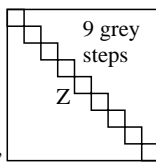


### Equivalent spacing for separate and adjacent colours (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 grey steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are  
separate in the upper figure part and  
ajacent in the lower figure part.  
Between N and W there are 9 grey steps.  
Mean grey Z is the mean step of N-W.

Chromatic X'  
X' = C, V, M

Black N

All the stepings of the three hue planes O-L, Y-V and L-M should be equivalent for  
separate and adjacent colours.

#### Is the spacing equivalent for separate and adjacent colours?

underline: Yes/No

Remark: The spacing is not equivalent if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Is there a continuous colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Are there maxima and minima in the colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Remarks:.....

Part 1

OE890-3N-130-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NP.PDF>

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NA.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 OE89L0NP.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 OE89L0NA.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)

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

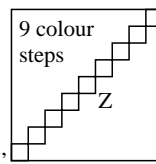
Part 3

OE890-7N-130-1

### Regular colour spacing between colours Z-X' and Z-X (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 colour steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are separate in the  
upper figure part and ajacent  
ajacent in the lower figure part.  
Between X' and X there are 9 colour steps.  
Mean grey Z is the mean step of X'-X.

Chromatic X'  
X' = C, V, M

Black N

All colour steps of the three hue planes O-L, Y-V and L-M should be regular for  
separate and adjacent colours without large chromatic jumps at mean grey Z

#### Is the colour spacing regular at mean grey Z?

underline: Yes/No

Remark: The colour spacing is not regular if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Are there colour jumps at the mean grey colour Z towards X or X'  
for adjacent colours?

underline: Yes/No

Are there colour jumps at the mean grey colour Z towards X or X'  
for separate colours

underline: Yes/No

Remarks: A colour jump has at least twice the colour change compared to the mean change.

Part 2

OE891-3N-130-1

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

The assessor has **normal** colour vision according to one test:

either according to DIN 6160:1996 with Anomaloskop of Nagel

or with test charts using colour points according to Ishihara

or tested with, please specify: .....

underline Yes/No

underline Yes/unknown

underline Yes/unknown

underline Yes/unknown

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

PDF file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

underline Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

underline Yes/No

Picture A7-130-2: **contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0

underline range

Remark: In daylighted offices the contrast range is in many cases:

on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

### Only for optional colorimetric specification with PDF/PS file output

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

picture A7-130-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

picture A7-130-2

or underline Yes/No

#### colour measurement and specification for:

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

underline Yes/No

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

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE891-7N-130-1

OE89: Form A test chart 2 according to DIN 33872-6; 1MR, DEH input:  $cmy_0$  ( $\rightarrow cmy_0^*_{de}$ ) setcmyk  
Equivalent and regular colour spacing (Yes/No-decision) output 130-1:  $g_P=1.0$ ;  $g_N=1.0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

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

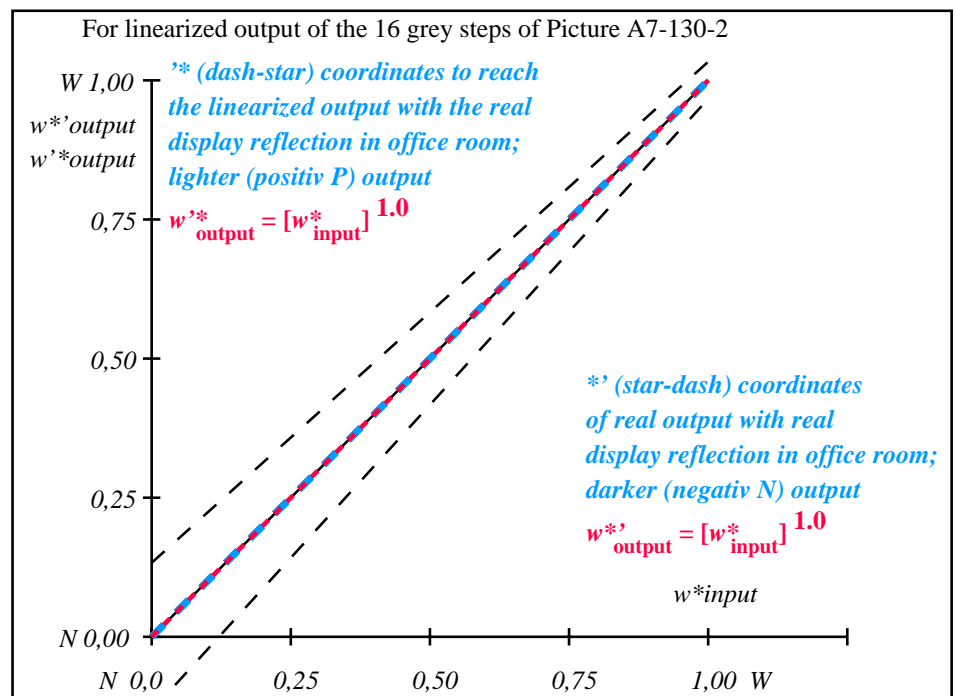
**Start output S1**  
**Specification according to**  
**ISO/IEC 15775 Annex G**  
**and DIN 33866-1 Annex G**

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

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

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

OE890-3N-130-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE891-3N-130-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

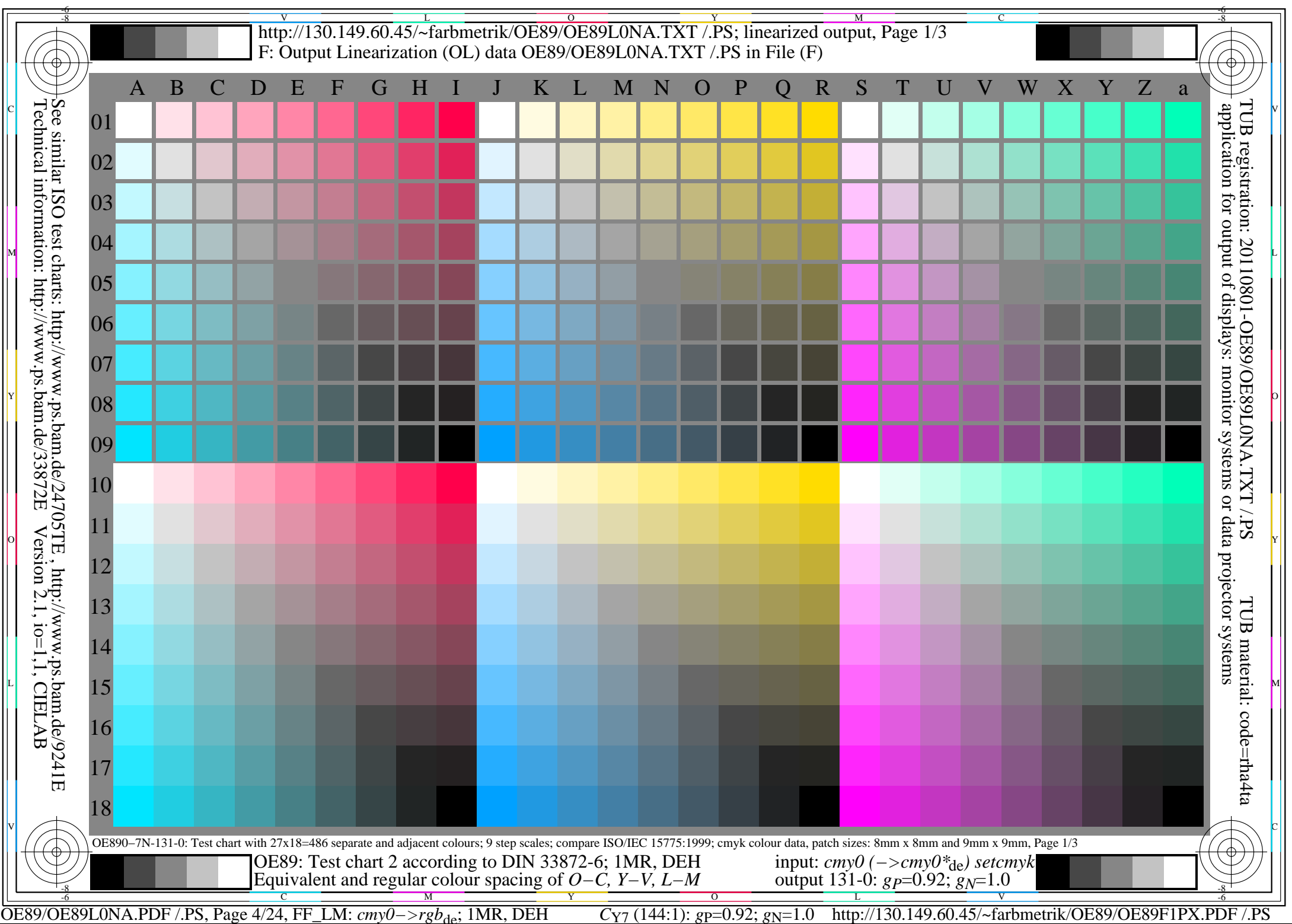
$L^*/Y_{\text{intended}}$ (absolute)	0.0/0.0	6.4/0.7	12.7/1.5	19.1/2.8	25.4/4.6	31.8/7.0	38.2/10.2	44.5/14.2	50.9/19.2	57.2/25.2	63.6/32.3	70.0/40.7	76.3/50.4	82.7/61.6	89.0/74.3	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=1.0$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*$ CIELAB, r (relative)	0.000	0.067	0.133	0.200	0.267	0.333	0.400	0.467	0.533	0.600	0.667	0.733	0.800	0.867	0.933	1.000
$w^*_{\text{intended}}$ $w^*_{\text{out}}$	0.000	0.067	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

OE890-7N, Picture A7-130-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE89: In-output relation according to ISO 9241-306; 1MR, DEH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,31$ ;  $Y_N$  range 0,0 to <0,46

input:  $cmy0$  ( $\rightarrow cmy0^*_{de}$ ) setcmyk  
output 130-2:  $g_P=1.0$ ;  $g_N=1.0$

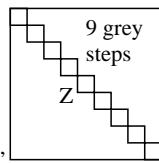
TUB registration: 20110801-OE89/OE89L0NA.TXT /.PS  
TUB material: code=th4ta  
application for output of displays: monitor systems or data projector systems



### Equivalent spacing for separate and adjacent colours (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 grey steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are  
separate in the upper figure part and  
ajacent in the lower figure part.  
Between N and W there are 9 grey steps.  
Mean grey Z is the mean step of N-W.

Chromatic X'  
X' = C, V, M

Black N

All the stepings of the three hue planes O-L, Y-V and L-M should be equivalent for  
separate and adjacent colours.

