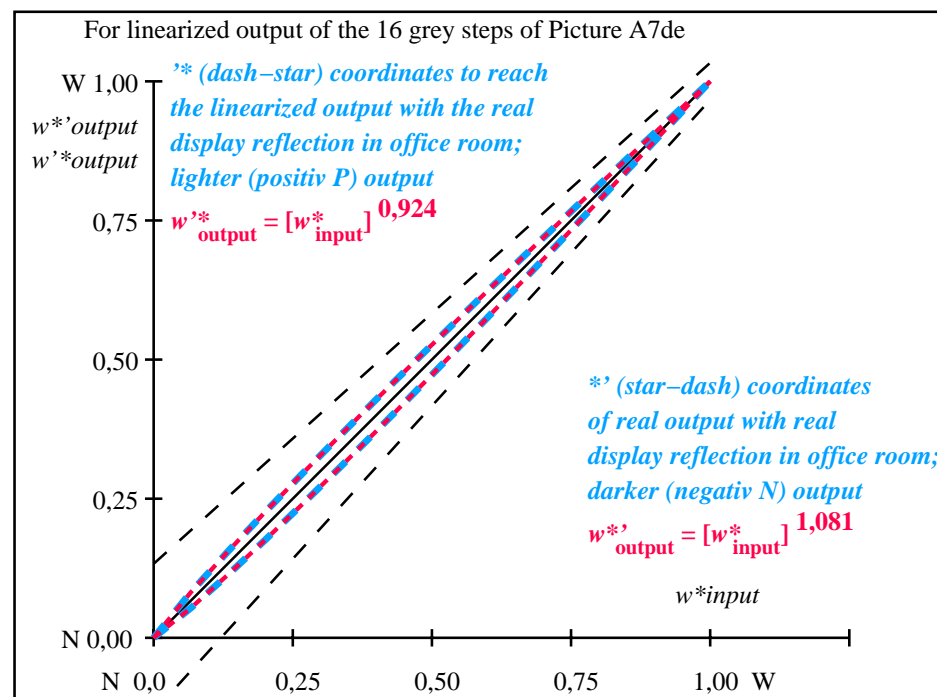
Mean lightness difference (16 steps)
 $\Delta E^*_{\text{CIELAB}} = 3,4$

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

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

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

AE170-3de: 11012



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

AE171-3de: 11012

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
$w^* = l^*_{\text{CIELAB}, r}$ (relative)																
w^*_{intended}	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0,0	0,082	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

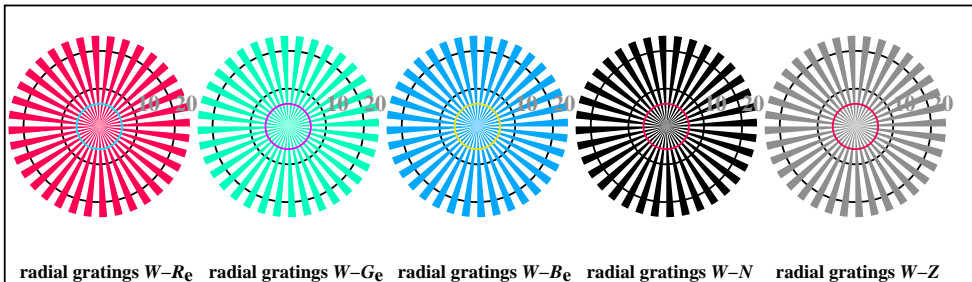
AE170-7N, Picture A7*de: 16 visual equidistant L^* -grey steps; PS operator: 0 0 0 n* setcmykcolor

In-out: Test chart AE17 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

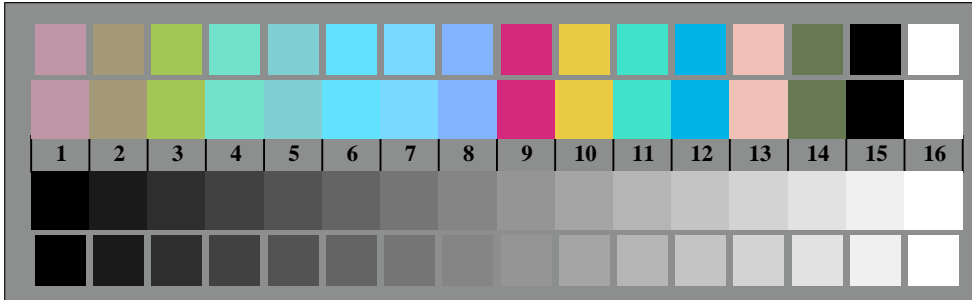
input: $rgb/cmy0/000n/w$ set...
output: $->rgb_{\text{de}}$ setrgbcolor



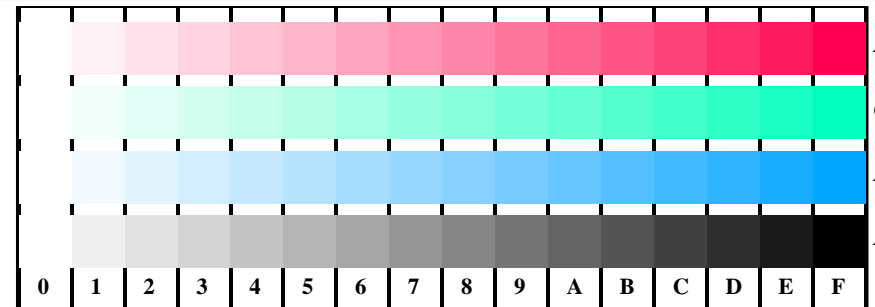
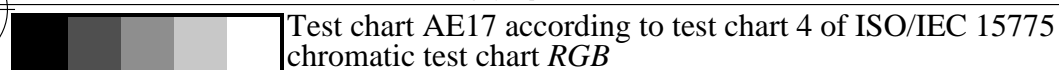
AE170-3, Picture D1W*de: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage



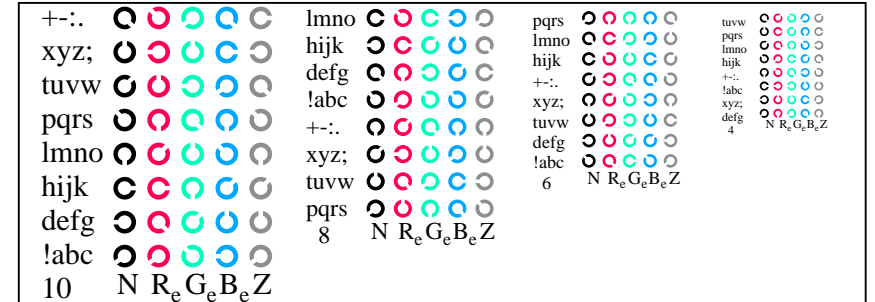
AE170-5, Picture D2W*de: radial gratings W-R_e; W-G_e; W-B_e; W-N; PS operator *rgb*->*rgb**_{de} *setrgbcolor*



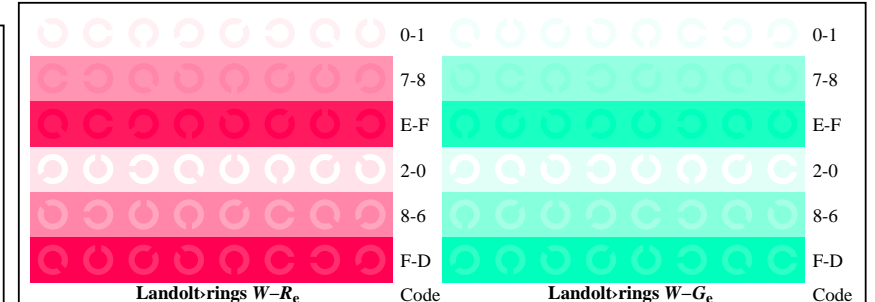
AE170-7, Picture D3W*de: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0*->*rgb**_{de} *setrgbcolor*



