

# Appendix A

## LIST OF SYMBOLS

Symbol	Description
$\otimes$	Convolution operator
$\alpha$	A channel of $L\alpha\beta$ color space
$\alpha$	The key of a scene
$\beta$	A channel of $L\alpha\beta$ color space
$\gamma$	Exponent used for gamma correction
$\sigma$	Semisaturation constant
$a$	Color opponent channel of $L^*a^*b^*$ color space; color opponent channel used in CIECAM02
$A$	CIE standard illuminant approximating incandescent light
$A$	Achromatic response, computed in CIECAM02
$b$	Color opponent channel of $L^*a^*b^*$ color space; color opponent channel used in CIECAM02
$B$	CIE standard illuminant approximating direct sunlight
$c$	Viewing condition parameter used in CIECAM02
$C$	CIE standard illuminant approximating indirect sunlight
$C$	Chroma
$C_{ab}^*$	Chroma, computed in $L^*a^*b^*$ color space
$C_{uv}^*$	Chroma, computed in $L^*u^*v^*$ color space

1	<b>Symbol</b>	<b>Description</b>	1
2	$D$	Density, computed as the log of luminance $L_v$	2
3	$D$	Degree of adaptation, used in CIECAM02	3
4	$D$	Degree of adaptation, used in CIECAM02	4
5	$D_{55}$	CIE standard illuminant with a correlated color temperature of 5503 Kelvin (K)	5
6	$D_{55}$	CIE standard illuminant with a correlated color temperature of 5503 Kelvin (K)	6
7	$D_{65}$	CIE standard illuminant with a correlated color temperature of 6504 Kelvin (K)	7
8	$D_{65}$	CIE standard illuminant with a correlated color temperature of 6504 Kelvin (K)	8
9	$D_{65}$	CIE standard illuminant with a correlated color temperature of 6504 Kelvin (K)	9
10	$D_{75}$	CIE standard illuminant with a correlated color temperature of 7504 Kelvin (K)	10
11	$D_{75}$	CIE standard illuminant with a correlated color temperature of 7504 Kelvin (K)	11
12	$\Delta E^*$ 1994	CIE color difference metric	12
13	$\Delta E^*_{ab}$	Color difference measured in $L^*a^*b^*$ color space	13
14	$\Delta E^*_{uv}$	Color difference measured in $L^*u^*v^*$ color space	14
15	$\Delta E^*_{uv}$	Color difference measured in $L^*u^*v^*$ color space	15
16	$e$	Eccentricity factor, used in CIECAM02	16
17	$E$	CIE equal-energy illuminant	17
18	$E_e$	Irradiance, measured in watts per square meter	18
19	$E_e$	Irradiance, measured in watts per square meter	19
20	$E_v$	Illuminance, measured in lumens per square meter	20
21	$F$	Viewing condition parameter used in CIECAM02	21
22	$F_2$	CIE standard illuminant approximating fluorescent light	22
23	$F_2$	CIE standard illuminant approximating fluorescent light	23
24	$F_L$	Factor modeling partial adaptation, computed using the adapting field luminance in CIECAM02	24
25	$F_L$	Factor modeling partial adaptation, computed using the adapting field luminance in CIECAM02	25
26	$h$	Hue angle as used in CIECAM02	26
27	$h_{ab}$	Hue, computed in $L^*a^*b^*$ color space	27
28	$h_{ab}$	Hue, computed in $L^*a^*b^*$ color space	28
29	$h_{uv}$	Hue, computed in $L^*u^*v^*$ color space	29
30	$H$	Appearance correlate for hue	30
31	$I$	Catch-all symbol used to indicate an arbitrary value	31
32	$I_e$	Radiant intensity, measured in watts per steradian	32
33	$I_e$	Radiant intensity, measured in watts per steradian	33
34	$I_v$	Luminous intensity, measured in lumens per steradian or candela	34
35	$I_v$	Luminous intensity, measured in lumens per steradian or candela	35

1	<b>Symbol</b>	<b>Description</b>	1
2	$J$	Appearance correlate for lightness	2
3	$L$	Luminance	3
4	$L_a$	Adapting field luminance	4
5	$L_D$	Display luminance	5
6	$L_e$	Radiance, measured in watts per steradian per square meter	6
7	$L_v$	Luminance, measured in candela per square meter	7
8	$L_w$	World or scene luminance (also $Y_w$ )	8
9	$L\alpha\beta$	Color opponent space	9
10	$LMS$	Color space approximating the output of cone photoreceptors	10
11	$L^*a^*b^*$	CIE color space, also known as CIELAB	11
12	$L^*u^*v^*$	CIE color space, also known as CIELUV	12
13	$M$	Appearance correlate for colorfulness	13
14	$M_{\text{Bradford}}$	Bradford chromatic adaptation transform	14
15	$M_{\text{CAT02}}$	CAT02 chromatic adaptation transform	15
16	$M_e$	Radiant exitance, measured in watts per square meter	16
17	$M_H$	Hunt–Pointer–Estevez transformation matrix	17
18	$M_{\text{von Kries}}$	von Kries chromatic adaptation transform	18
19	$M_v$	Luminous exitance, measure in lumen per square meter	19
20	$N_c$	Viewing condition parameter used in CIECAM02	20
21	$P_e$	Radiant power, measured in watts (W) or joules per second	21
22	$P_v$	Luminous power, measured in lumen (lm)	22
23	$Q$	Appearance correlate for brightness	23
24	$Q_e$	Radiant energy, measured in joules (J)	24
25	$Q_v$	Luminous energy, measured in lumens per second	25
26	$r$	Surface reflectance	26
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34			34
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1	<b>Symbol</b>	<b>Description</b>	1
2	$R$	Photoreceptor response	2
3	$RGB$	A generic red, green, and blue color space	3
4	$R_D G_D B_D$	Red, green, and blue values scaled within the displayable range	4
5	$R_W G_W B_W$	Red, green, and blue values referring to a world or scene color	5
6			6
7	$s$	Saturation parameter	7
8			8
9	$s$	Appearance correlate for saturation	9
10	$s_{uv}$	Saturation, computed in $L^*u^*v^*$ color space	10
11	$t$	Magnitude factor, used in CIECAM02	11
12	$T$	Correlated color temperature, measured in Kelvin (K)	12
13	$V(\lambda)$	CIE photopic luminous efficiency curve	13
14	$XYZ$	CIE-defined standard tristimulus values	14
15	$xyz$	Normalized XYZ tristimulus values	15
16	$Y$	Y component of an XYZ tristimulus value, indicating CIE luminance	16
17			17
18	$Y_W$	World or scene luminance (also $L_w$ )	18
19	$Y_b$	Relative background luminance	19
20	$Y C_B C_R$	Color opponent space used for the JPEG file format	20
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