

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

$L^*_{0aN}=3.6$ ,  $L^*_{0aU}=49.8$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=0.4$ ,  $Y_{0aU}=18.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=225.0$

$L^*_{taN}=21.4$ ,  $L^*_{taU}=49.8$ ,  $L^*_{taW}=90.9$ ,  $Y_{taN}=3.3$ ,  $Y_{taU}=18.2$ ,  $Y_{taW}=78.2$ ,  $C_{taY}=Y_{taW}:Y_{taN}=23.4$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{CIE LAB} = 116 [Y/Y_n]^{1/3} - 16$  with  $Y \geq 0,882$ ,  $Y_n=100$

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

$g^*_5 = 51$ ,  $g^*_9 = 40$

$g^*_5 = 91$ ,  $g^*_9 = 89$

$L^*_{CIE LAB}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.3}$	$L^*_{la}$	$\Delta L^*_{la}$
100	○ 9	96.0	1.0	90.0	1.0	90.9		1.0	78.2	1.0	90.9	
							10.5					8.2
	● 8	84.4	0.875	64.9	0.72	80.3		0.848	57.2	0.881	82.6	
							10.4					8.5
75	● 7	72.9	0.75	45.0	0.498	69.9		0.698	40.6	0.759	74.1	
							10.2					8.7
	● 6	61.3	0.625	29.6	0.326	59.7		0.551	27.8	0.633	65.4	
							9.9					9.0
50	● 5	49.8	0.5	18.2	0.199	49.8		0.409	18.2	0.504	56.4	
							9.3					9.2
	● 4	38.2	0.375	10.2	0.11	40.5		0.275	11.5	0.372	47.2	
							8.3					9.1
25	● 3	26.7	0.25	5.0	0.051	32.2		0.156	7.2	0.24	38.1	
							6.6					8.5
	● 2	15.2	0.125	1.9	0.017	25.6		0.061	4.6	0.118	29.5	
							4.3					8.2
0	● 1	3.6	0.0	0.4	0.0	21.4		0.0	3.3	0.0	21.4	

$\Delta L^*_{0a}=11.5$  (i=1,2,...,8)

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