

# Equal 9 step grey scaling between $L^*_{0aN}=-50$ & $L^*_{0aW}=50.0$ , $Y_{0ref}=2$ , normalisation white W

$L^*_{0aN}=-49.9$ ,  $L^*_{0aU}=0.0$ ,  $L^*_{0aW}=50.0$ ,  $Y_{0aN}=4.0$ ,  $Y_{0aU}=20.0$ ,  $Y_{0aW}=100.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=25.0$   
 $L^*_{taN}=-37.9$ ,  $L^*_{taU}=2.3$ ,  $L^*_{taW}=50.0$ ,  $Y_{taN}=5.9$ ,  $Y_{taU}=21.6$ ,  $Y_{taW}=100.0$ ,  $C_{taY}=Y_{taW}:Y_{taN}=17.0$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{TUBLOG,Ua} = 50 / \log(5) [\log(Y/Y_u)]$  with  $Y_u=20$

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

$g^*_5 = 76$ ,  $g^*_9 = 72$

$g^*_5 = 98$ ,  $g^*_9 = 94$

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

real output

linearized output

50 25 0 -25 -50	n0. i	intended output				real output					linearized output	
		$L^*_{0a}$	$L^*_{0r}$	$Y_{0a}$	$Y_{0r}$	$L^*_{ta}$	$\Delta L^*_{ta}$	$L^*_{tr}$	$Y_{ta}$	$(L^*_{tr})^{1/1.12}$	$L^*_{la}$	$\Delta L^*_{la}$
	9	50.0	1.0	100.0	1.0	50.0		1.0	100.0	1.0	50.0	
	8	37.5	0.875	66.9	0.655	37.8	12.2	0.861	67.5	0.875	39.0	11.0
	7	25.0	0.75	44.7	0.424	25.7	12.0	0.724	45.8	0.75	28.0	11.0
	6	12.5	0.625	29.9	0.27	13.9	11.8	0.59	31.3	0.624	16.9	11.1
	5	0.0	0.5	20.0	0.167	2.3	11.5	0.458	21.6	0.498	5.8	11.0
	4	-12.4	0.375	13.4	0.098	-8.7	11.1	0.332	15.1	0.373	-5.0	11.0
	3	-24.9	0.25	8.9	0.051	-19.3	10.6	0.212	10.7	0.25	-15.9	10.8
	2	-37.4	0.125	6.0	0.021	-29.1	9.8	0.101	7.8	0.129	-26.6	10.7
	1	-49.9	0.0	4.0	0.0	-37.9	8.9	0.0	5.9	0.0	-37.9	11.3

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

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