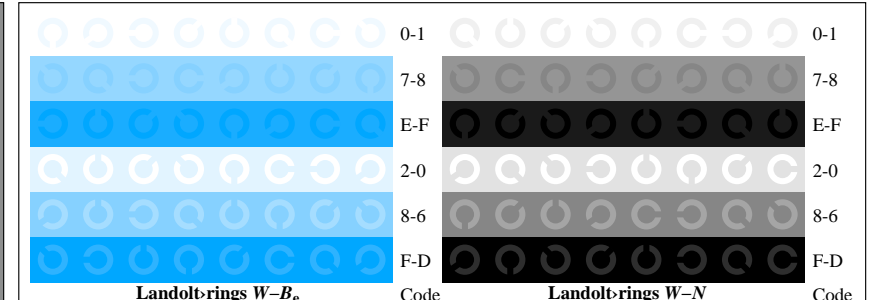
AE171-1, Picture D4W*de: 16 equidistant steps W-R_e; W-G_e; W-B_e; W-N; *rgb/cmy0*->*rgb**_{de} *setrgbcolor*



AE171-3, Picture D5W*de: Sript and Landolt-rings N; R_e; G_e; B_e; Z; PS operator *rgb*->*rgb**_{de} *setrgbcolor*



AE171-5, Picture D6W*de: Landolt-rings W-R_e; W-G_e; PS operator *rgb*->*rgb**_{de} *setrgbcolor*



AE171-7, Picture D7W*de: Landolt-rings W-B_e; W-N; PS operator *rgb*->*rgb**_{de} *setrgbcolor*

input: *rgb/cmy0*/000n/w *set*...
output: ->*rgb**_{de} *setrgbcolor*

Test for the visual linearized output of pictures D1Wde to D3Wde

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

Test of the (flower) image according to picture D1Wde

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 D2Wde

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wde

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 D3Wde

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 AE170-3de: 11021

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

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY6_1.PDF **underline Yes/No**

PS-File: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_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 AE17F0PX_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 AE17F0PX_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 AE170-7N*de-11021

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 D4Wde

	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:	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 D5Wde

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 D6Wde, and D7Wde

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 AE171-3Nde: 11021

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/AE17/AE17F0PX_CY6_3.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY6_3.PS **underline Yes/No**

Picture A7de 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/AE17/AE17F0PX_CY6_3.PDF

picture A7de **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY6_3.PS

picture A7de **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 AE171-7de: 11021

Form A: Test chart AE17 according to test chart 4 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*
chromatic test chart RGB output: *->rgb_{de} setrgbcolor*

see similar files: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY6_1.PDF
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE17.HTM>

TUB Registration: 20191001-AE17/AE17L0FA.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/AE17/AE17F0PX.PDF> / .PS; 3D-linearization, page 9/24
technical information: <http://farbe.li.tu-berlin.de/AE17/AE17LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE17/AE17L0FA.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	10,99	0,00	0,00	0,00	0,01
2	16,62	0,00	0,13	22,51	0,00
3	22,24	0,00	0,22	30,17	0,00
4	27,87	0,00	0,30	36,84	0,00
5	33,50	0,00	0,37	42,93	0,00
6	39,13	0,00	0,44	48,62	0,00
7	44,75	0,00	0,50	54,02	0,00
8	50,38	0,00	0,57	59,19	0,00
9	56,01	0,00	0,62	64,16	0,00
10	61,64	0,00	0,68	68,97	0,00
11	67,27	0,00	0,74	73,64	0,00
12	72,89	0,00	0,79	78,19	0,00
13	78,52	0,00	0,84	82,63	0,00
14	84,15	0,00	0,90	86,97	0,00
15	89,78	0,00	0,95	91,23	0,00
16	95,41	0,00	1,00	95,41	0,00
17	10,99	0,00	0,00	10,99	0,00
18	32,09	0,00	0,36	41,45	0,00
19	53,20	0,00	0,60	61,70	0,00
20	74,30	0,00	0,80	79,31	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

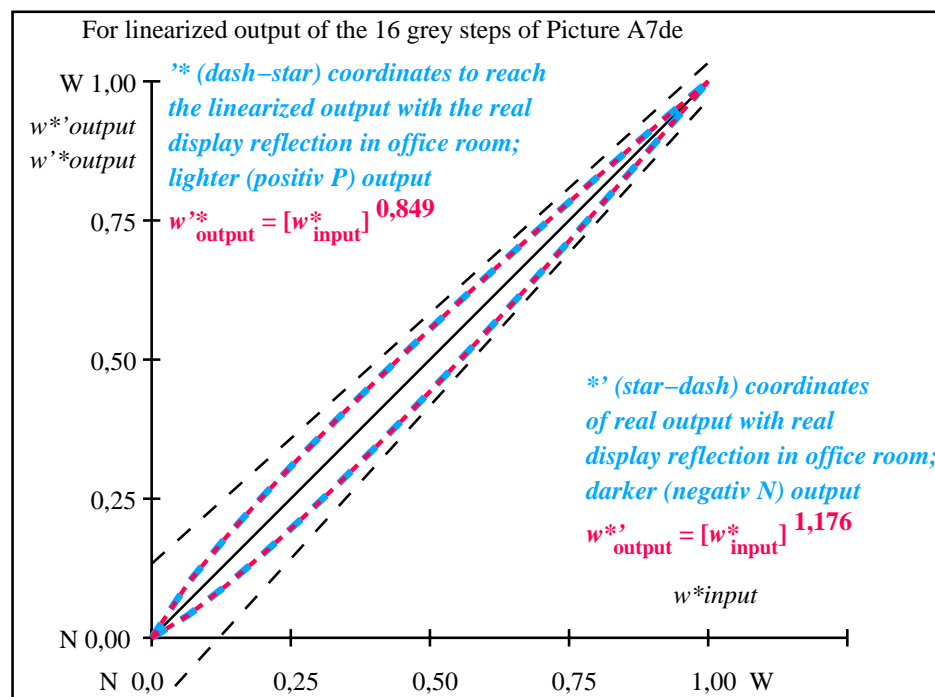
Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 5,9$

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

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

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

AE170-3de: 11022



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

AE171-3de: 11022

$L^*/Y_{intended}$ (absolute)	11.0/1.3	16.6/2.2	22.2/3.6	27.9/5.4	33.5/7.8	39.1/10.7	44.8/14.4	50.4/18.7	56.0/23.9	61.6/30.0	67.3/37.0	72.9/45.0	78.5/54.1	84.2/64.4	89.8/75.8	95.4/88.6
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
$w^* = l^*_{CIELAB, r}$ (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	0,1	0,18	0,255	0,325	0,393	0,459	0,524	0,586	0,648	0,709	0,768	0,827	0,886	0,943	1,0

AE170-7N, Picture A7*de: 16 visual equidistant L^* -grey steps; PS operator: 0 0 0 n* setcmykcolor

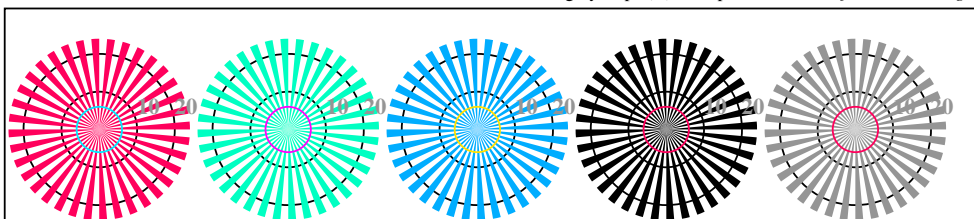
In-out: Test chart AE17 according to test chart 4 of ISO/IEC 15775
Viewing Y contrast $Y_W:Y_N=88,9:1,25$; Y_N -range 0,93 to <1,87

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

see similar files: <http://farbe.li.tu-berlin.de/AE17/AE17.HTM>
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>