#### Is the spacing equivalent for separate and adjacent colours?

underline: Yes/No

Remark: The spacing is not equivalent if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Is there a continuous colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Are there maxima and minima in the colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Remarks:.....

Part 1

OE890-3N-131-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NP.PDF>

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NA.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 OE89L0NP.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 OE89L0NA.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)

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

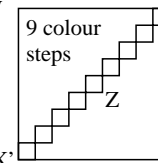
Part 3

OE890-7N-131-1

### Regular colour spacing between colours Z-X' and Z-X (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 colour steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are separate in the  
upper figure part and ajacent  
ajacent in the lower figure part.  
Between X' and X there are 9 colour steps.  
Mean grey Z is the mean step of X'-X.

Chromatic X'  
X' = C, V, M

Black N

All colour steps of the three hue planes O-L, Y-V and L-M should be regular for  
separate and adjacent colours without large chromatic jumps at mean grey Z

#### Is the colour spacing regular at mean grey Z?

underline: Yes/No

Remark: The colour spacing is not regular if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Are there colour jumps at the mean grey colour Z towards X or X'  
for adjacent colours?

underline: Yes/No

Are there colour jumps at the mean grey colour Z towards X or X'  
for separate colours

underline: Yes/No

Remarks: A colour jump has at least twice the colour change compared to the mean change.

Part 2

OE891-3N-131-1

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

The assessor has **normal** colour vision according to one test:

either according to DIN 6160:1996 with Anomaloskop of Nagel

or with test charts using colour points according to Ishihara

or tested with, please specify: .....

underline Yes/No

underline Yes/unknown

underline Yes/unknown

underline Yes/unknown

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

PDF file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

underline Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

underline Yes/No

Picture A7-131-2: **contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0

underline range

Remark: In daylighted offices the contrast range is in many cases:

on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

### Only for optional colorimetric specification with PDF/PS file output

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

picture A7-131-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

picture A7-131-2

or underline Yes/No

#### colour measurement and specification for:

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

underline Yes/No

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

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE891-7N-131-1

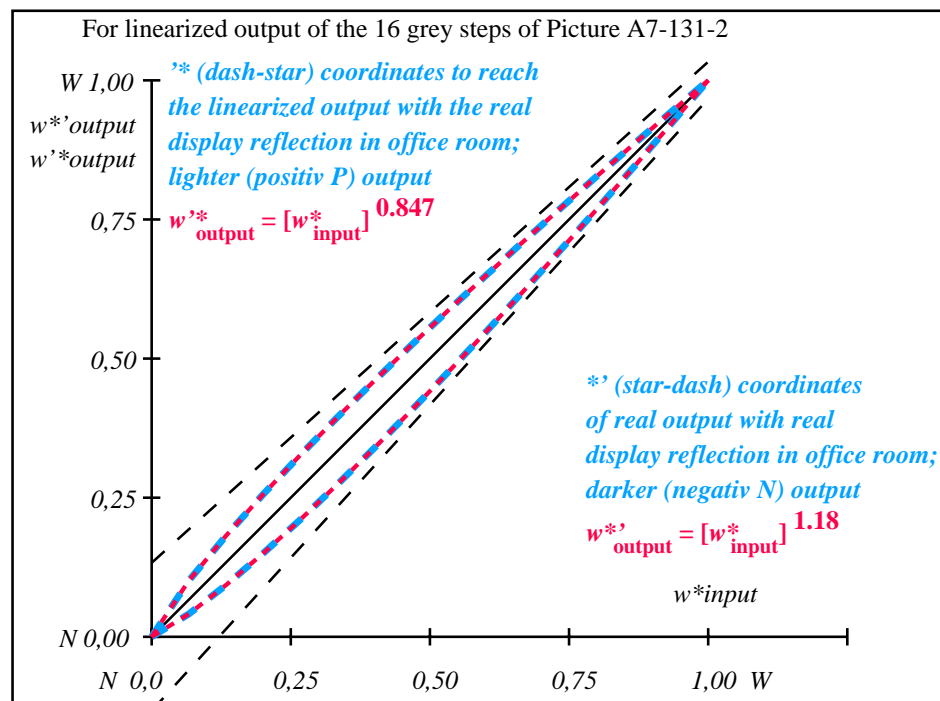
OE89: Form A test chart 2 according to DIN 33872-6; 1MR, DEH input:  $cmy_0$  ( $\rightarrow cmy_0^*_{de}$ ) setcmyk  
Equivalent and regular colour spacing (Yes/No-decision) output 131-1:  $g_P=0.92$ ;  $g_N=1.0$



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	l*out	LAB*out	LAB*out/c-ref	ΔE*
1	5.69 0.0 0.0	0.0 0.0 0.0	5.69 0.0 0.0	0.0 0.0 0.0	0.01
2	11.67 0.0 0.0	0.1 0.0 0.0	14.73 0.0 0.0	3.06 0.0 0.0	3.06
3	17.65 0.0 0.0	0.18 0.0 0.0	21.96 0.0 0.0	4.3 0.0 0.0	4.3
4	23.63 0.0 0.0	0.26 0.0 0.0	28.63 0.0 0.0	4.99 0.0 0.0	4.99
5	29.62 0.0 0.0	0.33 0.0 0.0	34.96 0.0 0.0	5.34 0.0 0.0	5.34
6	35.6 0.0 0.0	0.39 0.0 0.0	41.05 0.0 0.0	5.46 0.0 0.0	5.46
7	41.58 0.0 0.0	0.46 0.0 0.0	46.96 0.0 0.0	5.38 0.0 0.0	5.38
8	47.56 0.0 0.0	0.52 0.0 0.0	52.72 0.0 0.0	5.16 0.0 0.0	5.16
9	53.54 0.0 0.0	0.59 0.0 0.0	58.36 0.0 0.0	4.82 0.0 0.0	4.82
10	59.52 0.0 0.0	0.65 0.0 0.0	63.88 0.0 0.0	4.36 0.0 0.0	4.36
11	65.5 0.0 0.0	0.71 0.0 0.0	69.32 0.0 0.0	3.82 0.0 0.0	3.82
12	71.48 0.0 0.0	0.77 0.0 0.0	74.67 0.0 0.0	3.19 0.0 0.0	3.19
13	77.47 0.0 0.0	0.83 0.0 0.0	79.95 0.0 0.0	2.49 0.0 0.0	2.49
14	83.45 0.0 0.0	0.89 0.0 0.0	85.16 0.0 0.0	1.72 0.0 0.0	1.72
15	89.43 0.0 0.0	0.94 0.0 0.0	90.31 0.0 0.0	0.89 0.0 0.0	0.89
16	95.41 0.0 0.0	1.0 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01
17	5.69 0.0 0.0	0.0 0.0 0.0	5.69 0.0 0.0	0.0 0.0 0.0	0.01
18	28.12 0.0 0.0	0.31 0.0 0.0	33.4 0.0 0.0	5.28 0.0 0.0	5.28
19	50.55 0.0 0.0	0.56 0.0 0.0	55.55 0.0 0.0	5.0 0.0 0.0	5.0
20	72.98 0.0 0.0	0.78 0.0 0.0	76.0 0.0 0.0	3.02 0.0 0.0	3.02
21	95.41 0.0 0.0	1.0 0.0 0.0	95.41 0.0 0.0	0.0 0.0 0.0	0.01
Mean lightness difference (16 steps)					$\Delta E^*_{\text{CIELAB}} = 3.4$
Mean lightness difference (5 steps)					$\Delta L^*_{\text{CIELAB}} = 2.7$
Mean colour reproduction index:					$R^*_{\text{ab,m}} = 85$

OE890-3N-131-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE891-3N-131-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	5.7/0.6	11.7/1.4	17.7/2.4	23.6/4.0	29.6/6.1	35.6/8.8	41.6/12.2	47.6/16.5	53.5/21.5	59.5/27.6	65.5/34.7	71.5/42.9	77.5/52.3	83.4/63.0	89.4/75.1	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=0.85$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*_{\text{CIELAB}, r}$ (relative)																
$w^*_{\text{intended}}$	0.000	0.067	0.133	0.200	0.267	0.333	0.400	0.467	0.533	0.600	0.667	0.733	0.800	0.867	0.933	1.000
$w^*_{\text{out}}$	0.0	0.101	0.181	0.256	0.327	0.394	0.46	0.525	0.587	0.649	0.71	0.769	0.828	0.886	0.943	1.0

OE890-7N, Picture A7-131-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE89: In-output relation according to ISO 9241-306; 1MR, DEH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:0,62$ ;  $Y_N$  range 0,46 to <0,93

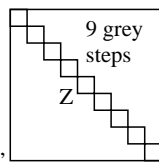
input:  $cmy0$  ( $\rightarrow cmy0^*_{\text{de}}$ ) setcmyk  
output 131-2:  $g_P=0.92$ ;  $g_N=1.0$



### Equivalent spacing for separate and adjacent colours (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 grey steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are  
separate in the upper figure part and  
ajacent in the lower figure part.  
Between N and W there are 9 grey steps.  
Mean grey Z is the mean step of N-W.

Chromatic X'  
X' = C, V, M

Black N

All the stepings of the three hue planes O-L, Y-V and L-M should be equivalent for  
separate and adjacent colours.

#### Is the spacing equivalent for separate and adjacent colours?

underline: Yes/No

Remark: The spacing is not equivalent if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Is there a continuous colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Are there maxima and minima in the colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Remarks:.....

Part 1

OE890-3N-132-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NP.PDF>

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NA.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 OE89L0NP.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 OE89L0NA.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)

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

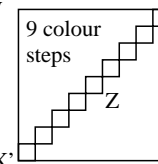
Part 3

OE890-7N-132-1

### Regular colour spacing between colours Z-X' and Z-X (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 colour steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are separate in the  
upper figure part and ajacent  
ajacent in the lower figure part.  
Between X' and X there are 9 colour steps.  
Mean grey Z is the mean step of X'-X.

Chromatic X'  
X' = C, V, M

Black N

All colour steps of the three hue planes O-L, Y-V and L-M should be regular for  
separate and adjacent colours without large chromatic jumps at mean grey Z

#### Is the colour spacing regular at mean grey Z?

underline: Yes/No

Remark: The colour spacing is not regular if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Are there colour jumps at the mean grey colour Z towards X or X'  
for adjacent colours?

underline: Yes/No

Are there colour jumps at the mean grey colour Z towards X or X'  
for separate colours

underline: Yes/No

Remarks: A colour jump has at least twice the colour change compared to the mean change.

