

# Equal 9 step grey scaling between $L^*_{0aN}=-44.5$ and $L^*_{0aW}=44.5$ , $Y_{0ref}=0.9$ , normalisation white W

$L^*_{0aN}=-44.4$ ,  $L^*_{0aU}=0.0$ ,  $L^*_{0aW}=44.5$ ,  $Y_{0aN}=3.0$ ,  $Y_{0aU}=18.0$ ,  $Y_{0aW}=108.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=36.0$   
 $L^*_{taN}=-38.1$ ,  $L^*_{taU}=1.0$ ,  $L^*_{taW}=44.5$ ,  $Y_{taN}=3.9$ ,  $Y_{taU}=18.7$ ,  $Y_{taW}=108.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=27.9$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{TUBJND1} = 40 / \log(5) [\log ( Y/Y_u )]$  with  $Y_u=18$

$g^*_5=100$ ,  $g^*_9=100$

$g^*_5=84$ ,  $g^*_9=81$

$g^*_5=99$ ,  $g^*_9=97$

$L^*_{TUBJND1}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.07}$	$L^*_{la}$	$\Delta L^*_{la}$
50	9	44.5	1.0	108.0	1.0	44.5		1.0	108.0	1.0	44.5	
	8	33.4	0.875	69.0	0.629	33.5	11.0	0.867	69.3	0.875	34.2	10.3
25	7	22.3	0.75	44.1	0.391	22.6	10.9	0.734	44.6	0.75	23.9	10.3
	6	11.1	0.625	28.2	0.24	11.7	10.8	0.603	28.8	0.625	13.5	10.4
0	5	0.0	0.5	18.0	0.143	1.0	10.7	0.474	18.7	0.499	3.1	10.4
	4	-11.0	0.375	11.5	0.081	-9.4	10.5	0.347	12.3	0.374	-7.2	10.4
	3	-22.2	0.25	7.3	0.041	-19.5	10.1	0.225	8.2	0.25	-17.5	10.3
-25	2	-33.3	0.125	4.7	0.016	-29.2	9.6	0.108	5.5	0.126	-27.7	10.2
	1	-44.4	0.0	3.0	0.0	-38.1	9.0	0.0	3.9	0.0	-38.1	10.5

$\Delta L^*_{0a}=11.1$  (i=1,2,...,8)

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