

Equal 9 step grey scaling between $L^*_{0aN}=22.3$ and $L^*_{0aW}=95.9$, $Y_{0ref}=2.5$, normalisation white W

$L^*_{0aN}=22.3$, $L^*_{0aU}=59.1$, $L^*_{0aW}=96.0$, $Y_{0aN}=3.6$, $Y_{0aU}=27.2$, $Y_{0aW}=90.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$
 $L^*_{taN}=29.2$, $L^*_{taU}=60.7$, $L^*_{taW}=96.0$, $Y_{taN}=5.9$, $Y_{taU}=28.9$, $Y_{taW}=90.0$, $C_{taY}=Y_{taW}:Y_{taN}=15.2$

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^*_{CIELAB} n0.i	intended output				real output				linearized output			
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.09}$	L^*_{la}	ΔL^*_{la}	
9	96.0	1.0	90.0	1.0	96.0	8.9	1.0	90.0	1.0	96.0	8.3	
8	86.8	0.875	69.6	0.763	87.0	8.9	0.866	70.1	0.876	87.7	8.3	
7	77.6	0.75	52.5	0.566	78.2	8.8	0.733	53.5	0.751	79.4	8.4	
6	68.4	0.625	38.5	0.403	69.4	8.7	0.601	39.8	0.626	71.0	8.4	
5	59.1	0.5	27.2	0.273	60.7	8.5	0.471	28.9	0.5	62.6	8.4	
4	49.9	0.375	18.4	0.171	52.2	8.2	0.343	20.3	0.374	54.2	8.4	
3	40.7	0.25	11.7	0.094	44.0	7.7	0.22	13.8	0.248	45.8	8.2	
2	31.5	0.125	6.9	0.038	36.2	7.0	0.104	9.1	0.125	37.6	8.2	
1	22.3	0.0	3.6	0.0	29.2		0.0	5.9	0.0	29.2	8.3	

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

eeq00-3n

Equal 9 step grey scaling between $L^*_{0aN}=22.3$ and $L^*_{0aW}=95.9$, $Y_{0ref}=20.0$, normalisation white W

$L^*_{0aN}=22.3$, $L^*_{0aU}=59.1$, $L^*_{0aW}=96.0$, $Y_{0aN}=3.6$, $Y_{0aU}=27.2$, $Y_{0aW}=90.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$
 $L^*_{taN}=51.0$, $L^*_{taU}=68.5$, $L^*_{taW}=96.0$, $Y_{taN}=19.3$, $Y_{taU}=38.6$, $Y_{taW}=90.0$, $C_{taY}=Y_{taW}:Y_{taN}=4.7$

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^*_{CIELAB} n0.i	intended output				real output				linearized output			
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.35}$	L^*_{la}	ΔL^*_{la}	
9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0		
8	86.8	0.875	69.6	0.763	88.6	7.4	0.835	73.3	0.875	90.4	5.6	
7	77.6	0.75	52.5	0.566	81.5	7.1	0.677	59.3	0.749	84.7	5.7	
6	68.4	0.625	38.5	0.403	74.7	6.7	0.527	47.8	0.622	79.0	5.7	
5	59.1	0.5	27.2	0.273	68.5	6.2	0.387	38.6	0.496	73.3	5.7	
4	49.9	0.375	18.4	0.171	62.8	5.6	0.262	31.4	0.372	67.8	5.6	
3	40.7	0.25	11.7	0.094	58.0	4.9	0.154	25.9	0.251	62.3	5.4	
2	31.5	0.125	6.9	0.038	54.0	3.9	0.066	22.0	0.134	57.1	5.2	
1	22.3	0.0	3.6	0.0	51.0	3.0	0.0	19.3	0.0	51.0	6.0	

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

eeq01-3n

Equal 9 step grey scaling between $L^*_{0aN}=22.3$ and $L^*_{0aW}=95.9$, $Y_{0ref}=10.0$, normalisation white W

