

# Equal 9 step grey scaling between $L^*_{0aN}=-48.3$ and $L^*_{0aW}=48.3$ , $Y_{0ref}=126.0$ , normalisation grey U

$L^*_{0aN}=-48.3$ ,  $L^*_{0aU}=0.0$ ,  $L^*_{0aW}=48.4$ ,  $Y_{0aN}=2.6$ ,  $Y_{0aU}=18.0$ ,  $Y_{0aW}=126.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=49.0$

$L^*_{taN}=-2.7$ ,  $L^*_{taU}=0.0$ ,  $L^*_{taW}=13.9$ ,  $Y_{taN}=16.1$ ,  $Y_{taU}=18.0$ ,  $Y_{taW}=31.5$ ,  $C_{taY}=Y_{taW}:Y_{taN}=2.0$

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

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

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

$g^*_5 = 8$ ,  $g^*_9 = 5$

$g^*_5 = 67$ ,  $g^*_9 = 49$

$L^*_{TUBJND1}$	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/2.39}$	$L^*_{la}$	$\Delta L^*_{la}$
50	9	48.4	1.0	126.0	1.0	13.9		1.0	31.5	1.0	13.9	
	8						5.3					2.5
	7						3.9	0.682	25.4	0.852	11.4	2.3
25	6	24.2	0.75	47.6	0.365	4.6		0.446	21.7	0.713	9.1	2.1
	5						2.8					2.1
	4	12.1	0.625	29.3	0.216	1.9		0.28	19.4	0.587	7.0	1.9
	3						1.9					1.9
0	2	0.0	0.5	18.0	0.125	0.0		0.168	18.0	0.474	5.1	1.7
	1						1.2					1.7
	8	-12.0	0.375	11.1	0.069	-1.1		0.095	17.1	0.373	3.4	1.5
	7						0.8					1.5
-25	6	-24.1	0.25	6.8	0.034	-1.9		0.048	16.6	0.281	1.9	1.5
	5						0.5					1.5
	4	-36.2	0.125	4.2	0.013	-2.4		0.018	16.3	0.188	0.3	3.1
	3						0.3					3.1
-50	2	-48.3	0.0	2.6	0.0	-2.7		0.0	16.1	0.0	-2.7	
	1											

$\Delta L^*_{0a}=12.1$  (i=1,2,...,8)

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