

# Equal 9 step grey scaling between $L^*_{0aN}=-50.0$ and $L^*_{0aW}=50.0$ , $Y_{0ref}=90.0$ , normalisation grey U

$L^*_{0aN}=-49.9$ ,  $L^*_{0aU}=0.0$ ,  $L^*_{0aW}=50.0$ ,  $Y_{0aN}=3.6$ ,  $Y_{0aU}=18.0$ ,  $Y_{0aW}=90.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$

$L^*_{taN}=-4.4$ ,  $L^*_{taU}=0.0$ ,  $L^*_{taW}=15.9$ ,  $Y_{taN}=15.6$ ,  $Y_{taU}=18.0$ ,  $Y_{taW}=30.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=1.9$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{TUBLOG,Ua} = 50 / \log(5) [\log(Y/Y_u)]$  with  $Y_u=18$

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

$g^*_5 = 14$ ,  $g^*_9 = 10$

$g^*_5 = 71$ ,  $g^*_9 = 54$

$L^*_{TUBLOG,Ua}$  intended output      real output      linearized output

no. i	intended output				real output						linearized output	
	$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/2.06}$	$L^*_{la}$	$\Delta L^*_{la}$	
9	50.0	1.0	90.0	1.0	15.9		1.0	30.0	1.0	15.9		
8	37.5	0.875	60.2	0.655	10.2	5.6	0.723	25.0	0.854	12.9	2.9	
7	25.0	0.75	40.2	0.424	5.8	4.4	0.505	21.7	0.718	10.1	2.8	
6	12.5	0.625	26.9	0.27	2.5	3.3	0.34	19.5	0.592	7.6	2.5	
5	0.0	0.5	18.0	0.167	0.0	2.5	0.219	18.0	0.478	5.3	2.3	
4	-12.4	0.375	12.0	0.098	-1.7	1.8	0.132	17.0	0.374	3.1	2.1	
3	-24.9	0.25	8.0	0.051	-2.9	1.2	0.071	16.3	0.277	1.2	2.0	
2	-37.4	0.125	5.4	0.021	-3.8	0.8	0.029	15.9	0.179	-0.7	2.0	
1	-49.9	0.0	3.6	0.0	-4.4	0.6	0.0	15.6	0.0	-4.4	3.6	

$\Delta L^*_{0a}=12.5$  (i=1,2,...,8)

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