

# Equal 9 step grey scaling between $L^*_{0aN}=18.2$ and $L^*_{0aW}=109.2$ , $Y_{0ref}=1.8$ , normalisation white W

$L^*_{0aN}=18.2$ ,  $L^*_{0aU}=63.8$ ,  $L^*_{0aW}=109.3$ ,  $Y_{0aN}=2.6$ ,  $Y_{0aU}=32.5$ ,  $Y_{0aW}=126.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=49.0$   
 $L^*_{taN}=24.7$ ,  $L^*_{taU}=64.8$ ,  $L^*_{taW}=109.3$ ,  $Y_{taN}=4.3$ ,  $Y_{taU}=33.8$ ,  $Y_{taW}=126.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=29.2$

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

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

$g^*_5=84$ ,  $g^*_9=78$

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

$L^*_{CIE LAB}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.08}$	$L^*_{la}$	$\Delta L^*_{la}$
	9	109.3	1.0	126.0	1.0	109.3		1.0	126.0	1.0	109.3	
100	8	97.9	0.875	94.7	0.746	98.1	11.2	0.867	95.1	0.876	98.8	10.4
	7	86.5	0.75	69.0	0.538	86.9	11.2	0.736	69.8	0.752	88.3	10.5
75	6	75.1	0.625	48.5	0.372	75.8	11.1	0.604	49.6	0.627	77.7	10.6
	5	63.8	0.5	32.5	0.242	64.8	11.0	0.474	33.8	0.501	67.1	10.7
50	4	52.4	0.375	20.5	0.145	54.0	10.8	0.346	22.0	0.374	56.3	10.7
	3	41.0	0.25	11.9	0.075	43.5	10.5	0.222	13.5	0.248	45.6	10.7
25	2	29.6	0.125	6.1	0.028	33.5	10.0	0.104	7.8	0.123	35.1	10.5
	1	18.2	0.0	2.6	0.0	24.7	8.8	0.0	4.3	0.0	24.7	10.4

$\Delta L^*_{0a}=11.4$  (i=1,2,...,8)

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