

Equal 9 step grey scaling between $L^*_{0aN}=14.4$ and $L^*_{0aW}=95.9$, $Y_{0ref}=3.6$, normalisation white W

$L^*_{0aN}=14.4$, $L^*_{0aU}=55.2$, $L^*_{0aW}=96.0$, $Y_{0aN}=1.8$, $Y_{0aU}=23.1$, $Y_{0aW}=90.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=50.0$
 $L^*_{taN}=27.3$, $L^*_{taU}=57.7$, $L^*_{taW}=96.0$, $Y_{taN}=5.2$, $Y_{taU}=25.7$, $Y_{taW}=90.0$, $C_{taY}=Y_{taW}:Y_{taN}=17.3$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$, $L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$ with $Y \geq 0.882$, $Y_n=100$

L^*_{CIELAB} n0.i	intended output				real output				linearized output			
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.18}$	L^*_{la}	ΔL^*_{la}	
9	96.0	1.0	90.0	1.0	96.0	9.8	1.0	90.0	1.0	96.0	8.4	
8	85.8	0.875	67.6	0.746	86.2	9.7	0.858	68.4	0.878	87.6	8.5	
7	75.6	0.75	49.2	0.538	76.6	9.5	0.717	50.8	0.754	79.1	8.5	
6	65.4	0.625	34.5	0.371	67.0	9.3	0.579	36.7	0.628	70.4	8.6	
5	55.2	0.5	23.1	0.242	57.7	8.9	0.443	25.7	0.501	61.7	8.7	
4	45.0	0.375	14.5	0.144	48.8	8.3	0.313	17.4	0.373	52.9	8.7	
3	34.8	0.25	8.4	0.075	40.5	7.4	0.192	11.5	0.246	44.2	8.5	
2	24.6	0.125	4.3	0.028	33.1	5.8	0.085	7.6	0.123	35.7	8.4	
1	14.4	0.0	1.8	0.0	27.3		0.0	5.2	0.0	27.3		

$\Delta L^*_{0a}=10.2$ (i=1,2,...,8) normalisation: $Y_{taiW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$

eep60-3n

Equal 9 step grey scaling between $L^*_{0aN}=14.4$ and $L^*_{0aW}=95.9$, $Y_{0ref}=0.9$, normalisation white W

$L^*_{0aN}=14.4$, $L^*_{0aU}=55.2$, $L^*_{0aW}=96.0$, $Y_{0aN}=1.8$, $Y_{0aU}=23.1$, $Y_{0aW}=90.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=50.0$
 $L^*_{taN}=18.7$, $L^*_{taU}=55.9$, $L^*_{taW}=96.0$, $Y_{taN}=2.7$, $Y_{taU}=23.8$, $Y_{taW}=90.0$, $C_{taY}=Y_{taW}:Y_{taN}=33.6$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$, $L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$ with $Y \geq 0.882$, $Y_n=100$

L^*_{CIELAB} n0.i	intended output				real output				linearized output			
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.06}$	L^*_{la}	ΔL^*_{la}	
9	96.0	1.0	90.0	1.0	96.0	10.1	1.0	90.0	1.0	96.0	9.6	
8	85.8	0.875	67.6	0.746	85.9	10.0	0.869	67.8	0.876	86.4	9.6	
7	75.6	0.75	49.2	0.538	75.8	10.0	0.739	49.6	0.751	76.8	9.7	
6	65.4	0.625	34.5	0.371	65.8	9.9	0.61	35.1	0.626	67.1	9.7	
5	55.2	0.5	23.1	0.242	55.9	9.8	0.481	23.8	0.5	57.4	9.7	
4	45.0	0.375	14.5	0.144	46.0	9.6	0.354	15.3	0.374	47.6	9.7	
3	34.8	0.25	8.4	0.075	36.4	9.2	0.229	9.2	0.248	37.8	9.6	
2	24.6	0.125	4.3	0.028	27.1	8.4	0.109	5.1	0.123	28.2	9.5	
1	14.4	0.0	1.8	0.0	18.7		0.0	2.7	0.0	18.7		

$\Delta L^*_{0a}=10.2$ (i=1,2,...,8) normalisation: $Y_{taiW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$

eep61-3n

Equal 9 step grey scaling between $L^*_{0aN}=14.4$ and $L^*_{0aW}=95.9$, $Y_{0ref}=0.4$, normalisation white W

