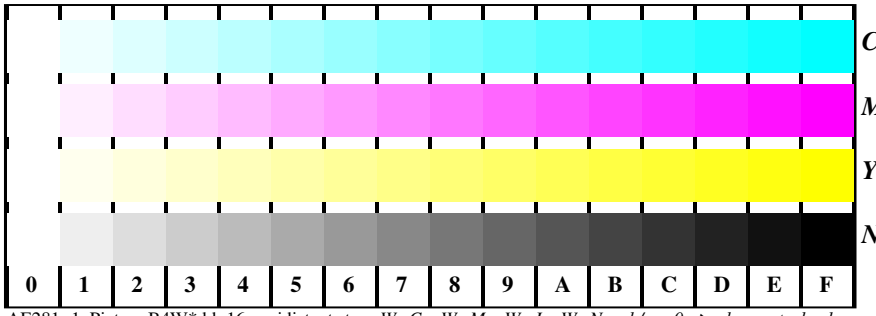
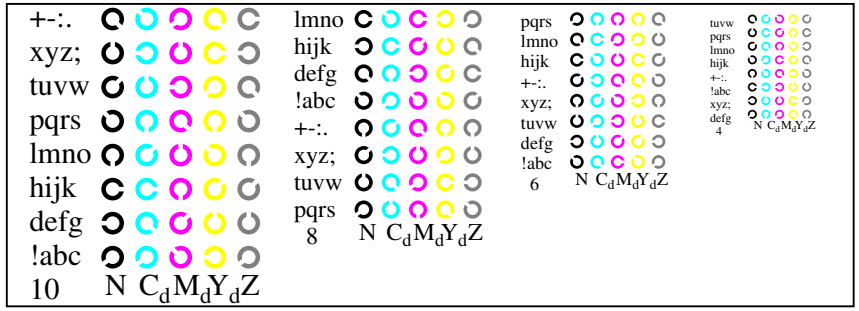
see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

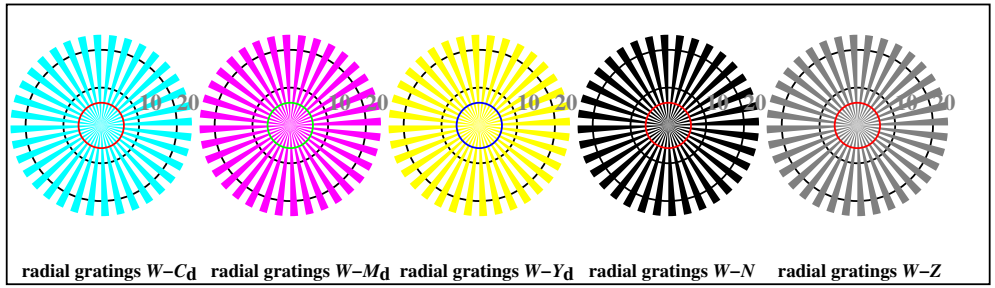
AE280–3, Picture B1W*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (nf); *PS* operators *settransfer, 3 colorimage*



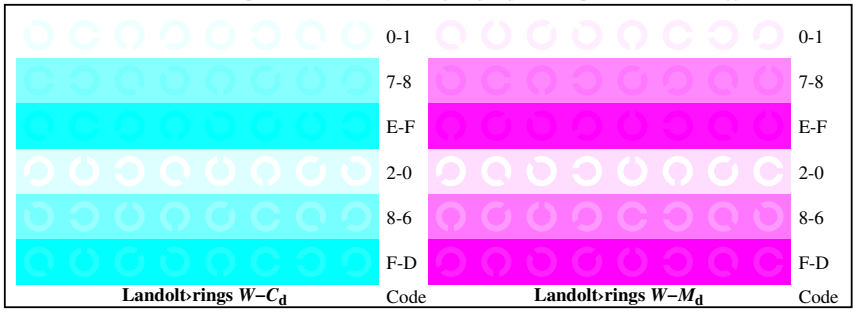
AE281–1, Picture B4W*dd: 16 equidistant steps $W–C_d$; $W–M_d$; $W–J_d$; $W–N$; *rgb/cmy0–>rgb*dd setrgbcolor*



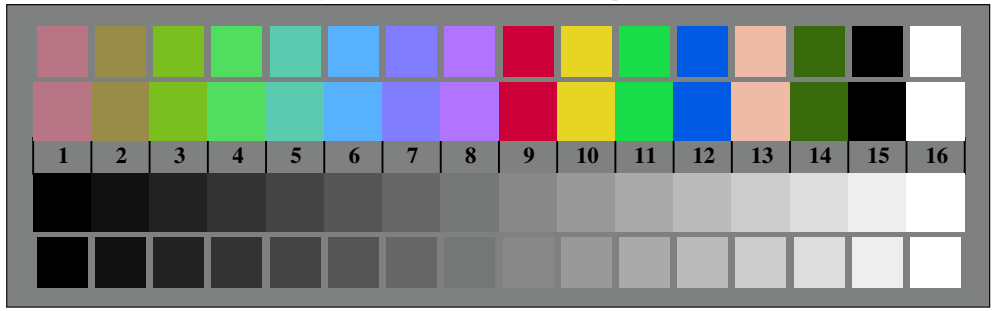
AE281–3, Picture B5W*dd: Sript and Landolt-rings *N*; C_d; M_d; Y_d; *Z*; *PS* operator *rgb–>rgb*dd setrgbcolor*



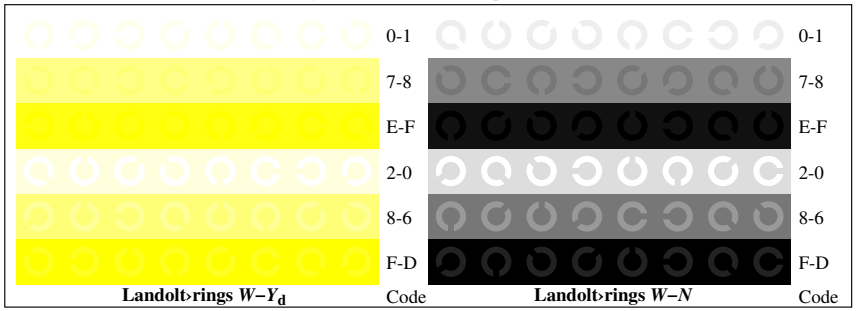
AE280–5, Picture B2W*dd: radial gratings $W–C_d$; $W–M_d$; $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE281–5, Picture B6W*dd: Landolt-rings $W–C_d$; $W–M_d$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE280–7, Picture B3W*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0–>rgb*dd setrgbcolor*



AE281–7, Picture B7W*dd: Landolt-rings $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*

Test chart AE28 according to test chart 2 of ISO/IEC 15775
chromatic test chart *CMYK*

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

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

Test for the visual linearized output of pictures B1Wdd **to B3W**dd

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

Test of the (flower) image according to picture B1Wdd

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−C*$_d$, *W−M*$_d$, *W−Y*$_d$ according to picture B2Wdd

	***W−C*$_d$**	***W−M*$_d$**	***W−Y*$_d$**	***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 B3Wdd

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 B3W**dd

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 AE280−3dd: 01001

Test of 16 visually equally spaced steps of the colour rows *W−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to picture B4Wdd

***W−C*$_d$** White − Cyanblue:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−M*$_d$** White − Magentared:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−Y*$_d$** White − Yellow:	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 B5Wdd

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 ***C*$_d$**	Ring ***M*$_d$**	Ring ***Y*$_d$**
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to pictures B6Wdd**, and B7W**dd

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

Colour row ***W−C*$_d$** background − ring		Colour row ***W−M*$_d$** background − ring		Colour row ***W−Y*$_d$** 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 AE281−3Ndd: 01001

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

PDF file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY8_1.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE28F0PX_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 AE28F0PX_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 AE280−7N*dd-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/AE28/AE28F0PX_CY8_3.PDF **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY8_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/AE28/AE28F0PX_CY8_3.PDF
picture A7dd **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE281−7dd: 01001

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

i	LAB*ref			l*out	LAB*out			LAB*out−ref			ΔE*
1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01
2	6,36	0,00	0,00	0,06	6,36	0,00	0,00	0,00	0,00	0,00	0,01
3	12,72	0,00	0,00	0,13	12,72	0,00	0,00	0,00	0,00	0,00	0,01
4	19,08	0,00	0,00	0,20	19,08	0,00	0,00	0,00	0,00	0,00	0,01
5	25,44	0,00	0,00	0,26	25,44	0,00	0,00	0,00	0,00	0,00	0,01
6	31,80	0,00	0,00	0,33	31,80	0,00	0,00	0,00	0,00	0,00	0,01
7	38,16	0,00	0,00	0,40	38,16	0,00	0,00	0,00	0,00	0,00	0,01
8	44,52	0,00	0,00	0,46	44,52	0,00	0,00	0,00	0,00	0,00	0,01
9	50,88	0,00	0,00	0,53	50,88	0,00	0,00	0,00	0,00	0,00	0,01
10	57,24	0,00	0,00	0,60	57,24	0,00	0,00	0,00	0,00	0,00	0,01
11	63,60	0,00	0,00	0,66	63,60	0,00	0,00	0,00	0,00	0,00	0,01
12	69,96	0,00	0,00	0,73	69,96	0,00	0,00	0,00	0,00	0,00	0,01
13	76,32	0,00	0,00	0,80	76,32	0,00	0,00	0,00	0,00	0,00	0,01
14	82,68	0,00	0,00	0,86	82,68	0,00	0,00	0,00	0,00	0,00	0,01
15	89,04	0,00	0,00	0,93	89,04	0,00	0,00	0,00	0,00	0,00	0,01
16	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01
17	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01
18	23,85	0,00	0,00	0,25	23,85	0,00	0,00	0,00	0,00	0,00	0,01
19	47,70	0,00	0,00	0,50	47,70	0,00	0,00	0,00	0,00	0,00	0,01
20	71,55	0,00	0,00	0,75	71,55	0,00	0,00	0,00	0,00	0,00	0,01
21	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01

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

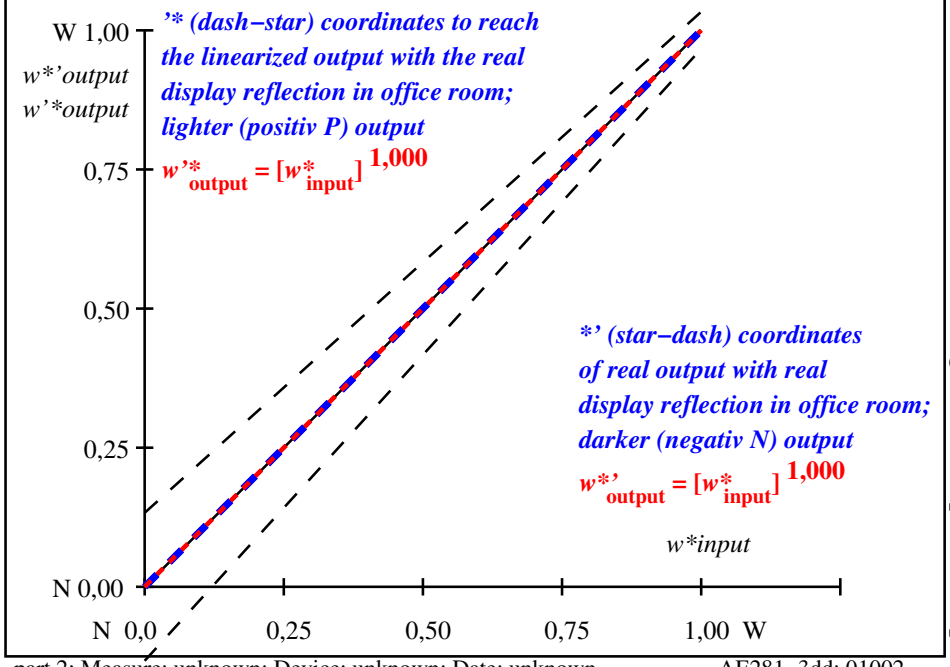
Mean lightness difference (16 steps)
ΔE^*_{CIELAB} = 0,0

Mean lightness difference (5 steps)
ΔL^*_{CIELAB} = 0,0

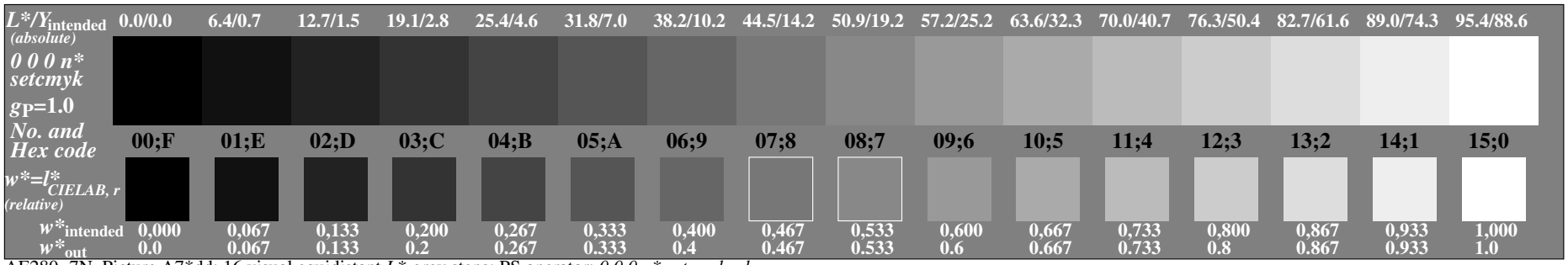
Mean colour reproduction index: $R^*_{ab,m}$ = 99,9

part 1; Measure: unknown; Device: unknown; Date: unknown AE280−3dd: 01002

For linearized output of the 16 grey steps of Picture A7dd



part 2; Measure: unknown; Device: unknown; Date: unknown AE281−3dd: 01002



AE280−7N, Picture A7*dd: 16 visual equidistant *L**-grey steps; PS operator: *0 0 0 n* setcmykcolor*

