

<http://farbe.li.tu-berlin.de/eeq2/eeq210np.pdf> / .ps; only vector graphic VG; start output  
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**Equal 9 step grey scaling between  $L^*_{0aN}=3.6$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=2.5$ , normalisation white W**

$L^*_{0aN}=3.6$ ,  $L^*_{0aU}=49.8$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=0.4$ ,  $Y_{0aU}=18.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=225.0$   
 $L^*_{taN}=19.3$ ,  $L^*_{taU}=52.1$ ,  $L^*_{taW}=96.0$ ,  $Y_{taN}=2.8$ ,  $Y_{taU}=20.2$ ,  $Y_{taW}=90.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=31.9$

**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>	$(L^*_{tr})^{1/1.24}$	L* <sub>la</sub>	$\Delta L^*_{la}$	
9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0	9.2	
8	84.4	0.875	64.9	0.72	84.8	11.2	0.854	65.6	0.88	86.8	9.4	
7	72.9	0.75	45.0	0.498	73.7	11.1	0.709	46.2	0.758	77.4	9.6	
6	61.3	0.625	29.6	0.326	62.7	10.9	0.566	31.3	0.632	67.8	9.9	
5	49.8	0.5	18.2	0.199	52.1	10.7	0.427	20.2	0.504	57.9	10.1	
4	38.2	0.375	10.2	0.11	41.8	10.2	0.293	12.4	0.372	47.9	10.0	
3	26.7	0.25	5.0	0.051	32.4	9.4	0.171	7.3	0.241	37.8	9.5	
2	15.2	0.125	1.9	0.017	24.7	7.7	0.07	4.3	0.117	28.3	9.0	
1	3.6	0.0	0.4	0.0	19.3	5.4	0.0	2.8	0.0	19.3		

$\Delta L^*_{0a}=11.5$  (i=1,2,...,8)      normalisation:  $Y_{taiW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$

eeq20-3n

**Equal 9 step grey scaling between  $L^*_{0aN}=3.6$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=10.0$ , normalisation white W**

$L^*_{0aN}=3.6$ ,  $L^*_{0aU}=49.8$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=0.4$ ,  $Y_{0aU}=18.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=225.0$   
 $L^*_{taN}=36.7$ ,  $L^*_{taU}=57.5$ ,  $L^*_{taW}=96.0$ ,  $Y_{taN}=9.4$ ,  $Y_{taU}=25.4$ ,  $Y_{taW}=90.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=9.6$

**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>	$(L^*_{tr})^{1/1.52}$	L* <sub>la</sub>	$\Delta L^*_{la}$	
9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0	7.0	
8	84.4	0.875	64.9	0.72	85.7	10.3	0.827	67.4	0.882	89.0	7.3	
7	72.9	0.75	45.0	0.498	75.8	9.9	0.659	49.5	0.759	81.7	7.5	
6	61.3	0.625	29.6	0.326	66.3	9.5	0.499	35.7	0.632	74.2	7.8	
5	49.8	0.5	18.2	0.199	57.5	8.8	0.351	25.4	0.501	66.4	7.8	
4	38.2	0.375	10.2	0.11	49.7	7.7	0.22	18.2	0.369	58.5	7.6	
3	26.7	0.25	5.0	0.051	43.5	6.2	0.115	13.5	0.24	50.9	6.9	
2	15.2	0.125	1.9	0.017	39.1	4.3	0.042	10.7	0.123	44.0	7.3	
1	3.6	0.0	0.4	0.0	36.7	2.5	0.0	9.4	0.0	36.7		

$\Delta L^*_{0a}=11.5$  (i=1,2,...,8)      normalisation:  $Y_{taiW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$

eeq20-7n

**Equal 9 step grey scaling between  $L^*_{0aN}=3.6$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=20.0$ , normalisation white W**