Part 2

OE891-3N-132-1

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

The assessor has **normal** colour vision according to one test:

either according to DIN 6160:1996 with Anomaloskop of Nagel

or with test charts using colour points according to Ishihara

or tested with, please specify: .....

underline Yes/No

underline Yes/unknown

underline Yes/unknown

underline Yes/unknown

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

PDF file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

underline Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

underline Yes/No

Picture A7-132-2: **contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0 underline range

Remark: In daylighted offices the contrast range is in many cases:

on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

### Only for optional colorimetric specification with PDF/PS file output

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

picture A7-132-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

picture A7-132-2

or underline Yes/No

#### colour measurement and specification for:

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

underline Yes/No

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

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE891-7N-132-1

OE89: Form A test chart 2 according to DIN 33872-6; 1MR, DEH input:  $cmy_0$  ( $\rightarrow cmy_0^*_{de}$ ) setcmyk  
Equivalent and regular colour spacing (Yes/No-decision) output 132-1:  $g_P=0.85$ ;  $g_N=1.0$



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	l*out	LAB*out	LAB*out/c--ref	ΔE*				
1	10.99	0.0	0.0	10.99	0.0	0.0	0.0	0.01	
2	16.62	0.0	0.14	22.52	0.0	0.0	5.9	0.0	5.9
3	22.25	0.0	0.23	30.18	0.0	0.0	7.93	0.0	7.93
4	27.88	0.0	0.31	36.84	0.0	0.0	8.97	0.0	8.97
5	33.5	0.0	0.38	42.93	0.0	0.0	9.43	0.0	9.43
6	39.13	0.0	0.45	48.63	0.0	0.0	9.5	0.0	9.5
7	44.76	0.0	0.51	54.03	0.0	0.0	9.27	0.0	9.27
8	50.39	0.0	0.57	59.19	0.0	0.0	8.81	0.0	8.81
9	56.02	0.0	0.63	64.17	0.0	0.0	8.15	0.0	8.15
10	61.64	0.0	0.69	68.98	0.0	0.0	7.33	0.0	7.33
11	67.27	0.0	0.74	73.65	0.0	0.0	6.38	0.0	6.38
12	72.9	0.0	0.8	78.2	0.0	0.0	5.3	0.0	5.3
13	78.53	0.0	0.85	82.64	0.0	0.0	4.11	0.0	4.11
14	84.15	0.0	0.9	86.98	0.0	0.0	2.82	0.0	2.82
15	89.78	0.0	0.95	91.23	0.0	0.0	1.45	0.0	1.45
16	95.41	0.0	1.0	95.41	0.0	0.0	0.0	0.0	0.01
17	10.99	0.0	0.0	10.99	0.0	0.0	0.0	0.0	0.01
18	32.1	0.0	0.36	41.45	0.0	0.0	9.36	0.0	9.36
19	53.2	0.0	0.6	61.7	0.0	0.0	8.5	0.0	8.5
20	74.31	0.0	0.81	79.32	0.0	0.0	5.01	0.0	5.01
21	95.41	0.0	1.0	95.41	0.0	0.0	0.0	0.0	0.01

Start output S1

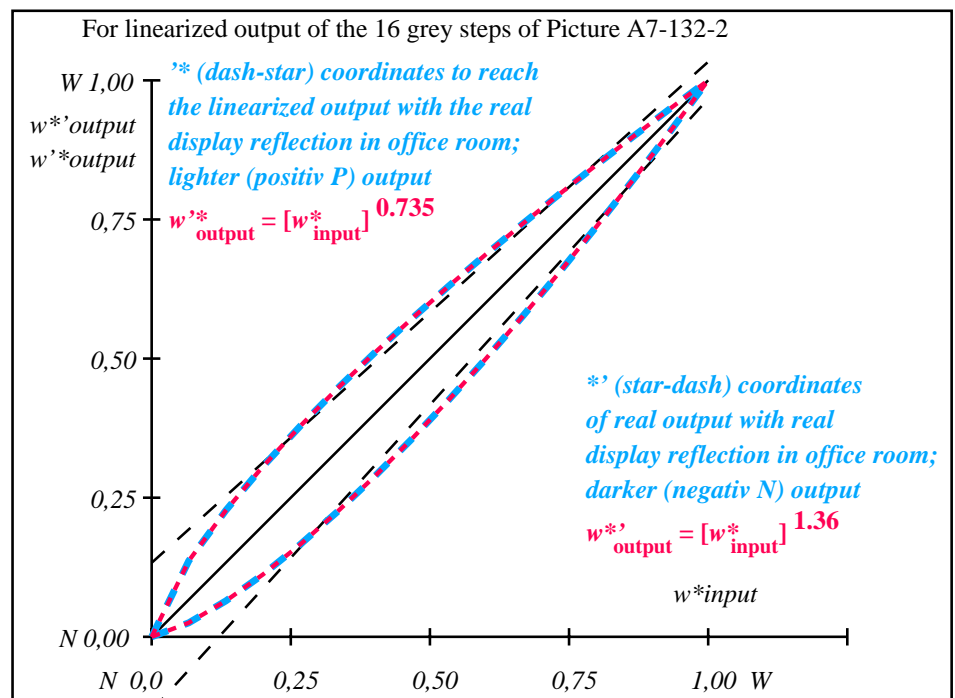
Specification according to  
ISO/IEC 15775 Annex G  
and DIN 33866-1 Annex G

Mean lightness difference (16 steps)  
ΔE\*<sub>CIELAB</sub> = 6.0

Mean lightness difference (5 steps)  
ΔL\*<sub>CIELAB</sub> = 4.6

Mean colour reproduction index:  
R\*<sub>ab,m</sub> = 74

OE890-3N-132-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE891-3N-132-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	11.0/1.3	16.6/2.2	22.2/3.6	27.9/5.4	33.5/7.8	39.1/10.7	44.8/14.4	50.4/18.7	56.0/23.9	61.6/30.0	67.3/37.0	72.9/45.0	78.5/54.1	84.2/64.4	89.8/75.8	95.4/88.6
$w^* w^* w^*$ <i>setrgb</i> $g_P=0.74$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*$ <i>CIELAB, r</i> (relative)																
$w^*_{\text{intended}}$	0.000	0.067	0.133	0.200	0.267	0.333	0.400	0.467	0.533	0.600	0.667	0.733	0.800	0.867	0.933	1.000
$w^*_{\text{out}}$	0.0	0.137	0.227	0.306	0.379	0.446	0.51	0.571	0.63	0.687	0.742	0.796	0.849	0.9	0.95	1.0

OE890-7N, Picture A7-132-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*_{\text{setrgbcolor}}$

OE89: In-output relation according to ISO 9241-306; 1MR, DEH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:1,25$ ;  $Y_N$  range 0,93 to <1,87

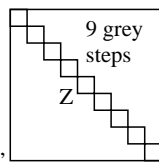
input:  $cmy0$  ( $\rightarrow cmy0^*_{\text{de}}$ )  $setcmyk$   
output 132-2:  $g_P=0.85$ ;  $g_N=1.0$



### Equivalent spacing for separate and adjacent colours (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 grey steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are  
separate in the upper figure part and  
ajacent in the lower figure part.  
Between N and W there are 9 grey steps.  
Mean grey Z is the mean step of N-W.

Chromatic X'  
X' = C, V, M

Black N

All the stepings of the three hue planes O-L, Y-V and L-M should be equivalent for  
separate and adjacent colours.

#### Is the spacing equivalent for separate and adjacent colours?

underline: Yes/No

Remark: The spacing is not equivalent if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Is there a continuous colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Are there maxima and minima in the colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Remarks:.....

Part 1

OE890-3N-133-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NP.PDF>

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NA.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 OE89L0NP.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 OE89L0NA.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)

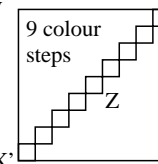
Part 3

OE890-7N-133-1

### Regular colour spacing between colours Z-X' and Z-X (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 colour steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are separate in the  
upper figure part and ajacent  
ajacent in the lower figure part.  
Between X' and X there are 9 colour steps.  
Mean grey Z is the mean step of X'-X.

Chromatic X'  
X' = C, V, M

Black N

All colour steps of the three hue planes O-L, Y-V and L-M should be regular for  
separate and adjacent colours without large chromatic jumps at mean grey Z

#### Is the colour spacing regular at mean grey Z?

underline: Yes/No

Remark: The colour spacing is not regular if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Are there colour jumps at the mean grey colour Z towards X or X'  
for adjacent colours?

underline: Yes/No

Are there colour jumps at the mean grey colour Z towards X or X'  
for separate colours

underline: Yes/No

Remarks: A colour jump has at least twice the colour change compared to the mean change.

Part 2

OE891-3N-133-1

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

The assessor has **normal** colour vision according to one test:

either according to DIN 6160:1996 with Anomaloskop of Nagel

underline Yes/No

or with test charts using colour points according to Ishihara

underline Yes/unknown

or tested with, please specify: .....

underline Yes/unknown

underline Yes/unknown

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

PDF file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

underline Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

underline Yes/No

Picture A7-133-2: **contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0

underline range

Remark: In daylighted offices the contrast range is in many cases:

on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

### Only for optional colorimetric specification with PDF/PS file output

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

picture A7-133-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

picture A7-133-2

or underline Yes/No

#### colour measurement and specification for:

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

underline Yes/No

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

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

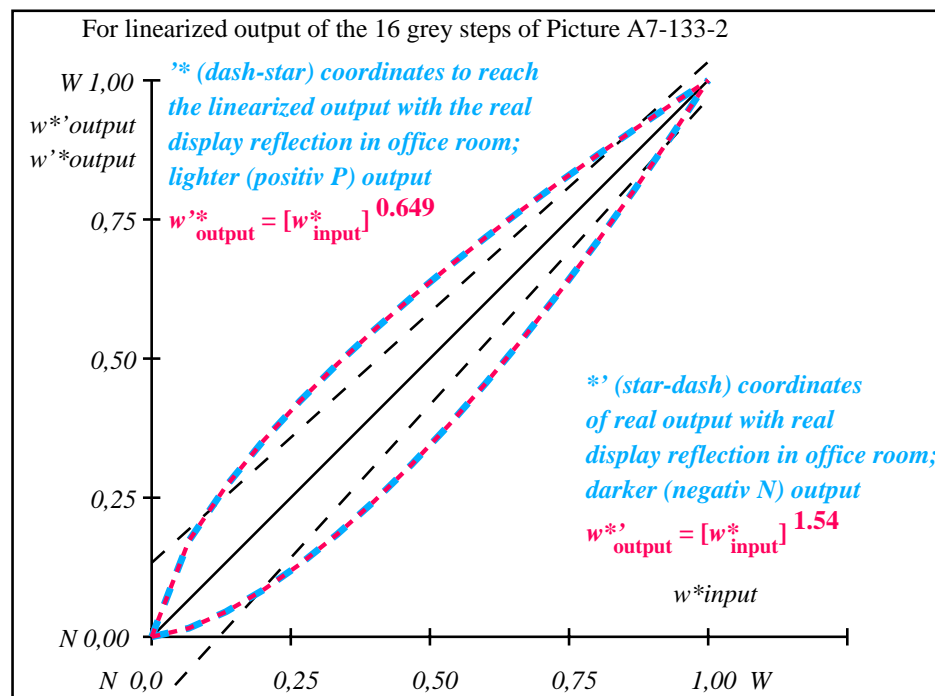
OE891-7N-133-1

OE89: Form A test chart 2 according to DIN 33872-6; 1MR, DEH input:  $cmy_0 (-> cmy_0^*_{de})$  setcmyk  
Equivalent and regular colour spacing (Yes/No-decision) output 133-1:  $g_P=0.77$ ;  $g_N=1.0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	l*out	LAB*out	LAB*out/c-ref	ΔE*
1	18.01 0.0 0.0	0.0 18.01 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	23.17 0.0 0.0	0.17 31.35 0.0	0.0 0.0 0.0	8.18 0.0 0.0	8.18
3	28.33 0.0 0.0	0.27 38.93 0.0	0.0 0.0 0.0	10.6 0.0 0.0	10.6
4	33.49 0.0 0.0	0.35 45.23 0.0	0.0 0.0 0.0	11.74 0.0 0.0	11.74
5	38.65 0.0 0.0	0.42 50.82 0.0	0.0 0.0 0.0	12.17 0.0 0.0	12.17
6	43.81 0.0 0.0	0.49 55.93 0.0	0.0 0.0 0.0	12.12 0.0 0.0	12.12
7	48.97 0.0 0.0	0.55 60.7 0.0	0.0 0.0 0.0	11.73 0.0 0.0	11.73
8	54.13 0.0 0.0	0.61 65.2 0.0	0.0 0.0 0.0	11.07 0.0 0.0	11.07
9	59.29 0.0 0.0	0.66 69.47 0.0	0.0 0.0 0.0	10.18 0.0 0.0	10.18
10	64.45 0.0 0.0	0.72 73.56 0.0	0.0 0.0 0.0	9.11 0.0 0.0	9.11
11	69.61 0.0 0.0	0.77 77.49 0.0	0.0 0.0 0.0	7.88 0.0 0.0	7.88
12	74.77 0.0 0.0	0.82 81.29 0.0	0.0 0.0 0.0	6.52 0.0 0.0	6.52
13	79.93 0.0 0.0	0.87 84.97 0.0	0.0 0.0 0.0	5.04 0.0 0.0	5.04
14	85.09 0.0 0.0	0.91 88.54 0.0	0.0 0.0 0.0	3.45 0.0 0.0	3.45
15	90.25 0.0 0.0	0.96 92.02 0.0	0.0 0.0 0.0	1.77 0.0 0.0	1.77
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
17	18.01 0.0 0.0	0.0 18.01 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	37.36 0.0 0.0	0.41 49.47 0.0	0.0 0.0 0.0	12.11 0.0 0.0	12.11
19	56.71 0.0 0.0	0.64 67.36 0.0	0.0 0.0 0.0	10.65 0.0 0.0	10.65
20	76.06 0.0 0.0	0.83 82.22 0.0	0.0 0.0 0.0	6.16 0.0 0.0	6.16
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
Mean lightness difference (16 steps)					ΔE* <sub>CIELAB</sub> = 7.6
Mean lightness difference (5 steps)					ΔL* <sub>CIELAB</sub> = 5.8
Mean colour reproduction index:					R* <sub>ab,m</sub> = 67

OE890-3N-133-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE891-3N-133-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{\text{intended}}$ (absolute)	18.0/2.5	23.2/3.8	28.3/5.6	33.5/7.8	38.6/10.5	43.8/13.7	49.0/17.6	54.1/22.1	59.3/27.3	64.4/33.4	69.6/40.2	74.8/47.9	79.9/56.6	85.1/66.2	90.2/76.8	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=0.65$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*$ $w^*_{\text{intended}}$ $w^*_{\text{out}}$	0.000 0.0	0.067 0.173	0.133 0.27	0.200 0.352	0.267 0.424	0.333 0.49	0.400 0.552	0.467 0.61	0.533 0.665	0.600 0.718	0.667 0.769	0.733 0.817	0.800 0.865	0.867 0.911	0.933 0.956	1.000 1.0

OE890-7N, Picture A7-133-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE89: In-output relation according to ISO 9241-306; 1MR, DEH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:2,5$ ;  $Y_N$  range 1,87 to <3,75

input:  $cmy0$  ( $\rightarrow cmy0^*_{de}$ ) setcmyk  
output 133-2:  $g_P=0.77$ ;  $g_N=1.0$

TUB registration: 20110801-OE89/OE89L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta

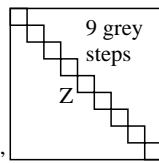




### Equivalent spacing for separate and adjacent colours (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 grey steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are  
separate in the upper figure part and  
ajacent in the lower figure part.  
Between N and W there are 9 grey steps.  
Mean grey Z is the mean step of N-W.

Chromatic X'  
X' = C, V, M

Black N

All the stepings of the three hue planes O-L, Y-V and L-M should be equivalent for  
separate and adjacent colours.

Is the spacing equivalent for separate and adjacent colours?

underline: Yes/No

Remark: The spacing is not equivalent if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Is there a continuous colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Are there maxima and minima in the colour change  
for adjacent colours and not for separate colours?

underline: Yes/No

Remarks:.....

Part 1

OE890-3N-134-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NP.PDF>

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NA.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 OE89L0NP.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 OE89L0NA.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)

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

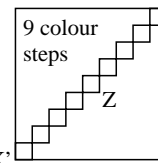
Part 3

OE890-7N-134-1

### Regular colour spacing between colours Z-X' and Z-X (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 colour steps

White W



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.

The colour steps are separate in the  
upper figure part and ajacent  
ajacent in the lower figure part.  
Between X' and X there are 9 colour steps.  
Mean grey Z is the mean step of X'-X.

Chromatic X'  
X' = C, V, M

Black N

All colour steps of the three hue planes O-L, Y-V and L-M should be regular for  
separate and adjacent colours without large chromatic jumps at mean grey Z

Is the colour spacing regular at mean grey Z?

underline: Yes/No

Remark: The colour spacing is not regular if there is at least one Yes  
in one of the following cases; for example see Annex (X):

Are there colour jumps at the mean grey colour Z towards X or X'  
for adjacent colours?

underline: Yes/No

Are there colour jumps at the mean grey colour Z towards X or X'  
for separate colours

underline: Yes/No

Remarks: A colour jump has at least twice the colour change compared to the mean change.

Part 2

OE891-3N-134-1

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

The assessor has **normal** colour vision according to one test:

either according to DIN 6160:1996 with Anomaloskop of Nagel

or with test charts using colour points according to Ishihara

or tested with, please specify: .....

underline Yes/No

underline Yes/unknown

underline Yes/unknown

underline Yes/unknown

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

PDF file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

underline Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

underline Yes/No

Picture A7-134-2: contrast range: (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0

underline range

Remark: In daylighted offices the contrast range is in many cases:

on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

### Only for optional colorimetric specification with PDF/PS file output

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

picture A7-134-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

picture A7-134-2

or underline Yes/No

#### colour measurement and specification for:

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

underline Yes/No

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

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE891-7N-134-1

OE89: Form A test chart 2 according to DIN 33872-6; 1MR, DEH input:  $cmy_0$  ( $\rightarrow cmy_0^*_{de}$ ) setcmyk  
Equivalent and regular colour spacing (Yes/No-decision) output 134-1:  $g_P=0.7$ ;  $g_N=1.0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	l*out	LAB*out	LAB*out/c-ref	ΔE*
1	26.85 0.0 0.0	0.0 26.85 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	31.42 0.0 0.0	0.21 41.05 0.0	0.0 0.0 0.0	9.63 0.0 0.0	9.63
3	35.99 0.0 0.0	0.31 48.1 0.0	0.0 0.0 0.0	12.11 0.0 0.0	12.11
4	40.56 0.0 0.0	0.39 53.75 0.0	0.0 0.0 0.0	13.18 0.0 0.0	13.18
5	45.13 0.0 0.0	0.46 58.64 0.0	0.0 0.0 0.0	13.51 0.0 0.0	13.51
6	49.7 0.0 0.0	0.53 63.05 0.0	0.0 0.0 0.0	13.34 0.0 0.0	13.34
7	54.27 0.0 0.0	0.59 67.09 0.0	0.0 0.0 0.0	12.82 0.0 0.0	12.82
8	58.84 0.0 0.0	0.64 70.87 0.0	0.0 0.0 0.0	12.02 0.0 0.0	12.02
9	63.41 0.0 0.0	0.69 74.42 0.0	0.0 0.0 0.0	11.01 0.0 0.0	11.01
10	67.99 0.0 0.0	0.74 77.79 0.0	0.0 0.0 0.0	9.81 0.0 0.0	9.81
11	72.56 0.0 0.0	0.79 81.01 0.0	0.0 0.0 0.0	8.46 0.0 0.0	8.46
12	77.13 0.0 0.0	0.84 84.1 0.0	0.0 0.0 0.0	6.97 0.0 0.0	6.97
13	81.7 0.0 0.0	0.88 87.07 0.0	0.0 0.0 0.0	5.37 0.0 0.0	5.37
14	86.27 0.0 0.0	0.92 89.94 0.0	0.0 0.0 0.0	3.67 0.0 0.0	3.67
15	90.84 0.0 0.0	0.96 92.71 0.0	0.0 0.0 0.0	1.88 0.0 0.0	1.88
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
17	26.85 0.0 0.0	0.0 26.85 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	43.99 0.0 0.0	0.45 57.47 0.0	0.0 0.0 0.0	13.48 0.0 0.0	13.48
19	61.13 0.0 0.0	0.67 72.67 0.0	0.0 0.0 0.0	11.54 0.0 0.0	11.54
20	78.27 0.0 0.0	0.85 84.85 0.0	0.0 0.0 0.0	6.58 0.0 0.0	6.58
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01