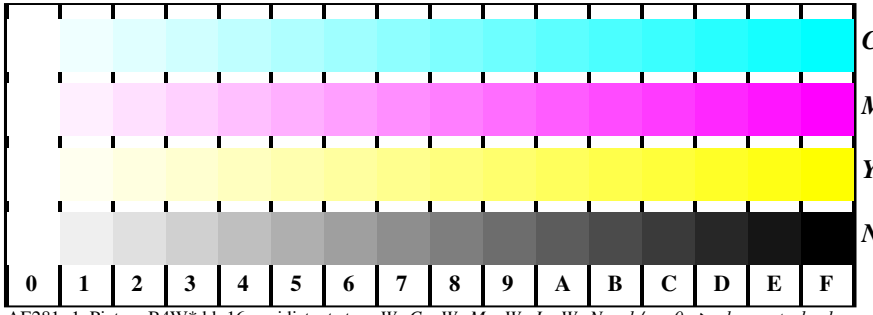
In-out: Test chart AE28 according to test chart 2 of ISO/IEC 15775
Viewing *Y* contrast Y_W:Y_N=88,9:0,31; Y_N-range 0,0 to <0,46

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

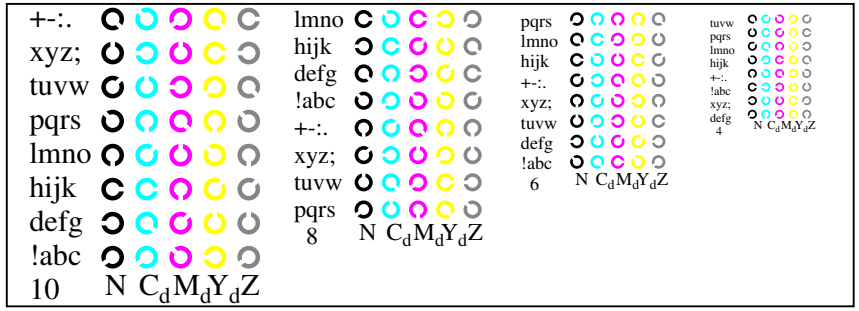
see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

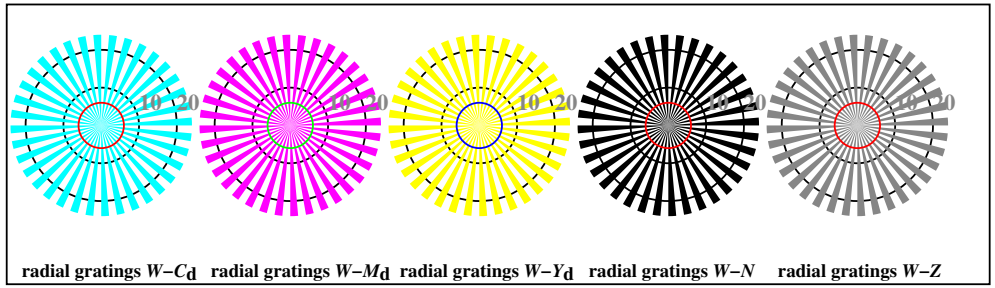
AE280–3, Picture B1W*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (nf); *PS* operators *settransfer, 3 colorimage*



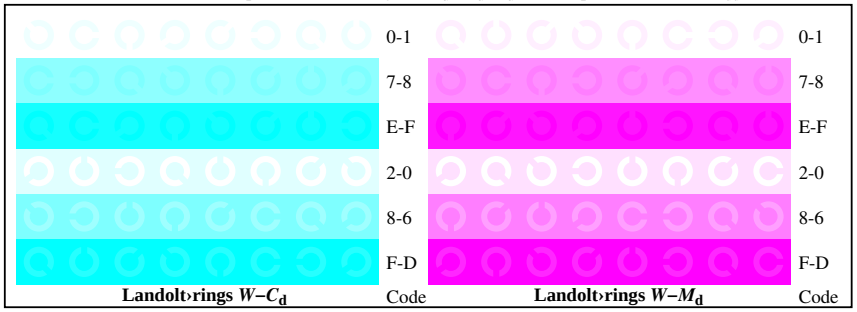
AE281–1, Picture B4W*dd: 16 equidistant steps $W–C_d$; $W–M_d$; $W–J_d$; $W–N$; *rgb/cmy0–>rgb*dd setrgbcolor*



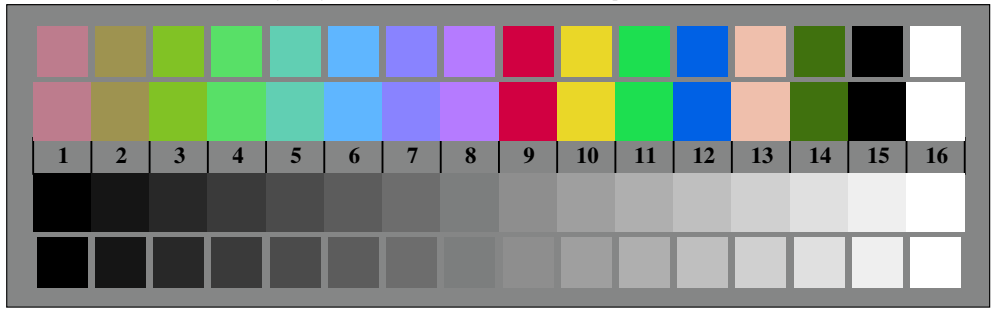
AE281–3, Picture B5W*dd: Sript and Landolt-rings *N*; C_d; M_d; Y_d; *Z*; *PS* operator *rgb–>rgb*dd setrgbcolor*



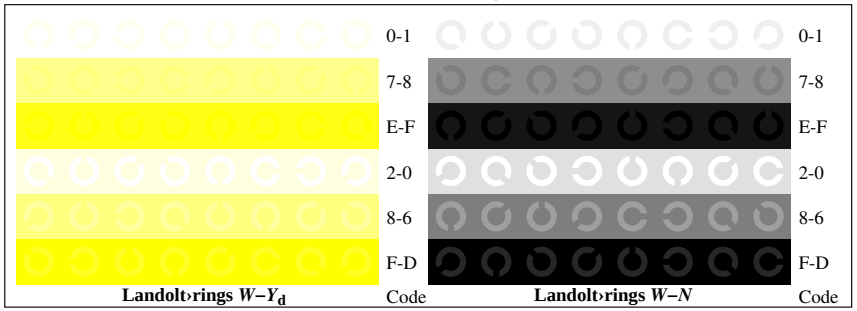
AE280–5, Picture B2W*dd: radial gratings $W–C_d$; $W–M_d$; $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE281–5, Picture B6W*dd: Landolt-rings $W–C_d$; $W–M_d$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE280–7, Picture B3W*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0–>rgb*dd setrgbcolor*



AE281–7, Picture B7W*dd: Landolt-rings $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*

Test chart AE28 according to test chart 2 of ISO/IEC 15775
chromatic test chart *CMYK*

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

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

Test for the visual linearized output of pictures B1Wdd **to B3W**dd

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

Test of the (flower) image according to picture B1Wdd

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−C*$_d$, *W−M*$_d$, *W−Y*$_d$ according to picture B2Wdd

	***W−C*$_d$**	***W−M*$_d$**	***W−Y*$_d$**	***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 B3Wdd

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 B3W**dd

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 AE280−3dd: 01011

Test of 16 visually equally spaced steps of the colour rows *W−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to picture B4Wdd

***W−C*$_d$** White − Cyanblue:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−M*$_d$** White − Magentared:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−Y*$_d$** White − Yellow:	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 B5Wdd

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 ***C*$_d$**	Ring ***M*$_d$**	Ring ***Y*$_d$**
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to pictures B6Wdd**, and B7W**dd

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

Colour row ***W−C*$_d$** background − ring		Colour row ***W−M*$_d$** background − ring		Colour row ***W−Y*$_d$** 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 AE281−3Ndd: 01011

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

PDF file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY7_1.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE28F0PX_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 AE28F0PX_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 AE280−7N*dd-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/AE28/AE28F0PX_CY7_3.PDF **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY7_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/AE28/AE28F0PX_CY7_3.PDF
picture A7dd **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE281−7dd: 01011

Form A: Test chart AE28 according to test chart 2 of ISO/IEC 15775 input: *rgb/cmy0/000n/w set...*
chromatic test chart *CMYK* output: *->rgb*$_{dd}$ *setrgbcolor*

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

i	LAB*ref			l*out	LAB*out			LAB*out−ref			ΔE*
1	5,69	0,00	0,00	0,00	5,69	0,00	0,00	0,00	0,00	0,00	0,01
2	11,67	0,00	0,00	0,10	14,73	0,00	0,00	3,05	0,00	0,00	3,05
3	17,65	0,00	0,00	0,18	21,95	0,00	0,00	4,30	0,00	0,00	4,30
4	23,63	0,00	0,00	0,25	28,62	0,00	0,00	4,99	0,00	0,00	4,99
5	29,61	0,00	0,00	0,32	34,96	0,00	0,00	5,34	0,00	0,00	5,34
6	35,59	0,00	0,00	0,39	41,05	0,00	0,00	5,45	0,00	0,00	5,45
7	41,57	0,00	0,00	0,46	46,96	0,00	0,00	5,38	0,00	0,00	5,38
8	47,55	0,00	0,00	0,52	52,72	0,00	0,00	5,16	0,00	0,00	5,16
9	53,54	0,00	0,00	0,58	58,35	0,00	0,00	4,81	0,00	0,00	4,81
10	59,52	0,00	0,00	0,64	63,88	0,00	0,00	4,36	0,00	0,00	4,36
11	65,50	0,00	0,00	0,70	69,31	0,00	0,00	3,81	0,00	0,00	3,81
12	71,48	0,00	0,00	0,76	74,67	0,00	0,00	3,18	0,00	0,00	3,18
13	77,46	0,00	0,00	0,82	79,95	0,00	0,00	2,48	0,00	0,00	2,48
14	83,44	0,00	0,00	0,88	85,16	0,00	0,00	1,71	0,00	0,00	1,71
15	89,42	0,00	0,00	0,94	90,31	0,00	0,00	0,88	0,00	0,00	0,88
16	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01
17	5,69	0,00	0,00	0,00	5,69	0,00	0,00	0,00	0,00	0,00	0,01
18	28,12	0,00	0,00	0,30	33,40	0,00	0,00	5,28	0,00	0,00	5,28
19	50,55	0,00	0,00	0,55	55,55	0,00	0,00	5,00	0,00	0,00	5,00
20	72,98	0,00	0,00	0,78	75,99	0,00	0,00	3,01	0,00	0,00	3,01
21	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01

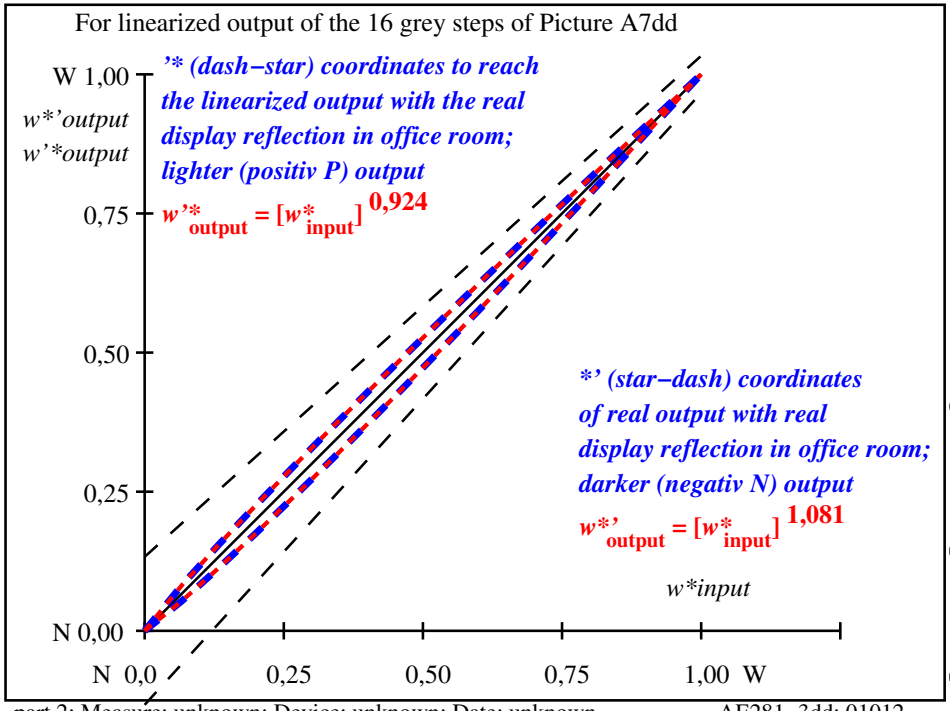
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
ΔE^*_{CIELAB} = 3,4

Mean lightness difference (5 steps)
ΔL^*_{CIELAB} = 2,6

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

part 1; Measure: unknown; Device: unknown; Date: unknown AE280−3dd: 01012



part 2; Measure: unknown; Device: unknown; Date: unknown AE281−3dd: 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*																
g_P=0.92																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB, r}$ (relative)																
$w^*_{intended}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0.0	0.082	0.155	0.226	0.295	0.362	0.428	0.494	0.559	0.623	0.688	0.75	0.814	0.876	0.938	1.0

AE280−7N, Picture A7*dd: 16 visual equidistant *L**-grey steps; PS operator: *0 0 0 n* setcmykcolor*

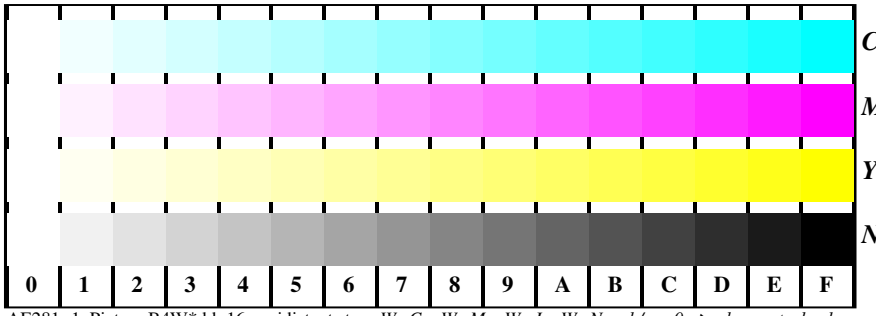
In-out: Test chart AE28 according to test chart 2 of ISO/IEC 15775
Viewing *Y* contrast Y_W:Y_N=88,9:0,62; Y_N-range 0,46 to <0,93

