

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

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

$L^*_{taN}=24.8$, $L^*_{taU}=59.1$, $L^*_{taW}=95.1$, $Y_{taN}=4.3$, $Y_{taU}=27.2$, $Y_{taW}=88.0$, $C_{taY}=Y_{taW}:Y_{taN}=20.2$

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

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

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

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

$L^*_{CIE LAB}$ intended output real output linearized output
 n0. i L^*_{0a} L^*_{0r} Y_{0a} Y_{0r} L^*_{ta} ΔL^*_{ta} L^*_{tr} Y_{ta} $(L^*_{tr})^{1/1.03}$ L^*_{la} ΔL^*_{la}

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|-----|---|---|------|-------|------|-------|------|-----|-------|------|-------|------|-----|
| 100 | ○ | 9 | 96.0 | 1.0 | 90.0 | 1.0 | 95.1 | | 1.0 | 88.0 | 1.0 | 95.1 | |
| | ● | 8 | 86.8 | 0.875 | 69.6 | 0.763 | 86.1 | 9.0 | 0.871 | 68.2 | 0.875 | 86.4 | 8.7 |
| | ● | 7 | 77.6 | 0.75 | 52.5 | 0.566 | 77.1 | 9.0 | 0.743 | 51.7 | 0.751 | 77.6 | 8.8 |
| 75 | ● | 6 | 68.4 | 0.625 | 38.5 | 0.403 | 68.1 | 9.0 | 0.615 | 38.1 | 0.625 | 68.8 | 8.8 |
| | ● | 5 | 59.1 | 0.5 | 27.2 | 0.273 | 59.1 | 8.9 | 0.488 | 27.2 | 0.5 | 60.0 | 8.8 |
| 50 | ● | 4 | 49.9 | 0.375 | 18.4 | 0.171 | 50.3 | 8.9 | 0.362 | 18.6 | 0.374 | 51.2 | 8.8 |
| | ● | 3 | 40.7 | 0.25 | 11.7 | 0.094 | 41.5 | 8.7 | 0.237 | 12.2 | 0.249 | 42.3 | 8.8 |
| | ● | 2 | 31.5 | 0.125 | 6.9 | 0.038 | 33.0 | 8.5 | 0.116 | 7.5 | 0.125 | 33.6 | 8.8 |
| 25 | ● | 1 | 22.3 | 0.0 | 3.6 | 0.0 | 24.8 | 8.1 | 0.0 | 4.3 | 0.0 | 24.8 | 8.8 |

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

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

normalisation: $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$