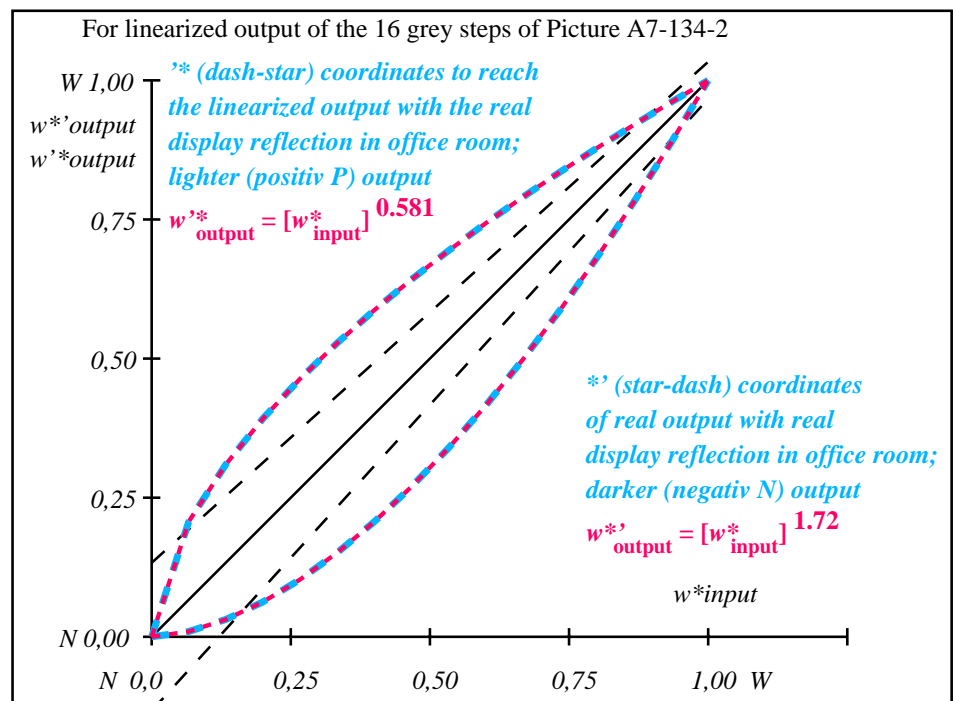
**Start output S1**  
**Specification according to**  
**ISO/IEC 15775 Annex G**  
**and DIN 33866-1 Annex G**

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

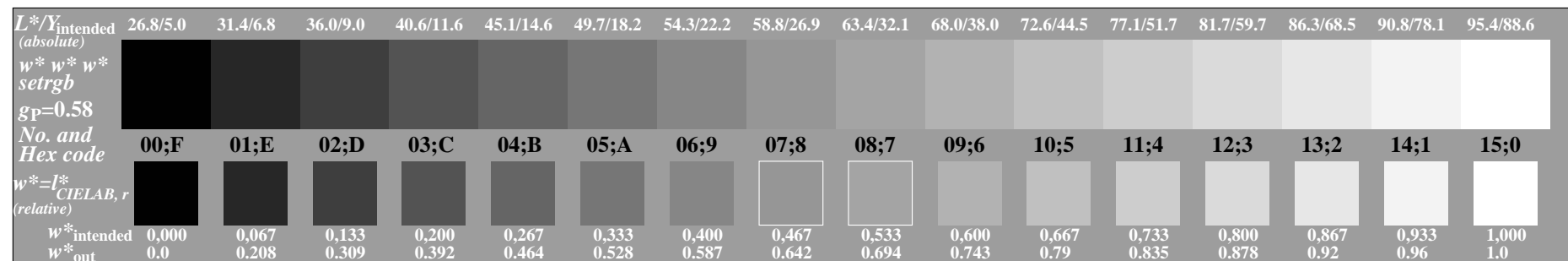
Mean lightness difference (5 steps)  
 $\Delta L^*_{\text{CIELAB}} = 6.3$

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

OE890-3N-134-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE891-3N-134-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

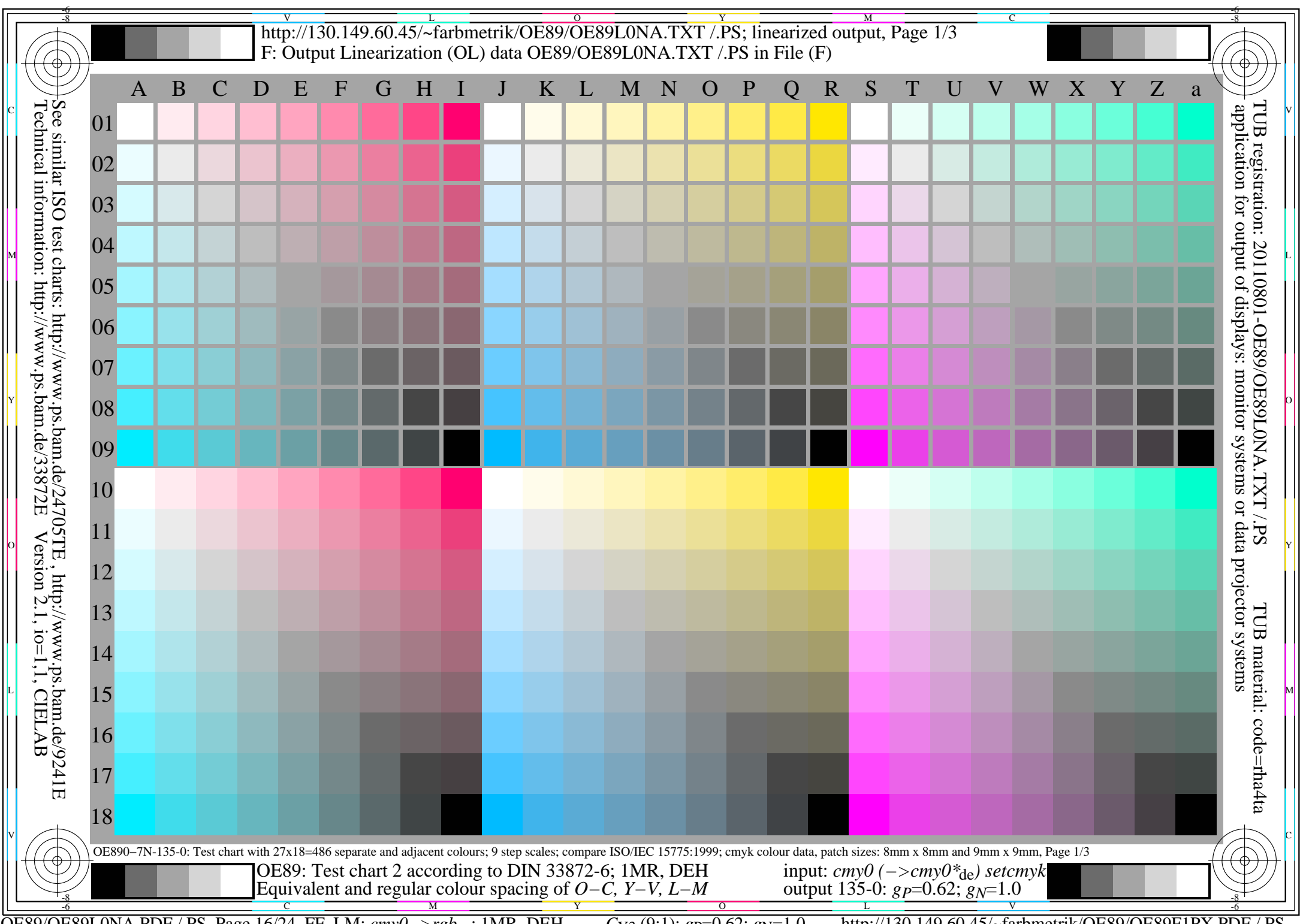


OE890-7N, Picture A7-134-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

OE89: In-output relation according to ISO 9241-306; 1MR, DEH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:5$ ;  $Y_N$  range 3,75 to <7,5

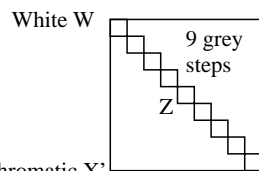
input:  $\text{cmy0} (-> \text{cmy0}^*_{\text{de}}) \text{setcmyk}$   
output 134-2:  $g_P=0.7$ ;  $g_N=1.0$

TUB registration: 20110801-OE89/OE89L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta



### Equivalent spacing for separate and adjacent colours (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 grey steps



Chromatic X  
X = O, Y, L

There are three opposite hue planes O-C, Y-V, and L-M.  
The colour steps are separate in the upper figure part and adjacent in the lower figure part.  
Between N and W there are 9 grey steps.  
Mean grey Z is the mean step of N-W.

Black N

All the stepings of the three hue planes O-L, Y-V and L-M should be equivalent for separate and adjacent colours.

#### Is the spacing equivalent for separate and adjacent colours?

underline: Yes/No

Remark: The spacing is not equivalent if there is at least one Yes in one of the following cases; for example see Annex (X):

Is there a continuous colour change for adjacent colours and not for separate colours?

underline: Yes/No

Are there maxima and minima in the colour change for adjacent colours and not for separate colours?

underline: Yes/No

Remarks:.....

Part 1

OE890-3N-135-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NP.PDF> underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NA.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 OE89L0NP.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 OE89L0NA.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:.....

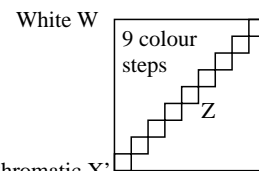
Special remarks:Special remarks, e. g. output of Landscape (L)

Part 3

OE890-7N-135-1

### Regular colour spacing between colours Z-X' and Z-X (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 colour steps



Chromatic X  
X = O, Y, L

There are three opposite hue planes O-C, Y-V, and L-M.  
The colour steps are separate in the upper figure part and adjacent in the lower figure part.  
Between X' and X there are 9 colour steps.  
Mean grey Z is the mean step of X'-X.

Chromatic X'  
X' = C, V, M

Black N

All colour steps of the three hue planes O-L, Y-V and L-M should be regular for separate and adjacent colours without large chromatic jumps at mean grey Z

#### Is the colour spacing regular at mean grey Z?

underline: Yes/No

Remark: The colour spacing is not regular if there is at least one Yes in one of the following cases; for example see Annex (X):

Are there colour jumps at the mean grey colour Z towards X or X' for adjacent colours?

underline: Yes/No

Are there colour jumps at the mean grey colour Z towards X or X' for separate colours

underline: Yes/No

Remarks: A colour jump has at least twice the colour change compared to the mean change.