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

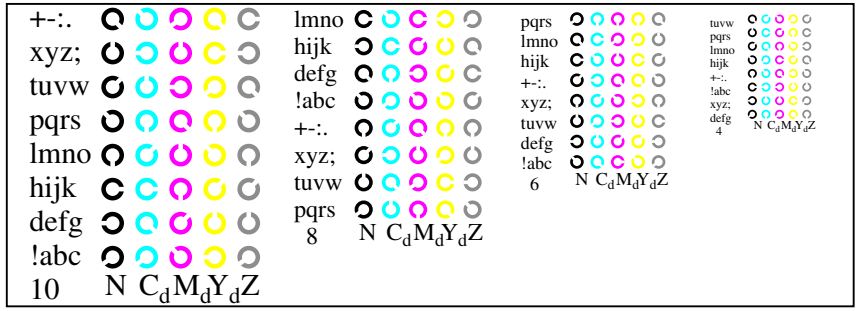
see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

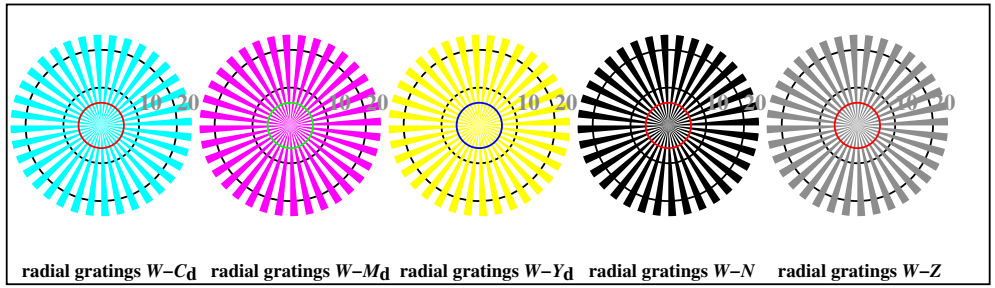
AE280–3, Picture B1W*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (nf); *PS* operators *settransfer, 3 colorimage*



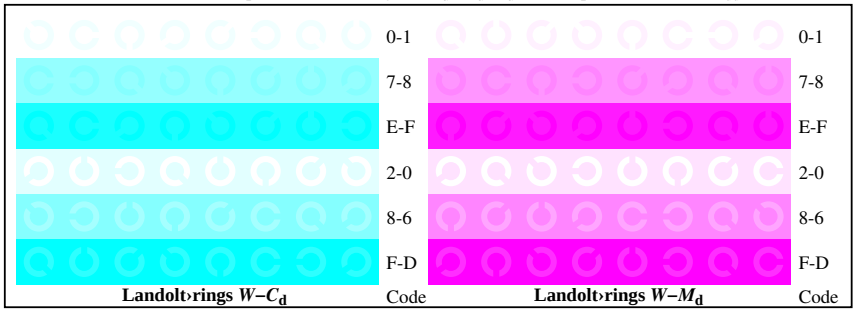
AE281–1, Picture B4W*dd: 16 equidistant steps *W–C*d; *W–M*d; *W–J*d; *W–N*; *rgb/cmy0–>rgb*dd *setrgbcolor*



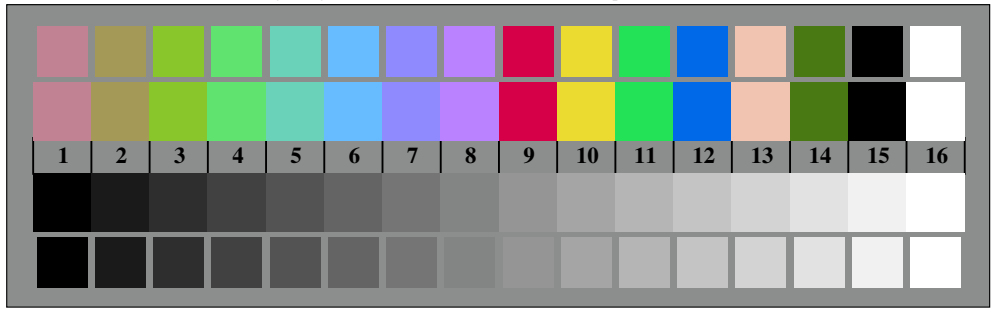
AE281–3, Picture B5W*dd: Sript and Landolt-rings *N*; *C*d; *M*d; *Y*d; *Z*; *PS* operator *rgb–>rgb*dd *setrgbcolor*



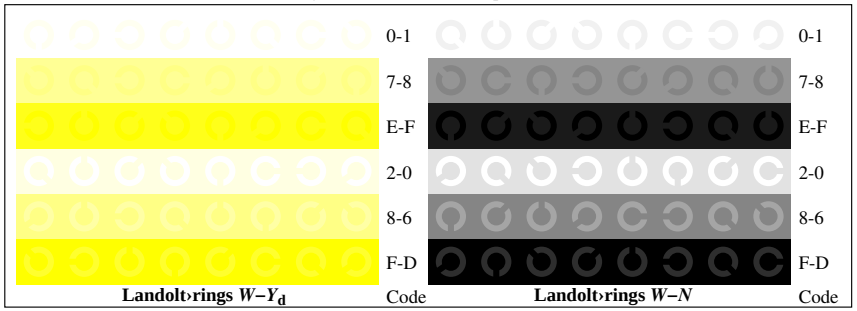
AE280–5, Picture B2W*dd: radial gratings *W–C*d; *W–M*d; *W–Y*d; *W–N*; *PS* operator *rgb–>rgb*dd *setrgbcolor*



AE281–5, Picture B6W*dd: Landolt-rings *W–C*d; *W–M*d; *PS* operator *rgb–>rgb*dd *setrgbcolor*



AE280–7, Picture B3W*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0–>rgb*dd *setrgbcolor*



AE281–7, Picture B7W*dd: Landolt-rings *W–Y*d; *W–N*; *PS* operator *rgb–>rgb*dd *setrgbcolor*

Test chart AE28 according to test chart 2 of ISO/IEC 15775
chromatic test chart *CMYK*

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

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

Test for the visual linearized output of pictures B1Wdd **to B3W**dd

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

Test of the (flower) image according to picture B1Wdd

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−C*$_d$, *W−M*$_d$, *W−Y*$_d$ according to picture B2Wdd

	***W−C*$_d$**	***W−M*$_d$**	***W−Y*$_d$**	***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 B3Wdd

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 B3W**dd

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 AE280−3dd: 01021

Test of 16 visually equally spaced steps of the colour rows *W−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to picture B4Wdd

***W−C*$_d$** White − Cyanblue:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−M*$_d$** White − Magentared:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−Y*$_d$** White − Yellow:	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 B5Wdd

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 ***C*$_d$**	Ring ***M*$_d$**	Ring ***Y*$_d$**
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to pictures B6Wdd**, and B7W**dd

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

Colour row ***W−C*$_d$** background − ring		Colour row ***W−M*$_d$** background − ring		Colour row ***W−Y*$_d$** 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 AE281−3Ndd: 01021

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

PDF file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY6_1.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE28F0PX_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 AE28F0PX_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 AE280−7N*dd-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/AE28/AE28F0PX_CY6_3.PDF **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY6_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/AE28/AE28F0PX_CY6_3.PDF
picture A7dd **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE281−7dd: 01021

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

i	LAB*ref			l*out	LAB*out			LAB*out−ref			ΔE*
1	10,99	0,00	0,00	0,00	10,99	0,00	0,00	0,00	0,00	0,00	0,01
2	16,62	0,00	0,00	0,13	22,51	0,00	0,00	5,89	0,00	0,00	5,89
3	22,24	0,00	0,00	0,22	30,17	0,00	0,00	7,93	0,00	0,00	7,93
4	27,87	0,00	0,00	0,30	36,84	0,00	0,00	8,96	0,00	0,00	8,96
5	33,50	0,00	0,00	0,37	42,93	0,00	0,00	9,42	0,00	0,00	9,42
6	39,13	0,00	0,00	0,44	48,62	0,00	0,00	9,49	0,00	0,00	9,49
7	44,75	0,00	0,00	0,50	54,02	0,00	0,00	9,26	0,00	0,00	9,26
8	50,38	0,00	0,00	0,57	59,19	0,00	0,00	8,80	0,00	0,00	8,80
9	56,01	0,00	0,00	0,62	64,16	0,00	0,00	8,15	0,00	0,00	8,15
10	61,64	0,00	0,00	0,68	68,97	0,00	0,00	7,33	0,00	0,00	7,33
11	67,27	0,00	0,00	0,74	73,64	0,00	0,00	6,37	0,00	0,00	6,37
12	72,89	0,00	0,00	0,79	78,19	0,00	0,00	5,29	0,00	0,00	5,29
13	78,52	0,00	0,00	0,84	82,63	0,00	0,00	4,10	0,00	0,00	4,10
14	84,15	0,00	0,00	0,90	86,97	0,00	0,00	2,82	0,00	0,00	2,82
15	89,78	0,00	0,00	0,95	91,23	0,00	0,00	1,45	0,00	0,00	1,45
16	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01
17	10,99	0,00	0,00	0,00	10,99	0,00	0,00	0,00	0,00	0,00	0,01
18	32,09	0,00	0,00	0,36	41,45	0,00	0,00	9,35	0,00	0,00	9,35
19	53,20	0,00	0,00	0,60	61,70	0,00	0,00	8,50	0,00	0,00	8,50
20	74,30	0,00	0,00	0,80	79,31	0,00	0,00	5,00	0,00	0,00	5,00
21	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01

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

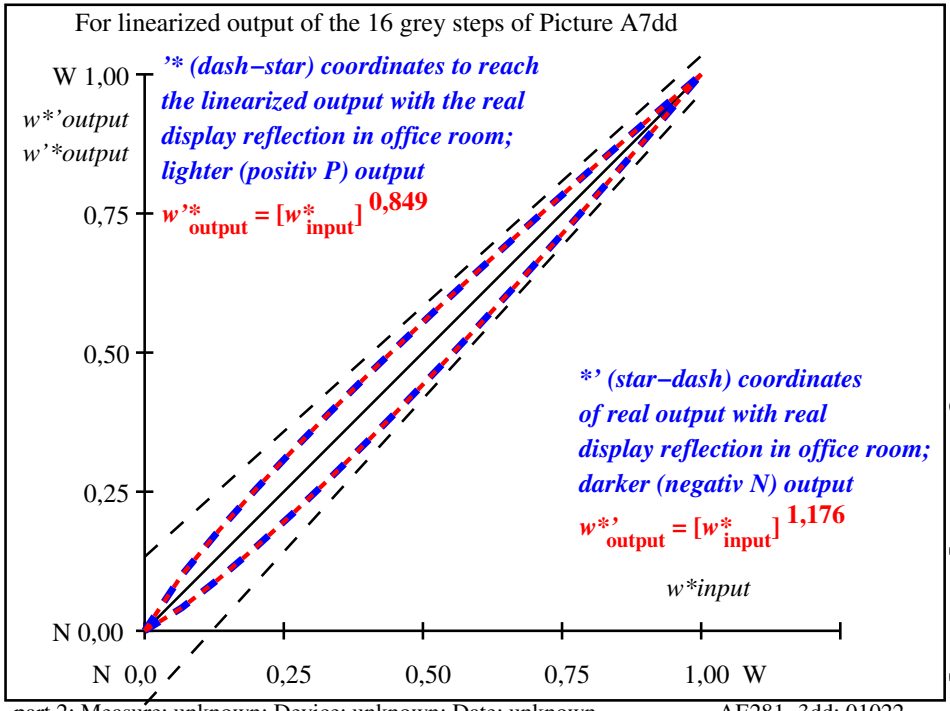
Mean lightness difference (16 steps)
ΔE^*_{CIELAB} = 5,9

Mean lightness difference (5 steps)
ΔL^*_{CIELAB} = 4,5

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

part 1; Measure: unknown; Device: unknown; Date: unknown AE280−3dd: 01022

For linearized output of the 16 grey steps of Picture A7dd



part 2; Measure: unknown; Device: unknown; Date: unknown AE281−3dd: 01022

$L^*/Y_{intended}$ (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*																
g_P=0.85																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB, r}$ (relative)																
$w^*_{intended}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0.0	0.1	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

AE280−7N, Picture A7*dd: 16 visual equidistant *L**-grey steps; PS operator: *0 0 0 n* setcmykcolor*

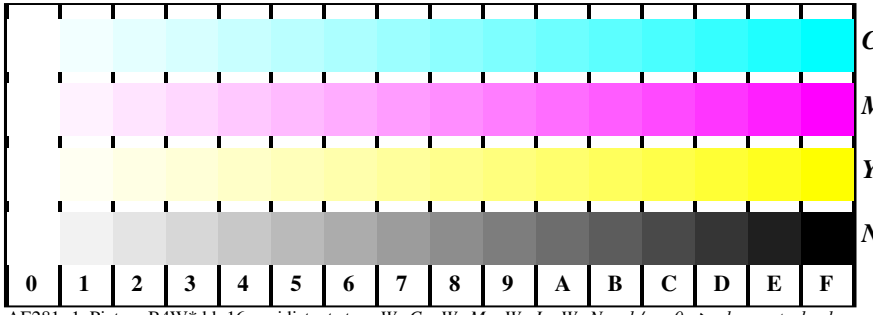
In-out: Test chart AE28 according to test chart 2 of ISO/IEC 15775
Viewing *Y* contrast Y_W:Y_N=88,9:1,25; Y_N-range 0,93 to <1,87

