

CIE Y and lightness L* for surface colours and for emissive display colours

step	0	1	2	3	4	..	9	10	lighter samples
extrapolated surface-colour range									
$L_w^* = 100 (Y/100)^{1/2}$	extrapolated surface-colour range								lighter samples
L_w^*	0	10	20	30	40	..	90	100	150 200
extrapolated surface-colour range									
Y	0	1	4	9	16	..	81	100	lighter samples
Y_2			3,6	18	90				225 400
black real matte surface-colours white									
Y_3			1,8	18	180				225 400
black intended emissive colour display without reflection white									
Y_3			1,8	18	180				225 400
black emissive colour display with 3,6% reflection white									
Y_3			1,8	18	180				225 400
Y_3			4,5	18	153				190 303
$Y_3 = 18 (Y_3 + 3,6) / 21,6$									
$L_{CIE}^* = -116 (Y/100)^{1/3} - 16$ extrapolated surface-colour range									
L_{CIE}^*	0	8	14	22	23	35	46	49	57 92
extrapolated surface-colour range									
$L_{TUB}^* = -40 \log(Y/18) / \log 5$	extrapolated surface-colour range								lighter samples
L_{TUB}^*			-71	-57	-40	-37	-17	-2	0 8 37 40 42 57 62 77
extrapolated surface-colour range									
$50 + L_{TUB}^*$			-21	-7	10	12	32	47	50 58 87 90 92 107 112 127

CIE Y and lightness L* for surface colours and for emissive display colours

step	0	1	2	3	4	..	9	10	lighter samples
extrapolated surface-colour range									
$L_w^* = 100 (Y/100)^{1/2}$	extrapolated surface-colour range								lighter samples
L_w^*	0	10	20	30	40	..	90	100	150 200
extrapolated surface-colour range									
Y	0	1	4	9	16	..	81	100	lighter samples
Y_2			3,6	18	90				225 400
black real matte surface-colours white									
Y_3			1,8	18	180				225 400
black intended emissive colour display without reflection white									
Y_3			1,8	18	180				225 400
black emissive colour display with 3,6% reflection white									
Y_3			1,8	18	180				225 400
Y_3			4,5	18	153				190 303
$Y_3 = 18 (Y_3 + 3,6) / 21,6$									
$L_{CIE}^* = -116 (Y/100)^{1/3} - 16$ extrapolated surface-colour range									
L_{CIE}^*	0	8	14	22	23	35	46	49	57 92
extrapolated surface-colour range									
$L_{TUB}^* = -40 \log(Y/18) / \log 5$	extrapolated surface-colour range								lighter samples
L_{TUB}^*			-71	-57	-40	-37	-17	-2	0 8 37 40 42 57 62 77
extrapolated surface-colour range									
$50 + L_{TUB}^*$			-21	-7	10	12	32	47	50 58 87 90 92 107 112 127

CIE Y and lightness L* for surface colours and for emissive display colours

step	0	1	2	3	4	..	9	10	lighter samples
extrapolated surface-colour range									
$L_w^* = 100 (Y/100)^{1/2}$	extrapolated surface-colour range								lighter samples
L_w^*	0	10	20	30	40	..	90	100	150 190
extrapolated surface-colour range									
Y	0	1	4	9	16	..	81	100	lighter samples
Y_2			3,6	18	90				180 360
black real matte surface-colours white									
Y_3			1,8	18	180				180 360
black intended emissive display colours without reflection white									
Y_3			1,8	18	180				180 360
black emissive display colours with 3,6% reflection white									
Y_3			4,5	18	153				190 303
$Y_3 = 18 (Y_3 + 3,6) / 21,6$									
$L_{CIE}^* = -116 (Y/100)^{1/3} - 16$ extrapolated surface-colour range									
L_{CIE}^*	0	8	14	22	23	35	46	49	57 92
extrapolated surface-colour range									
$L_{TUB}^* = -40 \log(Y/18) / \log 5$	extrapolated surface-colour range								lighter samples
L_{TUB}^*			-71	-57	-40	-37	-17	-2	0 8 37 40 42 57 62 74
extrapolated surface-colour range									
$50 + L_{TUB}^*$			-21	-7	10	12	32	47	50 58 87 90 92 107 112 124

CIE Y and lightness L* for surface colours and for emissive display colours

step	0	1	2	3	4	..	9	10	lighter samples
extrapolated surface-colour range									
$L_w^* = 100 (Y/100)^{1/2}$	extrapolated surface-colour range								lighter samples
L_w^*	0	10	20	30	40	..	90	100	150 190
extrapolated surface-colour range									
Y	0	1	4	9	16	..	81	100	lighter samples
Y_2			3,6	18	90				180 360
black real matte surface-colours white									
Y_3			1,8	18	180				180 360
black intended emissive display colours without reflection white									
Y_3			1,8	18	180				180 360
black emissive display colours with 3,6% reflection white									
Y_3			4,5	18	153				190 303
$Y_3 = 18 (Y_3 + 3,6) / 21,6$									
$L_{CIE}^* = -116 (Y/100)^{1/3} - 16$ extrapolated surface-colour range									
L_{CIE}^*	0	8	14	22	23	35	46	49	57 92
extrapolated surface-colour range									
$L_{TUB}^* = -40 \log(Y/18) / \log 5$	extrapolated surface-colour range								lighter samples
L_{TUB}^*			-71	-57	-40	-37	-17	-2	0 8 37 40 42 57 57 74
extrapolated surface-colour range									
$50 + L_{TUB}^*$			-21	-7	10	12	32	47	50 58 87 90 92 107 107 124