

Equal 9 step grey scaling between $L^*_{0aN}=14.4$ and $L^*_{0aW}=95.9$, $Y_{0ref}=90.0$, normalisation white W

$L^*_{0aN}=14.4, L^*_{0aU}=55.2, L^*_{0aW}=96.0, Y_{0aN}=1.8, Y_{0aU}=23.1, Y_{0aW}=90.0, C_{0aY}=Y_{0aW}:Y_{0aN}=50.0$

$L^*_{taN}=73.5, L^*_{taU}=79.9, L^*_{taW}=96.0, Y_{taN}=45.9, Y_{taU}=56.6, Y_{taW}=90.0, C_{taY}=Y_{taW}:Y_{taN}=2.0$

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 $Y \geq 0.882$, $Y_n=100$

$g^*_5=99, g^*_9=99$

$g^*_5=22, g^*_9=16$

$g^*_5=89, g^*_9=72$

L^*_{CIELAB}	intended output				real output				linearized output		
	n0. i	L^*0a	L^*0r	$Y0a$	$Y0r$	L^*ta	ΔL^*ta	L^*tr	Yta	$(L^*tr)^{1/1.75}$	L^*la

120 ↑

90

60

30

0

9

8

7

6

5

4

3

2

1

$\Delta L^*_{0a}=10.2$

(i=1,2,...,8)

9	96.0	1.0	90.0	1.0	96.0	4.8	1.0	90.0	1.0	96.0	2.9
8	85.8	0.875	67.6	0.746	91.1	4.3	0.784	78.8	0.871	93.1	2.9
7	75.6	0.75	49.2	0.538	86.8	3.7	0.592	69.6	0.742	90.2	2.9
6	65.4	0.625	34.5	0.371	83.1	3.1	0.425	62.3	0.614	87.3	2.8
5	55.2	0.5	23.1	0.242	79.9	2.5	0.286	56.6	0.49	84.5	2.7
4	45.0	0.375	14.5	0.144	77.4	1.9	0.176	52.3	0.371	81.8	2.5
3	34.8	0.25	8.4	0.075	75.6	1.3	0.093	49.2	0.258	79.3	2.4
2	24.6	0.125	4.3	0.028	74.3	0.8	0.035	47.1	0.149	76.8	3.4
1	14.4	0.0	1.8	0.0	73.5		0.0	45.9	0.0	73.5	

normalisation: $Y_{taW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$