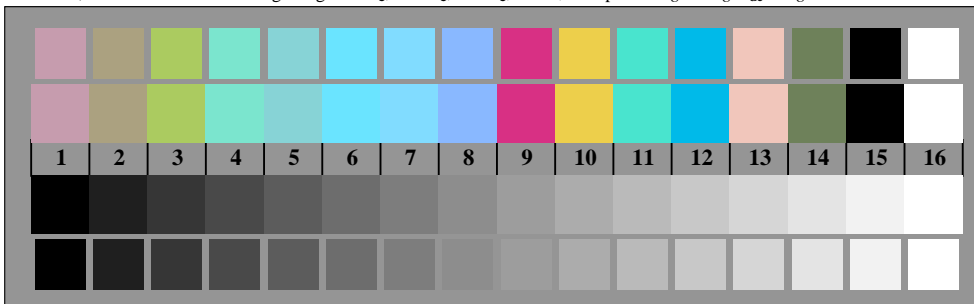


AE170-3, Picture D1W*de: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

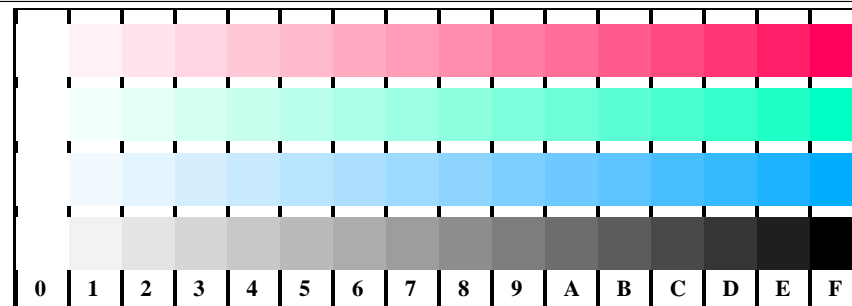
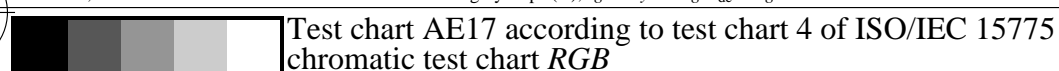


radial gratings $W-R_e$ radial gratings $W-G_e$ radial gratings $W-B_e$ radial gratings $W-N$ radial gratings $W-Z$

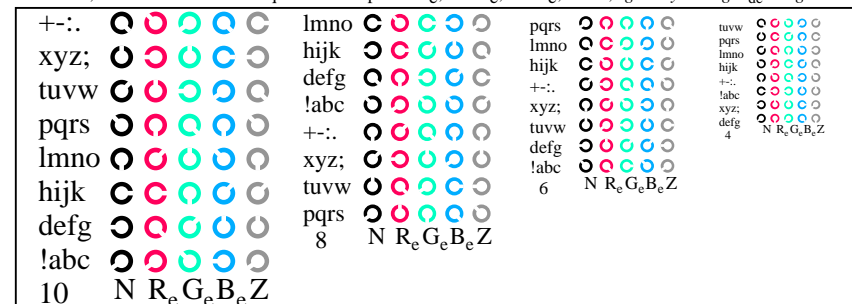
AE170-5, Picture D2W*de: radial gratings $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



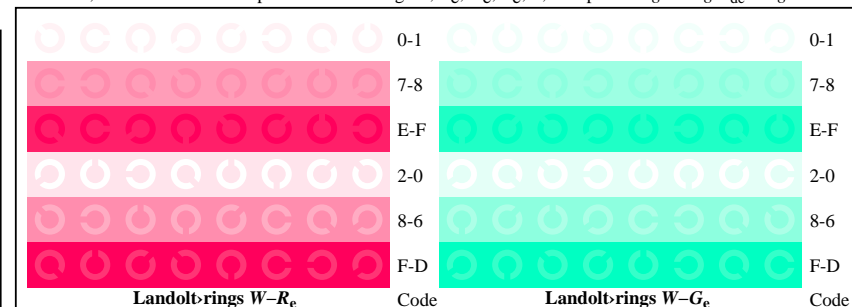
AE170-7, Picture D3W*de: 14 CIE-test colours and 2 + 16 grey steps (sf); $rgb/cmy0 \rightarrow rgb_{de}$ *setrgbcolor*



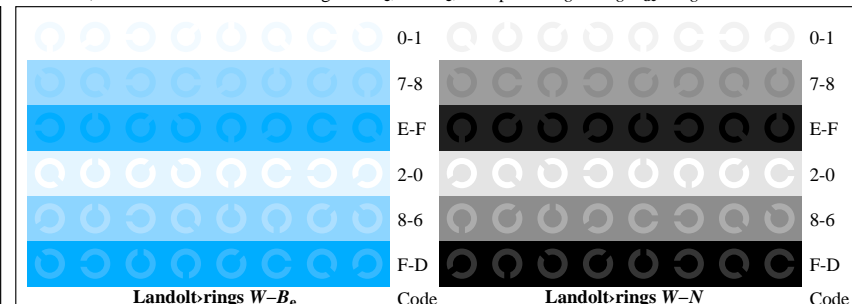
AE171-1, Picture D4W*de: 16 equidistant steps $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; $rgb/cmy0 \rightarrow rgb_{de}$ *setrgbcolor*



AE171-3, Picture D5W*de: Sript and Landolt-rings N ; R_e ; G_e ; B_e ; Z ; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



AE171-5, Picture D6W*de: Landolt-rings $W-R_e$; $W-G_e$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



AE171-7, Picture D7W*de: Landolt-rings $W-B_e$; $W-N$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*

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

TUB Registration: 20191001-AE17/AE17L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=th4ta

Test for the visual linearized output of pictures D1Wde to D3Wde
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1Wde
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 D2Wde
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 D3Wde
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 D3Wde
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 AE170-3de: 11031

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

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY5_1.PDF **underline Yes/No**

PS-File: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_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 AE17F0PX_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 AE17F0PX_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 AE170-7N*de-11031

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 D4Wde

$W-R_d$ 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 D5Wde

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 D6Wde, and D7Wde

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 AE171-3Nde: 11031

Documentation of assessor colour vision properties for visual assessment

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

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

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY5_3.PDF

underline Yes/No

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY5_3.PS

underline Yes/No

Picture A7de 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/AE17/AE17F0PX_CY5_3.PDF

picture A7de

underline Yes/No

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY5_3.PS

picture A7de

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 AE171-7de: 11031

Form A: Test chart AE17 according to test chart 4 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*
chromatic test chart RGB output: *->rgb_{de} setrgbcolor*

see similar files: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY5_1.PDF
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE17.HTM>

TUB Registration: 20191001-AE17/AE17L0FA.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/AE17/AE17F0PX.PDF> / .PS; 3D-linearization, page 12/24
technical information: <http://farbe.li.tu-berlin.de/AE17/AE17LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE17/AE17L0FA.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

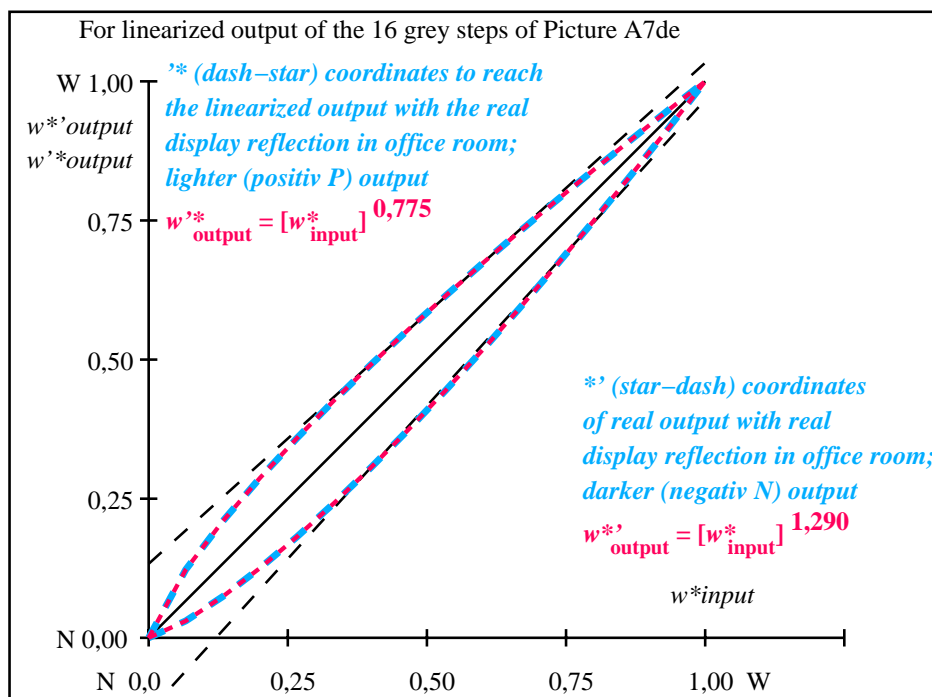
Mean lightness difference (16 steps)
 $\Delta E^*_{\text{CIELAB}} = 7,5$

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

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

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

AE170-3de: 11032



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

AE171-3de: 11032

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
$w^* = l^*_{\text{CIELAB}, r}$ (relative)																
w^*_{intended}	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0,0	0,123	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

