

Equal 9 step grey scaling between $L^*_{0aN}=31$ & $L^*_{0aW}=81.8$, $Y_{0ref}=1$, normalisation white W

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

$L^*_{taN}=33.0$, $L^*_{taU}=57.0$, $L^*_{taW}=81.8$, $Y_{taN}=7.5$, $Y_{taU}=24.9$, $Y_{taW}=60.0$, $C_{taY}=Y_{taW}:Y_{taN}=7.9$

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

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

$g^*_5=94$, $g^*_9=93$

$g^*_5=96$, $g^*_9=95$

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

n0. i	intended output				real output					linearized output	
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.04}$	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	75.6	6.2	0.872	49.2	0.877	75.8	6.0
7	69.1	0.75	39.5	0.616	69.4	6.2	0.745	39.9	0.753	69.8	6.0
6	62.8	0.625	31.3	0.462	63.2	6.2	0.618	31.8	0.629	63.7	6.0
5	56.4	0.5	24.3	0.332	57.0	6.2	0.491	24.9	0.504	57.6	6.1
4	50.1	0.375	18.5	0.222	50.9	6.1	0.366	19.2	0.38	51.6	6.1
3	43.7	0.25	13.7	0.131	44.8	6.1	0.242	14.4	0.255	45.5	6.1
2	37.4	0.125	9.7	0.058	38.9	6.0	0.12	10.6	0.129	39.3	6.1
1	31.0	0.0	6.7	0.0	33.0	5.8	0.0	7.5	0.0	33.0	6.3

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

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

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