

# Equal 9 step grey scaling between $L^*_{0aN}=3.6$ and $L^*_{0aW}=95.9$ , $Y_{0ref}=0.4$ , normalisation white W

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

$L^*_{taN}=7.2$ ,  $L^*_{taU}=50.2$ ,  $L^*_{taW}=96.0$ ,  $Y_{taN}=0.8$ ,  $Y_{taU}=18.6$ ,  $Y_{taW}=90.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=113.0$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{CIE LAB} = 116 [Y/Y_n]^{1/3} - 16$  with  $Y \geq 0.882$ ,  $Y_n=100$

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

$g^*_5 = 89$ ,  $g^*_9 = 86$

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

$L^*_{CIE LAB}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.05}$	$L^*_{la}$	$\Delta L^*_{la}$
100	○ 9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0	
							11.5					11.0
	● 8	84.4	0.875	64.9	0.72	84.5		0.871	65.0	0.876	85.0	
							11.5					11.0
75	● 7	72.9	0.75	45.0	0.498	73.0		0.741	45.2	0.752	73.9	
							11.4					11.1
	● 6	61.3	0.625	29.6	0.326	61.6		0.612	29.9	0.626	62.8	
							11.4					11.2
50	● 5	49.8	0.5	18.2	0.199	50.2		0.484	18.6	0.501	51.6	
							11.3					11.2
	● 4	38.2	0.375	10.2	0.11	38.9		0.357	10.6	0.374	40.4	
							11.1					11.2
25	● 3	26.7	0.25	5.0	0.051	27.8		0.231	5.4	0.248	29.2	
							10.6					11.0
	● 2	15.2	0.125	1.9	0.017	17.1		0.112	2.3	0.124	18.2	
							9.9					11.0
0	● 1	3.6	0.0	0.4	0.0	7.2		0.0	0.8	0.0	7.2	

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

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