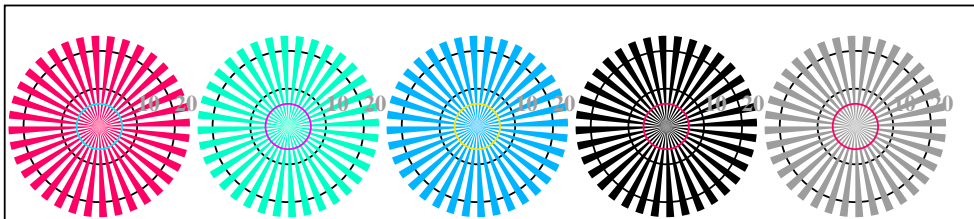
AE170-7N, Picture A7*de: 16 visual equidistant L^* -grey steps; PS operator: 0 0 0 n* setcmykcolor

In-out: Test chart AE17 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: $->rgb_{\text{de}}$ setrgbcolor



AE170-3, Picture D1W*de: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

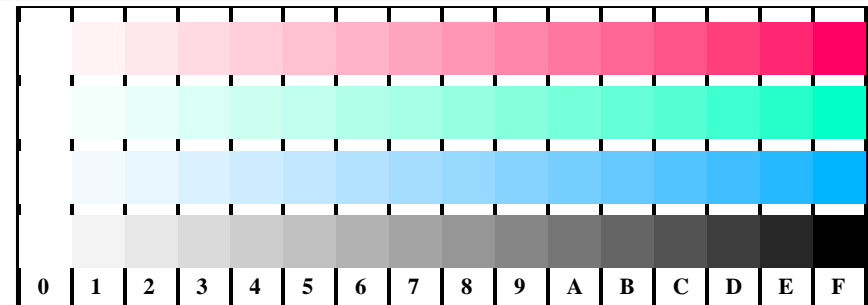
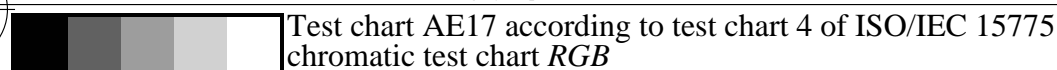


radial gratings $W-R_e$ radial gratings $W-G_e$ radial gratings $W-B_e$ radial gratings $W-N$ radial gratings $W-Z$

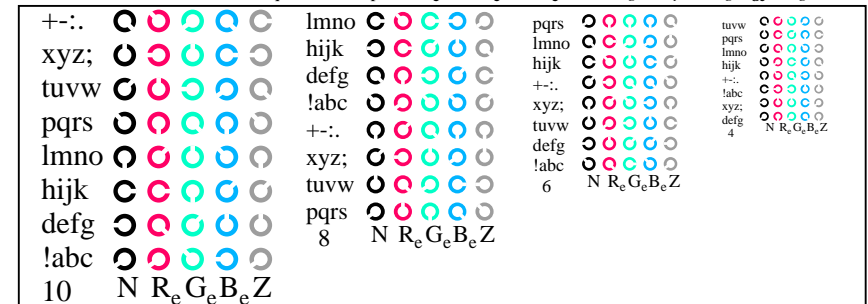
AE170-5, Picture D2W*de: radial gratings $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



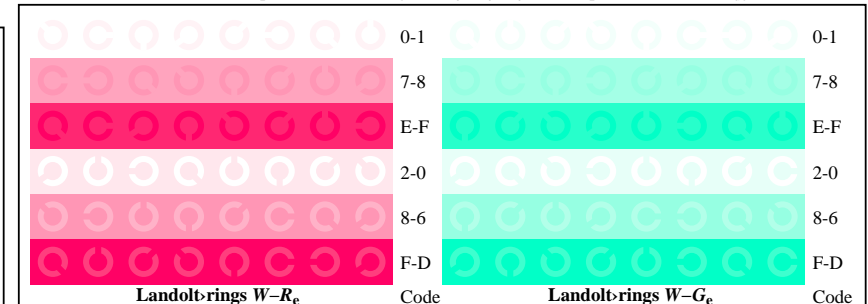
AE170-7, Picture D3W*de: 14 CIE-test colours and 2 + 16 grey steps (sf); $rgb/cmy0 \rightarrow rgb_{de}$ *setrgbcolor*



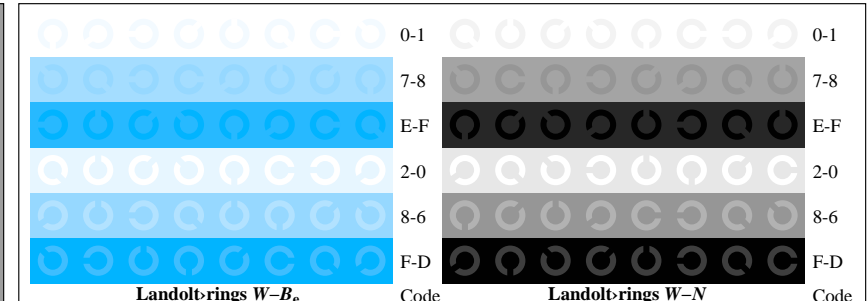
AE171-1, Picture D4W*de: 16 equidistant steps $W-R_e$; $W-G_e$; $W-B_e$; $W-N$; $rgb/cmy0 \rightarrow rgb_{de}$ *setrgbcolor*



AE171-3, Picture D5W*de: Sript and Landolt-rings N ; R_e ; G_e ; B_e ; Z ; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



AE171-5, Picture D6W*de: Landolt-rings $W-R_e$; $W-G_e$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*



AE171-7, Picture D7W*de: Landolt-rings $W-B_e$; $W-N$; PS operator $rgb \rightarrow rgb_{de}$ *setrgbcolor*

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

Test for the visual linearized output of pictures D1Wde to D3Wde

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

Test of the (flower) image according to picture D1Wde

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 D2Wde

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wde

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 D3Wde

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 AE170-3de: 11041

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

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY4_1.PDF **underline Yes/No**

PS-File: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_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 AE17F0PX_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 AE17F0PX_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 AE170-7N*de-11041

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 D4Wde

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	Yes/No
$W-G_d$ White - Green:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No
$W-B_d$ White - Blue:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No
$W-N$ White - Black:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No

Test of characters and Landolt-rings in four sizes according to picture D5Wde

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 D6Wde, and D7Wde

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 AE171-3Nde: 11041

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/AE17/AE17F0PX_CY4_3.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY4_3.PS **underline Yes/No**

Picture A7de 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/AE17/AE17F0PX_CY4_3.PDF

picture A7de **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY4_3.PS

picture A7de **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 AE171-7de: 11041

Form A: Test chart AE17 according to test chart 4 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*
chromatic test chart RGB output: *->rgb_{de} setrgbcolor*

TUB Registration: 20191001-AE17/AE17L0FA.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/AE17/AE17F0PX.PDF> / .PS; 3D-linearization, page 15/24
technical information: <http://farbe.li.tu-berlin.de/AE17/AE17LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE17/AE17L0FA.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	26,84	0,00	0,00	26,84	0,00	0,00
2	31,41	0,00	0,00	2,20	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

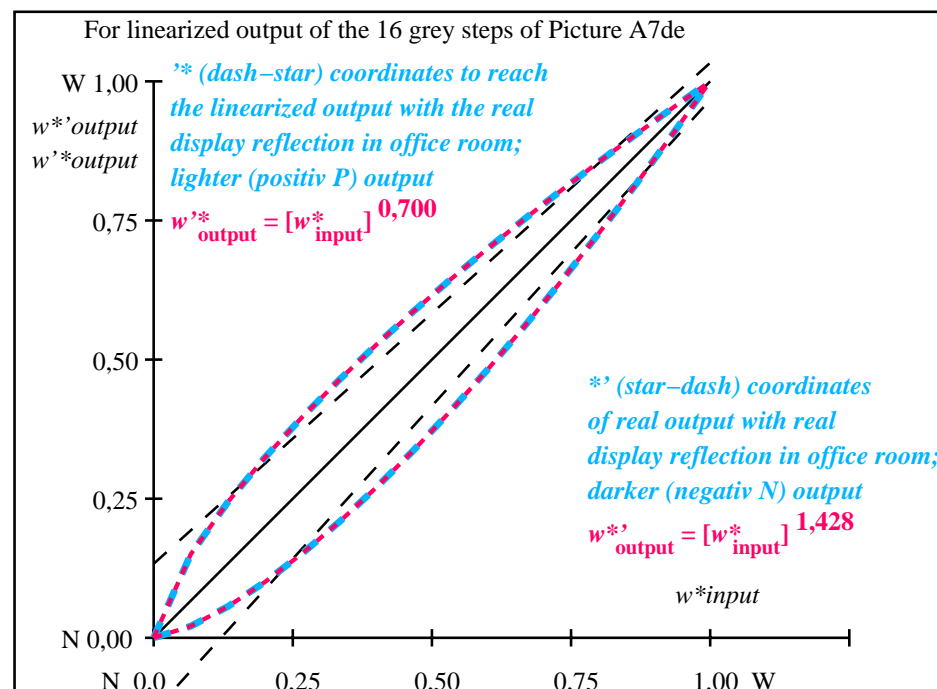
Mean lightness difference (16 steps)
 $\Delta E^*_{\text{CIELAB}} = 8,3$

