



www.ps.bam.de/VE79/10L/L79E00FP.PS/.PDF; linearized output
F: Output Linearization (OL) data VE79/10L/L79E00FP.DAT in File (F)

) See for similar files: <http://www.ps.bam.de/V>
Technical information: <http://www.ps.bam.de/>

79/
Version 2.1, io=1,1; iORS; oORS, CIELAB

BAM registration: 20070101-VE79/10/L79E00FP.PS/.PDF
application for measurement of printer or monitor systems

BAM material: code=rha4ta

color valence metric (color data: linear relation to CIE 1931 data)		
linear color terms	name and relationship to CIE tristimulus or chromaticity values	notes:
luminous value	$Y = y (X + Y + Z)$	
saturation value	for linear saturation value diagram (S^*a , S^*b)	
red-green	$S_a = A / Y = X / Y - X_n / Y_n$ $= x / y - x_n / y_n = a - a_n$	$n=D65$ (backgr.)
yellow-blue	$S_b = B / Y = -0,4 [Z / Y - Z_n / Y_n]$ $= -0,4 [z / y - z_n / y_n] = b - b_n$	
radial	$S_{ab} = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	
chromaticity	for (linear) chromaticity diagram (a , b)	compare to linear
red-green	$a = X / Y = x / y$	cone excitation
yellow-blue	$b = -0,4 [Z / Y] = -0,4 [z / y]$	$\textcolor{red}{L}/(\textcolor{blue}{L}+\textcolor{green}{M})$
radial	$c_{ab} = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	$\textcolor{blue}{S}/(\textcolor{red}{L}+\textcolor{green}{M})$

VE790-3

Higher colorimetric (color data: nonlinear relation to CIE 1931 data)		
non linear color terms	name and relationship with tristimuluses or chromaticity values	notes:
lightness	$L^* = 116 \left(Y / 100 \right)^{1/3} - 16 \quad (Y > 0,8)$	CIELAB 1976
	Approximation: $L^* = 100 \left(Y / 100 \right)^{1/3}$	
saturation	= chroma / lightness	
red-green	$S_a^* = a^* / [100 \left(Y / 100 \right)^{1/3}]$ $= 21,6 (a' - a'_n)$	$n=D65$ (backgr.)
yellow-blue	$S_b^* = b^* / [100 \left(Y / 100 \right)^{1/3}]$ $= 21,6 (b' - b'_n)$	
radial	$S_c^* = 21,6 [(a' - a'_n)^2 + (b' - b'_n)^2]^{1/2}$	
excitation ?	nonlinear transform of chromaticities $a=x/y$ and $b=z/y$	
red-green	$a' = (1 / X_n)^{1/3} (x / y)^{1/3}$ $= 0,2191 (x / y)^{1/3}$ for D65	compare to log cone excitation
yellow-blue	$b' = - 0,4 (1 / Z_n)^{1/3} (z / y)^{1/3}$ $= - 0,08376 (z / y)^{1/3}$ for D65	log[L/(L+M)] log[S/(L+M)]
radial	$c'_{ab} = [(a' - a'_n)^2 + (b' - b'_n)^2]^{1/2}$	

VE791-3

color valence metric (color data: linear relation to CIE 1931 data)		
linear color terms	name and relationship to CIE tristimulus or chromaticity values	notes:
luminous value	$Y = y (X + Y + Z)$	
chromatic value	for linear chromatic value diagram (A, B)	
red-green	$A = [X / Y - X_n / Y_n] Y = [a - a_n] Y$	$n=D65$ (backgr.)
	$= [x / y - x_n / y_n] Y$	
yellow-blue	$B = -0,4 [Z / Y - Z_n / Y_n] Y = [b - b_n] Y$	
	$= -0,4 [z / y - z_n / y_n] Y$	
radial	$C_{ab} = [A^2 + B^2]^{1/2}$	
chromaticity	for (linear) chromaticity diagram (a, b)	compare to linear
red-green	$a = X / Y = x / y$	cone excitation
yellow-blue	$b = -0,4 [Z / Y] = -0,4 [z / y]$	$L / (L+M)$
radial	$c_{ab} = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	$S / (L+M)$

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Higher colorimetric (color data: nonlinear relation to CIE 1931 data)			
non linear color terms	name and relationship with tristimulus or chromaticity values	notes:	
lightness	$L^* = 116 \left(Y / 100 \right)^{1/3} - 16 \quad (Y > 0,8)$	<i>CIELAB 1976</i>	
	Approximation: $L^* = 100 \left(Y / 100 \right)^{1/2,4}$		
chroma	<i>non linear transform of chromatic values A and B</i>		
red-green	$a^* = 500 \left[\left(X / X_n \right)^{1/3} - \left(Y / Y_n \right)^{1/3} \right]$ $= 500 \left(a' - a'_n \right) Y^{1/3}$	<i>CIELAB 1976</i>	$n=D65$ (backgr.)
yellow-blue	$b^* = 200 \left[\left(Y / Y_n \right)^{1/3} - \left(Z / Z_n \right)^{1/3} \right]$ $= 500 \left(b' - b'_n \right) Y^{1/3}$	<i>CIELAB 1976</i>	
radial	$C^*_{ab} = [a^{*2} + b^{*2}]^{1/2}$		
excitation ?	<i>nonlinear transform of chromaticities a=x/y and b=z/y</i>		
red-green	$a' = \left(1 / X_n \right)^{1/3} \left(x / y \right)^{1/3}$ $= 0,2191 \left(x / y \right)^{1/3}$	<i>compare to log</i>	<i>cone excitation</i>
yellow-blue	$b' = -0,4 \left(1 / Z_n \right)^{1/3} \left(z / y \right)^{1/3}$ $= -0,08376 \left(z / y \right)^{1/3}$	<i>for D65</i>	$\log[L / (L+M)]$ $\log[S / (L+M)]$
radial	$c'_{ab} = [(a' - a'_n)^2 + (b' - b'_n)^2]^{1/2}$		

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BAM-test chart no. VE79; CIEXYZ – CIELAB – LMS Relations between CIE coordinates XYZ^*YAB – LAB^*Lab

input: *rgb* (->*olv**) *setrgbcolor*
output: *olv** *setrgbcolor* / *w** *setgray*