

<http://farbe.li.tu-berlin.de/eep1/eep110na.txt> /.ps; only vector graphic VG; start output  
 see similar files: <http://farbe.li.tu-berlin.de/eep1/eep1.htm>

**Equal 9 step grey scaling between  $L^*_{0aN}=22.3$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=3.6$ , normalisation grey U**

$L^*_{0aN}=22.3$ ,  $L^*_{0aU}=59.1$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=3.6$ ,  $Y_{0aU}=27.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$

$L^*_{taN}=30.3$ ,  $L^*_{taU}=59.1$ ,  $L^*_{taW}=92.9$ ,  $Y_{taN}=6.3$ ,  $Y_{taU}=27.2$ ,  $Y_{taW}=82.6$ ,  $C_{taY}=Y_{taW}:Y_{taN}=13.0$

**Regularity index according to ISO/IEC 15775:2022, annex G for 5 and 9 steps**

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$  with  $Y \geq 0.882$ ,  $Y_n=100$

L* <sub>CIELAB</sub> n0.i	intended output				real output				linearized output			
	L* <sub>0a</sub>	L* <sub>0r</sub>	Y <sub>0a</sub>	Y <sub>0r</sub>	L* <sub>ta</sub>	$\Delta L^*_{ta}$	L* <sub>tr</sub>	Y <sub>ta</sub>	$(L^*_{tr})^{1/1.12}$	L* <sub>la</sub>	$\Delta L^*_{la}$	
9	96.0	1.0	90.0	1.0	92.9	8.6	1.0	82.6	1.0	92.9	7.7	
8	86.8	0.875	69.6	0.763	84.3	8.5	0.863	64.6	0.876	85.1	7.8	
7	77.6	0.75	52.5	0.566	75.8	8.4	0.727	49.5	0.751	77.3	7.8	
6	68.4	0.625	38.5	0.403	67.4	8.2	0.593	37.1	0.626	69.5	7.9	
5	59.1	0.5	27.2	0.273	59.1	8.0	0.461	27.2	0.5	61.6	7.9	
4	49.9	0.375	18.4	0.171	51.1	7.6	0.333	19.4	0.374	53.7	7.8	
3	40.7	0.25	11.7	0.094	43.5	7.0	0.211	13.5	0.248	45.8	7.7	
2	31.5	0.125	6.9	0.038	36.5	6.1	0.098	9.2	0.125	38.1	7.8	
1	22.3	0.0	3.6	0.0	30.3		0.0	6.3	0.0	30.3		

$\Delta L^*_{0a}=9.2$  (i=1,2,...,8) normalisation:  $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$

eep10-3n

**Equal 9 step grey scaling between  $L^*_{0aN}=22.3$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=0.9$ , normalisation grey U**

$L^*_{0aN}=22.3$ ,  $L^*_{0aU}=59.1$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=3.6$ ,  $Y_{0aU}=27.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$

$L^*_{taN}=24.8$ ,  $L^*_{taU}=59.1$ ,  $L^*_{taW}=95.1$ ,  $Y_{taN}=4.3$ ,  $Y_{taU}=27.2$ ,  $Y_{taW}=88.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=20.2$

**Regularity index according to ISO/IEC 15775:2022, annex G for 5 and 9 steps**

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$  with  $Y \geq 0.882$ ,  $Y_n=100$

L* <sub>CIELAB</sub> n0.i	intended output				real output				linearized output			
	L* <sub>0a</sub>	L* <sub>0r</sub>	Y <sub>0a</sub>	Y <sub>0r</sub>	L* <sub>ta</sub>	$\Delta L^*_{ta}$	L* <sub>tr</sub>	Y <sub>ta</sub>	$(L^*_{tr})^{1/1.03}$	L* <sub>la</sub>	$\Delta L^*_{la}$	
9	96.0	1.0	90.0	1.0	95.1	9.0	1.0	88.0	1.0	95.1	8.7	
8	86.8	0.875	69.6	0.763	86.1	9.0	0.871	68.2	0.875	86.4	8.8	
7	77.6	0.75	52.5	0.566	77.1	9.0	0.743	51.7	0.751	77.6	8.8	
6	68.4	0.625	38.5	0.403	68.1	8.9	0.615	38.1	0.625	68.8	8.8	
5	59.1	0.5	27.2	0.273	59.1	8.9	0.488	27.2	0.5	60.0	8.8	
4	49.9	0.375	18.4	0.171	50.3	8.7	0.362	18.6	0.374	51.2	8.8	
3	40.7	0.25	11.7	0.094	41.5	8.5	0.237	12.2	0.249	42.3	8.8	
2	31.5	0.125	6.9	0.038	33.0	8.1	0.116	7.5	0.125	33.6	8.8	
1	22.3	0.0	3.6	0.0	24.8		0.0	4.3	0.0	24.8		

$\Delta L^*_{0a}=9.2$  (i=1,2,...,8) normalisation:  $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$

eep11-3n

**Equal 9 step grey scaling between  $L^*_{0aN}=22.3$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=0.4$ , normalisation grey U**

$L^*_{0aN}=22.3$ ,  $L^*_{0aU}=59.1$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=3.6$ ,  $Y_{0aU}=27.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$