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

AE170-3de: 11042



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

AE171-3de: 11042

L^*/Y_{intended} (absolute)	26.8/5.0	31.4/6.8	36.0/9.0	40.6/11.6	45.1/14.6	49.7/18.2	54.3/22.2	58.8/26.9	63.4/32.1	68.0/38.0	72.6/44.5	77.1/51.7	81.7/59.7	86.3/68.5	90.8/78.1	95.4/88.6
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^*_{intended}	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0,0	0,151	0,244	0,324	0,397	0,463	0,527	0,587	0,644	0,699	0,753	0,805	0,855	0,905	0,953	1,0

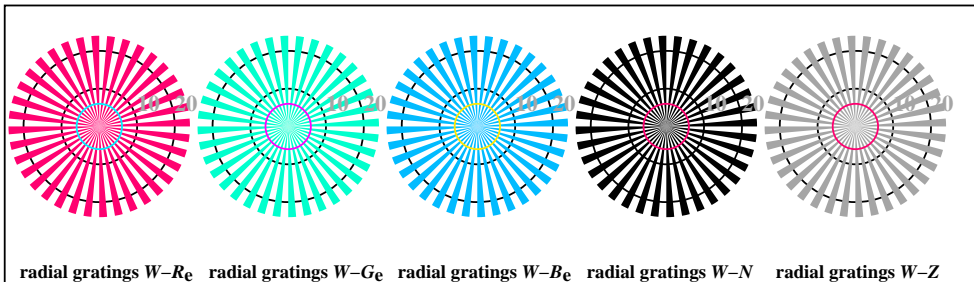
AE170-7N, Picture A7*de: 16 visual equidistant L^* -grey steps; PS operator: 0 0 0 n* setcmykcolor

In-out: Test chart AE17 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

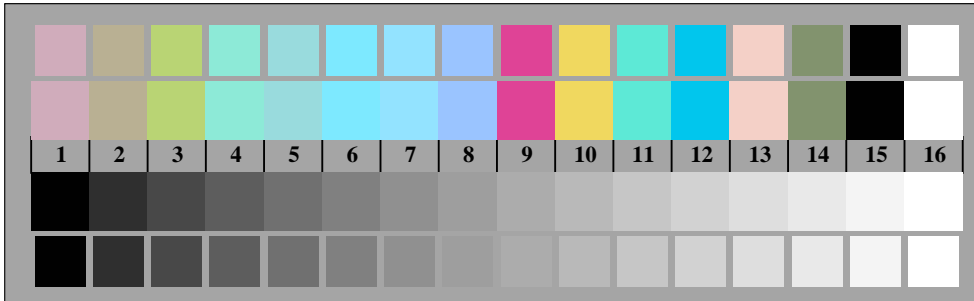
input: $rgb/cmy0/000n/w$ set...
output: $->rgb_{\text{de}}$ setrgbcolor



AE170-3, Picture D1W*de: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

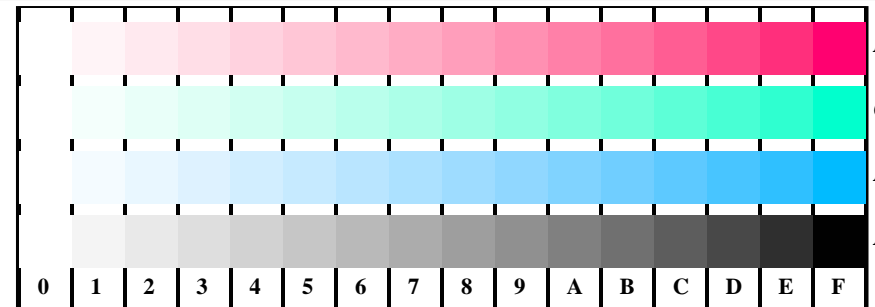


AE170-5, Picture D2W*de: radial gratings W-Re; W-Ge; W-Be; W-N; PS operator *rgb->rgb*de setrgbcolor*

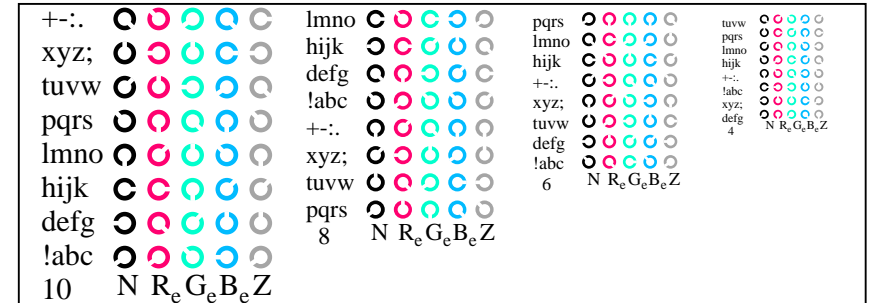


AE170-7, Picture D3W*de: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0->rgb*de setrgbcolor*

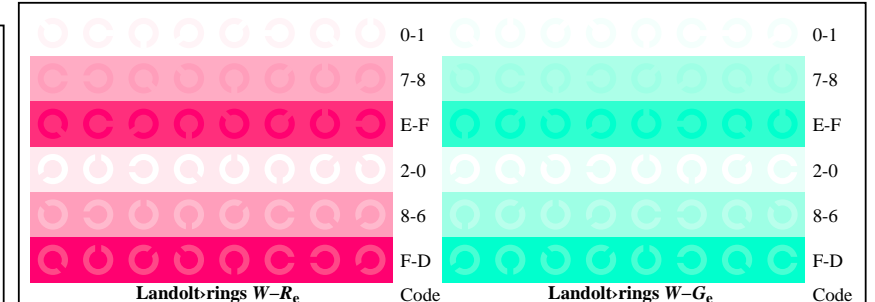
Test chart AE17 according to test chart 4 of ISO/IEC 15775
chromatic test chart RGB



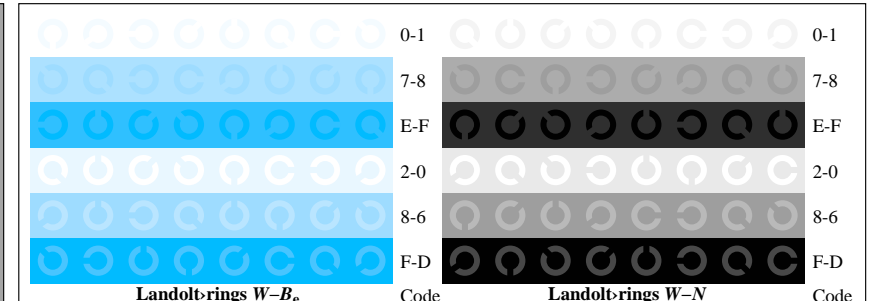
AE171-1, Picture D4W*de: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; *rgb/cmy0->rgb*de setrgbcolor*



AE171-3, Picture D5W*de: Sript and Landolt-rings N; Re; Ge; Be; Z; PS operator *rgb->rgb*de setrgbcolor*



AE171-5, Picture D6W*de: Landolt-rings W-Re; W-Ge; PS operator *rgb->rgb*de setrgbcolor*



AE171-7, Picture D7W*de: Landolt-rings W-Be; W-N; PS operator *rgb->rgb*de setrgbcolor*

