

# Equal 9 step grey scaling between $L^*_{0aN}=22.3$ and $L^*_{0aW}=95.9$ , $Y_{0ref}=0.9$ , normalisation white W

$L^*_{0aN}=22.3$ ,  $L^*_{0aU}=59.1$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=3.6$ ,  $Y_{0aU}=27.2$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$

$L^*_{taN}=25.1$ ,  $L^*_{taU}=59.7$ ,  $L^*_{taW}=96.0$ ,  $Y_{taN}=4.4$ ,  $Y_{taU}=27.8$ ,  $Y_{taW}=90.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=20.2$

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

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

$g^*_5=92$ ,  $g^*_9=90$

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

$L^*_{CIE LAB}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.03}$	$L^*_{la}$	$\Delta L^*_{la}$
100	9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0	
	8	86.8	0.875	69.6	0.763	86.9	9.1	0.871	69.8	0.875	87.2	8.8
	7	77.6	0.75	52.5	0.566	77.8	9.1	0.743	52.9	0.751	78.3	8.8
75	6	68.4	0.625	38.5	0.403	68.7	9.0	0.615	39.0	0.625	69.4	8.9
	5	59.1	0.5	27.2	0.273	59.7	9.0	0.488	27.8	0.5	60.6	8.9
50	4	49.9	0.375	18.4	0.171	50.8	8.9	0.362	19.1	0.374	51.7	8.9
	3	40.7	0.25	11.7	0.094	41.9	8.8	0.237	12.5	0.249	42.8	8.9
	2	31.5	0.125	6.9	0.038	33.3	8.6	0.116	7.7	0.125	34.0	8.8
25	1	22.3	0.0	3.6	0.0	25.1	8.2	0.0	4.4	0.0	25.1	8.8

$\Delta L^*_{0a}=9.2$

(i=1,2,...,8)

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