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

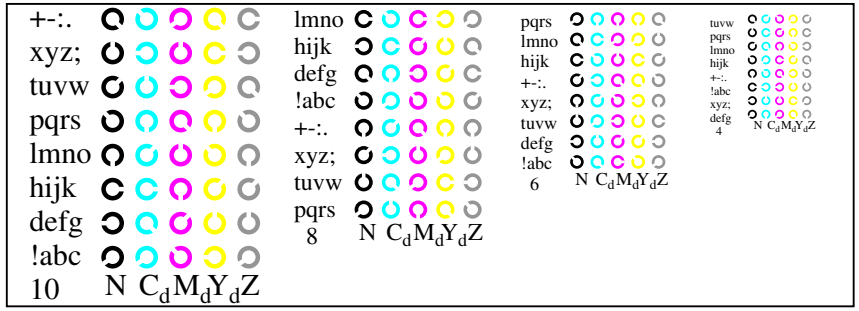
see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

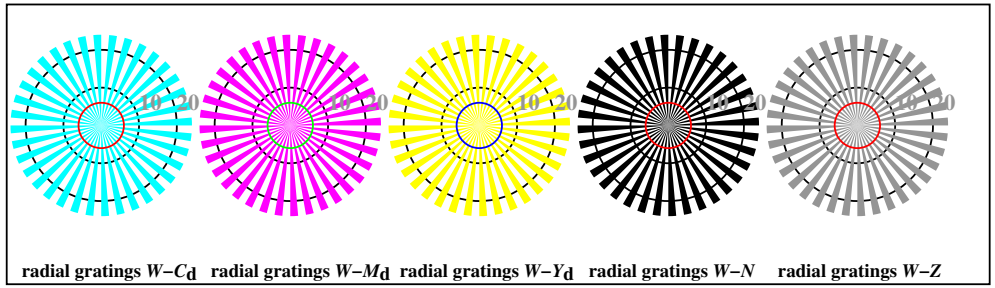
AE280–3, Picture B1W*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (nf); *PS* operators *settransfer, 3 colorimage*



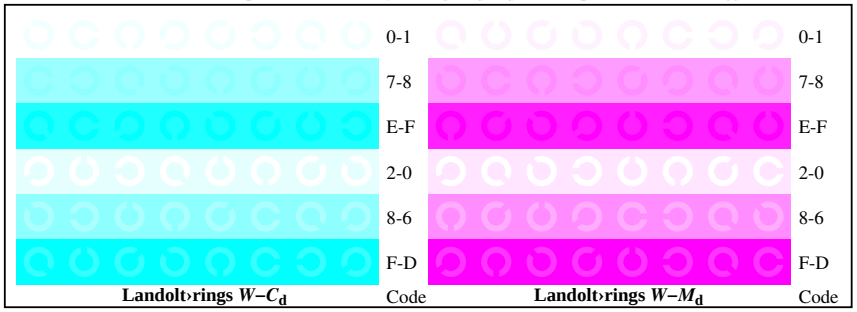
AE281–1, Picture B4W*dd: 16 equidistant steps $W–C_d$; $W–M_d$; $W–J_d$; $W–N$; *rgb/cmy0–>rgb*dd setrgbcolor*



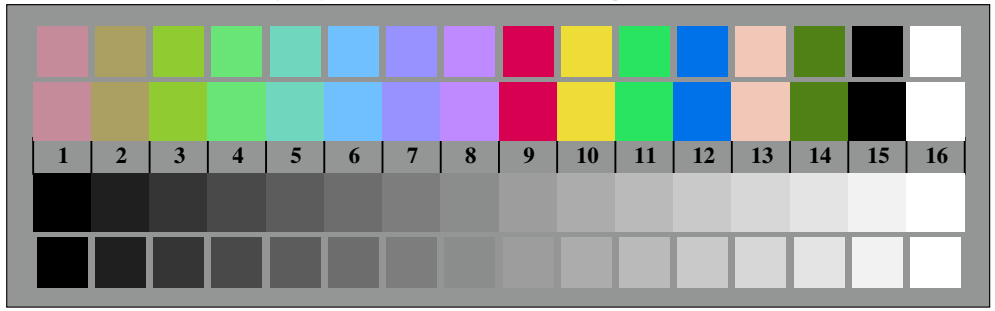
AE281–3, Picture B5W*dd: Sript and Landolt-rings *N*; C_d; M_d; Y_d; *Z*; *PS* operator *rgb–>rgb*dd setrgbcolor*



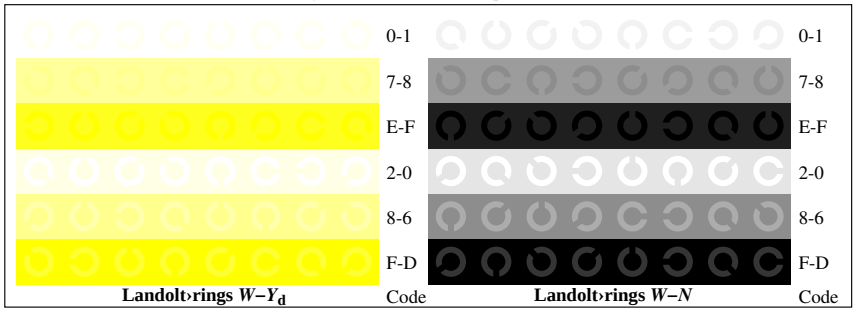
AE280–5, Picture B2W*dd: radial gratings $W–C_d$; $W–M_d$; $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE281–5, Picture B6W*dd: Landolt-rings $W–C_d$; $W–M_d$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE280–7, Picture B3W*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0–>rgb*dd setrgbcolor*



AE281–7, Picture B7W*dd: Landolt-rings $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*

Test chart AE28 according to test chart 2 of ISO/IEC 15775
chromatic test chart *CMYK*

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

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

Test for the visual linearized output of pictures B1Wdd **to B3W**dd

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

Test of the (flower) image according to picture B1Wdd
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$ according to picture B2Wdd

	***W−C*$_d$**	***W−M*$_d$**	***W−Y*$_d$**	***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 B3Wdd
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 B3W**dd
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 AE280−3dd: 01031

Test of 16 visually equally spaced steps of the colour rows *W−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to picture B4Wdd

***W−C*$_d$** White − Cyanblue:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−M*$_d$** White − Magentared:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−Y*$_d$** White − Yellow:	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 B5Wdd
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 ***C*$_d$**	Ring ***M*$_d$**	Ring ***Y*$_d$**
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to pictures B6Wdd**, and B7W**dd
Is the recognition frequency of the Landolt−rings > 50% (min. 5 of 8 at least)?

Colour row ***W−C*$_d$** background − ring		Colour row ***W−M*$_d$** background − ring		Colour row ***W−Y*$_d$** 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 AE281−3Ndd: 01031

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

PDF file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY5_1.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE28F0PX_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 AE28F0PX_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 AE280−7N*dd-01031

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/AE28/AE28F0PX_CY5_3.PDF **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY5_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/AE28/AE28F0PX_CY5_3.PDF
picture A7dd **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE281−7dd: 01031

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

i	LAB*ref			l*out	LAB*out			LAB*out−ref			ΔE*
1	18,00	0,00	0,00	0,00	18,00	0,00	0,00	0,00	0,00	0,00	0,01
2	23,16	0,00	0,00	0,17	31,34	0,00	0,00	8,17	0,00	0,00	8,17
3	28,32	0,00	0,00	0,27	38,92	0,00	0,00	10,59	0,00	0,00	10,59
4	33,48	0,00	0,00	0,35	45,22	0,00	0,00	11,73	0,00	0,00	11,73
5	38,64	0,00	0,00	0,42	50,81	0,00	0,00	12,16	0,00	0,00	12,16
6	43,80	0,00	0,00	0,48	55,93	0,00	0,00	12,12	0,00	0,00	12,12
7	48,96	0,00	0,00	0,55	60,70	0,00	0,00	11,73	0,00	0,00	11,73
8	54,12	0,00	0,00	0,60	65,19	0,00	0,00	11,06	0,00	0,00	11,06
9	59,28	0,00	0,00	0,66	69,46	0,00	0,00	10,17	0,00	0,00	10,17
10	64,44	0,00	0,00	0,71	73,55	0,00	0,00	9,11	0,00	0,00	9,11
11	69,60	0,00	0,00	0,76	77,49	0,00	0,00	7,88	0,00	0,00	7,88
12	74,76	0,00	0,00	0,81	81,29	0,00	0,00	6,52	0,00	0,00	6,52
13	79,92	0,00	0,00	0,86	84,96	0,00	0,00	5,03	0,00	0,00	5,03
14	85,08	0,00	0,00	0,91	88,54	0,00	0,00	3,45	0,00	0,00	3,45
15	90,24	0,00	0,00	0,95	92,01	0,00	0,00	1,76	0,00	0,00	1,76
16	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01
17	18,00	0,00	0,00	0,00	18,00	0,00	0,00	0,00	0,00	0,00	0,01
18	37,35	0,00	0,00	0,40	49,47	0,00	0,00	12,11	0,00	0,00	12,11
19	56,70	0,00	0,00	0,63	67,35	0,00	0,00	10,64	0,00	0,00	10,64
20	76,05	0,00	0,00	0,82	82,22	0,00	0,00	6,16	0,00	0,00	6,16
21	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01

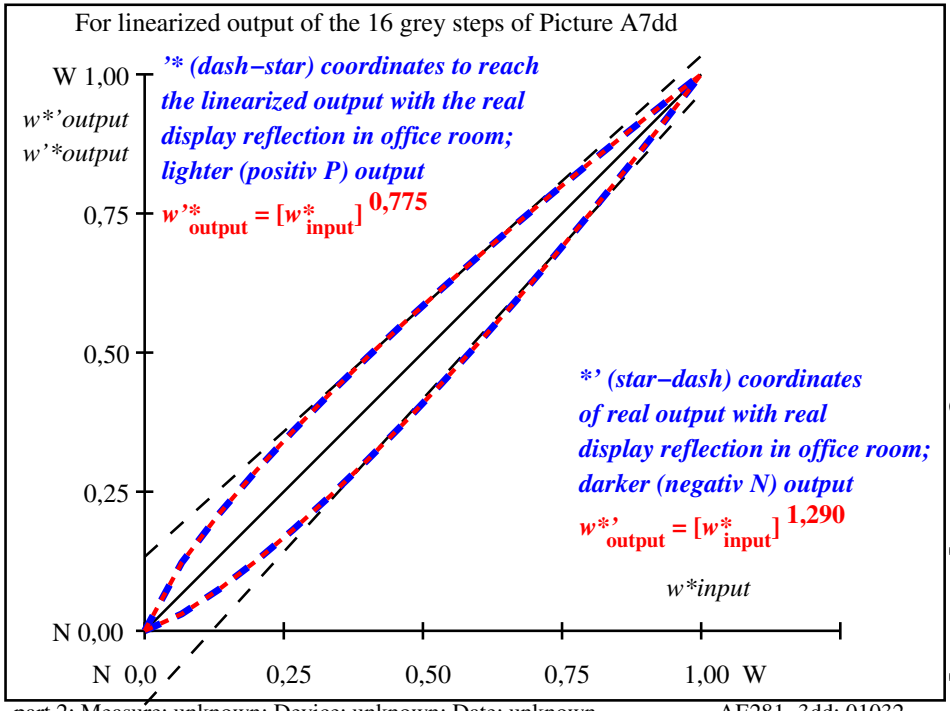
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
ΔE^*_{CIELAB} = 7,5

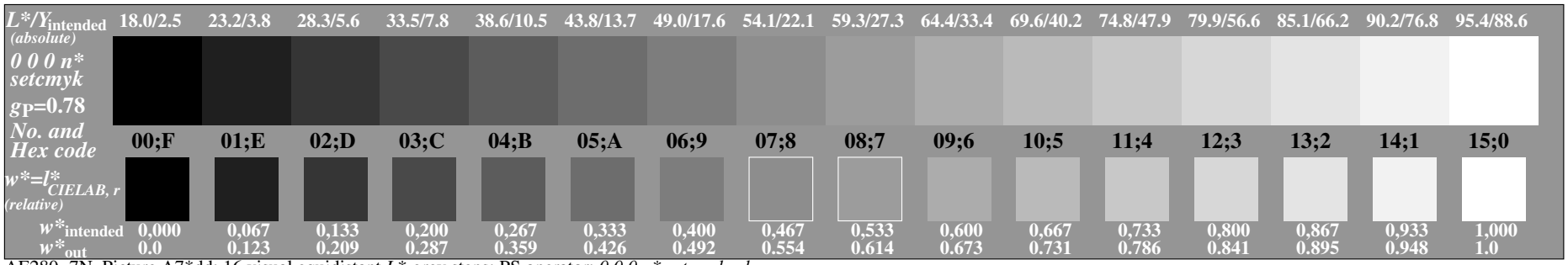
Mean lightness difference (5 steps)
ΔL^*_{CIELAB} = 5,7

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

part 1; Measure: unknown; Device: unknown; Date: unknown AE280−3dd: 01032



part 2; Measure: unknown; Device: unknown; Date: unknown AE281−3dd: 01032



AE280−7N, Picture A7*dd: 16 visual equidistant *L**-grey steps; PS operator: *0 0 0 n* setcmykcolor*

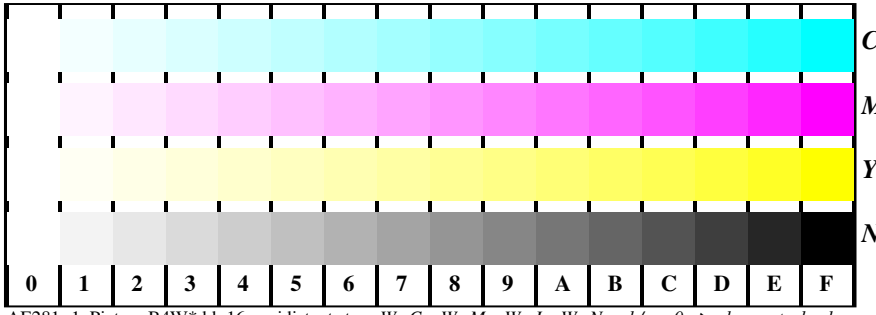
In-out: Test chart AE28 according to test chart 2 of ISO/IEC 15775
Viewing *Y* contrast Y_W:Y_N=88,9:2,5; Y_N-range 1,87 to <3,75

