

Equal 9 step grey scaling between $L^*_{0aN}=8.1$ and $L^*_{0aW}=95.9$, $Y_{0ref}=3.6$, normalisation grey U

$L^*_{0aN}=8.1, L^*_{0aU}=52.1, L^*_{0aW}=96.0, Y_{0aN}=0.9, Y_{0aU}=20.2, Y_{0aW}=90.0, C_{0aY}=Y_{0aW}:Y_{0aN}=99.9$
 $L^*_{taN}=23.1, L^*_{taU}=52.1, L^*_{taW}=91.4, Y_{taN}=3.8, Y_{taU}=20.2, Y_{taW}=79.4, C_{taY}=Y_{taW}:Y_{taN}=20.8$

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}	$(L^*_{tr})^{1/1.25}$	L^*_{la}	ΔL^*_{la}	
100	9	96.0	1.0	90.0	1.0	91.4	10.1	1.0	79.4	1.0	91.4	8.2	
	8	85.0	0.875	66.0	0.731	81.3	10.0	0.852	59.1	0.88	83.2	8.2	
75	7	74.0	0.75	46.7	0.515	71.4	9.8	0.707	42.7	0.757	74.8	8.4	
	6	63.0	0.625	31.6	0.345	61.6	9.5	0.563	29.9	0.631	66.2	8.6	
50	5	52.1	0.5	20.2	0.217	52.1	9.0	0.424	20.2	0.502	57.4	8.8	
	4	41.1	0.375	11.9	0.124	43.0	8.2	0.292	13.2	0.372	48.5	8.9	
25	3	30.1	0.25	6.3	0.06	34.8	6.9	0.171	8.4	0.243	39.6	8.9	
	2	19.1	0.125	2.8	0.021	27.9	4.8	0.07	5.4	0.119	31.2	8.5	
0	1	8.1	0.0	0.9	0.0	23.1	0.0	0.0	3.8	0.0	23.1	8.1	

$\Delta L^*_{0a}=11.0$ (i=1,2,...,8) normalisation: $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$

eep50-3n

Equal 9 step grey scaling between $L^*_{0aN}=8.1$ and $L^*_{0aW}=95.9$, $Y_{0ref}=0.4$, normalisation grey U

$L^*_{0aN}=8.1, L^*_{0aU}=52.1, L^*_{0aW}=96.0, Y_{0aN}=0.9, Y_{0aU}=20.2, Y_{0aW}=90.0, C_{0aY}=Y_{0aW}:Y_{0aN}=99.9$
 $L^*_{taN}=11.1, L^*_{taU}=52.1, L^*_{taW}=95.4, Y_{taN}=1.3, Y_{taU}=20.2, Y_{taW}=88.6, C_{taY}=Y_{taW}:Y_{taN}=69.5$

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}	$(L^*_{tr})^{1/1.04}$	L^*_{la}	ΔL^*_{la}	
100	9	96.0	1.0	90.0	1.0	95.4	10.9	1.0	88.6	1.0	95.4	10.4	
	8	85.0	0.875	66.0	0.731	84.5	10.8	0.871	65.1	0.876	85.0	10.5	
75	7	74.0	0.75	46.7	0.515	73.7	10.8	0.742	46.2	0.752	74.5	10.5	
	6	63.0	0.625	31.6	0.345	62.9	10.8	0.614	31.4	0.627	63.9	10.5	
50	5	52.1	0.5	20.2	0.217	52.1	10.7	0.486	20.2	0.501	53.3	10.6	
	4	41.1	0.375	11.9	0.124	41.3	10.6	0.358	12.1	0.374	42.7	10.6	
25	3	30.1	0.25	6.3	0.06	30.7	10.6	0.233	6.5	0.248	32.0	10.7	
	2	19.1	0.125	2.8	0.021	20.5	10.3	0.111	3.1	0.122	21.4	10.6	
0	1	8.1	0.0	0.9	0.0	11.1	9.4	0.0	1.3	0.0	11.1	10.3	

$\Delta L^*_{0a}=11.0$ (i=1,2,...,8) normalisation: $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$

eep50-7n

Equal 9 step grey scaling between $L^*_{0aN}=8.1$ and $L^*_{0aW}=95.9$, $Y_{0ref}=0.9$, normalisation grey U