$L^*_{0aN}=14.4$, $L^*_{0aU}=55.2$, $L^*_{0aW}=96.0$, $Y_{0aN}=1.8$, $Y_{0aU}=23.1$, $Y_{0aW}=90.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=50.0$
 $L^*_{taN}=16.5$, $L^*_{taU}=55.5$, $L^*_{taW}=96.0$, $Y_{taN}=2.2$, $Y_{taU}=23.4$, $Y_{taW}=90.0$, $C_{taY}=Y_{taW}:Y_{taN}=41.1$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$, $L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$ with $Y \geq 0.882$, $Y_n=100$

L^*_{CIELAB} n0.i	intended output				real output				linearized output			
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.03}$	L^*_{la}	ΔL^*_{la}	
9	96.0	1.0	90.0	1.0	96.0	10.1	1.0	90.0	1.0	96.0	9.9	
8	85.8	0.875	67.6	0.746	85.8	10.1	0.872	67.7	0.875	86.1	9.9	
7	75.6	0.75	49.2	0.538	75.7	10.1	0.745	49.4	0.75	76.1	9.9	
6	65.4	0.625	34.5	0.371	65.6	10.1	0.618	34.8	0.625	66.2	10.0	
5	55.2	0.5	23.1	0.242	55.5	10.0	0.491	23.4	0.5	56.2	10.0	
4	45.0	0.375	14.5	0.144	45.5	9.9	0.365	14.9	0.374	46.2	10.0	
3	34.8	0.25	8.4	0.075	35.5	9.7	0.24	8.8	0.248	36.2	9.9	
2	24.6	0.125	4.3	0.028	25.8	9.3	0.117	4.7	0.124	26.3	9.8	
1	14.4	0.0	1.8	0.0	16.5		0.0	2.2	0.0	16.5		

$\Delta L^*_{0a}=10.2$ (i=1,2,...,8) normalisation: $Y_{taiW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$

eep60-7n

Equal 9 step grey scaling between $L^*_{0aN}=14.4$ and $L^*_{0aW}=95.9$, $Y_{0ref}=1.8$, normalisation white W

$L^*_{0aN}=14.4$, $L^*_{0aU}=55.2$, $L^*_{0aW}=96.0$, $Y_{0aN}=1.8$, $Y_{0aU}=23.1$, $Y_{0aW}=90.0$, $C_{0aY}=Y_{0aW}:Y_{0aN}=50.0$
 $L^*_{taN}=22.0$, $L^*_{taU}=56.5$, $L^*_{taW}=96.0$, $Y_{taN}=3.5$, $Y_{taU}=24.4$, $Y_{taW}=90.0$, $C_{taY}=Y_{taW}:Y_{taN}=25.5$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$, $L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$ with $Y \geq 0.882$, $Y_n=100$

L^*_{CIELAB} n0.i	intended output				real output				linearized output			
	L^*_{0a}	L^*_{0r}	Y_{0a}	Y_{0r}	L^*_{ta}	ΔL^*_{ta}	L^*_{tr}	Y_{ta}	$(L^*_{tr})^{1/1.1}$	L^*_{la}	ΔL^*_{la}	
9	96.0	1.0	90.0	1.0	96.0	10.0	1.0	90.0	1.0	96.0	9.1	
8	85.8	0.875	67.6	0.746	86.0	9.9	0.865	68.0	0.877	86.9	9.2	
7	75.6	0.75	49.2	0.538	76.1	9.8	0.731	50.0	0.753	77.7	9.3	
6	65.4	0.625	34.5	0.371	66.2	9.7	0.598	35.6	0.627	68.4	9.3	
5	55.2	0.5	23.1	0.242	56.5	9.5	0.466	24.4	0.501	59.1	9.4	
4	45.0	0.375	14.5	0.144	47.0	9.2	0.337	16.0	0.374	49.7	9.4	
3	34.8	0.25	8.4	0.075	37.8	8.5	0.213	10.0	0.247	40.3	9.2	
2	24.6	0.125	4.3	0.028	29.3	7.3	0.098	6.0	0.122	31.1	9.1	
1	14.4	0.0	1.8	0.0	22.0		0.0	3.5	0.0	22.0		

$\Delta L^*_{0a}=10.2$ (i=1,2,...,8) normalisation: $Y_{taiW}=Y_{0aW} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aW}+Y_{0ref}}$

eep61-7n

Test chart eep6; Equal 9 step grey scaling for four display reflections $Y_{ref}= 3,6, 0,4, 0,9, 1,8$, and black $L^*_{N,CIELAB}=14.4$, $Y_N=1.8$ and white $L^*_{W,CIELAB}=95.99$, $Y_W=90$, normalisation: white W

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 application for evaluation and measurement of display or print output
 TUB material: code=rh4ta