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

Test for the visual linearized output of pictures D1Wde to D3Wde

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

Test of the (flower) image according to picture D1Wde

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 D2Wde

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wde

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 D3Wde

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 AE170-3de: 11051

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

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY3_1.PDF **underline Yes/No**

PS-File: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_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 AE17F0PX_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 AE17F0PX_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 AE170-7N*de-11051

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 D4Wde

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

Test of characters and Landolt-rings in four sizes according to picture D5Wde

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 D6Wde, and D7Wde

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 AE171-3Nde: 11051

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/AE17/AE17F0PX_CY3_3.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY3_3.PS **underline Yes/No**

Picture A7de contrast range: (>F:0) (F:0) (D:0) (C:0) (A:0) (9:0) (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/AE17/AE17F0PX_CY3_3.PDF

picture A7de **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY3_3.PS

picture A7de **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 AE171-7de: 11051

Form A: Test chart AE17 according to test chart 4 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*
chromatic test chart RGB output: *->rgb_{de} setrgbcolor*

TUB Registration: 20191001-AE17/AE17L0FA.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/AE17/AE17F0PX.PDF> / .PS; 3D-linearization, page 18/24
technical information: <http://farbe.li.tu-berlin.de/AE17/AE17LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE17/AE17L0FA.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

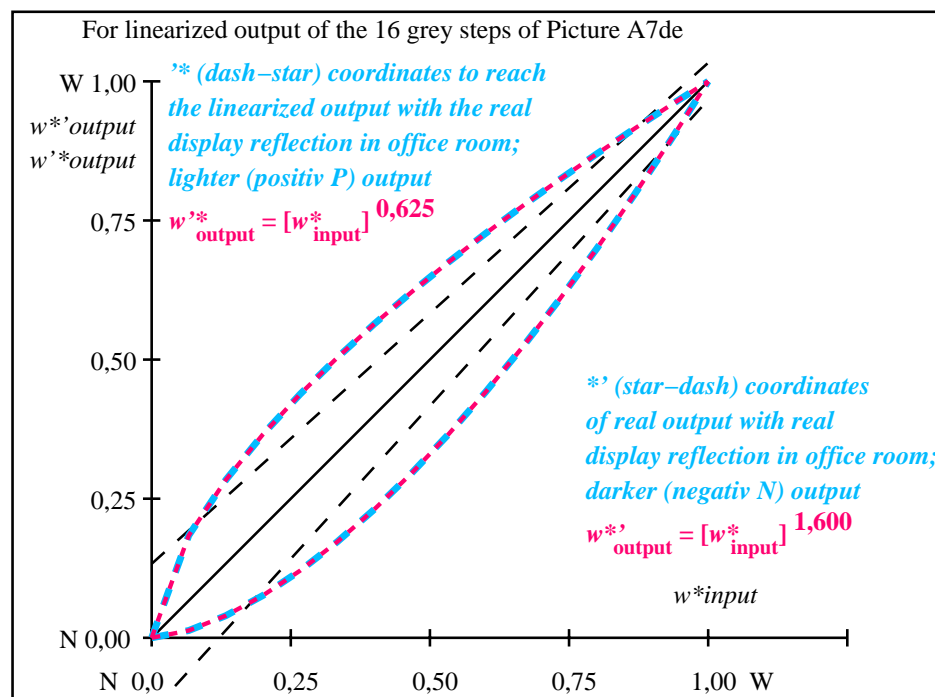
Mean lightness difference (16 steps)
 $\Delta E^*_{CIE\text{LAB}} = 8,1$

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

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

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

AE170-3de: 11052



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

AE171-3de: 11052

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
$w^* = l^*_{CIE\text{LAB}, r}$ (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

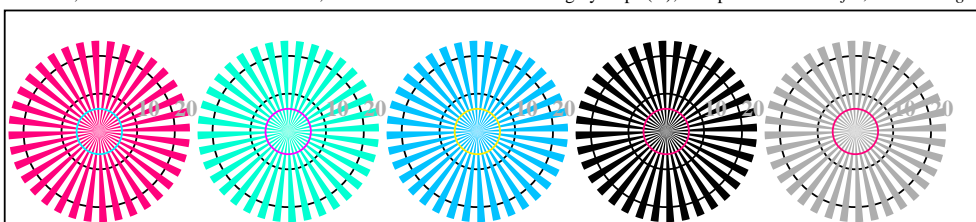
AE170-7N, Picture A7*de: 16 visual equidistant L^* -grey steps; PS operator: 0 0 0 n* setcmykcolor

In-out: Test chart AE17 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: $->rgb_{de}$ setrgbcolor



AE170-3, Picture D1W*de: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

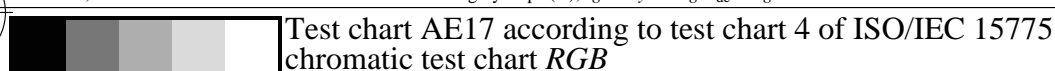


radial gratings W-Re radial gratings W-Ge radial gratings W-Be radial gratings W-N radial gratings W-Z

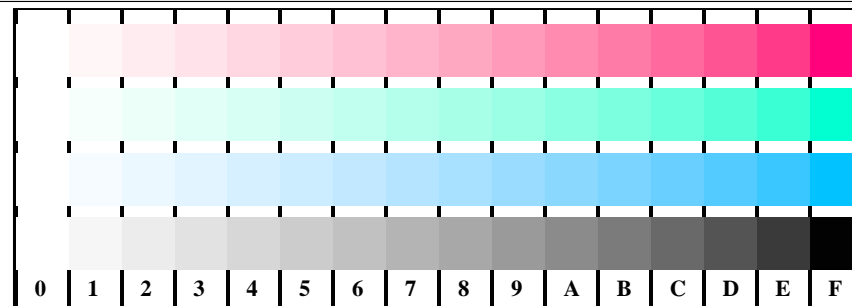
AE170-5, Picture D2W*de: radial gratings W-Re; W-Ge; W-Be; W-N; PS operator *rgb->rgb*de setrgbcolor*



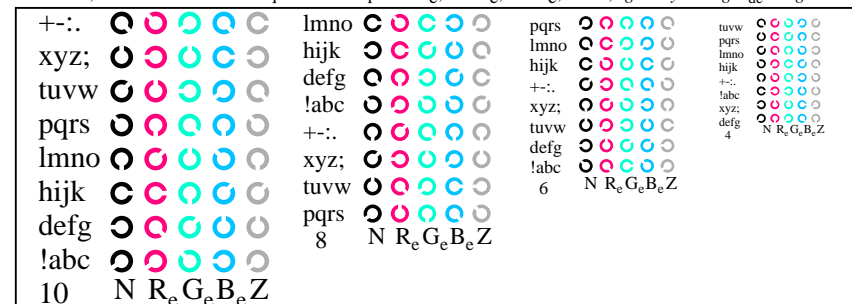
AE170-7, Picture D3W*de: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0->rgb*de setrgbcolor*



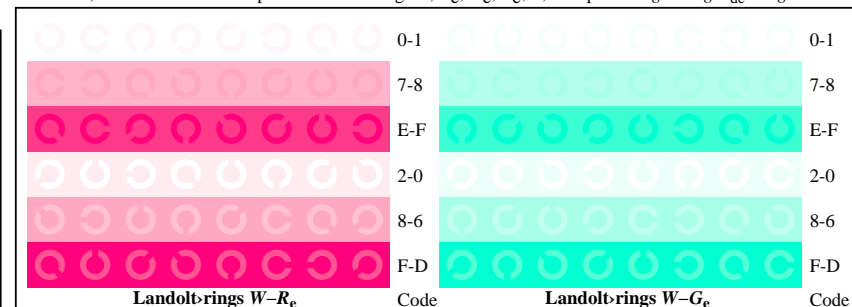
Test chart AE17 according to test chart 4 of ISO/IEC 15775
chromatic test chart RGB



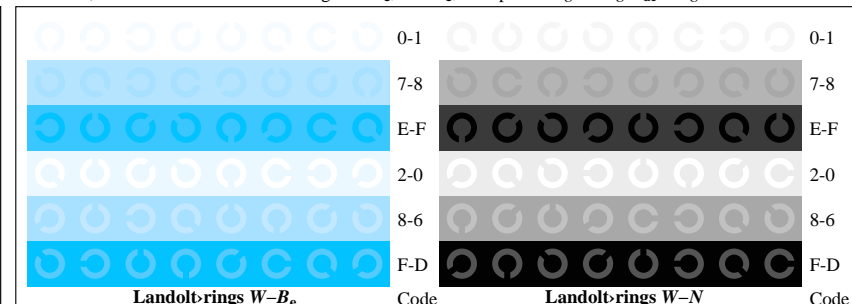
AE171-1, Picture D4W*de: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; *rgb/cmy0->rgb*de setrgbcolor*



AE171-3, Picture D5W*de: Sript and Landolt-rings N; Re; Ge; Be; Z; PS operator *rgb->rgb*de setrgbcolor*



AE171-5, Picture D6W*de: Landolt-rings W-Re; W-Ge; PS operator *rgb->rgb*de setrgbcolor*



AE171-7, Picture D7W*de: Landolt-rings W-Be; W-N; PS operator *rgb->rgb*de setrgbcolor*

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

Test for the visual linearized output of pictures D1Wde to D3Wde
Output test with the computer display () or the external display () please mark by (x)!

