

# Equal 9 step grey scaling between $L^*_{0aN}=3.6$ and $L^*_{0aW}=95.9$ , $Y_{0ref}=20.0$ , normalisation white W

$L^*_{0aN}=3.6$ ,  $L^*_{0aU}=49.8$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=0.4$ ,  $Y_{0aU}=18.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=225.0$   
 $L^*_{taN}=47.9$ ,  $L^*_{taU}=62.8$ ,  $L^*_{taW}=96.0$ ,  $Y_{taN}=16.7$ ,  $Y_{taU}=31.3$ ,  $Y_{taW}=90.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=5.4$

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  $Y \geq 0,882$ ,  $Y_n=100$

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

$g^*_5 = 24$ ,  $g^*_9 = 16$

$g^*_5 = 93$ ,  $g^*_9 = 86$

$L^*_{CIE LAB}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.68}$	$L^*_{la}$	$\Delta L^*_{la}$
100	○ 9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0	
	● 8	84.4	0.875	64.9	0.72	86.7	9.2	0.808	69.5	0.881	90.3	5.7
75	● 7	72.9	0.75	45.0	0.498	78.0	8.7	0.626	53.2	0.757	84.3	6.0
	● 6	61.3	0.625	29.6	0.326	69.9	8.1	0.458	40.6	0.629	78.1	6.2
50	● 5	49.8	0.5	18.2	0.199	62.8	7.1	0.309	31.3	0.498	71.8	6.3
	● 4	38.2	0.375	10.2	0.11	56.8	5.9	0.186	24.7	0.368	65.6	6.2
25	● 3	26.7	0.25	5.0	0.051	52.3	4.5	0.093	20.4	0.244	59.6	6.0
	● 2	15.2	0.125	1.9	0.017	49.4	2.9	0.032	17.9	0.131	54.2	5.4
0	● 1	3.6	0.0	0.4	0.0	47.9	1.6	0.0	16.7	0.0	47.9	6.3

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

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