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

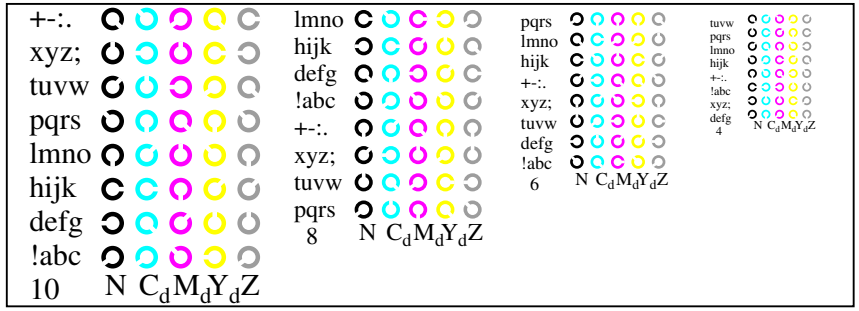
see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

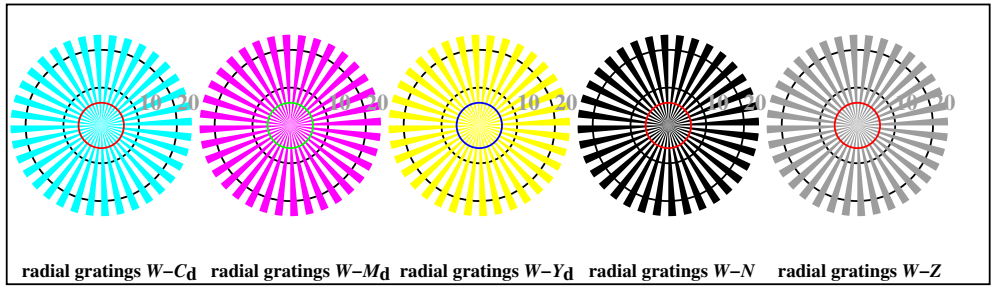
AE280–3, Picture B1W*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (nf); *PS* operators *settransfer, 3 colorimage*



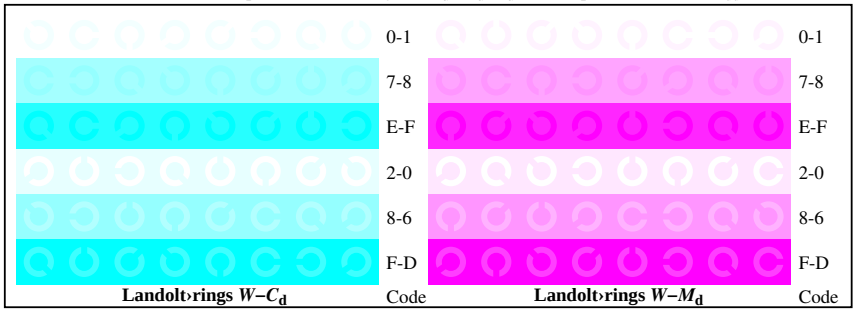
AE281–1, Picture B4W*dd: 16 equidistant steps $W–C_d$; $W–M_d$; $W–J_d$; $W–N$; *rgb/cmy0–>rgb*dd setrgbcolor*



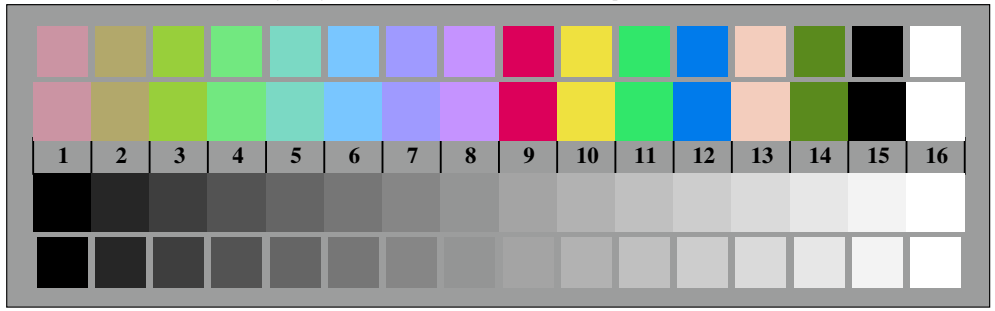
AE281–3, Picture B5W*dd: Sript and Landolt-rings *N*; C_d; M_d; Y_d; *Z*; *PS* operator *rgb–>rgb*dd setrgbcolor*



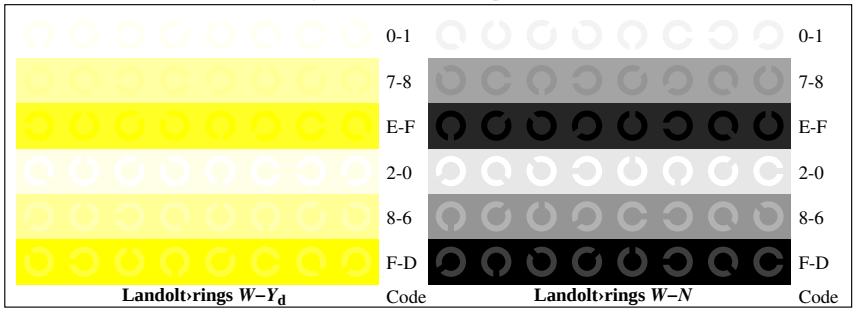
AE280–5, Picture B2W*dd: radial gratings $W–C_d$; $W–M_d$; $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE281–5, Picture B6W*dd: Landolt-rings $W–C_d$; $W–M_d$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE280–7, Picture B3W*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0–>rgb*dd setrgbcolor*



AE281–7, Picture B7W*dd: Landolt-rings $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*

Test chart AE28 according to test chart 2 of ISO/IEC 15775
chromatic test chart *CMYK*

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

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

Test for the visual linearized output of pictures B1Wdd **to B3W**dd

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

Test of the (flower) image according to picture B1Wdd

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−C*$_d$, *W−M*$_d$, *W−Y*$_d$ according to picture B2Wdd

	***W−C*$_d$**	***W−M*$_d$**	***W−Y*$_d$**	***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 B3Wdd

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 B3W**dd

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 AE280−3dd: 01041

Test of 16 visually equally spaced steps of the colour rows *W−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to picture B4Wdd

***W−C*$_d$** White − Cyanblue:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−M*$_d$** White − Magentared:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−Y*$_d$** White − Yellow:	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 B5Wdd

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 ***C*$_d$**	Ring ***M*$_d$**	Ring ***Y*$_d$**
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to pictures B6Wdd**, and B7W**dd

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

Colour row ***W−C*$_d$** background − ring		Colour row ***W−M*$_d$** background − ring		Colour row ***W−Y*$_d$** 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 AE281−3Ndd: 01041

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

PDF file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY4_1.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE28F0PX_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 AE28F0PX_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 AE280−7N*dd-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/AE28/AE28F0PX_CY4_3.PDF **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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/AE28/AE28F0PX_CY4_3.PDF
picture A7dd **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE281−7dd: 01041

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

i	LAB*ref			l*out	LAB*out			LAB*out−ref			ΔE*
1	26,84	0,00	0,00	0,00	26,84	0,00	0,00	0,00	0,00	0,00	0,01
2	31,41	0,00	0,00	0,20	41,04	0,00	0,00	9,62	0,00	0,00	9,62
3	35,98	0,00	0,00	0,30	48,09	0,00	0,00	12,10	0,00	0,00	12,10
4	40,56	0,00	0,00	0,39	53,74	0,00	0,00	13,18	0,00	0,00	13,18
5	45,13	0,00	0,00	0,46	58,64	0,00	0,00	13,51	0,00	0,00	13,51
6	49,70	0,00	0,00	0,52	63,04	0,00	0,00	13,34	0,00	0,00	13,34
7	54,27	0,00	0,00	0,58	67,09	0,00	0,00	12,82	0,00	0,00	12,82
8	58,84	0,00	0,00	0,64	70,86	0,00	0,00	12,02	0,00	0,00	12,02
9	63,41	0,00	0,00	0,69	74,42	0,00	0,00	11,00	0,00	0,00	11,00
10	67,98	0,00	0,00	0,74	77,79	0,00	0,00	9,80	0,00	0,00	9,80
11	72,55	0,00	0,00	0,78	81,01	0,00	0,00	8,45	0,00	0,00	8,45
12	77,12	0,00	0,00	0,83	84,09	0,00	0,00	6,97	0,00	0,00	6,97
13	81,69	0,00	0,00	0,87	87,06	0,00	0,00	5,37	0,00	0,00	5,37
14	86,26	0,00	0,00	0,92	89,93	0,00	0,00	3,66	0,00	0,00	3,66
15	90,83	0,00	0,00	0,96	92,71	0,00	0,00	1,87	0,00	0,00	1,87
16	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01
17	26,84	0,00	0,00	0,00	26,84	0,00	0,00	0,00	0,00	0,00	0,01
18	43,98	0,00	0,00	0,44	57,47	0,00	0,00	13,48	0,00	0,00	13,48
19	61,12	0,00	0,00	0,66	72,66	0,00	0,00	11,54	0,00	0,00	11,54
20	78,26	0,00	0,00	0,84	84,85	0,00	0,00	6,58	0,00	0,00	6,58
21	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01

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

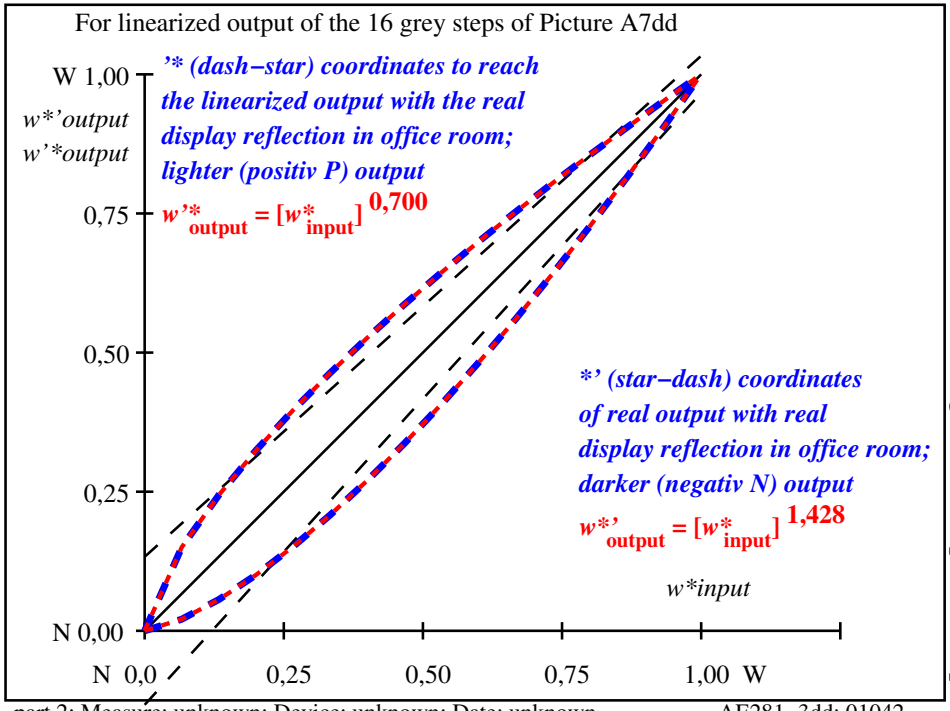
Mean lightness difference (16 steps)
ΔE^*_{CIELAB} = 8,3

Mean lightness difference (5 steps)
ΔL^*_{CIELAB} = 6,3

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

part 1; Measure: unknown; Device: unknown; Date: unknown AE280−3dd: 01042

For linearized output of the 16 grey steps of Picture A7dd



part 2; Measure: unknown; Device: unknown; Date: unknown AE281−3dd: 01042

$L^*/Y_{intended}$ (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*																
g_P=0.7																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB, r}$ (relative)																
$w^*_{intended}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0.0	0.151	0.244	0.324	0.397	0.463	0.527	0.587	0.644	0.699	0.753	0.805	0.855	0.905	0.953	1.0

AE280−7N, Picture A7*dd: 16 visual equidistant *L**-grey steps; PS operator: *0 0 0 n* setcmykcolor*

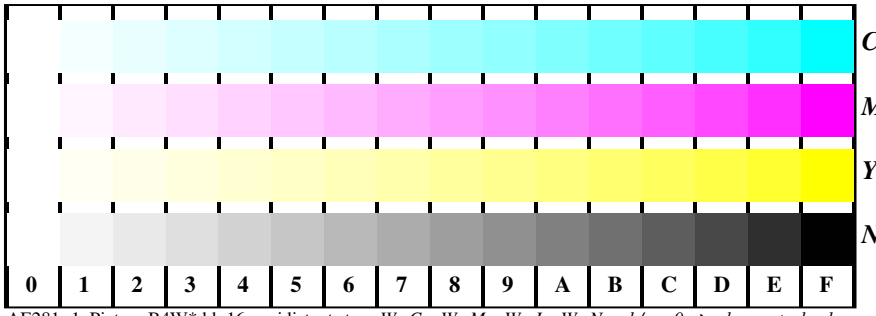
In-out: Test chart AE28 according to test chart 2 of ISO/IEC 15775
Viewing *Y* contrast Y_W:Y_N=88,9:5; Y_N-range 3,75 to <7,5

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

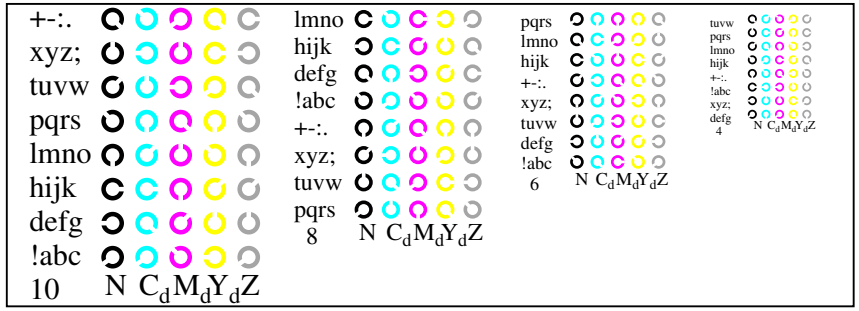
see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