$L^*_{taN}=23.5$ ,  $L^*_{taU}=59.1$ ,  $L^*_{taW}=95.6$ ,  $Y_{taN}=3.9$ ,  $Y_{taU}=27.2$ ,  $Y_{taW}=89.1$ ,  $C_{taY}=Y_{taW}:Y_{taN}=22.6$

**Regularity index according to ISO/IEC 15775:2022, annex G for 5 and 9 steps**

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$  with  $Y \geq 0.882$ ,  $Y_n=100$

L* <sub>CIELAB</sub> n0.i	intended output				real output				linearized output			
	L* <sub>0a</sub>	L* <sub>0r</sub>	Y <sub>0a</sub>	Y <sub>0r</sub>	L* <sub>ta</sub>	$\Delta L^*_{ta}$	L* <sub>tr</sub>	Y <sub>ta</sub>	$(L^*_{tr})^{1/1.01}$	L* <sub>la</sub>	$\Delta L^*_{la}$	
9	96.0	1.0	90.0	1.0	95.6	9.1	1.0	89.1	1.0	95.6	9.0	
8	86.8	0.875	69.6	0.763	86.5	9.1	0.873	68.9	0.875	86.6	9.0	
7	77.6	0.75	52.5	0.566	77.3	9.1	0.747	52.1	0.75	77.6	9.0	
6	68.4	0.625	38.5	0.403	68.2	9.1	0.62	38.3	0.625	68.6	9.0	
5	59.1	0.5	27.2	0.273	59.1	9.0	0.494	27.2	0.5	59.5	9.0	
4	49.9	0.375	18.4	0.171	50.1	9.0	0.369	18.5	0.375	50.5	9.0	
3	40.7	0.25	11.7	0.094	41.1	8.9	0.244	11.9	0.249	41.5	9.0	
2	31.5	0.125	6.9	0.038	32.2	8.7	0.121	7.2	0.125	32.5	9.0	
1	22.3	0.0	3.6	0.0	23.5		0.0	3.9	0.0	23.5		

$\Delta L^*_{0a}=9.2$  (i=1,2,...,8) normalisation:  $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$

eep10-7n

**Equal 9 step grey scaling between  $L^*_{0aN}=22.3$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=1.8$ , normalisation grey U**

$L^*_{0aN}=22.3$ ,  $L^*_{0aU}=59.1$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=3.6$ ,  $Y_{0aU}=27.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$

$L^*_{taN}=26.9$ ,  $L^*_{taU}=59.1$ ,  $L^*_{taW}=94.3$ ,  $Y_{taN}=5.1$ ,  $Y_{taU}=27.2$ ,  $Y_{taW}=86.1$ ,  $C_{taY}=Y_{taW}:Y_{taN}=17.0$

**Regularity index according to ISO/IEC 15775:2022, annex G for 5 and 9 steps**

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$  with  $Y \geq 0.882$ ,  $Y_n=100$

L* <sub>CIELAB</sub> n0.i	intended output				real output				linearized output			
	L* <sub>0a</sub>	L* <sub>0r</sub>	Y <sub>0a</sub>	Y <sub>0r</sub>	L* <sub>ta</sub>	$\Delta L^*_{ta}$	L* <sub>tr</sub>	Y <sub>ta</sub>	$(L^*_{tr})^{1/1.06}$	L* <sub>la</sub>	$\Delta L^*_{la}$	
9	96.0	1.0	90.0	1.0	94.3	8.9	1.0	86.1	1.0	94.3	8.4	
8	86.8	0.875	69.6	0.763	85.5	8.8	0.868	66.9	0.876	86.0	8.4	
7	77.6	0.75	52.5	0.566	76.6	8.8	0.737	50.9	0.751	77.6	8.4	
6	68.4	0.625	38.5	0.403	67.8	8.7	0.607	37.8	0.625	69.1	8.5	
5	59.1	0.5	27.2	0.273	59.1	8.6	0.478	27.2	0.5	60.6	8.5	
4	49.9	0.375	18.4	0.171	50.6	8.3	0.351	18.9	0.374	52.1	8.4	
3	40.7	0.25	11.7	0.094	42.2	8.0	0.227	12.6	0.249	43.7	8.4	
2	31.5	0.125	6.9	0.038	34.3	7.3	0.109	8.1	0.124	35.3	8.4	
1	22.3	0.0	3.6	0.0	26.9		0.0	5.1	0.0	26.9		

$\Delta L^*_{0a}=9.2$  (i=1,2,...,8) normalisation:  $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$

eep11-7n

Test chart eep1; Equal 9 step grey scaling for four display reflections  $Y_{ref} = 3.6, 0.4, 0.9, 1.8$ , and black  $L^*_{N,CIELAB}=22.3$ ,  $Y_N=3.6$  and white  $L^*_{W,CIELAB}=95.99$ ,  $Y_W=90$ , normalisation: grey U

see similar files of the whole serie: <http://farbe.li.tu-berlin.de/eeps.htm>  
 technical information: <http://farbe.li.tu-berlin.de> or <http://color.li.tu-berlin.de>

TUB registration: 20230701-eep1/eep110na.txt /.ps  
 application for evaluation and measurement of display or print output  
 TUB material: code=rh4ta