

Equal 9 step grey scaling between $L^*_{0aN}=31$ & $L^*_{0aW}=81.8$, $Y_{0ref}=60$, normalisation white W

$L^*_{0aN}=31.0$, $L^*_{0aU}=56.4$, $L^*_{0aW}=81.8$, $Y_{0aN}=6.7$, $Y_{0aU}=24.3$, $Y_{0aW}=60.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=9.0$

$L^*_{taN}=64.4$, $L^*_{taU}=71.0$, $L^*_{taW}=81.8$, $Y_{taN}=33.3$, $Y_{taU}=42.2$, $Y_{taW}=60.0$, $C_{taY}=Y_{taW}:Y_{taN}=1.8$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$, $L^*_{CIELAB,W} = 116 [Y/Y_n]^{1/3} - 16$ with $Y \geq 0,882$, $Y_n=100$

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

$g^*_5=45$, $g^*_9=39$

$g^*_5=71$, $g^*_9=58$

$L^*_{CIELAB,W}$ intended output real output linearized output

n0. i	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.62}$	L^*_{la}	ΔL^*_{la}
9	81.8	1.0	60.0	1.0	81.8		1.0	60.0	1.0	81.8	
8	75.5	0.875	49.1	0.795	78.8	3.1	0.824	54.5	0.887	79.9	2.0
7	69.1	0.75	39.5	0.616	75.9	2.8	0.66	49.8	0.774	77.9	2.0
6	62.8	0.625	31.3	0.462	73.3	2.6	0.511	45.7	0.661	75.9	2.0
5	56.4	0.5	24.3	0.332	71.0	2.3	0.377	42.2	0.547	74.0	2.0
4	50.1	0.375	18.5	0.222	68.9	2.1	0.258	39.2	0.434	72.0	2.0
3	43.7	0.25	13.7	0.131	67.1	1.8	0.156	36.8	0.318	70.0	2.0
2	37.4	0.125	9.7	0.058	65.6	1.5	0.07	34.9	0.194	67.8	2.1
1	31.0	0.0	6.7	0.0	64.4	1.2	0.0	33.3	0.0	64.4	3.4

$\Delta L^*_{0a}=6.3$

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

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