Part 2

OE891-3N-135-1

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

The assessor has **normal** colour vision according to one test:

either according to DIN 6160:1996 with Anomaloskop of Nagel  
or with test charts using colour points according to Ishihara  
or tested with, please specify: .....

underline Yes/No

underline Yes/unknown

underline Yes/unknown

underline Yes/unknown

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

PDF file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

underline Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

underline Yes/No

Picture A7-135-2: contrast range: (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)  
compare standard print output according to ISO/IEC 15775 with range F:0

underline range

Remark: In daylighted offices the contrast range is in many cases:  
on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

### Only for optional colorimetric specification with PDF/PS file output

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

picture A7-135-2

underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

picture A7-135-2

or underline Yes/No

#### colour measurement and specification for:

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

underline Yes/No

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

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE891-7N-135-1

OE89: Form A test chart 2 according to DIN 33872-6; 1MR, DEH input:  $cmy_0 (-> cmy_0^*_{de})$  setcmyk  
Equivalent and regular colour spacing (Yes/No-decision) output 135-1:  $g_P=0.62$ ;  $g_N=1.0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	l*out	LAB*out	LAB*out/c-ref	ΔE*
1	37.99 0.0 0.0	0.0 37.99 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	41.81 0.0 0.0	0.24 51.79 0.0	0.0 0.0 0.0	9.98 0.0 0.0	9.98
3	45.64 0.0 0.0	0.35 57.87 0.0	0.0 0.0 0.0	12.23 0.0 0.0	12.23
4	49.47 0.0 0.0	0.43 62.6 0.0	0.0 0.0 0.0	13.13 0.0 0.0	13.13
5	53.3 0.0 0.0	0.5 66.63 0.0	0.0 0.0 0.0	13.33 0.0 0.0	13.33
6	57.13 0.0 0.0	0.56 70.19 0.0	0.0 0.0 0.0	13.07 0.0 0.0	13.07
7	60.96 0.0 0.0	0.62 73.44 0.0	0.0 0.0 0.0	12.48 0.0 0.0	12.48
8	64.78 0.0 0.0	0.67 76.44 0.0	0.0 0.0 0.0	11.65 0.0 0.0	11.65
9	68.61 0.0 0.0	0.72 79.23 0.0	0.0 0.0 0.0	10.62 0.0 0.0	10.62
10	72.44 0.0 0.0	0.76 81.87 0.0	0.0 0.0 0.0	9.43 0.0 0.0	9.43
11	76.27 0.0 0.0	0.81 84.37 0.0	0.0 0.0 0.0	8.11 0.0 0.0	8.11
12	80.1 0.0 0.0	0.85 86.76 0.0	0.0 0.0 0.0	6.66 0.0 0.0	6.66
13	83.93 0.0 0.0	0.89 89.05 0.0	0.0 0.0 0.0	5.12 0.0 0.0	5.12
14	87.75 0.0 0.0	0.93 91.24 0.0	0.0 0.0 0.0	3.49 0.0 0.0	3.49
15	91.58 0.0 0.0	0.96 93.36 0.0	0.0 0.0 0.0	1.78 0.0 0.0	1.78
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
17	37.99 0.0 0.0	0.0 37.99 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	52.34 0.0 0.0	0.48 65.67 0.0	0.0 0.0 0.0	13.33 0.0 0.0	13.33
19	66.7 0.0 0.0	0.69 77.86 0.0	0.0 0.0 0.0	11.16 0.0 0.0	11.16
20	81.05 0.0 0.0	0.86 87.34 0.0	0.0 0.0 0.0	6.29 0.0 0.0	6.29
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01

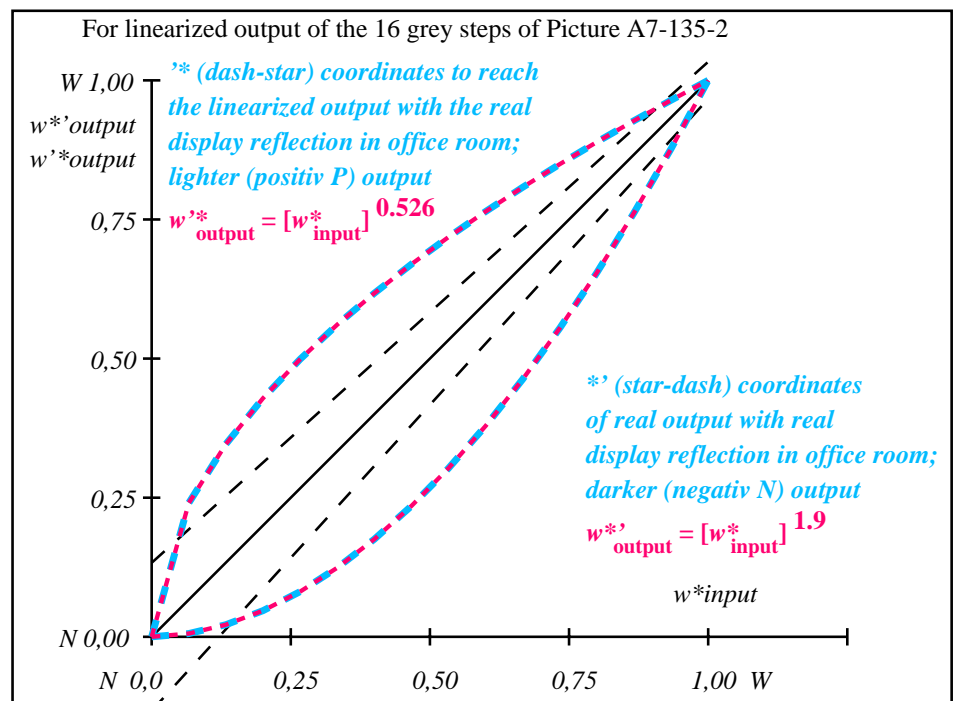
**Start output S1**  
**Specification according to**  
**ISO/IEC 15775 Annex G**  
**and DIN 33866-1 Annex G**

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

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

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

OE890-3N-135-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE891-3N-135-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

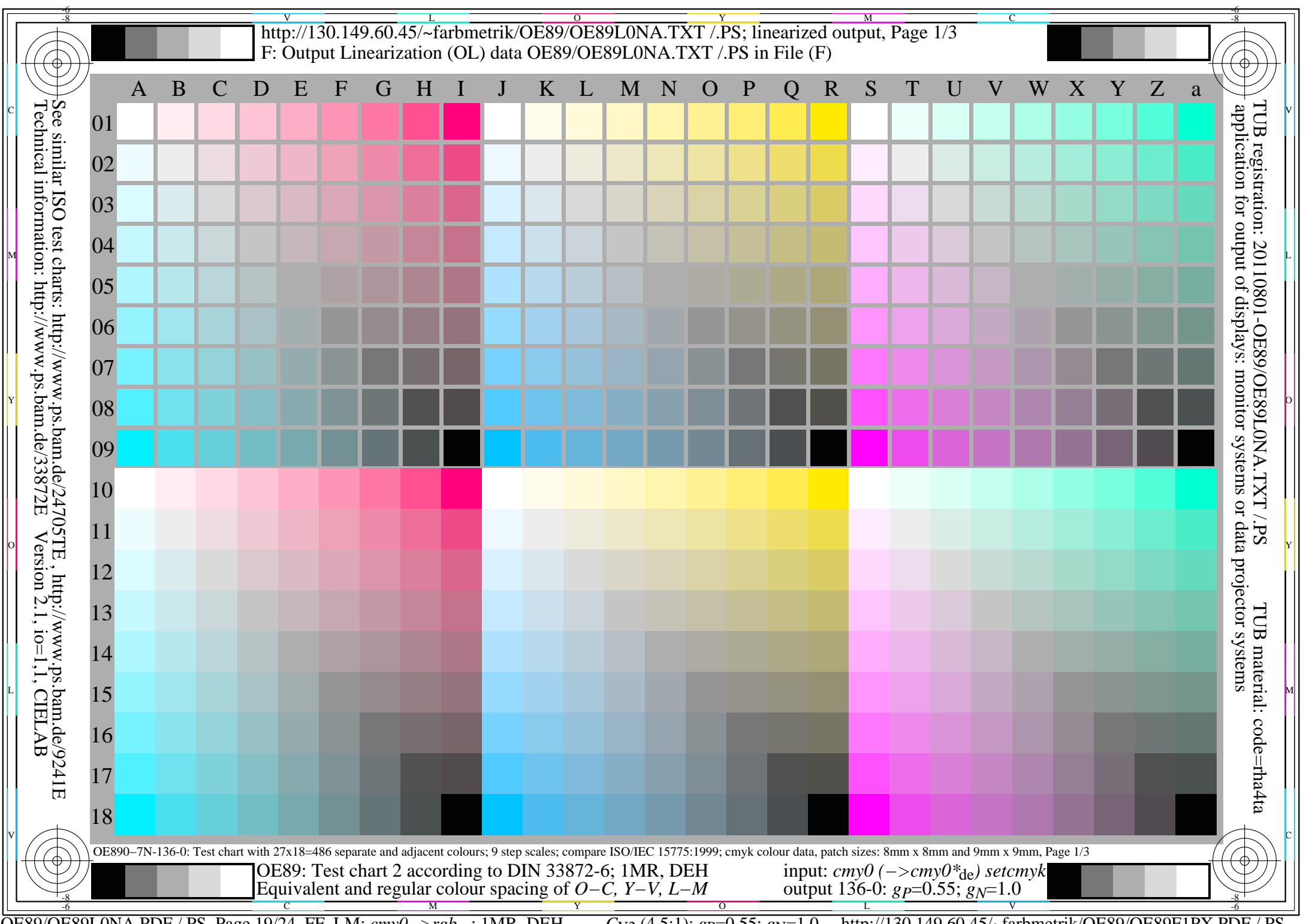
$L^*/Y_{\text{intended}}$ (absolute)	38.0/10.1	41.8/12.4	45.6/15.0	49.5/18.0	53.3/21.3	57.1/25.1	61.0/29.2	64.8/33.8	68.6/38.8	72.4/44.3	76.3/50.3	80.1/56.9	83.9/63.9	87.8/71.6	91.6/79.8	95.4/88.6
$w^* w^* w^*$ setrgb $g_P=0.53$ No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^* = l^*$ CIELAB, r (relative)																
$w^*_{\text{intended}}$	0.000	0.067	0.133	0.200	0.267	0.333	0.400	0.467	0.533	0.600	0.667	0.733	0.800	0.867	0.933	1.000
$w^*_{\text{out}}$	0.0	0.241	0.346	0.429	0.499	0.561	0.617	0.67	0.718	0.764	0.808	0.849	0.889	0.928	0.964	1.0

OE890-7N, Picture A7-135-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^*$  setrgbcolor

OE89: In-output relation according to ISO 9241-306; 1MR, DEH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:10$ ;  $Y_N$  range 7,5 to <15

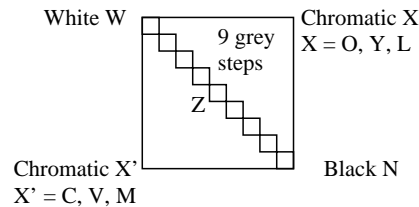
input:  $cmy0$  ( $\rightarrow cmy0^*_{\text{de}}$ ) setcmyk  
output 135-2:  $g_P=0.62$ ;  $g_N=1.0$





### Equivalent spacing for separate and adjacent colours (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 grey steps



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.  
The colour steps are  
separate in the upper figure part and  
ajacent in the lower figure part.  
Between N and W there are 9 grey steps.  
Mean grey Z is the mean step of N-W.