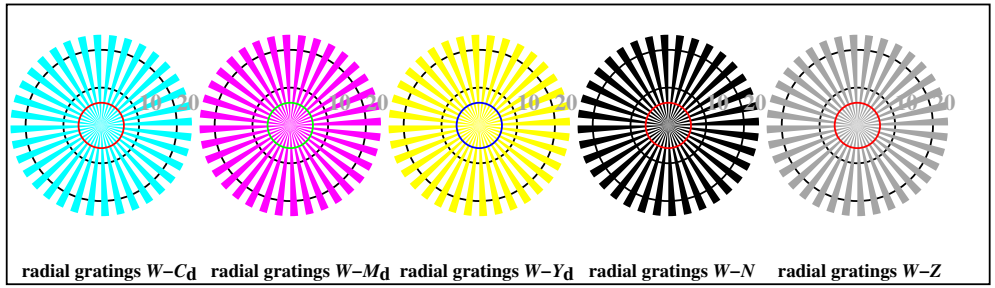
AE280–3, Picture B1W*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (nf); *PS* operators *settransfer, 3 colorimage*



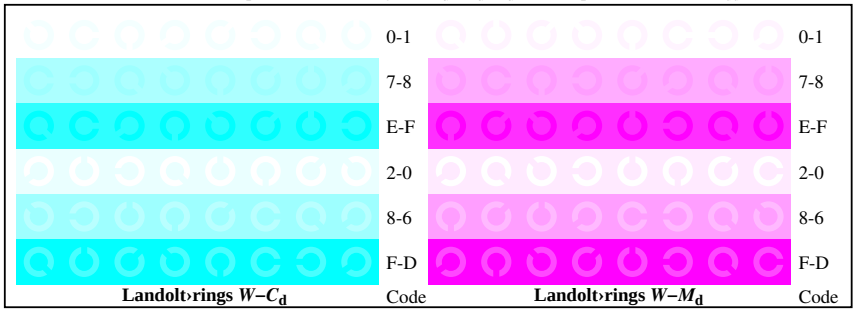
AE281–1, Picture B4W*dd: 16 equidistant steps $W–C_d$; $W–M_d$; $W–J_d$; $W–N$; *rgb/cmy0–>rgb*dd setrgbcolor*



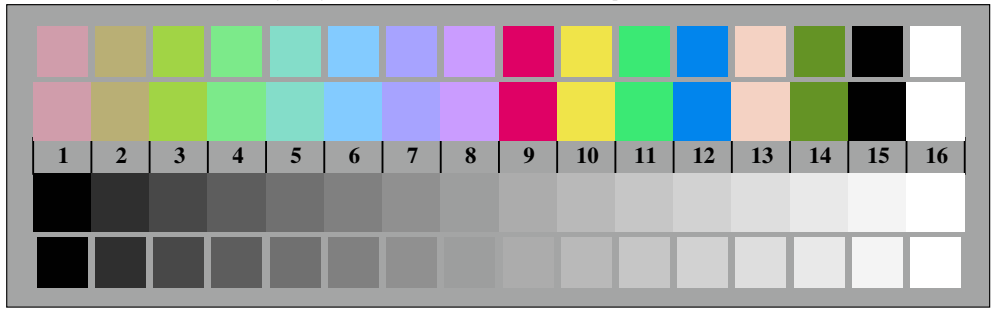
AE281–3, Picture B5W*dd: Sript and Landolt-rings *N*; C_d; M_d; Y_d; *Z*; *PS* operator *rgb–>rgb*dd setrgbcolor*



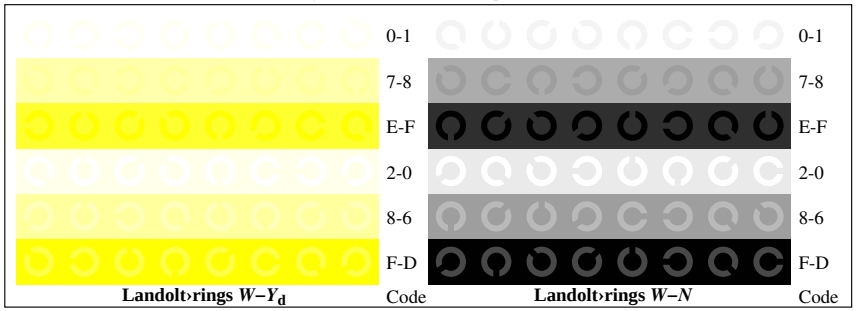
AE280–5, Picture B2W*dd: radial gratings $W–C_d$; $W–M_d$; $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE281–5, Picture B6W*dd: Landolt-rings $W–C_d$; $W–M_d$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE280–7, Picture B3W*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0–>rgb*dd setrgbcolor*



AE281–7, Picture B7W*dd: Landolt-rings $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*

Test chart AE28 according to test chart 2 of ISO/IEC 15775
chromatic test chart *CMYK*

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

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

Test for the visual linearized output of pictures B1Wdd **to B3W**dd

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

Test of the (flower) image according to picture B1Wdd

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−C*$_d$, *W−M*$_d$, *W−Y*$_d$ according to picture B2Wdd

	***W−C*$_d$**	***W−M*$_d$**	***W−Y*$_d$**	***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 B3Wdd

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 B3W**dd

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 AE280−3dd: 01051

Test of 16 visually equally spaced steps of the colour rows *W−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to picture B4Wdd

***W−C*$_d$** White − Cyanblue:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−M*$_d$** White − Magentared:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−Y*$_d$** White − Yellow:	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 B5Wdd

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 ***C*$_d$**	Ring ***M*$_d$**	Ring ***Y*$_d$**
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to pictures B6Wdd**, and B7W**dd

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

Colour row ***W−C*$_d$** background − ring		Colour row ***W−M*$_d$** background − ring		Colour row ***W−Y*$_d$** 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 AE281−3Ndd: 01051

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

PDF file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY3_1.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE28F0PX_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 AE28F0PX_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 AE280−7N*dd-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/AE28/AE28F0PX_CY3_3.PDF **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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/AE28/AE28F0PX_CY3_3.PDF
picture A7dd **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE281−7dd: 01051

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

i	LAB*ref			l*out	LAB*out			LAB*out−ref			ΔE*
1	37,98	0,00	0,00	0,00	37,98	0,00	0,00	0,00	0,00	0,00	0,01
2	41,81	0,00	0,00	0,24	51,79	0,00	0,00	9,97	0,00	0,00	9,97
3	45,64	0,00	0,00	0,34	57,87	0,00	0,00	12,22	0,00	0,00	12,22
4	49,47	0,00	0,00	0,42	62,60	0,00	0,00	13,13	0,00	0,00	13,13
5	53,29	0,00	0,00	0,49	66,62	0,00	0,00	13,32	0,00	0,00	13,32
6	57,12	0,00	0,00	0,56	70,19	0,00	0,00	13,06	0,00	0,00	13,06
7	60,95	0,00	0,00	0,61	73,43	0,00	0,00	12,48	0,00	0,00	12,48
8	64,78	0,00	0,00	0,66	76,43	0,00	0,00	11,65	0,00	0,00	11,65
9	68,61	0,00	0,00	0,71	79,23	0,00	0,00	10,62	0,00	0,00	10,62
10	72,44	0,00	0,00	0,76	81,87	0,00	0,00	9,43	0,00	0,00	9,43
11	76,26	0,00	0,00	0,80	84,37	0,00	0,00	8,10	0,00	0,00	8,10
12	80,09	0,00	0,00	0,84	86,76	0,00	0,00	6,66	0,00	0,00	6,66
13	83,92	0,00	0,00	0,88	89,04	0,00	0,00	5,12	0,00	0,00	5,12
14	87,75	0,00	0,00	0,92	91,24	0,00	0,00	3,49	0,00	0,00	3,49
15	91,58	0,00	0,00	0,96	93,36	0,00	0,00	1,78	0,00	0,00	1,78
16	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01
17	37,98	0,00	0,00	0,00	37,98	0,00	0,00	0,00	0,00	0,00	0,01
18	52,34	0,00	0,00	0,48	65,66	0,00	0,00	13,32	0,00	0,00	13,32
19	66,69	0,00	0,00	0,69	77,85	0,00	0,00	11,15	0,00	0,00	11,15
20	81,05	0,00	0,00	0,85	87,34	0,00	0,00	6,28	0,00	0,00	6,28
21	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01

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

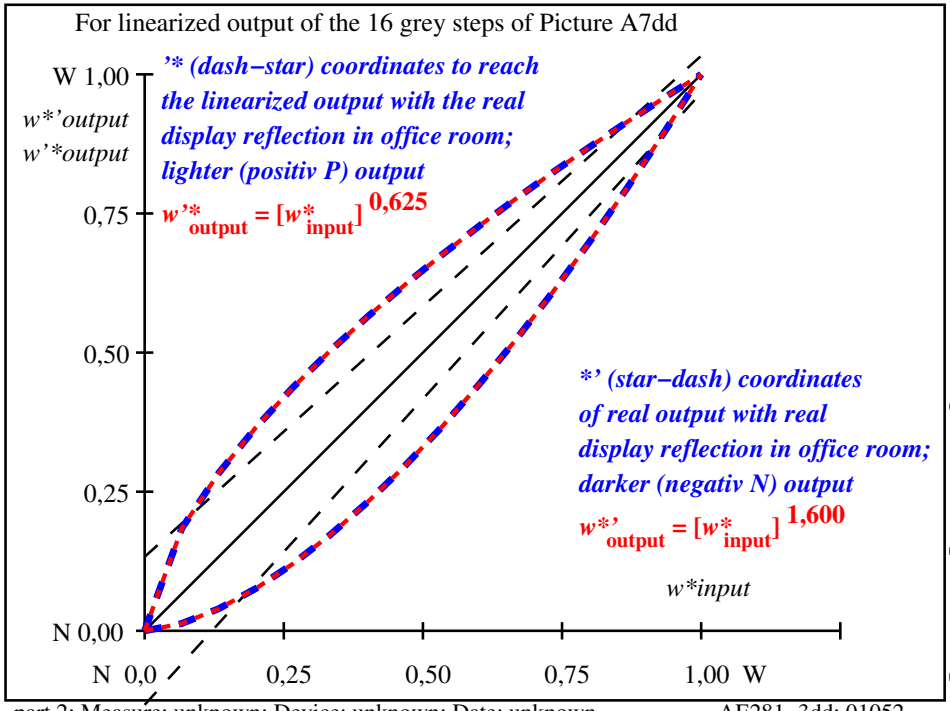
Mean lightness difference (16 steps)
ΔE^*_{CIELAB} = 8,1

Mean lightness difference (5 steps)
ΔL^*_{CIELAB} = 6,1

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

part 1; Measure: unknown; Device: unknown; Date: unknown AE280−3dd: 01052

For linearized output of the 16 grey steps of Picture A7dd



part 2; Measure: unknown; Device: unknown; Date: unknown AE281−3dd: 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*																
g_P=0.63																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB, r}$ (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

AE280−7N, Picture A7*dd: 16 visual equidistant *L**-grey steps; PS operator: *0 0 0 n* setcmykcolor*

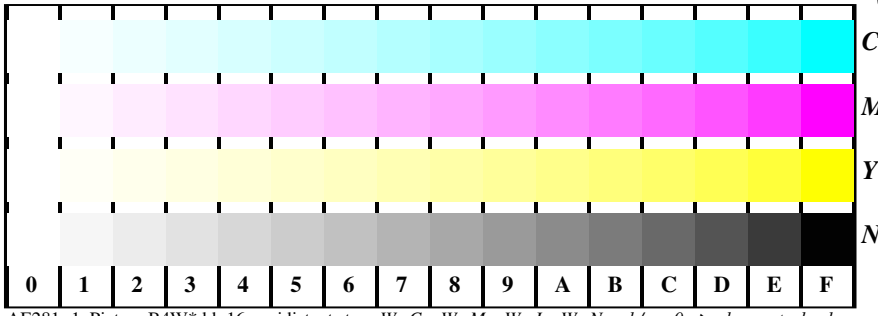
In-out: Test chart AE28 according to test chart 2 of ISO/IEC 15775
Viewing *Y* contrast Y_W:Y_N=88,9:10; Y_N-range 7,5 to <15

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

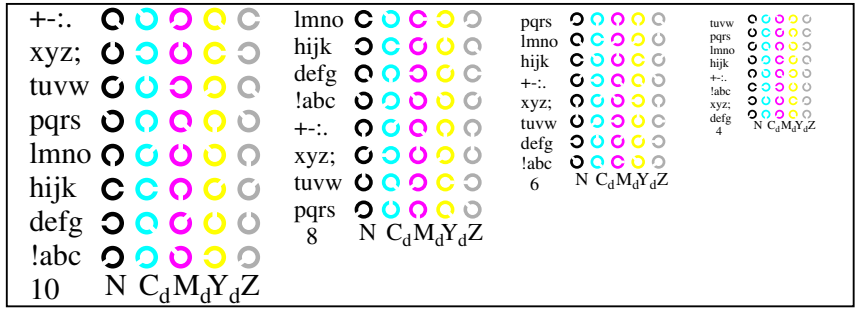
see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

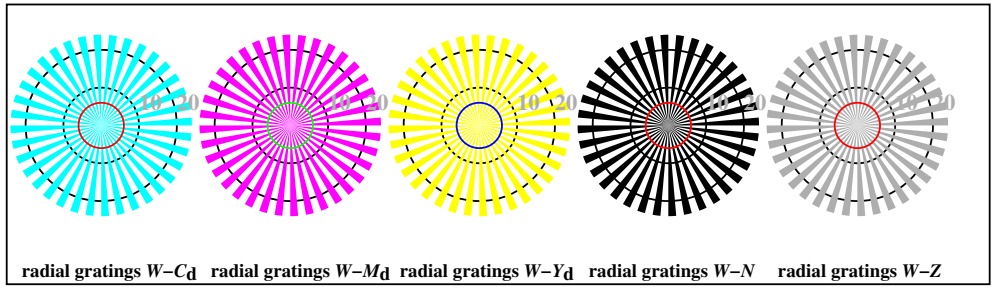
AE280–3, Picture B1W*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (nf); *PS* operators *settransfer, 3 colorimage*



