

# Equal 9 step grey scaling between $L^*_{0aN}=18$ & $L^*_{0aW}=135.1$ , $Y_{0ref}=200$ , normalisation white W

$L^*_{0aN}=18.3$ ,  $L^*_{0aU}=76.7$ ,  $L^*_{0aW}=135.1$ ,  $Y_{0aN}=2.0$ ,  $Y_{0aU}=54.3$ ,  $Y_{0aW}=200.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=100.0$   
 $L^*_{taN}=100.4$ ,  $L^*_{taU}=111.0$ ,  $L^*_{taW}=135.1$ ,  $Y_{taN}=101.0$ ,  $Y_{taU}=127.1$ ,  $Y_{taW}=200.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=2.0$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{TUBsRGB,W} = 100 [Y/Y_n]^{1/\ln(10)}$  with  $Y \geq 0,39 = 100/255$ ,  $Y_n=100$   
 $g^*_5=99$ ,  $g^*_9=99$        $g^*_5=25$ ,  $g^*_9=17$        $g^*_5=38$ ,  $g^*_9=26$

n0. i	$L^*_{TUBsRGB,W}$ intended output				real output					linearized output	
	$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/2.75}$	$L^*_{la}$	$\Delta L^*_{la}$
9	135.1	1.0	200.0	1.0	135.1		1.0	200.0	1.0	135.1	
8	120.5	0.875	153.7	0.766	128.1	7.0	0.797	176.8	0.921	132.4	2.7
7	105.9	0.75	114.1	0.566	121.7	6.4	0.612	157.1	0.836	129.4	2.9
6	91.3	0.625	81.1	0.399	115.9	5.7	0.447	140.5	0.746	126.3	3.1
5	76.7	0.5	54.3	0.264	111.0	4.9	0.304	127.1	0.649	122.9	3.4
4	62.1	0.375	33.4	0.158	106.9	4.1	0.187	116.7	0.544	119.3	3.6
3	47.5	0.25	18.0	0.081	103.8	3.1	0.097	109.0	0.429	115.3	4.0
2	32.9	0.125	7.7	0.029	101.7	2.1	0.035	103.9	0.297	110.7	4.6
1	18.3	0.0	2.0	0.0	100.4	1.2	0.0	101.0	0.0	100.4	10.3

$\Delta L^*_{0a}=14.6$  (i=1,2,...,8)

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