$L^*_{0aN}=8.1, L^*_{0aU}=52.1, L^*_{0aW}=96.0, Y_{0aN}=0.9, Y_{0aU}=20.2, Y_{0aW}=90.0, C_{0aY}=Y_{0aW}:Y_{0aN}=99.9$
 $L^*_{taN}=14.0, L^*_{taU}=52.1, L^*_{taW}=94.7, Y_{taN}=1.7, Y_{taU}=20.2, Y_{taW}=87.0, C_{taY}=Y_{taW}:Y_{taN}=50.5$

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}	$(L^*_{tr})^{1/1.09}$	L^*_{la}	ΔL^*_{la}	
100	9	96.0	1.0	90.0	1.0	94.7	10.7	1.0	87.0	1.0	94.7	9.9	
	8	85.0	0.875	66.0	0.731	84.0	10.7	0.867	64.1	0.877	84.8	10.0	
75	7	74.0	0.75	46.7	0.515	73.3	10.6	0.734	45.6	0.753	74.8	10.1	
	6	63.0	0.625	31.6	0.345	62.6	10.6	0.602	31.1	0.628	64.7	10.2	
50	5	52.1	0.5	20.2	0.217	52.1	10.4	0.472	20.2	0.502	54.5	10.2	
	4	41.1	0.375	11.9	0.124	41.6	10.1	0.343	12.3	0.374	44.2	10.3	
25	3	30.1	0.25	6.3	0.06	31.5	9.5	0.217	6.9	0.246	33.8	10.3	
	2	19.1	0.125	2.8	0.021	22.0	8.0	0.099	3.5	0.12	23.7	10.2	
0	1	8.1	0.0	0.9	0.0	14.0	0.0	0.0	1.7	0.0	14.0	9.7	

$\Delta L^*_{0a}=11.0$ (i=1,2,...,8) normalisation: $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$

eep51-3n

Equal 9 step grey scaling between $L^*_{0aN}=8.1$ and $L^*_{0aW}=95.9$, $Y_{0ref}=1.8$, normalisation grey U

$L^*_{0aN}=8.1, L^*_{0aU}=52.1, L^*_{0aW}=96.0, Y_{0aN}=0.9, Y_{0aU}=20.2, Y_{0aW}=90.0, C_{0aY}=Y_{0aW}:Y_{0aN}=99.9$
 $L^*_{taN}=17.8, L^*_{taU}=52.1, L^*_{taW}=93.6, Y_{taN}=2.5, Y_{taU}=20.2, Y_{taW}=84.3, C_{taY}=Y_{taW}:Y_{taN}=34.0$

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

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}], L^*_{CIELAB} = 116 [Y/Y_n]^{1/3} - 16$ 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}	$(L^*_{tr})^{1/1.15}$	L^*_{la}	ΔL^*_{la}	
100	9	96.0	1.0	90.0	1.0	93.6	10.5	1.0	84.3	1.0	93.6	9.2	
	8	85.0	0.875	66.0	0.731	83.1	10.4	0.861	62.3	0.878	84.4	9.3	
75	7	74.0	0.75	46.7	0.515	72.6	10.3	0.723	44.6	0.755	75.0	9.5	
	6	63.0	0.625	31.6	0.345	62.3	10.2	0.587	30.7	0.629	65.5	9.6	
50	5	52.1	0.5	20.2	0.217	52.1	9.9	0.452	20.2	0.502	55.9	9.8	
	4	41.1	0.375	11.9	0.124	42.1	9.4	0.321	12.6	0.373	46.1	9.8	
25	3	30.1	0.25	6.3	0.06	32.7	8.4	0.197	7.4	0.244	36.3	9.8	
	2	19.1	0.125	2.8	0.021	24.3	6.5	0.086	4.2	0.119	26.8	9.5	
0	1	8.1	0.0	0.9	0.0	17.8	0.0	0.0	2.5	0.0	17.8	9.0	

$\Delta L^*_{0a}=11.0$ (i=1,2,...,8) normalisation: $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$

eep51-7n

Test chart eep5; Equal 9 step grey scaling for four display reflections $Y_{ref}=3.6, 0.4, 0.9, 1.8$, and black $L^*_{N,CIELAB}=8.13, Y_N=0.9$ and white $L^*_{W,CIELAB}=95.99, Y_W=90$, normalisation: grey U

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