Test of the (flower) image according to picture D1Wde
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 D2Wde
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 D3Wde
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 D3Wde
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 AE170-3de: 11061

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

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY2_1.PDF **underline Yes/No**

PS-File: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_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 AE17F0PX_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 AE17F0PX_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 AE170-7N*de-11061

Form A: Test chart AE17 according to test chart 4 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*
chromatic test chart *RGB* output: *->rgb_{de} 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 D4Wde

$W-R_d$ 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 D5Wde

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 D6Wde, and D7Wde

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 AE171-3Nde: 11061

Documentation of assessor colour vision properties for visual assessment

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

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

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY2_3.PDF

underline Yes/No

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY2_3.PS

underline Yes/No

Picture A7de contrast range: (>F:0) (F:0) (D:0) (C:0) (A:0) (9:0) (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/AE17/AE17F0PX_CY2_3.PDF

picture A7de

underline Yes/No

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY2_3.PS

picture A7de

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 AE171-7de: 11061

see similar files: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY2_1.PDF
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE17.HTM>

TUB Registration: 20191001-AE17/AE17L0FA.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/AE17/AE17F0PX.PDF> / .PS; 3D-linearization, page 21/24
technical information: <http://farbe.li.tu-berlin.de/AE17/AE17LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE17/AE17L0FA.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	52,01	0,00	0,00	52,01	0,00
2	54,91	0,00	0,00	63,82	0,00
3	57,80	0,00	0,00	68,48	0,00
4	60,69	0,00	0,00	72,03	0,00
5	63,58	0,00	0,00	75,00	0,00
6	66,48	0,00	0,00	77,60	0,00
7	69,37	0,00	0,00	79,94	0,00
8	72,26	0,00	0,00	82,09	0,00
9	75,16	0,00	0,00	84,09	0,00
10	78,05	0,00	0,00	85,96	0,00
11	80,94	0,00	0,00	87,72	0,00
12	83,83	0,00	0,00	89,39	0,00
13	86,73	0,00	0,00	90,99	0,00
14	89,62	0,00	0,00	92,52	0,00
15	92,51	0,00	0,00	93,99	0,00
16	95,41	0,00	0,00	95,41	0,00
17	52,01	0,00	0,00	52,01	0,00
18	62,86	0,00	0,00	74,30	0,00
19	73,71	0,00	0,00	83,11	0,00
20	84,56	0,00	0,00	89,80	0,00
21	95,41	0,00	0,00	95,41	0,00

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

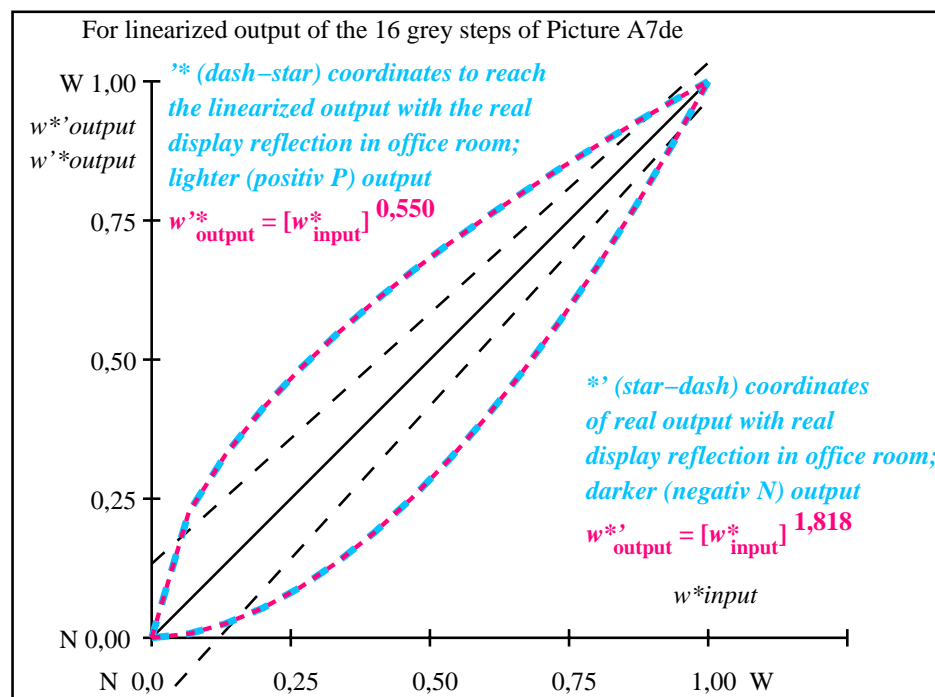
Mean lightness difference (16 steps)
 $\Delta E^*_{\text{CIELAB}} = 6,9$

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

AE170-3de: 11062



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

AE171-3de: 11062

L^*/Y_{intended} (absolute)	52.0/20.2	54.9/22.8	57.8/25.8	60.7/28.9	63.6/32.3	66.5/36.0	69.4/39.9	72.3/44.1	75.2/48.5	78.1/53.3	80.9/58.4	83.8/63.8	86.7/69.5	89.6/75.5	92.5/81.9	95.4/88.6
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)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{intended}	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0,0	0,226	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

AE170-7N, Picture A7*de: 16 visual equidistant L^* -grey steps; PS operator: 0 0 0 n* setcmykcolor

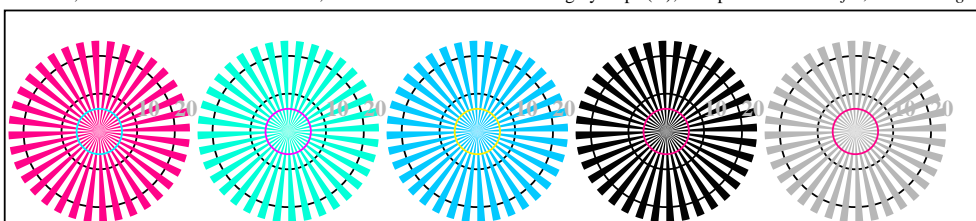
In-out: Test chart AE17 according to test chart 4 of ISO/IEC 15775
Viewing Y contrast $Y_W:Y_N=88,9:20$; Y_N -range 15 to <30

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

see similar files: <http://farbe.li.tu-berlin.de/AE17/AE17.HTM>
technical information: <http://farbe.li.tu-berlin.de/> or <http://farbe.li.tu-berlin.de/AE.HTM>



AE170-3, Picture D1W*de: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (sf); PS operators *settransfer*, 3 colorimage

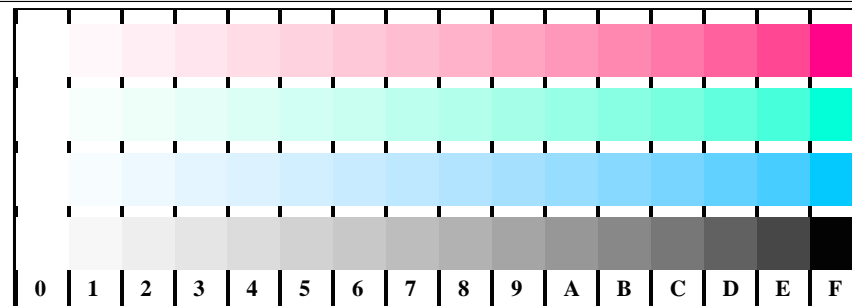
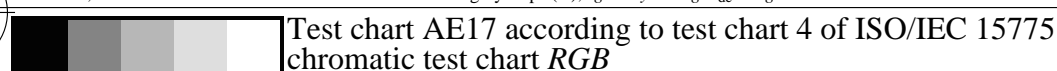


radial gratings W-Re radial gratings W-Ge radial gratings W-Be radial gratings W-N radial gratings W-Z