$L^*_{0aN}=3.6$ ,  $L^*_{0aU}=49.8$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=0.4$ ,  $Y_{0aU}=18.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=225.0$   
 $L^*_{taN}=47.9$ ,  $L^*_{taU}=62.8$ ,  $L^*_{taW}=96.0$ ,  $Y_{taN}=16.7$ ,  $Y_{taU}=31.3$ ,  $Y_{taW}=90.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=5.4$

**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>	$(L^*_{tr})^{1/1.68}$	L* <sub>la</sub>	$\Delta L^*_{la}$	
9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0		
8	84.4	0.875	64.9	0.72	86.7	9.2	0.808	69.5	0.881	90.3	5.7	
7	72.9	0.75	45.0	0.498	78.0	8.7	0.626	53.2	0.757	84.3	6.0	
6	61.3	0.625	29.6	0.326	69.9	8.1	0.458	40.6	0.629	78.1	6.3	
5	49.8	0.5	18.2	0.199	62.8	7.1	0.309	31.3	0.498	71.8	6.2	
4	38.2	0.375	10.2	0.11	56.8	5.9	0.186	24.7	0.368	65.6	6.0	
3	26.7	0.25	5.0	0.051	52.3	4.5	0.093	20.4	0.244	59.6	5.4	
2	15.2	0.125	1.9	0.017	49.4	2.9	0.032	17.9	0.131	54.2	5.4	
1	3.6	0.0	0.4	0.0	47.9	1.6	0.0	16.7	0.0	47.9	6.3	

$\Delta L^*_{0a}=11.5$  (i=1,2,...,8)      normalisation:  $Y_{taiW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$

eeq21-3n

**Equal 9 step grey scaling between  $L^*_{0aN}=3.6$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=90.0$ , normalisation white W**

$L^*_{0aN}=3.6$ ,  $L^*_{0aU}=49.8$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=0.4$ ,  $Y_{0aU}=18.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=225.0$   
 $L^*_{taN}=73.0$ ,  $L^*_{taU}=78.5$ ,  $L^*_{taW}=96.0$ ,  $Y_{taN}=45.2$ ,  $Y_{taU}=54.1$ ,  $Y_{taW}=90.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=2.0$

**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>	$(L^*_{tr})^{1/2.0}$	L* <sub>la</sub>	$\Delta L^*_{la}$	
9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0		
8	84.4	0.875	64.9	0.72	90.5	5.5	0.762	77.5	0.873	93.1	2.9	
7	72.9	0.75	45.0	0.498	85.8	4.8	0.554	67.5	0.745	90.1	2.9	
6	61.3	0.625	29.6	0.326	81.7	4.0	0.379	59.8	0.616	87.2	2.9	
5	49.8	0.5	18.2	0.199	78.5	3.2	0.24	54.1	0.49	84.3	2.9	
4	38.2	0.375	10.2	0.11	76.1	2.4	0.136	50.1	0.369	81.5	2.8	
3	26.7	0.25	5.0	0.051	74.5	1.6	0.064	47.5	0.254	78.9	2.4	
2	15.2	0.125	1.9	0.017	73.5	1.0	0.022	46.0	0.148	76.4	2.4	
1	3.6	0.0	0.4	0.0	73.0	0.5	0.0	45.2	0.0	73.0	3.4	

$\Delta L^*_{0a}=11.5$  (i=1,2,...,8)      normalisation:  $Y_{taiW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$

eeq21-7n

Test chart eqq2; Equal 9 step grey scaling for four display reflections  $Y_{ref} = 2, 5, 10, 20, 90$ , and black  $L^*_{N,CIELAB}=3.61$ ,  $Y_N=0.4$  and white  $L^*_{W,CIELAB}=95.99$ ,  $Y_W=90$ , normalisation: white W

see similar files of the whole serie: <http://farbe.li.tu-berlin.de/eeq2> or <http://color.li.tu-berlin.de>

TUB registration: 20230701-eeq2/eeq210np.pdf / ps  
 application for evaluation and measurement of display or print output  
 TUB material: code=rh4ta