$L^*_{0aN}=22.3$, $L^*_{0aU}=59.1$, $L^*_{0aW}=96.0$, $Y_{0aN}=3.6$, $Y_{0aU}=27.2$, $Y_{0aW}=90.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$
 $L^*_{taN}=41.6$, $L^*_{taU}=64.5$, $L^*_{taW}=96.0$, $Y_{taN}=12.2$, $Y_{taU}=33.5$, $Y_{taW}=90.0$, $C_{taY}=Y_{taW}:Y_{taN}=7.3$

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^*_{CIELAB} n0.i	intended output				real output				linearized output			
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.24}$	L^*_{la}	ΔL^*_{la}	
9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0		
8	86.8	0.875	69.6	0.763	87.8	8.2	0.849	71.6	0.876	89.3	6.7	
7	77.6	0.75	52.5	0.566	79.7	8.0	0.701	56.2	0.751	82.4	6.8	
6	68.4	0.625	38.5	0.403	72.0	7.8	0.558	43.6	0.625	75.6	6.9	
5	59.1	0.5	27.2	0.273	64.5	7.4	0.422	33.5	0.498	68.7	6.9	
4	49.9	0.375	18.4	0.171	57.6	6.9	0.294	25.5	0.372	61.8	6.8	
3	40.7	0.25	11.7	0.094	51.3	6.3	0.178	19.5	0.249	55.1	6.7	
2	31.5	0.125	6.9	0.038	45.9	5.4	0.079	15.2	0.129	48.6	6.5	
1	22.3	0.0	3.6	0.0	41.6	4.3	0.0	12.2	0.0	41.6	7.0	

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

eeq00-7n

Equal 9 step grey scaling between $L^*_{0aN}=22.3$ and $L^*_{0aW}=95.9$, $Y_{0ref}=90.0$, normalisation white W

$L^*_{0aN}=22.3$, $L^*_{0aU}=59.1$, $L^*_{0aW}=96.0$, $Y_{0aN}=3.6$, $Y_{0aU}=27.2$, $Y_{0aW}=90.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$
 $L^*_{taN}=74.1$, $L^*_{taU}=81.1$, $L^*_{taW}=96.0$, $Y_{taN}=46.8$, $Y_{taU}=58.6$, $Y_{taW}=90.0$, $C_{taY}=Y_{taW}:Y_{taN}=1.9$

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^*_{CIELAB} n0.i	intended output				real output				linearized output			
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.6}$	L^*_{la}	ΔL^*_{la}	
9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0		
8	86.8	0.875	69.6	0.763	91.6	4.4	0.799	79.8	0.869	93.1	2.9	
7	77.6	0.75	52.5	0.566	87.6	4.0	0.617	71.2	0.74	90.3	2.8	
6	68.4	0.625	38.5	0.403	84.1	3.5	0.457	64.2	0.613	87.5	2.7	
5	59.1	0.5	27.2	0.273	81.1	3.0	0.319	58.6	0.491	84.8	2.6	
4	49.9	0.375	18.4	0.171	78.6	2.5	0.205	54.2	0.372	82.2	2.6	
3	40.7	0.25	11.7	0.094	76.6	2.0	0.115	50.8	0.259	79.7	2.5	
2	31.5	0.125	6.9	0.038	75.1	1.5	0.047	48.4	0.149	77.3	2.4	
1	22.3	0.0	3.6	0.0	74.1	1.0	0.0	46.8	0.0	74.1	3.3	

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

eeq01-7n

Test chart eqq0; Equal 9 step grey scaling for four display reflections $Y_{ref} = 2,5, 10, 20, 90$, and black $L^*_{N,CIELAB}=22.3$, $Y_N=3.6$ 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/eeq0/eeq0I0np.pdf> or <http://farbe.li.tu-berlin.de/eeq0/eeq0.htm>
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 application for evaluation and measurement of display or print output
 TUB material: code=rh4ta