

**Equal 9 step grey scaling between  $L^*_{0aN}=17.9$  and  $L^*_{0aW}=95.9$ ,  $Y_{0ref}=10.0$ , normalisation white W**

$L^*_{0aN}=17.9$ ,  $L^*_{0aU}=56.9$ ,  $L^*_{0aW}=96.0$ ,  $Y_{0aN}=2.5$ ,  $Y_{0aU}=24.9$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=36.0$

$L^*_{taN}=40.0$ ,  $L^*_{taU}=62.8$ ,  $L^*_{taW}=96.0$ ,  $Y_{taN}=11.2$ ,  $Y_{taU}=31.4$ ,  $Y_{taW}=90.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=8.0$

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

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

$g^*_5=53$ ,  $g^*_9=45$

$g^*_5=97$ ,  $g^*_9=93$

$L^*_{CIE LAB}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.29}$	$L^*_{la}$	$\Delta L^*_{la}$
100	○ 9	96.0	1.0	90.0	1.0	96.0		1.0	90.0	1.0	96.0	
	● 8	86.2	0.875	68.5	0.754	87.3	8.7	0.845	70.6	0.877	89.1	6.9
75	● 7	76.5	0.75	50.7	0.55	78.8	8.5	0.693	54.6	0.752	82.1	7.0
	● 6	66.7	0.625	36.3	0.386	70.6	8.2	0.547	41.6	0.626	75.0	7.1
	● 5	56.9	0.5	24.9	0.256	62.8	7.8	0.408	31.4	0.499	67.9	7.1
50	● 4	47.2	0.375	16.2	0.156	55.6	7.2	0.279	23.5	0.372	60.8	7.1
	● 3	37.4	0.25	9.8	0.083	49.2	6.4	0.165	17.8	0.247	53.8	7.0
25	● 2	27.7	0.125	5.3	0.032	43.9	5.3	0.071	13.8	0.128	47.2	6.7
	● 1	17.9	0.0	2.5	0.0	40.0	3.9	0.0	11.2	0.0	40.0	7.1

$\Delta L^*_{0a}=9.7$

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

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