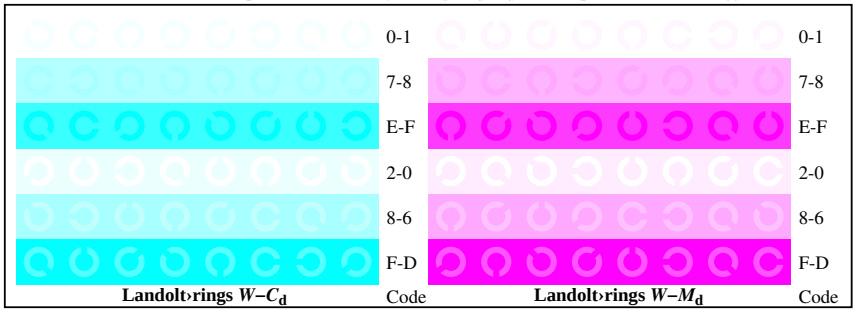
AE281–1, Picture B4W*dd: 16 equidistant steps $W–C_d$; $W–M_d$; $W–J_d$; $W–N$; *rgb/cmy0–>rgb*dd setrgbcolor*



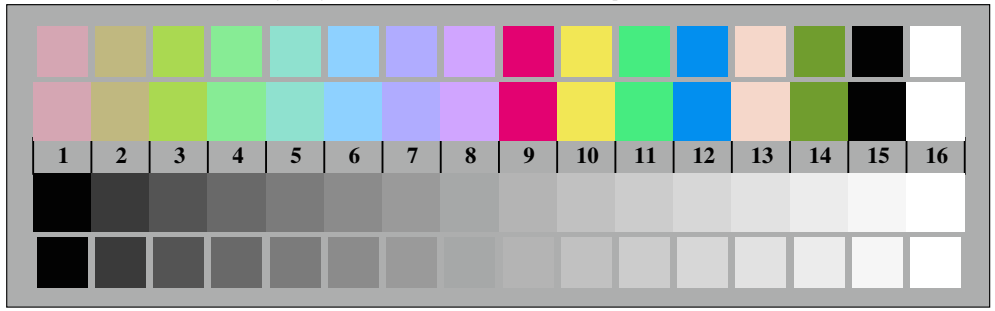
AE281–3, Picture B5W*dd: Sript and Landolt-rings *N*; C_d; M_d; Y_d; *Z*; *PS* operator *rgb–>rgb*dd setrgbcolor*



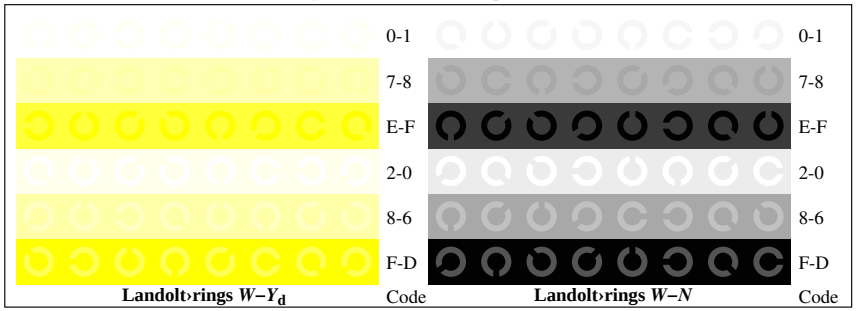
AE280–5, Picture B2W*dd: radial gratings $W–C_d$; $W–M_d$; $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE281–5, Picture B6W*dd: Landolt-rings $W–C_d$; $W–M_d$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE280–7, Picture B3W*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0–>rgb*dd setrgbcolor*



AE281–7, Picture B7W*dd: Landolt-rings $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*

Test chart AE28 according to test chart 2 of ISO/IEC 15775
chromatic test chart *CMYK*

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

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

Test for the visual linearized output of pictures B1Wdd **to B3W**dd

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

Test of the (flower) image according to picture B1Wdd
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$ according to picture B2Wdd

	***W−C*$_d$**	***W−M*$_d$**	***W−Y*$_d$**	***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 B3Wdd
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 B3W**dd
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 AE280−3dd: 01061

Test of 16 visually equally spaced steps of the colour rows *W−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to picture B4Wdd

***W−C*$_d$** White − Cyanblue:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−M*$_d$** White − Magentared:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−Y*$_d$** White − Yellow:	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 B5Wdd
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 ***C*$_d$**	Ring ***M*$_d$**	Ring ***Y*$_d$**
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to pictures B6Wdd**, and B7W**dd
Is the recognition frequency of the Landolt−rings > 50% (min. 5 of 8 at least)?

Colour row ***W−C*$_d$** background − ring		Colour row ***W−M*$_d$** background − ring		Colour row ***W−Y*$_d$** 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 AE281−3Ndd: 01061

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

PDF file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY2_1.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE28F0PX_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 AE28F0PX_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 AE280−7N*dd-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/AE28/AE28F0PX_CY2_3.PDF **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY2_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/AE28/AE28F0PX_CY2_3.PDF
picture A7dd **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE281−7dd: 01061

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

i	LAB*ref			l*out	LAB*out			LAB*out−ref			ΔE*
1	52,01	0,00	0,00	0,00	52,01	0,00	0,00	0,00	0,00	0,00	0,01
2	54,91	0,00	0,00	0,27	63,82	0,00	0,00	8,90	0,00	0,00	8,90
3	57,80	0,00	0,00	0,37	68,48	0,00	0,00	10,68	0,00	0,00	10,68
4	60,69	0,00	0,00	0,46	72,03	0,00	0,00	11,33	0,00	0,00	11,33
5	63,58	0,00	0,00	0,52	75,00	0,00	0,00	11,41	0,00	0,00	11,41
6	66,48	0,00	0,00	0,58	77,60	0,00	0,00	11,12	0,00	0,00	11,12
7	69,37	0,00	0,00	0,64	79,94	0,00	0,00	10,57	0,00	0,00	10,57
8	72,26	0,00	0,00	0,69	82,09	0,00	0,00	9,83	0,00	0,00	9,83
9	75,16	0,00	0,00	0,73	84,09	0,00	0,00	8,93	0,00	0,00	8,93
10	78,05	0,00	0,00	0,78	85,96	0,00	0,00	7,90	0,00	0,00	7,90
11	80,94	0,00	0,00	0,82	87,72	0,00	0,00	6,77	0,00	0,00	6,77
12	83,83	0,00	0,00	0,86	89,39	0,00	0,00	5,56	0,00	0,00	5,56
13	86,73	0,00	0,00	0,89	90,99	0,00	0,00	4,26	0,00	0,00	4,26
14	89,62	0,00	0,00	0,93	92,52	0,00	0,00	2,90	0,00	0,00	2,90
15	92,51	0,00	0,00	0,96	93,99	0,00	0,00	1,47	0,00	0,00	1,47
16	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01
17	52,01	0,00	0,00	0,00	52,01	0,00	0,00	0,00	0,00	0,00	0,01
18	62,86	0,00	0,00	0,51	74,30	0,00	0,00	11,43	0,00	0,00	11,43
19	73,71	0,00	0,00	0,71	83,11	0,00	0,00	9,39	0,00	0,00	9,39
20	84,56	0,00	0,00	0,87	89,80	0,00	0,00	5,24	0,00	0,00	5,24
21	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01

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

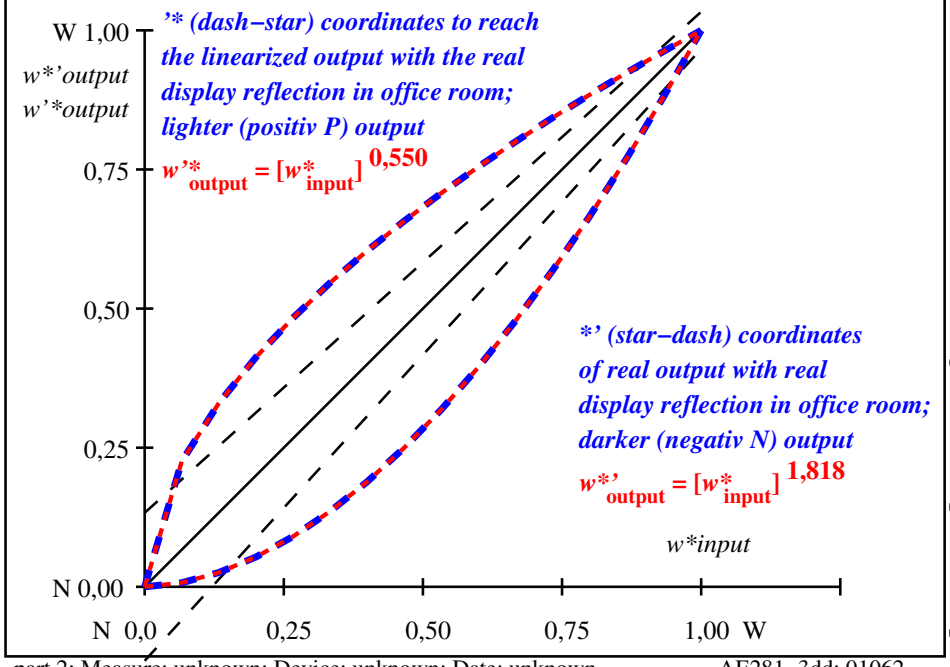
Mean lightness difference (16 steps)
ΔE^*_{CIELAB} = 6,9

Mean lightness difference (5 steps)
ΔL^*_{CIELAB} = 5,2

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

part 1; Measure: unknown; Device: unknown; Date: unknown AE280−3dd: 01062

For linearized output of the 16 grey steps of Picture A7dd



part 2; Measure: unknown; Device: unknown; Date: unknown AE281−3dd: 01062

$L^*/Y_{intended}$ (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*																
g_P=0.55																
No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=l^*_{CIELAB, r}$ (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	0,226	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

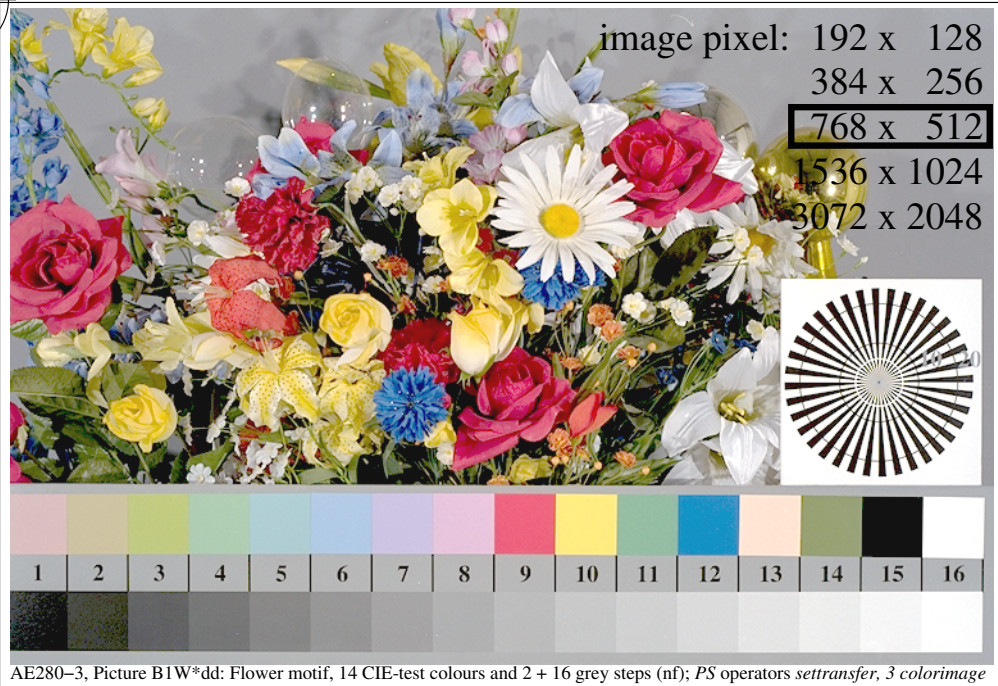
AE280−7N, Picture A7*dd: 16 visual equidistant *L**-grey steps; PS operator: *0 0 0 n* setcmykcolor*

In-out: Test chart AE28 according to test chart 2 of ISO/IEC 15775
Viewing *Y* contrast Y_W:Y_N=88,9:20; Y_N-range 15 to <30

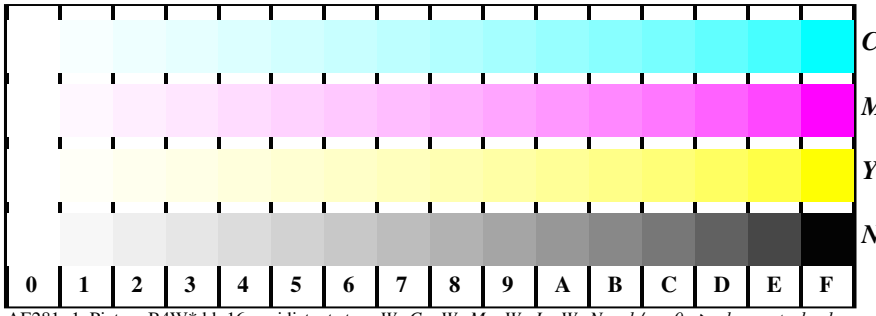
input: *rgb/cmy0/000n/w set...*
output: *->rgb_{dd} setrgbcolor*