All the stepings of the three hue planes O-L, Y-V and L-M should be equivalent for  
separate and adjacent colours.

#### Is the spacing equivalent for separate and adjacent colours?

underline: Yes/No

Remark: The spacing is not equivalent if there is at least one Yes  
in one of the following cases; for example see Annex (X):

- Is there a continuous colour change  
for adjacent colours and not for separate colours? underline: Yes/No
- Are there maxima and minima in the colour change  
for adjacent colours and not for separate colours? underline: Yes/No

Remarks:.....

Part 1

OE890-3N-136-1

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

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NP.PDF> underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89L0NA.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 OE89L0NP.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 OE89L0NA.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)

.....

.....

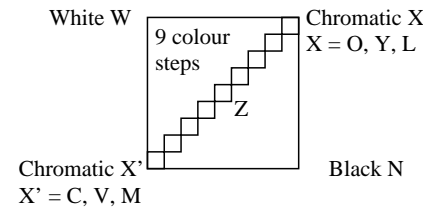
.....

Part 3

OE890-7N-136-1

### Regular colour spacing between colours Z-X' and Z-X (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 colour steps



Chromatic X  
X = O, Y, L

There are three opposite hue planes  
O-C, Y-V, and L-M.  
The colour steps are separate in the  
upper figure part and ajacent  
ajacent in the lower figure part.  
Between X' and X there are 9 colour steps.  
Mean grey Z is the mean step of X'-X.

All colour steps of the three hue planes O-L, Y-V and L-M should be regular for  
separate and adjacent colours without large chromatic jumps at mean grey Z

#### Is the colour spacing regular at mean grey Z?

underline: Yes/No

Remark: The colour spacing is not regular if there is at least one Yes  
in one of the following cases; for example see Annex (X):

- Are there colour jumps at the mean grey colour Z towards X or X'  
for adjacent colours? underline: Yes/No
- Are there colour jumps at the mean grey colour Z towards X or X'  
for separate colours underline: Yes/No

Remarks: A colour jump has at least twice the colour change compared to the mean change.

Part 2

OE891-3N-136-1

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

The assessor has **normal** colour vision according to one test:

- either according to DIN 6160:1996 with Anomaloskop of Nagel underline Yes/No
- or with test charts using colour points according to Ishihara underline Yes/unknown
- or tested with, please specify: ..... underline Yes/unknown

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

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

PDF file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF> underline Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS> underline Yes/No

Picture A7-136-2: **contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)

compare standard print output according to ISO/IEC 15775 with range F:0 underline range

Remark: In daylighted offices the contrast range is in many cases:  
on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

### Only for optional colorimetric specification with PDF/PS file output

PDF-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

picture A7-136-2 underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

picture A7-136-2 or underline Yes/No

#### colour measurement and specification for:

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

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

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer

of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE891-7N-136-1

OE89: Form A test chart 2 according to DIN 33872-6; 1MR, DEH input:  $cmy_0$  ( $\rightarrow cmy_0^*_{de}$ ) setcmyk  
Equivalent and regular colour spacing (Yes/No-decision) output 136-1:  $g_P=0.55$ ;  $g_N=1.0$

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	l*out	LAB*out	LAB*out/c-ref	ΔE*
1	52.02 0.0 0.0	0.0 52.02 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	54.91 0.0 0.0	0.27 63.82 0.0	0.0 0.0 0.0	8.91 0.0 0.0	8.91
3	57.8 0.0 0.0	0.38 68.49 0.0	0.0 0.0 0.0	10.69 0.0 0.0	10.69
4	60.7 0.0 0.0	0.46 72.03 0.0	0.0 0.0 0.0	11.34 0.0 0.0	11.34
5	63.59 0.0 0.0	0.53 75.0 0.0	0.0 0.0 0.0	11.41 0.0 0.0	11.41
6	66.48 0.0 0.0	0.59 77.61 0.0	0.0 0.0 0.0	11.12 0.0 0.0	11.12
7	69.37 0.0 0.0	0.64 79.95 0.0	0.0 0.0 0.0	10.57 0.0 0.0	10.57
8	72.27 0.0 0.0	0.69 82.1 0.0	0.0 0.0 0.0	9.83 0.0 0.0	9.83
9	75.16 0.0 0.0	0.74 84.09 0.0	0.0 0.0 0.0	8.93 0.0 0.0	8.93
10	78.05 0.0 0.0	0.78 85.96 0.0	0.0 0.0 0.0	7.91 0.0 0.0	7.91
11	80.95 0.0 0.0	0.82 87.72 0.0	0.0 0.0 0.0	6.78 0.0 0.0	6.78
12	83.84 0.0 0.0	0.86 89.4 0.0	0.0 0.0 0.0	5.56 0.0 0.0	5.56
13	86.73 0.0 0.0	0.9 91.0 0.0	0.0 0.0 0.0	4.26 0.0 0.0	4.26
14	89.62 0.0 0.0	0.93 92.53 0.0	0.0 0.0 0.0	2.9 0.0 0.0	2.9
15	92.52 0.0 0.0	0.97 93.99 0.0	0.0 0.0 0.0	1.48 0.0 0.0	1.48
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
17	52.02 0.0 0.0	0.0 52.02 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	62.87 0.0 0.0	0.51 74.3 0.0	0.0 0.0 0.0	11.43 0.0 0.0	11.43
19	73.71 0.0 0.0	0.72 83.11 0.0	0.0 0.0 0.0	9.4 0.0 0.0	9.4
20	84.56 0.0 0.0	0.87 89.81 0.0	0.0 0.0 0.0	5.24 0.0 0.0	5.24
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01

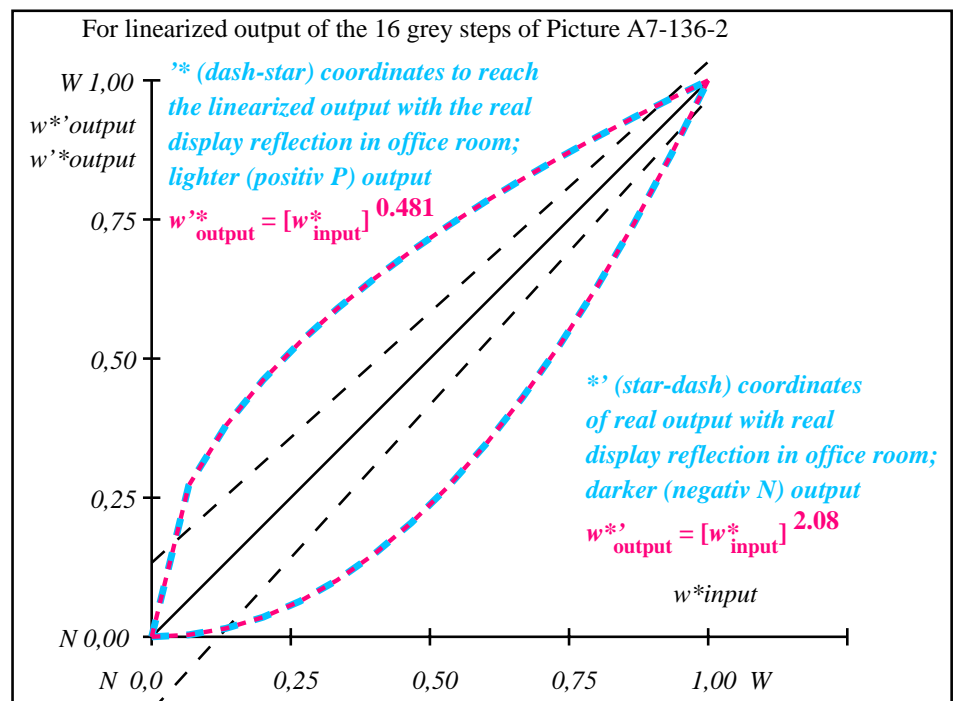
**Start output S1**  
**Specification according to**  
**ISO/IEC 15775 Annex G**  
**and DIN 33866-1 Annex G**

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

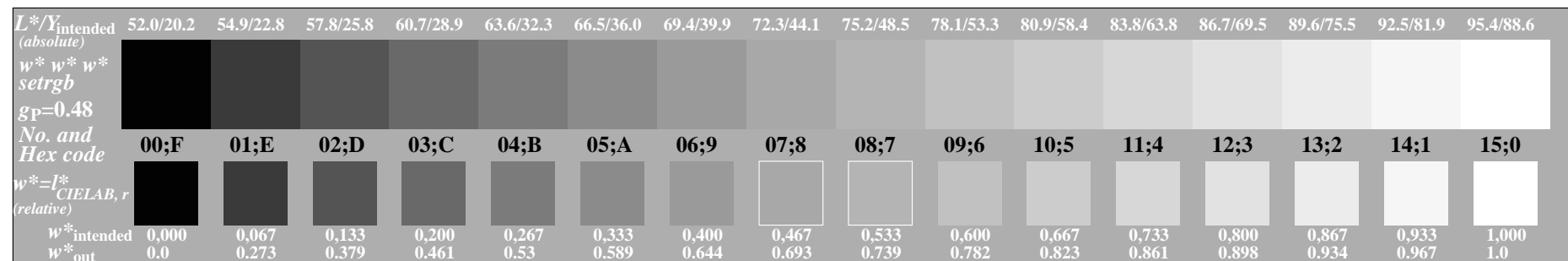
Mean lightness difference (5 steps)  
 $\Delta L^*_{\text{CIELAB}} = 5.2$

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

OE890-3N-136-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE891-3N-136-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE890-7N, Picture A7-136-2: 16 visual equidistant  $L^*$ -grey steps; PS operator:  $w^* w^* w^* \text{setrgbcolor}$

OE89: In-output relation according to ISO 9241-306; 1MR, DEH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:20$ ;  $Y_N$  range 15 to <30

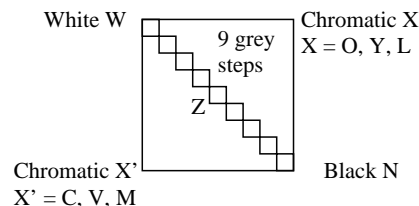
input:  $\text{cmy0} (-> \text{cmy0}^*_{\text{de}}) \text{setcmyk}$   
output 136-2:  $g_P=0.55$ ;  $g_N=1.0$

TUB registration: 20110801-OE89/OE89L0NA.TXT /.PS  
application for output of displays: monitor systems or data projector systems  
TUB material: code=th4ta



### Equivalent spacing for separate and adjacent colours (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 grey steps



Chromatic X  
X = O, Y, L

There are three opposite hue planes O-C, Y-V, and L-M.  
The colour steps are separate in the upper figure part and adjacent in the lower figure part.  
Between N and W there are 9 grey steps.  
Mean grey Z is the mean step of N-W.

