

# Equal 9 step grey scaling between $L^*_{0aN}=8.1$ and $L^*_{0aW}=95.9$ , $Y_{0ref}=0.4$ , normalisation grey U

$L^*_{0aN}=8.1$ ,  $L^*_{0aU}=52.1$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=0.9$ ,  $Y_{0aU}=20.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=99.9$

$L^*_{taN}=11.1$ ,  $L^*_{taU}=52.1$ ,  $L^*_{taW}=95.4$ ,  $Y_{taN}=1.3$ ,  $Y_{taU}=20.2$ ,  $Y_{taW}=88.6$ ,  $C_{taY}=Y_{taW}:Y_{taN}=69.5$

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

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

$g^*_5=90$ ,  $g^*_9=86$

$g^*_5=97$ ,  $g^*_9=96$

$L^*_{CIELAB}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.04}$	$L^*_{la}$	$\Delta L^*_{la}$
100	○ 9	96.0	1.0	90.0	1.0	95.4		1.0	88.6	1.0	95.4	
							10.9					10.4
	● 8	85.0	0.875	66.0	0.731	84.5		0.871	65.1	0.876	85.0	
							10.8					10.5
75	● 7	74.0	0.75	46.7	0.515	73.7		0.742	46.2	0.752	74.5	
							10.8					10.5
	● 6	63.0	0.625	31.6	0.345	62.9		0.614	31.4	0.627	63.9	
							10.8					10.6
50	● 5	52.1	0.5	20.2	0.217	52.1		0.486	20.2	0.501	53.3	
							10.7					10.6
	● 4	41.1	0.375	11.9	0.124	41.3		0.358	12.1	0.374	42.7	
							10.6					10.7
25	● 3	30.1	0.25	6.3	0.06	30.7		0.233	6.5	0.248	32.0	
							10.3					10.6
	● 2	19.1	0.125	2.8	0.021	20.5		0.111	3.1	0.122	21.4	
							9.4					10.3
0	● 1	8.1	0.0	0.9	0.0	11.1		0.0	1.3	0.0	11.1	

$\Delta L^*_{0a}=11.0$  (i=1,2,...,8)

normalisation:  $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$