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

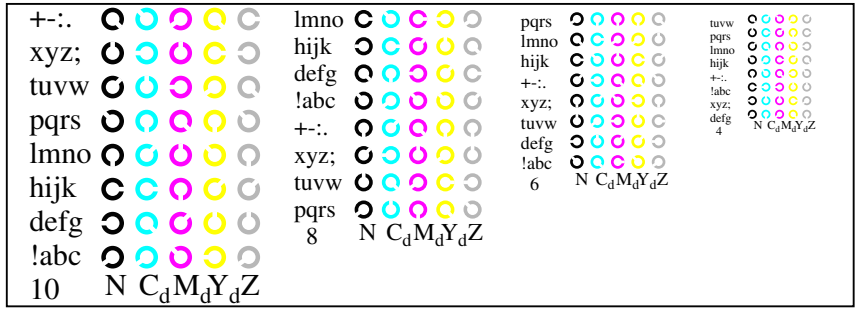
TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print



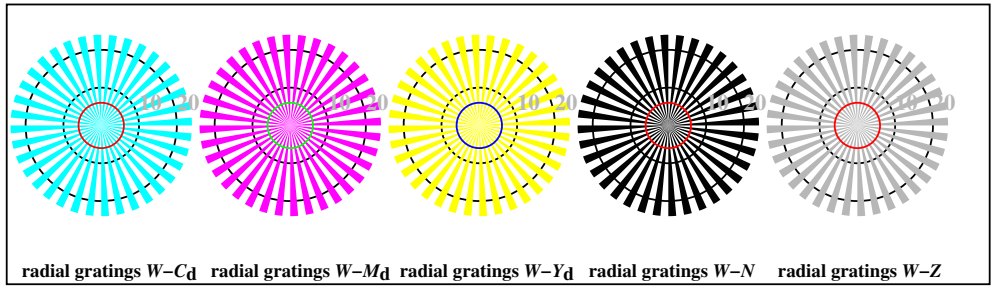
AE280–3, Picture B1W*dd: Flower motif, 14 CIE-test colours and 2 + 16 grey steps (nf); *PS* operators *settransfer, 3 colorimage*



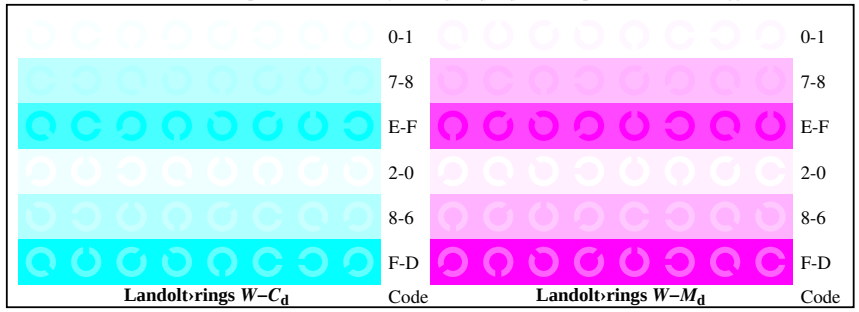
AE281–1, Picture B4W*dd: 16 equidistant steps $W–C_d$; $W–M_d$; $W–J_d$; $W–N$; *rgb/cmy0–>rgb*dd setrgbcolor*



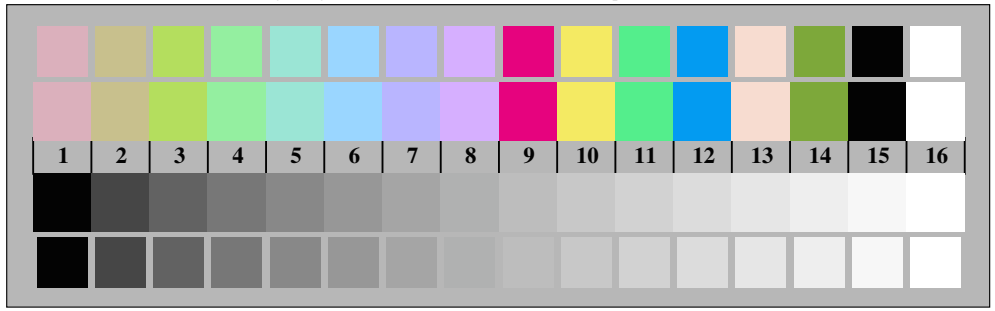
AE281–3, Picture B5W*dd: Sript and Landolt-rings *N*; C_d; M_d; Y_d; *Z*; *PS* operator *rgb–>rgb*dd setrgbcolor*



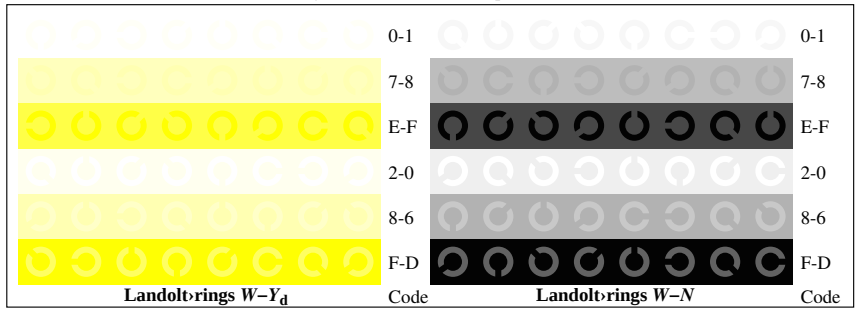
AE280–5, Picture B2W*dd: radial gratings $W–C_d$; $W–M_d$; $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE281–5, Picture B6W*dd: Landolt-rings $W–C_d$; $W–M_d$; *PS* operator *rgb–>rgb*dd setrgbcolor*



AE280–7, Picture B3W*dd: 14 CIE-test colours and 2 + 16 grey steps (sf); *rgb/cmy0–>rgb*dd setrgbcolor*



AE281–7, Picture B7W*dd: Landolt-rings $W–Y_d$; $W–N$; *PS* operator *rgb–>rgb*dd setrgbcolor*

Test chart AE28 according to test chart 2 of ISO/IEC 15775
chromatic test chart *CMYK*

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

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS TUB material: code=rha4ta
application for measurement or viewing of the output on display and print

Test for the visual linearized output of pictures B1Wdd **to B3W**dd

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

Test of the (flower) image according to picture B1Wdd

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−C*$_d$, *W−M*$_d$, *W−Y*$_d$ according to picture B2Wdd

	***W−C*$_d$**	***W−M*$_d$**	***W−Y*$_d$**	***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 B3Wdd

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 B3W**dd

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 AE280−3dd: 01071

Test of 16 visually equally spaced steps of the colour rows *W−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to picture B4Wdd

***W−C*$_d$** White − Cyanblue:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−M*$_d$** White − Magentared:	Are all the 16 steps distinguishable?		**Yes/No**
	If No: How many steps can be distinguished?	of the given 16 steps	..... Steps
***W−Y*$_d$** White − Yellow:	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 B5Wdd

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 ***C*$_d$**	Ring ***M*$_d$**	Ring ***Y*$_d$**
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−C*$_d$, *W−M*$_d$, *W−Y*$_d$, and *W−N* according to pictures B6Wdd**, and B7W**dd

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

Colour row ***W−C*$_d$** background − ring		Colour row ***W−M*$_d$** background − ring		Colour row ***W−Y*$_d$** 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 AE281−3Ndd: 01071

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

PDF file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_CY1_1.PDF **underline Yes/No**

PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE28F0PX_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 AE28F0PX_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 AE280−7N*dd-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/AE28/AE28F0PX_CY1_3.PDF **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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/AE28/AE28F0PX_CY1_3.PDF
picture A7dd **underline Yes/No**
PS file: http://farbe.li.tu-berlin.de/AE28/AE28F0PX_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 AE281−7dd: 01071

see similar files: http://farbe.li.tu-berlin.de/AE28/AE28.HTM
technical information: http://farbe.li.tu-berlin.de/ or http://farbe.li.tu-berlin.de/AE.HTM

TUB Registration: 20191001-AE28/AE28L0FA.TXT /.PS
application for measurement or viewing of the output on display and print
TUB material: code=rha4ta

i	LAB*ref			l*out	LAB*out			LAB*out−ref			ΔE*
1	69,69	0,00	0,00	0,00	69,69	0,00	0,00	0,00	0,00	0,00	0,01
2	71,41	0,00	0,00	0,30	77,45	0,00	0,00	6,04	0,00	0,00	6,04
3	73,12	0,00	0,00	0,41	80,23	0,00	0,00	7,11	0,00	0,00	7,11
4	74,83	0,00	0,00	0,49	82,31	0,00	0,00	7,47	0,00	0,00	7,47
5	76,55	0,00	0,00	0,55	84,02	0,00	0,00	7,47	0,00	0,00	7,47
6	78,26	0,00	0,00	0,61	85,51	0,00	0,00	7,24	0,00	0,00	7,24
7	79,98	0,00	0,00	0,66	86,83	0,00	0,00	6,85	0,00	0,00	6,85
8	81,69	0,00	0,00	0,71	88,04	0,00	0,00	6,35	0,00	0,00	6,35
9	83,41	0,00	0,00	0,75	89,16	0,00	0,00	5,75	0,00	0,00	5,75
10	85,12	0,00	0,00	0,79	90,20	0,00	0,00	5,08	0,00	0,00	5,08
11	86,83	0,00	0,00	0,83	91,18	0,00	0,00	4,34	0,00	0,00	4,34
12	88,55	0,00	0,00	0,87	92,11	0,00	0,00	3,55	0,00	0,00	3,55
13	90,26	0,00	0,00	0,90	92,99	0,00	0,00	2,72	0,00	0,00	2,72
14	91,98	0,00	0,00	0,93	93,83	0,00	0,00	1,85	0,00	0,00	1,85
15	93,69	0,00	0,00	0,96	94,63	0,00	0,00	0,94	0,00	0,00	0,94
16	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01
17	69,69	0,00	0,00	0,00	69,69	0,00	0,00	0,00	0,00	0,00	0,01
18	76,12	0,00	0,00	0,54	83,62	0,00	0,00	7,49	0,00	0,00	7,49
19	82,55	0,00	0,00	0,73	88,61	0,00	0,00	6,06	0,00	0,00	6,06
20	88,98	0,00	0,00	0,88	92,33	0,00	0,00	3,35	0,00	0,00	3,35
21	95,41	0,00	0,00	1,00	95,41	0,00	0,00	0,00	0,00	0,00	0,01

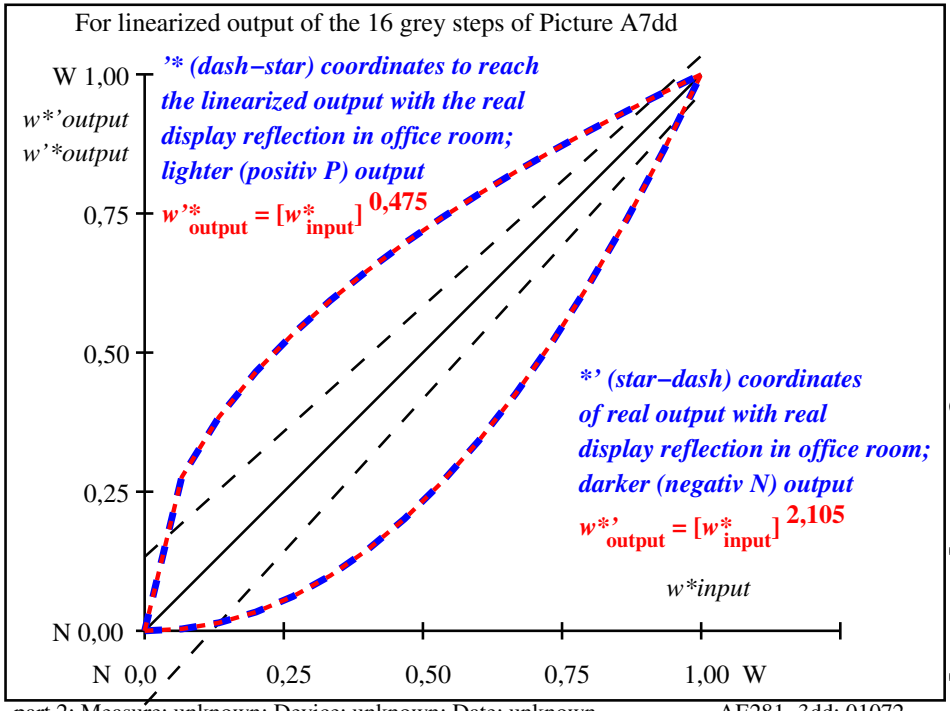
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
ΔE^*_{CIELAB} = 4,5

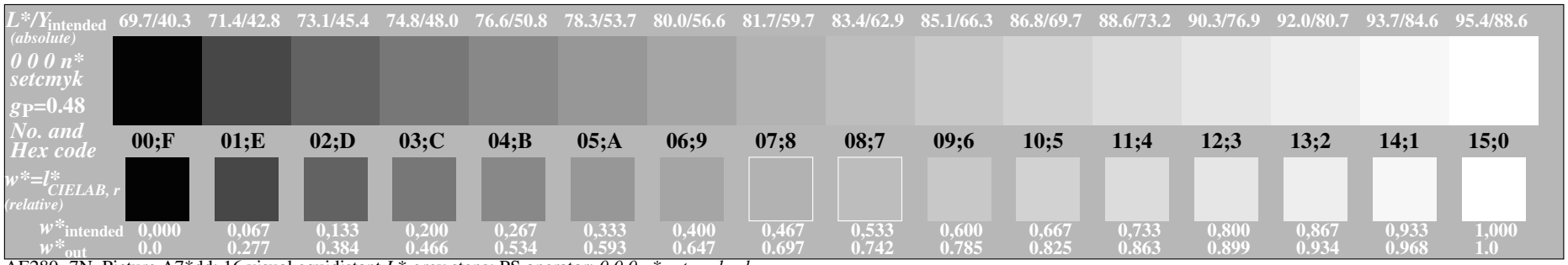
Mean lightness difference (5 steps)
ΔL^*_{CIELAB} = 3,3

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

part 1; Measure: unknown; Device: unknown; Date: unknown AE280−3dd: 01072



part 2; Measure: unknown; Device: unknown; Date: unknown AE281−3dd: 01072



AE280−7N, Picture A7*dd: 16 visual equidistant *L**-grey steps; PS operator: *0 0 0 n* setcmykcolor*

In-out: Test chart AE28 according to test chart 2 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*