All the stepings of the three hue planes O-L, Y-V and L-M should be equivalent for separate and adjacent colours.

#### Is the spacing equivalent for separate and adjacent colours?

underline: Yes/No

Remark: The spacing is not equivalent if there is at least one Yes in one of the following cases; for example see Annex (X):

- Is there a continuous colour change for adjacent colours and not for separate colours? underline: Yes/No
- Are there maxima and minima in the colour change for adjacent colours and not for separate colours? underline: Yes/No

Remarks:.....

Part 1

OE890-3N-137-1

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

**PDF-File:** <http://130.149.60.45/farbmetrik/OE89/OE89L0NP.PDF> underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE89/OE89L0NA.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 OE89L0NP.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 OE89L0NA.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)

.....

.....

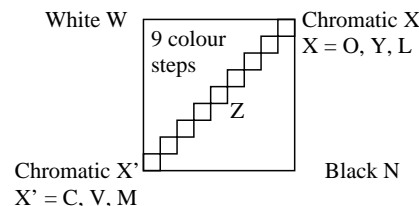
.....

Part 3

OE890-7N-137-1

### Regular colour spacing between colours Z-X' and Z-X (Yes/No decision)

Layout example: hue plane O-C, Y-V oder L-M mit 9 colour steps



Chromatic X  
X = O, Y, L

There are three opposite hue planes O-C, Y-V, and L-M.  
The colour steps are separate in the upper figure part and adjacent in the lower figure part.  
Between X' and X there are 9 colour steps.  
Mean grey Z is the mean step of X'-X.

All colour steps of the three hue planes O-L, Y-V and L-M should be regular for separate and adjacent colours without large chromatic jumps at mean grey Z

#### Is the colour spacing regular at mean grey Z?

underline: Yes/No

Remark: The colour spacing is not regular if there is at least one Yes in one of the following cases; for example see Annex (X):

- Are there colour jumps at the mean grey colour Z towards X or X' for adjacent colours? underline: Yes/No
- Are there colour jumps at the mean grey colour Z towards X or X' for separate colours? underline: Yes/No

Remarks: A colour jump has at least twice the colour change compared to the mean change.

Part 2

OE891-3N-137-1

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

The assessor has **normal** colour vision according to one test:

- either according to DIN 6160:1996 with Anomaloskop of Nagel
- or with test charts using colour points according to Ishihara
- or tested with, please specify: .....

underline Yes/No

underline Yes/unknown

underline Yes/unknown

underline Yes/unknown

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

Office workplace illumination is daylight (clouded/north sky)

underline Yes/No

**PDF file:** <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

underline Yes/No

**PS file:** <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

underline Yes/No

**Picture A7-137-2: contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0) compare standard print output according to ISO/IEC 15775 with range F:0

underline range

Remark: In daylighted offices the contrast range is in many cases:  
on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

### Only for optional colorimetric specification with PDF/PS file output

**PDF-File:** <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PDF>

**picture A7-137-2**

underline Yes/No

**PS-File:** <http://130.149.60.45/farbmetrik/OE89/OE89F1P2.PS>

**picture A7-137-2**

or underline Yes/No

#### colour measurement and specification for:

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

underline Yes/No

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

#### Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file [www.ps.bam.de/De17/10L/L17e00NP.PS](http://www.ps.bam.de/De17/10L/L17e00NP.PS) and transfer of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF

underline Yes/No

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

Part 4

OE891-7N-137-1

OE89: Form A test chart 2 according to DIN 33872-6; 1MR, DEH input:  $cmy_0 (-> cmy_0^*_{de})$  setcmyk  
Equivalent and regular colour spacing (Yes/No-decision) output 137-1:  $g_P=0.47$ ;  $g_N=1.0$



See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>  
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1, CIELAB

i	LAB*ref	L*out	LAB*out	LAB*out/c-ref	ΔE*
1	69.7 0.0 0.0	0.0 69.7 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
2	71.41 0.0 0.0	0.3 77.46 0.0	0.0 0.0 0.0	6.04 0.0 0.0	6.04
3	73.13 0.0 0.0	0.41 80.24 0.0	0.0 0.0 0.0	7.11 0.0 0.0	7.11
4	74.84 0.0 0.0	0.49 82.31 0.0	0.0 0.0 0.0	7.47 0.0 0.0	7.47
5	76.55 0.0 0.0	0.56 84.02 0.0	0.0 0.0 0.0	7.47 0.0 0.0	7.47
6	78.27 0.0 0.0	0.62 85.51 0.0	0.0 0.0 0.0	7.24 0.0 0.0	7.24
7	79.98 0.0 0.0	0.67 86.84 0.0	0.0 0.0 0.0	6.86 0.0 0.0	6.86
8	81.7 0.0 0.0	0.71 88.05 0.0	0.0 0.0 0.0	6.35 0.0 0.0	6.35
9	83.41 0.0 0.0	0.76 89.17 0.0	0.0 0.0 0.0	5.76 0.0 0.0	5.76
10	85.12 0.0 0.0	0.8 90.21 0.0	0.0 0.0 0.0	5.08 0.0 0.0	5.08
11	86.84 0.0 0.0	0.84 91.19 0.0	0.0 0.0 0.0	4.35 0.0 0.0	4.35
12	88.55 0.0 0.0	0.87 92.11 0.0	0.0 0.0 0.0	3.56 0.0 0.0	3.56
13	90.27 0.0 0.0	0.91 92.99 0.0	0.0 0.0 0.0	2.73 0.0 0.0	2.73
14	91.98 0.0 0.0	0.94 93.83 0.0	0.0 0.0 0.0	1.85 0.0 0.0	1.85
15	93.7 0.0 0.0	0.97 94.64 0.0	0.0 0.0 0.0	0.94 0.0 0.0	0.94
16	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
17	69.7 0.0 0.0	0.0 69.7 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01
18	76.13 0.0 0.0	0.54 83.62 0.0	0.0 0.0 0.0	7.5 0.0 0.0	7.5
19	82.55 0.0 0.0	0.74 88.62 0.0	0.0 0.0 0.0	6.06 0.0 0.0	6.06
20	88.98 0.0 0.0	0.88 92.34 0.0	0.0 0.0 0.0	3.35 0.0 0.0	3.35
21	95.41 0.0 0.0	1.0 95.41 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.01

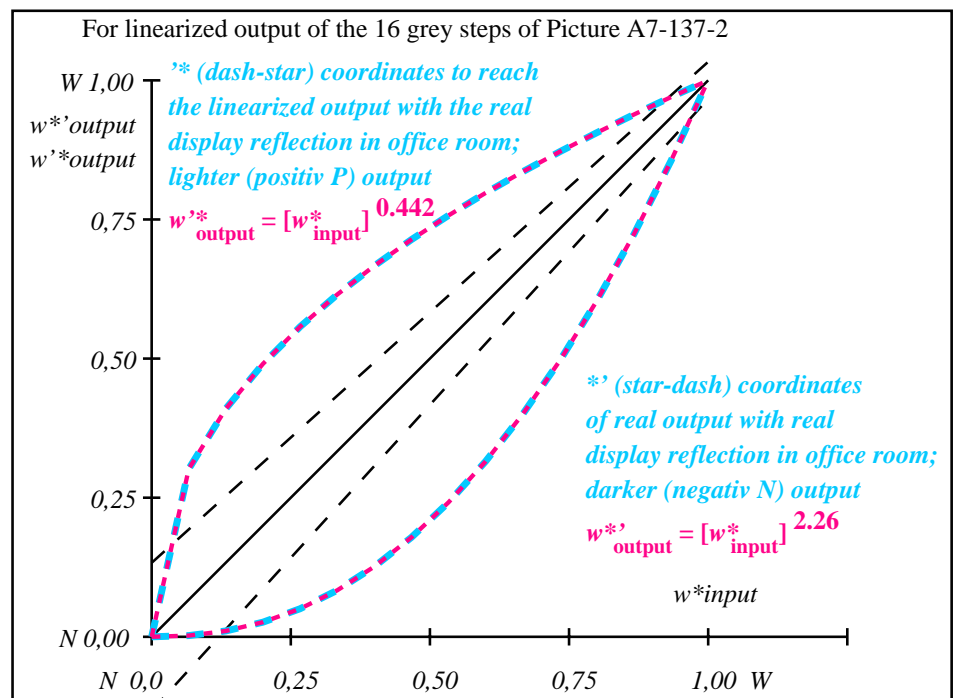
**Start output S1**  
**Specification according to**  
**ISO/IEC 15775 Annex G**  
**and DIN 33866-1 Annex G**

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

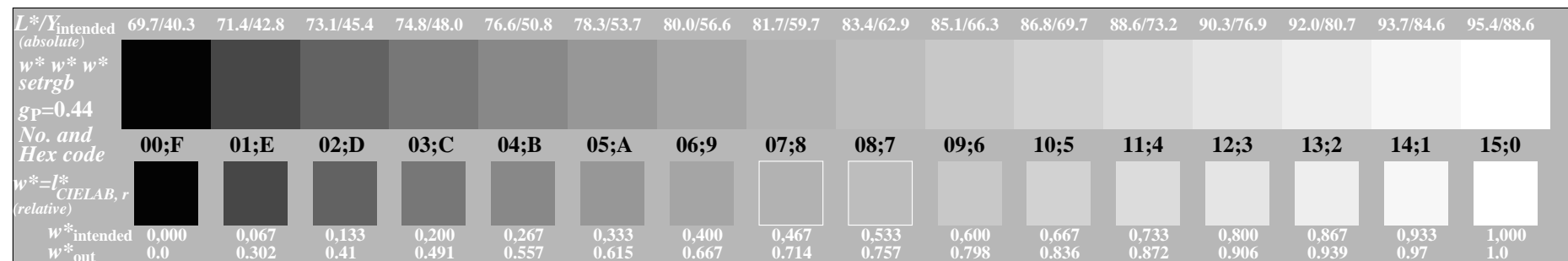
Mean lightness difference (5 steps)  
 $\Delta L^*_{\text{CIELAB}} = 3.4$

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

OE890-3N-137-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE891-3N-137-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE89: In-output relation according to ISO 9241-306; 1MR, DEH  
Viewing  $Y$  contrast  $Y_W:Y_N=88,9:40$ ;  $Y_N$  range 30 to <60

input:  $\text{cmy0}$  ( $\rightarrow \text{cmy0}^*_{\text{de}}$ )  $\text{setcmyk}$   
output 137-2:  $g_P=0.47$ ;  $g_N=1.0$