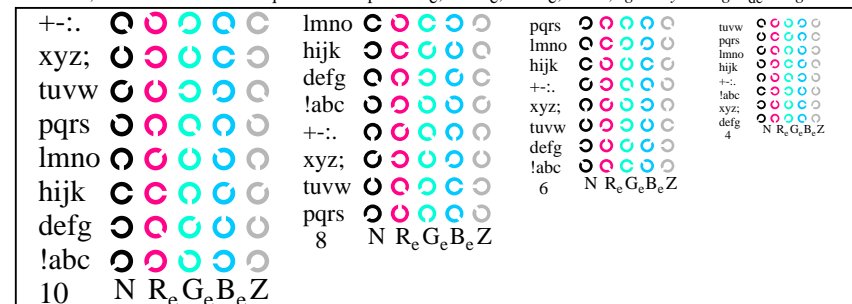
AE170-5, Picture D2W*de: radial gratings W-Re; W-Ge; W-Be; W-N; PS operator *rgb->rgb*de setrgbcolor*



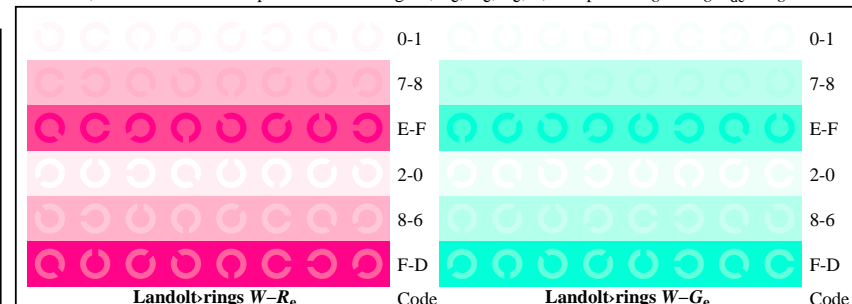
AE170-7, Picture D3W*de: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0->rgb*de setrgbcolor*



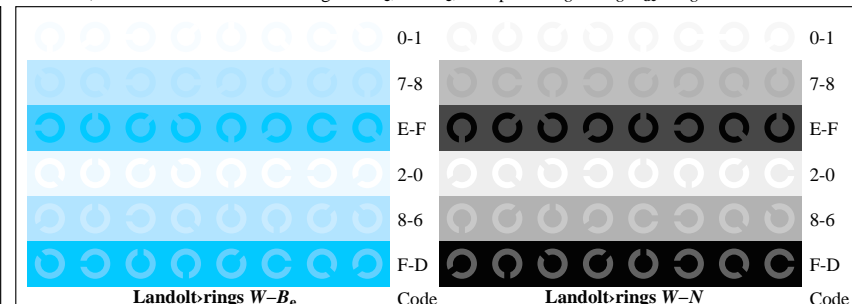
AE171-1, Picture D4W*de: 16 equidistant steps W-Re; W-Ge; W-Be; W-N; *rgb/cmy0->rgb*de setrgbcolor*



AE171-3, Picture D5W*de: Sript and Landolt-rings N; Re; Ge; Be; Z; PS operator *rgb->rgb*de setrgbcolor*



AE171-5, Picture D6W*de: Landolt-rings W-Re; W-Ge; PS operator *rgb->rgb*de setrgbcolor*



AE171-7, Picture D7W*de: Landolt-rings W-Be; W-N; PS operator *rgb->rgb*de setrgbcolor*

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

TUB Registration: 20191001-AE17/AE17L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=th4ta

Test for the visual linearized output of pictures D1Wde to D3Wde

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

Test of the (flower) image according to picture D1Wde

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 D2Wde

	$W-R_d$	$W-G_d$	$W-B_d$	$W-N$	$W-Z$
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 D3Wde

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 D3Wde

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

AE170-3de: 11071

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

PDF file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY1_1.PDF **underline Yes/No**

PS-File: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_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 AE17F0PX_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 AE17F0PX_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

AE170-7N*de-11071

Form A: Test chart AE17 according to test chart 4 of ISO/IEC 15775 input: $rgb/cmy0/000n/w$ set...
chromatic test chart RGB output: $->rgb_{de}$ 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 D4Wde

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	Yes/No
$W-G_d$ White - Green:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No
$W-B_d$ White - Blue:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No
$W-N$ White - Black:	If No: How many steps can be distinguished? of the given 16 steps	..... Steps	Yes/No

Test of characters and Landolt-rings in four sizes according to picture D5Wde

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 D6Wde, and D7Wde

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

AE171-3Nde: 11071

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/AE17/AE17F0PX_CY1_3.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY1_3.PS **underline Yes/No**

Picture A7de contrast range: (>F:0) (F:0) (D:0) (C:0) (A:0) (9:0) (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/AE17/AE17F0PX_CY1_3.PDF

picture A7de **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE17/AE17F0PX_CY1_3.PS

picture A7de **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

AE171-7de: 11071

TUB Registration: 20191001-AE17/AE17L0FA.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/AE17/AE17F0PX.PDF> / .PS; 3D-linearization, page 24/24
technical information: <http://farbe.li.tu-berlin.de/AE17/AE17LF0PX.PDF> / .PS in file (F)

TUB Registration: 20191001-AE17/AE17L0FA.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

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

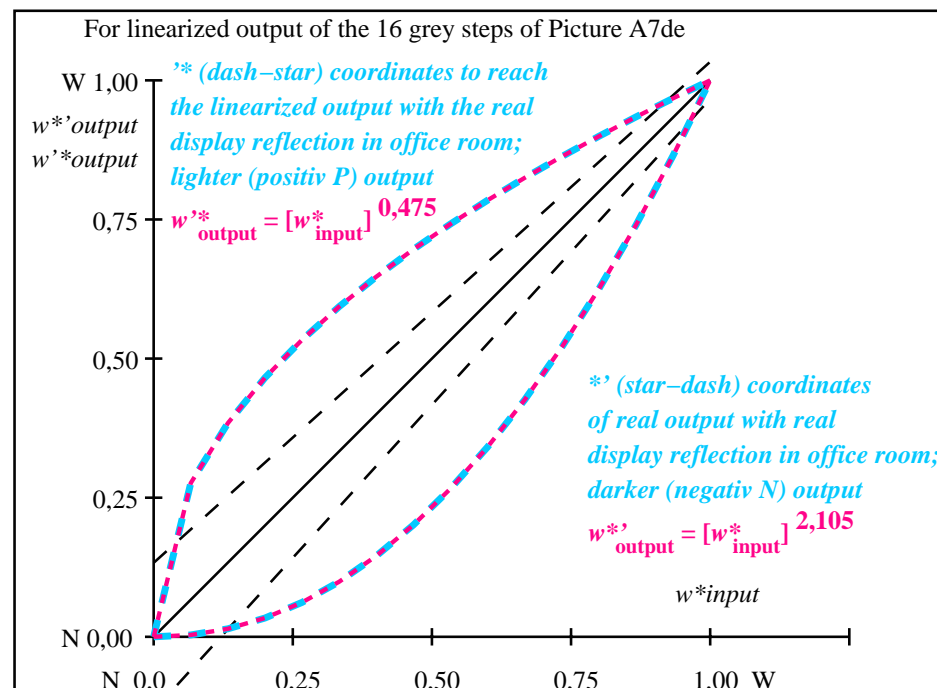
Mean lightness difference (16 steps)
 $\Delta E^*_{\text{CIELAB}} = 4,5$

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

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

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

AE170-3de: 11072



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

AE171-3de: 11072

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
$000n^*$ 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)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{intended}	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0,0	0,277	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

AE170-7N, Picture A7*de: 16 visual equidistant L^* -grey steps; PS operator: 000n* setcmykcolor

In-out: Test chart AE17 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: $->rgb_{de}$ setrgbcolor