

# Equal 9 step grey scaling between $L^*_{0aN}=23$ & $L^*_{0aW}=104.2$ , $Y_{0ref}=2$ , normalisation white W

$L^*_{0aN}=23.7$ ,  $L^*_{0aU}=64.0$ ,  $L^*_{0aW}=104.2$ ,  $Y_{0aN}=3.6$ ,  $Y_{0aU}=35.7$ ,  $Y_{0aW}=110.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=30.2$

$L^*_{taN}=28.5$ ,  $L^*_{taU}=65.0$ ,  $L^*_{taW}=104.2$ ,  $Y_{taN}=5.5$ ,  $Y_{taU}=37.1$ ,  $Y_{taW}=110.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=19.8$

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

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

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

$g^*_5=88$ ,  $g^*_9=84$

$g^*_5=85$ ,  $g^*_9=81$

$L^*_{TUBsRGB,W}$  intended output

real output

linearized output

n0. i	intended output				real output					linearized output	
	$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.13}$	$L^*_{la}$	$\Delta L^*_{la}$
9	104.2	1.0	110.0	1.0	104.2		1.0	110.0	1.0	104.2	
8	94.2	0.875	87.1	0.784	94.3	9.9	0.87	87.5	0.884	95.4	8.8
7	84.1	0.75	67.1	0.597	84.5	9.8	0.74	67.9	0.766	86.5	9.1
6	74.0	0.625	50.0	0.436	74.7	9.8	0.61	51.1	0.646	77.4	9.2
5	64.0	0.5	35.7	0.302	65.0	9.7	0.482	37.1	0.524	68.2	9.4
4	53.9	0.375	24.1	0.192	55.4	9.6	0.355	25.6	0.4	58.7	9.4
3	43.8	0.25	15.0	0.107	45.9	9.4	0.231	16.7	0.273	49.1	9.6
2	33.8	0.125	8.2	0.043	36.8	9.1	0.111	10.0	0.142	39.2	9.9
1	23.7	0.0	3.6	0.0	28.5	8.4	0.0	5.5	0.0	28.5	10.8

$\Delta L^*_{0a}=10.1$  (i=1,2,...,8)

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